

PROCO™

SERIES

240/242

molded expansion joints



PROCO Series 240 and Series 242 Non-Metallic Expansion Joints are designed for tough demanding industrial applications as found in: Air Conditioning-Heating and Ventilating Systems, Chemical-Petrochemical and Industrial Process Piping Systems, Power Generating Systems, Marine Services, Pulp & Paper Systems, Water-Waste-water-Sewage and Pollution Control Systems. Installed next to mechanical equipment or between the anchor points of a piping system, specify the PROCO Series 240 or 242 to: (1) Absorb Pipe/Movement/Stress, (2) Reduce System Noise, (3) Isolate Vibration, (4) Compensate Alignment/Offset, (5) Eliminate Electrolysis, (6) Protect Against Start-Up/Surge Forces. Our history in the manufacturing of expansion joint products dates back to 1930. When you need an engineered rubber solution to a piping system problem, call PROCO.

Spherical Shapes-Stronger-More Efficient. Featuring an engineered molded style single or twin sphere designed bellows, the PROCO Series 240 and Series 242 are inherently stronger than the conventional hand-built Spool Type arch. Internal pressure within a sphere is exerted in all directions, distributing forces evenly over a larger area. The spherical design "flowing-arch" reduces turbulence, sediment buildup, thrust area and the effects of thrust on the piping system equipment when compared to the "high-arch" design of hand-built standard products.

Greater Movements Are Available with the PROCO Series 240 and Series 242 when compared to the movements of conventional hand-built products. Axial compression, elongation, deflection and angular movements in the system are more readily absorbed by spherical types. These products are more forgiving and can be compressed or extended to install in non-standard openings, caused by equipment shifting or settling (Pre-compressing/extending the expansion joints for installation, may result in reduced pressure, vacuum and movement capabilities of the expansion joints. See Tables 2 and 3.)

Easy Installation With Alignable Metallic Flanges. The floating metallic flanges freely rotate on the bellows, compensating for mating flange misalignment, thus speeding up installation time (see Figures 1, 2, 3 & 4). Gaskets are also not required with the Series 240 or Series 242, provided the expansion joints are mated against a flat face flange as required in the installation instructions.

Less System Strain With Thin Wall Design. Manufactured by high pressure molding of elastomer and high-tensile fabric reinforcement, the Series 240 and Series 242 have a thinner wall section and lighter weight when compared to conventional hand-built products. Lower spring forces are therefore required, reducing piping/flange/equipment stress-strain-damage. PROCO Styles 240-C and 240-A are acceptable for use with plastic piping systems where even lower deflection forces are required.

Specifications Met. The PROCO Series 240 and Series 242 are designed to meet or exceed the pressure, movement and dimensional rating of the Spool Type arch as shown in the Rubber Expansion Joint Division, Fluid Sealing Association "Technical Handbook - Sixth Edition" Tables IV & V.

Absorbs Vibration-Noise-Shock. The PROCO quiet operating Series 240 and Series 242 are a replacement for "sound transmitting" metallic expansion joints. Sound loses energy traveling axially through the elastomer bellows. Water hammer pumping impulses and water-borne noises are cushioned and absorbed by the molded lightweight thin-wall structure. Install the Series 240 or Series 242 in a system to enable isolated equipment to move freely on its vibration mountings; or to reduce vibration transmission when the piping section beyond the expansion joint is anchored or sufficiently rigid.

Flange Materials/Drilling. All PROCO Spherical 240 and 242 connectors are furnished complete with plated carbon steel flanges for corrosion protection. Series 240 and 242 Neoprene connectors — 12" and below — are tapped to ANSI 125/150# drilling. All other connectors come with standard drilled holes to the ANSI 125/150# standards (see Table 7 and Figures 3 & 4). Stainless steel flanges and other drilling standards such as: ANSI 250/300#, BS-10, DIN NP-10 and DIN NP-16 are also available from stock and are listed on Table 7. JIS-5K and JIS-10K are also available upon request.

Chemical Service Capability At Minimal Cost. Expensive, exotic metal expansion joints for chemical service can be replaced with the PROCO Series 240 or Series 242. Molded with low cost chemical resistant elastomers such as Neoprene, Nitrile, Hypalon®, EPDM and Chlorobutyl insures an expansion joint is compatible with the fluid being pumped or piped. (See Table 1 below). Use the PROCO "Chemical/Rubber Guide" to specify an elastomer recommendation compatible for your requirement.

Wide Service Range With Low Cost. Engineered to operate up to 300 PSIG and 265°F, the PROCO Series 240 and Series 242 can be specified for a wide range of piping requirements. Compared to conventional hand-built Spool Type arch, you will invest less money when specifying the mass-produced, consistent high quality, molded single or twin sphere expansion joints.

Large Inventories Mean Same-Day Shipment. PROCO maintains the largest inventory of spherical expansion joints in the Americas. Every size listed is in stock in several elastomers and comes with a choice of drilling patterns. Shipment is based on customer need. PROCO can ship same day as order placement. In fact, when it comes to rubber expansion joints, **if PROCO doesn't have your requirement...nobody does!**

Information • Ordering • Pricing • Delivery. Day or night, weekends and holidays... the PROCO phones are monitored 24 hours around the clock. When you have a question, you can call us.

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**Protecting Piping And
Equipment Systems
From Stress/Motion**

Table 1: Available Styles • Materials

For Specific Elastomer Recommendations, See:		PROCO™ "Chemical To Elastomer Guide"						
240-A	240-C	240-AV,D,E,M	242-A,B,C	PROCO™ Material Code ¹	Cover Elastomer ²	Tube Elastomer	Maximum Operating Temp. °F	Identifying Color Band/Label
	X	X	X	/BB	Chlorobutyl	Chlorobutyl	250°	Black
	X	X	X	/EE	EPDM	EPDM	250°	Red
	X			/EE-9	EPDM	EPDM	265°	Red
	X			/ET-9 ³	EPDM	Teflon®	265°	Red
	X			/HH	Hypalon®	Hypalon®	230°	Green
		X	X	/NH	Neoprene	Hypalon®	230°	Green
	X			/NJ	Neoprene	FDA-Nitrile	230°	White
		X	X	/NN	Neoprene	Neoprene	230°	Blue
X	X	X	X	/NP	Neoprene	Nitrile	230°	Yellow
X	X			/NT ³	Neoprene	Teflon®	230°	

NOTES: Hypalon® is a registered trademark of DuPont Dow Elastomers. Teflon® is a registered trademark of the DuPont Company.

- All elastomers include nylon reinforcing, except EE-9 which is steel cord. All materials meet or exceed the Rubber Expansion Joint Division, Fluid Sealing Association-REJ Division requirements for Standard Class I and II. EE-9 also meets Special Class II. For more information see The FSA Technical Handbook, Table 1. Materials NN, NP and NH meet all requirements of U.S.C.G. EPDM Materials good for up to 300°F for pressures 15 PSI or less.
- Expansion joint "cover" (outside) can be Hypalon® painted on special order.
- Products with Teflon® "tube" (inside) are not to be used for vacuum service.

series 240 single sphere expansion joints

Table 2: Sizes • Movements • Pressures • Flange Standards • Weights

NOMINAL PIPE	PROCO	240 Movement Capability: From Neutral Position ²						Pressure ⁴		Standard Flange Bolting Dimensions					Weight in lbs ⁸		
		Size I.D.	Neutral Length	Style Number ¹	Axial Compression Inches	Axial Extension Inches	Lateral Deflection Inches	Angular Deflection Degrees	Thrust ³ Factor	Positive ⁵ PSIG	Vacuum ⁶ Inches of Hg	Flange O.D. Inches	Bolt Circle Inches	Number of Holes	Size of Holes Inches	Bolt Hole ⁷ Thread	Exp. Joint & Flanges
1	240-AV	6.00	240-AV	0.500	0.375	0.500	37	4.43	225	26	4.25	3.13	4	0.500	1/2-13 UNC	3.8	3.3
1.25	240-D	3.74	240-D	0.312	0.188	0.312	17		235	26				0.500	—	4.6	
	240-C	5.00	240-C	1.063	1.250	1.188	45	6.34	225	21	4.63	3.5	4	0.500	—	5.0	3.3
	240-E	5.00	240-E	0.500	0.375	0.500	31		225	26				0.500	—	5.0	
	240-AV	6.00	240-AV	0.500	0.375	0.500	31		225	26				0.500	1/2-13 UNC	5.0	
1.5	240-D	3.74	240-D	0.375	0.188	0.312	14		225	26				0.500	—	5.4	
	240-M	4.00	240-M	0.375	0.188	0.312	14		225	26				0.500	—	5.5	
	240-C	5.00	240-C	1.063	1.250	1.188	45	6.49	235	18	5.0	3.88	4	0.500	—	5.1	4.6
	240-E	5.00	240-E	0.500	0.375	0.500	27		225	26				0.500	—	6.0	
	240-AV	6.00	240-AV	0.500	0.375	0.500	27		225	26				0.500	1/2-13 UNC	6.1	
2	240-M	4.00	240-M	0.375	0.188	0.312	11		225	26				0.625	—	8.3	6.3
	240-D	4.13	240-D	0.375	0.188	0.312	11		225	26				0.625	—	8.5	6.3
	240-C	5.00	240-C	1.063	1.250	1.188	45		235	18	6.0	4.75	4	0.625	—	7.1	6.3
	240-E	5.00	240-E	0.375	0.375	0.500	20		225	26				0.625	—	8.5	6.3
	240-A	6.00	240-A	1.188	1.188	1.188	45		235	18				0.625	—	7.1	6.3
	240-HW	6.00	240-HW	0.500	0.375	0.500	20		300	26				0.625	—	11.0	7.6
240-AV	6.00	240-AV	0.500	0.375	0.500	20		225	26				0.625	5/8-11 UNC	12.3	7.6	
2.5	240-M	4.00	240-M	0.375	1.188	0.375	8		225	26				0.625	—	12.0	
	240-D	4.53	240-D	0.500	0.250	0.375	11		225	26				0.625	—	12.3	
	240-C	5.00	240-C	1.063	1.250	1.188	45	11.05	235	18	7.0	5.5	4	0.625	—	10.6	7.6
	240-E	5.00	240-E	0.500	0.375	0.500	17		225	26				0.625	—	12.0	
	240-AV	6.00	240-AV	0.500	1.188	1.188	43		235	18				0.625	—	12.0	
3	240-C	5.00	240-C	1.063	1.250	1.188	40		235	15				0.625	—	13.3	8.3
	240-E	5.00	240-E	0.500	0.375	0.500	14		225	26				0.625	—	14.0	8.3
	240-D	5.14	240-D	0.500	0.375	0.500	14		225	26				0.625	—	14.0	8.3
	240-A	6.00	240-A	1.188	1.188	1.188	38	13.36	235	15	7.5	6.0	4	0.625	—	13.8	8.3
	240-HW	6.00	240-HW	0.500	0.375	0.500	14		300	26				0.625	—	17.5	8.3
	240-AV	8.00	240-AV	0.500	0.375	0.500	14		225	26				0.625	5/8-11 UNC	14.0	8.3
3.5	240-AV	6.00	240-AV	0.500	0.375	0.500	12	18.67	225	26	8.5	7.0	8	0.625	5/8-11 UNC	17.6	7.4
4	240-C	5.00	240-C	1.063	1.250	1.188	32		235	15				0.625	—	16.5	7.4
	240-E	5.00	240-E	0.750	0.500	0.500	14		225	26				0.625	—	17.0	7.4
	240-D	5.32	240-D	0.750	0.500	0.500	14		225	26				0.625	—	17.1	7.4
	240-A	6.00	240-A	1.188	1.188	1.188	30	22.69	235	15	9.0	7.5	8	0.625	—	17.5	7.4
	240-HW	6.00	240-HW	0.750	0.500	0.500	14		300	26				0.625	—	26.0	7.4
	240-AV	8.00	240-AV	0.750	0.500	0.500	14		225	26				0.625	5/8-11 UNC	18.3	7.4
5	240-C	5.00	240-C	1.063	1.250	1.188	27		235	10				0.750	—	20.3	8.3
	240-E	5.00	240-E	0.750	0.500	0.500	11		225	26				0.750	—	22.0	8.3
	240-A	6.00	240-A	1.188	1.188	1.188	25	30.02	235	10	10.0	8.5	8	0.750	—	21.8	8.3
	240-AV	6.00	240-AV	0.750	0.500	0.500	11		225	26				0.750	3/4-10 UNC	22.8	8.3
	240-D	6.69	240-D	0.750	0.500	0.500	11		225	10				0.750	—	23.6	8.5
240-AV	8.00	240-AV	0.750	0.500	0.500	11		225	26				0.750	3/4-10 UNC	25.0	10.8	
6	240-C	5.00	240-C	1.063	1.250	1.188	23		225	8				0.750	—	22.6	10.4
	240-E	5.00	240-E	0.750	0.500	0.500	9		225	26				0.750	—	26.0	10.4
	240-A	6.00	240-A	1.188	1.188	1.188	21		235	10				0.750	—	24.0	10.4
	240-HW	6.00	240-HW	0.750	0.500	0.500	9	41.28	300	26	11.0	9.5	8	0.750	—	39.0	10.4
	240-AV	6.00	240-AV	0.750	0.500	0.500	9		225	26				0.750	3/4-10 UNC	26.8	10.4
	240-D	7.09	240-D	0.750	0.500	0.500	9		225	26				0.750	—	29.0	10.6
240-AV	8.00	240-AV	0.750	0.500	0.500	9		225	26				0.750	3/4-10 UNC	29.1	10.8	
8	240-C	5.00	240-C	1.063	1.188	1.188	17		235	8				0.750	—	35.5	13.4
	240-E	5.00	240-E	0.750	0.500	0.500	7		225	26				0.750	—	40.0	13.4
	240-A	6.00	240-A	1.188	1.188	1.188	16	63.62	235	8	13.5	11.75	8	0.750	—	38.5	13.4
	240-HW	6.00	240-HW	0.750	0.500	0.500	7		300	26				0.750	—	70.0	13.4
	240-AV	8.00	240-AV	0.750	0.500	0.500	7		225	26				0.750	3/4-10 UNC	40.6	13.4
240-D	8.07	240-D	1.000	0.563	0.875	8		225	26				0.750	—	41.3	14.0	
10	240-C	5.00	240-C	1.063	1.188	1.188	14		235	6				0.875	—	49.3	21.0
	240-E	5.00	240-E	1.000	0.625	0.750	7		225	26				0.875	—	56.0	21.0
	240-A	8.00	240-A	1.188	1.188	1.188	13		235	6				0.875	—	53.6	21.3
	240-AV	8.00	240-AV	1.000	0.625	0.750	7		225	26				0.875	7/8-9 UNC	56.6	21.3
	240-HW	8.00	240-HW	1.000	0.625	0.750	7	103.87	225	26	16.0	14.25	12	0.875	—	57.0	22.0
	240-D	9.45	240-D	1.000	0.625	0.875	7		275	26				0.875	—	56.0	22.0
	240-AV	10.00	240-AV	1.000	0.625	0.750	7		225	26				0.875	7/8-9 UNC	58.5	22.0
12	240-C	5.00	240-C	1.063	1.250	1.188	12		235	6				0.875	—	73.4	26.5
	240-E	5.00	240-E	1.000	0.625	0.750	6		225	26				0.875	—	74.0	26.5
	240-A	8.00	240-A	1.188	1.188	1.188	11		235	6				0.875	—	80.0	27.0
	240-HW	8.00	240-HW	1.000	0.625	0.750	6	137.89	275	26	19.0	17.0	12	0.875	—	100.0	27.0
	240-AV	8.00	240-AV	1.000	0.625	0.750	6		225	26				0.875	7/8-9 UNC	83.0	27.0
	240-D	10.24	240-D	1.000	0.625	0.875	6		225	26				0.875	—	88.0	27.0
14	240-AV	8.00	240-AV	1.000	0.625	0.750	5	182.65	200	26	21.0	18.75	12	1.000	—	162.0	28.0
16	240-C	8.00	240-C	1.000	1.063	1.188	8		145	6				1.000	—	136.0	2

series 242 twin sphere expansion joints

Table 3: Sizes • Movements • Pressures • Flange Standards • Weights

NOMINAL PIPE	Neutral Length	PROCO Style Number ¹	242 Movement Capability: From Neutral Position ²					Pressure ⁴		Standard Flange Bolting Dimensions					Weight in lbs ⁸	
			Axial Compression Inches	Axial Extension Inches	Lateral Deflection Inches	Angular Deflection Degrees	Thrust ³ Factor	Positive ⁵ PSIG	Vacuum ⁶ Inches of Hg	Flange O.D. Inches	Bolt Circle Inches	Number of Holes	Size of Holes Inches	Bolt Hole ⁷ Thread	Exp. Joint & Flanges	Control Unit Set (2 Rod)
1	10.00	242-C	2.000	1.188	1.750	45	4.43	225	26	4.25	3.13	4	0.500	—	5.2	3.6
1.25	7.0	242-A	2.000	1.188	1.750	45	6.34	225	26	4.63	3.5	4	0.500	1/2-13 UNC	5.3	3.5
	7.0	242-HA											—	—	6.5	3.5
	10.00	242-C											—	—	6.2	3.6
1.5	6.00	242-B	2.000	1.188	1.750	45	6.49	225	26	5.0	3.88	4	0.500	—	6.1	4.6
	6.00	242-HB											0.500	—	7.6	4.6
	7.00	242-A											0.500	1/2-11 UNC	6.8	4.8
	7.00	242-HA											0.500	—	8.3	4.8
10.00	242-C	0.500	—	7.7	5.1											
2	6.00	242-B	2.000	1.188	1.750	45	7.07	225	26	6.0	4.75	4	0.625	—	9.0	6.6
	6.00	242-HB											0.625	—	10.5	6.6
	7.00	242-A											0.625	5/8-11 UNC	9.0	7.0
	7.00	242-HA											0.625	—	10.5	7.0
10.00	242-C	0.625	—	10.2	7.3											
2.5	6.00	242-B	2.000	1.188	1.750	43	11.05	225	26	7.0	5.5	4	0.625	—	12.9	7.6
	6.00	242-HB											0.625	—	15.3	7.6
	7.00	242-A											0.625	5/8-11 UNC	13.3	8.0
	7.00	242-HA											0.625	—	15.8	8.0
10.00	242-C	0.625	—	14.5	8.4											
3	7.00	242-A	2.000	1.188	1.750	38	13.36	225	26	7.5	6.0	4	0.625	5/8-11 UNC	14.3	8.6
	7.00	242-HA											0.625	—	18.2	8.6
	9.00	242-B											0.625	—	15.2	9.0
	10.00	242-C											0.625	—	15.8	9.1
12.00	242-C	0.625	—	16.0	9.9											
3.5	10.00	242-C	2.000	1.188	1.750	34	18.67	225	26	8.5	7.0	8	0.625	—	20.6	8.1
4	9.00	242-A	2.000	1.375	1.562	34	22.69	225	26	9.0	7.5	8	0.625	5/8-11 UNC	20.3	8.0
	9.00	242-HA											0.750	—	26.4	8.0
	10.00	242-C											0.750	—	21.3	8.2
	12.00	242-C											0.750	3/4-10 UNC	22.0	8.2
5	9.00	242-A	2.000	1.375	1.562	29	30.02	225	26	10.0	8.5	8	0.750	—	24.5	8.3
	9.00	242-HA											0.750	—	31.4	8.3
	10.00	242-C											0.750	—	25.5	9.1
	12.00	242-C											0.750	—	26.0	9.1
6	9.00	242-A	2.000	1.375	1.562	25	41.28	225	26	11.0	9.5	8	0.750	3/4-10 UNC	29.5	11.7
	9.00	242-HA											0.750	—	38.6	11.7
	10.00	242-C											0.750	—	30.5	11.9
	12.00	242-C											0.750	—	31.0	12.0
14.00	242-C	0.750	—	32.0	12.0											
8	9.00	242-B	2.375	1.375	1.375	19	63.62	225	26	13.5	11.75	8	0.750	—	42.3	14.5
	9.00	242-HB											0.750	—	55.4	14.5
	10.00	242-C											0.750	—	43.4	15.0
	12.00	242-C											0.750	—	44.0	15.2
	13.00	242-A											0.750	3/4-10 UNC	43.8	15.4
	13.00	242-HA											0.750	—	57.5	15.4
14.00	242-C	0.750	—	46.0	16.0											
10	12.00	242-B	2.375	1.375	1.375	15	103.87	225	26	16.0	14.25	12	0.875	—	64.1	23.5
	12.00	242-HB											0.875	—	86.5	23.5
	13.00	242-A											0.875	7/8-9 UNC	65.5	24.5
	13.00	242-HA											0.875	—	88.4	24.5
	14.00	242-C											0.875	—	66.7	24.5
12	12.00	242-B	2.375	1.375	1.375	13	137.89	225	26	19.0	17.00	12	0.875	—	94.0	30.0
	12.00	242-HB											0.875	—	110.0	30.0
	13.00	242-A											0.875	7/8-9 UNC	95.0	31.0
	13.00	242-HA											0.875	—	110.0	31.0
14.00	242-C	0.875	—	99.1	31.0											
14	12.00	242-C	1.750	1.118	1.118	9	182.65	150	26	19.0	18.75	12	1.000	—	110.0	30.5
	13.75	242-A											1.000	—	112.0	32.0
	13.75	242-HA											1.000	—	144.0	32.0
16	12.00	242-C	1.750	1.118	1.118	8	240.53	125	26	23.5	21.25	16	1.000	—	124.0	28.8
	12.00	242-HC											1.000	—	160.0	28.8
	13.75	242-A											1.000	—	132.0	30.8
	13.75	242-HA											1.000	—	170.2	30.8
18	12.00	242-C	1.750	1.118	1.118	7	298.65	125	26	25.0	22.75	16	1.125	—	138.0	35.1
	13.75	242-A											1.125	—	146.0	36.1
	13.75	242-HA											1.125	—	181.2	36.1
20	12.00	242-C	1.750	1.118	1.118	7	363.05	125	26	27.5	25.0	20	1.125	—	172.0	35.0
	13.75	242-A											1.125	—	182.0	35.5
	13.75	242-HA											1.125	—	182.0	35.5
22	12.00	242-C	1.750	1.118	1.118	6	433.74	115	26	29.5	27.25	20	1.125	—	181.0	35.5
	12.00	242-C											1.125	—	181.0	35.5
24	12.00	242-C	1.750	1.118	1.118	5	510.70	110	26	32.5	29.5	20	1.125	—	190.0	47.0
	13.75	242-A											1.125	—	220.0	48.0
	13.75	242-HA											1.125	—	266.2	48.0
26	12.00	242-C	1.750	1.118	1.118	5	593.96	110	26	34.25	31.75	24	1.125	—	243.0	52.0
	12.00	242-C											1.125	—	243.0	52.0
30	12.00	242-C	1.750	1.118	1.118	4	779.31	110	26	38.75	36.0	28	1.125	—	270.0	62.0

Standard PROCO Style 242-A Expansion Joints shown in Bold Type are considered Standards and inventoried in large quantities.

- NOTES: 1. "HA", "HB", and "HC" denote Heavy Weight Construction.
 2. Movements stated are non-concurrent.
 3. To determine End Thrust: Multiply Thrust Factor by Operating Pressure of System. This is End Thrust in pounds.
 4. Pressure rating is based on 170°F operating temperature. The pressure rating is reduced slightly at higher temperatures.
 5. Pressures shown are maximum "operating pressure." Test pressure is 1.5 times "operating pressure." Burst pressure is approximately 4 times "operating pressure."
 6. Vacuum rating is based on neutral installed length, without external load. Products should not be installed "extended" on vacuum applications.
 7. Style 240-AV/NN (Neoprene elastomer only) expansion joints 1.25" I.D. - 12.0" I.D. come with tapped holes in lieu of drilled holes.
 8. All expansion joints are furnished complete with flanges. Control units are required on applications where movements could exceed rated capabilities.

Installation Note:
 Install at the neutral length dimension as shown in Tables 2 & 3. Make sure the mating flanges are **FLAT-FACE TYPE**. When attaching beaded end flanged expansion joints to raised face flanges, the use of ring gaskets are required to prevent metal flange faces from cutting rubber bead during installation. **Care must be taken when pushing the joint into the breach between the mating flanges so as not to roll the leading edge of the joint out of its flange groove.**

Precompression Note:
 Joint must be precompressed approximately 1/8" to 3/16" in order to obtain a correct installed face-to-face dimension.



control units



Table 4: Control Units/Unanchored

Control Units must be installed when pressures (test • design • surge • operating) exceed rating below:

Pipe Size	Series 240 P.S.I.G.	Series 242 P.S.I.G.
1" thru 4"	180	135
5" thru 10"	135	135
12" thru 14"	90	90
16" thru 24"	45	45
26" thru 30"	35	35

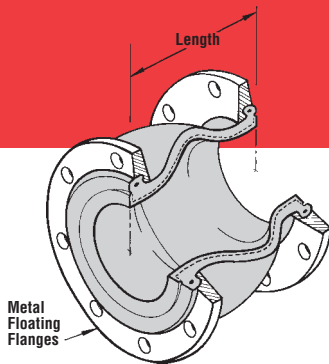


Figure 1.
Style 240
Single Sphere Connector

Table 5: Control Units

Control Rod Plate O.D. (in)	Control Rod Plate Thickness (in)	Rod Diameter ² (in)	Nominal Pipe Size (in)	Maximum Surge or Test Pressure of System/PSIG ³		
				2	3	4
8.375	0.375	0.625	1	949	—	—
8.750	0.375	0.625	1.25	830	—	—
9.125	0.375	0.625	1.5	510	—	—
10.125	0.375	0.625	2	661	—	—
11.125	0.375	1.000	2.5	529	—	—
11.625	0.375	1.000	3	441	—	—
12.625	0.375	1.000	3.5	365	547	729
13.125	0.375	1.000	4	311	467	622
14.125	0.500	1.000	5	235	353	470
15.125	0.500	1.000	6	186	278	371
19.125	0.500	1.000	8	163	244	326
21.625	0.750	1.000	10	163	244	325
24.625	0.750	1.000	12	160	240	320
26.625	0.750	1.000	14	112	167	223
30.125	0.750	1.250	16	113	170	227
31.625	0.750	1.250	18	94	141	187
34.125	0.750	1.250	20	79	118	158
36.125	1.000	1.250	22	85	128	171
38.625	1.000	1.250	24	74	110	147
40.825	1.000	1.250	26	62	93	124
44.125	1.250	1.500	28	65	98	130
46.375	1.250	1.500	30	70	105	141

NOTES: 1. Control Rod Plate O.D. installed dimension is based on a maximum O.D. PROCO would supply. (See Figures 3 & 4)
2. Control Rod diameter is based on a maximum diameter PROCO would use to design a Control Rod.
3. Rod pressure ratings are based on metal conforming to F.S.A. standards and dimensions.

Table 6: Special Construction Pressures

Pipe Size	Series 240 & 242 Heavyweight P.S.I.G.
1" thru 8"	300
10" thru 12"	275
14"	200
16" thru 20"	175
22" thru 30"	160

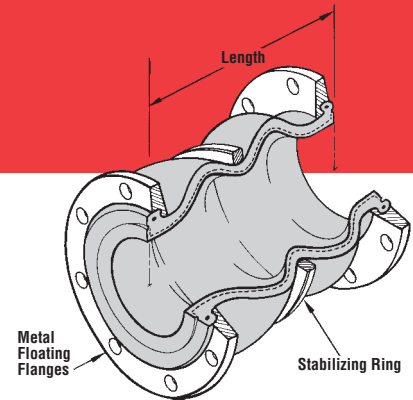
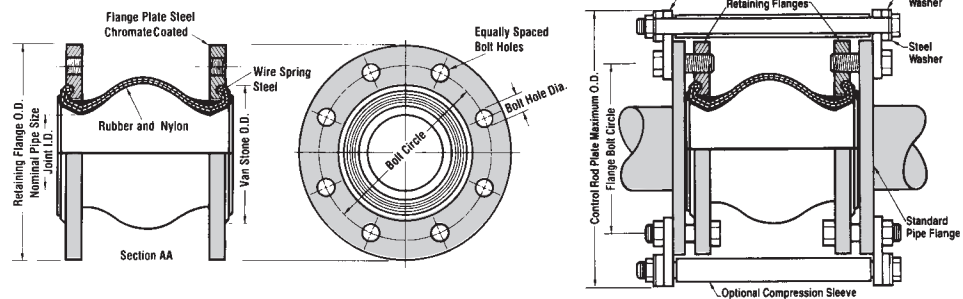


Figure 2.
Style 242
Twin Sphere Connector

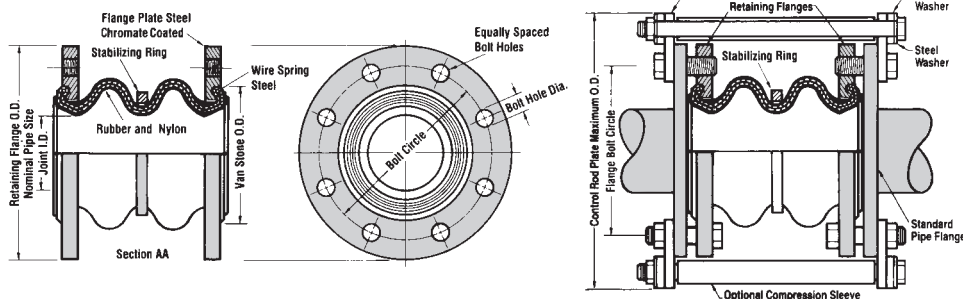
Style 240 Single Sphere Connector

Figure 3.



Style 242 Twin Sphere Connector

Figure 4.



Control Rod/Unit Applications. Control unit assemblies are designed to absorb static pressure thrust developed at the expansion joint. When used in this manner, control unit assemblies are an additional safety factor, minimizing possible failure of the expansion joint or damage to equipment. (See Tables 4 & 5).

- Anchored Systems:** Control unit assemblies are not required in piping systems that are anchored on both sides of the expansion joint, provided piping movements are within the rated movements as shown in Tables 2 & 3.
- Unanchored Systems:** Control unit assemblies are always required in unanchored systems. Additionally, control unit assemblies must be used when maximum pressure exceeds the limits shown in Table 4 & 5, or the movement exceeds the rated movements as shown in Tables 2 & 3.

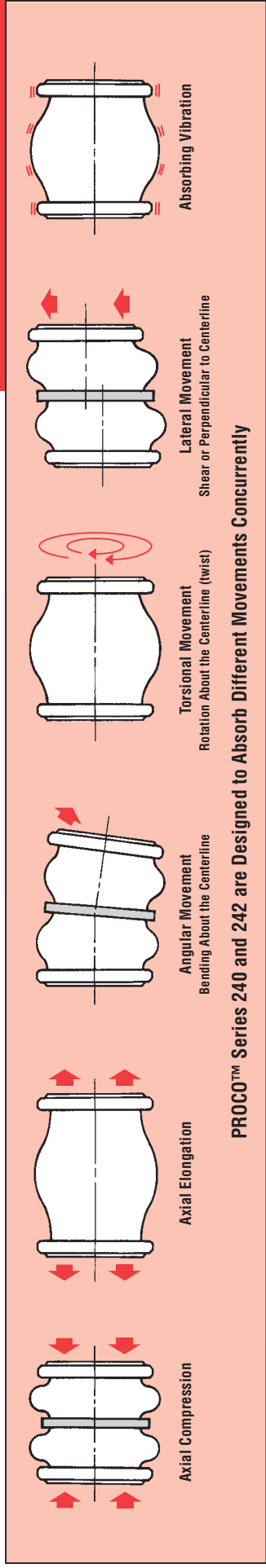
- Spring-Mounted Equipment:** Control unit assemblies are always recommended for spring-mounted equipment. Additionally, control unit assemblies must be used when maximum pressure exceeds the limits shown in Tables 4 & 5, or the movement exceeds the rated movements as shown in Tables 2 & 3.

Special Applications. Certain Style 240 (Single Sphere) and 242 (Twin Sphere) expansion joints are available in High-Pressure Designs. For specific pressures, see Table 6. Style designations are listed as 240-HW (sizes stocked in Table 2) and 242-HA, 242-HB & 242-HC (sizes stocked in Table 3.) The High-Pressure Design is recommended when the connector is to be installed into ANSI 250/300# piping systems.

drilling for series 240 and series 242 expansion joints

Table 7: Flange Drilling

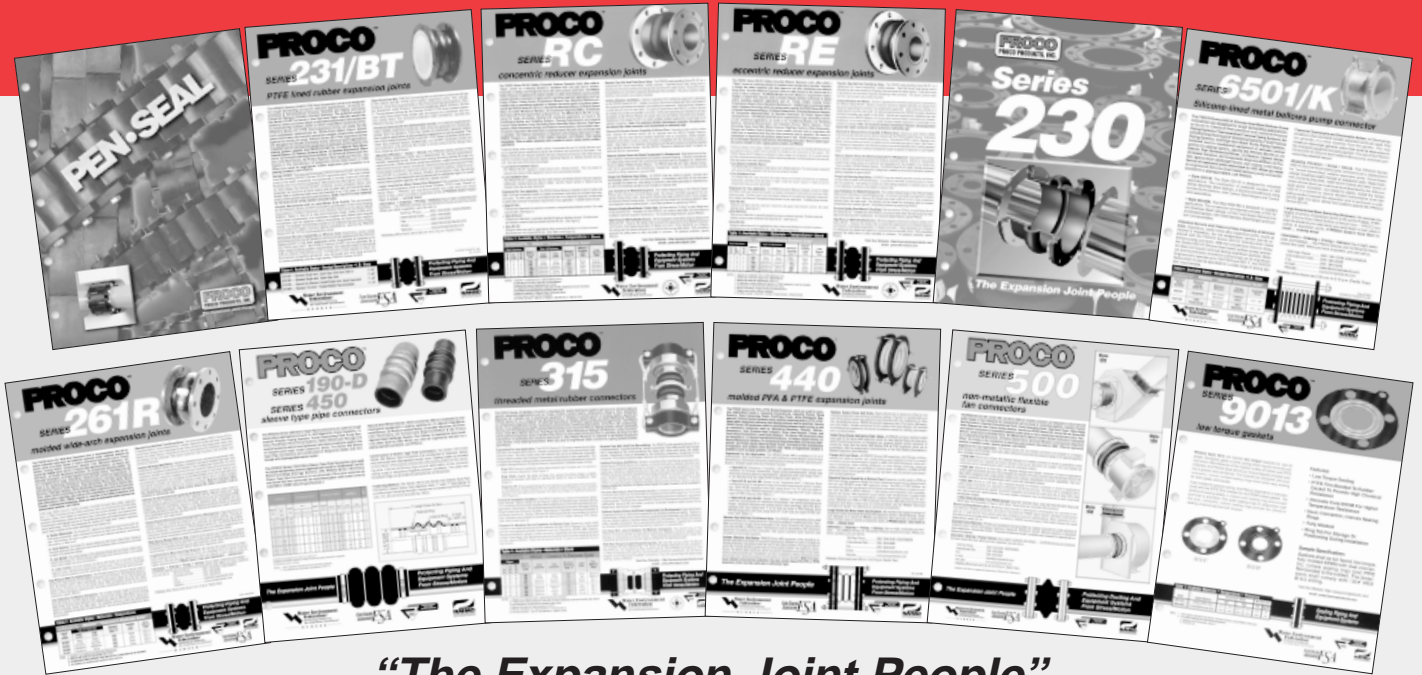
NOMINAL PIPE SIZE Inch/ mm	American 125/150# Conforms to ANSI B16.1 and B16.5				American 25/300# Conforms to ANSI B16.1 and B16.5				British Standard 10:1902 Conforms to BS 10 Table E				Metric Series Conforms to I.S.O. 2084-1974 Table NP10 Holes to I.S.O. /R-273				Metric Series Conforms to I.S.O. 2084-1974 Table NP16 Holes to I.S.O. /R-273									
	Flange Thickness	Flange O.D.	Bolt Circle	No. of Holes	Drilled Hole Size	Threaded Hole Size	Flange Thickness	Flange O.D.	Bolt Circle	No. of Holes	Hole Size	Flange Thickness	Flange O.D.	Bolt Circle	No. of Holes	Flange Thickness	Flange O.D.	Bolt Circle	No. of Holes	Hole Size	Flange Thickness	Flange O.D.	Bolt Circle	No. of Holes	Hole Size	
1	0.55	4.25	3.13	4	0.62	1/2 - 13 UNC	0.63	4.88	3.5	4	0.75	0.59	4.5	3.25	4	0.62	4.53	3.35	4	0.65	0.63	4.53	3.35	4	0.55	
25	1.40	108.0	79.4	4	15.9	1/2 - 13 UNC	16.0	124.0	88.9	4	19.1	15.0	114.0	82.6	4	15.9	115.0	85.0	4	14.0	16.0	115.0	85.0	4	14.0	
1.25	0.55	4.63	3.5	4	0.62	1/2 - 13 UNC	0.63	5.25	3.88	4	0.75	0.59	4.75	3.44	4	0.62	5.51	3.94	4	0.71	0.63	5.51	3.94	4	0.71	
32	1.40	118.0	88.9	4	15.9	1/2 - 13 UNC	16.0	133.0	98.4	4	19.1	15.0	121.0	87.3	4	15.9	140.0	85.0	4	18.0	16.0	140.0	100.0	4	18.0	
1.5	0.55	5.0	3.88	4	0.62	1/2 - 13 UNC	0.63	6.12	4.50	4	0.88	0.59	5.25	3.88	4	0.62	6.91	4.33	4	0.71	0.63	6.91	4.33	4	0.71	
40	1.40	127.0	98.4	4	15.9	1/2 - 13 UNC	16.0	156.0	114.3	4	22.2	15.0	133.0	98.4	4	15.9	150.0	110.0	4	18.0	16.0	150.0	110.0	4	18.0	
2	0.63	6.0	4.75	4	0.75	5/8 - 11 UNC	0.71	6.50	5.00	8	0.75	0.63	6.0	4.5	4	0.75	7.29	4.92	4	0.71	0.71	7.29	4.92	4	0.71	
50	1.60	152.0	120.7	4	19.1	5/8 - 11 UNC	18.0	165.0	127.0	8	19.1	16.0	152.0	114.3	4	19.1	165.0	125.0	4	18.0	18.0	165.0	125.0	4	18.0	
2.5	0.71	7.0	5.5	4	0.75	5/8 - 11 UNC	0.71	7.5	5.88	8	0.88	0.71	7.5	5.0	4	0.75	8.28	5.71	4	0.71	0.71	8.28	5.71	4	0.71	
65	1.80	178.0	139.7	4	19.1	5/8 - 11 UNC	18.0	191.0	149.2	8	22.2	18.0	165.0	127.0	4	19.1	185.0	145.0	4	18.0	18.0	185.0	145.0	4	18.0	
3	0.71	7.5	6.0	4	0.75	5/8 - 11 UNC	0.79	8.25	6.62	8	0.88	0.71	8.0	6.5	8	0.75	9.07	6.3	8	0.71	0.79	9.07	6.3	8	0.71	
80	1.80	191.0	152.4	4	19.1	5/8 - 11 UNC	20.0	210.0	168.2	8	22.2	18.0	184.0	146.1	4	19.1	200.0	160.0	8	18.0	20.0	200.0	160.0	8	18.0	
90	0.71	8.5	7.0	8	0.75	5/8 - 11 UNC	0.79	9.0	7.25	8	0.88	0.71	8.0	6.5	8	0.75	10.00	7.09	8	0.71	0.79	10.00	7.09	8	0.71	
4	0.71	9.0	7.5	8	0.75	5/8 - 11 UNC	0.79	10.0	7.88	8	0.88	0.71	8.5	7.0	8	0.75	11.00	8.66	8	0.71	0.79	11.00	8.66	8	0.71	
100	1.80	228.0	190.5	8	19.1	5/8 - 11 UNC	20.0	254.0	200.0	8	22.2	18.0	216.0	177.8	8	19.1	220.0	180.0	8	18.0	20.0	220.0	180.0	8	18.0	
5	0.79	10.0	8.5	8	0.88	3/4 - 10 UNC	0.87	11.0	9.25	8	0.88	0.79	10.0	8.25	8	0.75	12.00	9.84	8	0.71	0.87	12.00	9.84	8	0.71	
125	2.00	254.0	215.9	8	22.2	3/4 - 10 UNC	22.0	279.0	235.0	8	22.2	20.0	254.0	209.6	8	19.1	250.0	210.0	8	18.0	22.0	250.0	210.0	8	18.0	
6	0.87	11.0	9.5	8	0.88	3/4 - 10 UNC	0.87	12.5	10.62	12	0.88	0.87	11.0	9.25	8	0.88	13.00	10.62	8	0.87	0.87	13.00	10.62	8	0.87	
150	2.20	279.0	241.3	8	22.2	3/4 - 10 UNC	22.2	318.0	269.9	12	22.2	22.2	279.0	235.0	8	22.2	285.0	240.0	8	22.0	22.0	285.0	240.0	8	22.0	
8	0.87	13.5	11.75	8	0.88	3/4 - 10 UNC	0.95	15.0	13.0	12	1.00	0.87	13.25	11.5	8	0.88	16.00	13.39	11.61	8	0.87	16.00	13.39	11.61	8	0.87
200	2.20	343.0	299.5	8	22.2	3/4 - 10 UNC	24.0	381.0	330.2	12	25.4	22.2	337.0	292.1	8	22.2	340.0	295.0	8	22.0	22.0	340.0	295.0	12	22.0	
10	0.95	16.0	14.25	12	1.00	7/8 - 9 UNC	1.02	17.5	15.25	16	1.13	0.95	16.0	14.0	12	0.88	18.00	15.55	13.78	12	1.02	18.00	15.55	13.78	12	1.02
250	2.40	406.0	362.0	12	25.4	7/8 - 9 UNC	26.0	445.0	387.4	16	28.6	24.0	406.0	355.6	12	22.2	400.0	350.0	12	22.0	26.0	400.0	350.0	12	26.0	
12	0.95	19.0	17.0	12	1.00	7/8 - 9 UNC	1.02	20.5	17.75	16	1.25	0.95	18.0	16.0	12	1.00	21.00	17.52	15.75	12	1.02	21.00	17.52	15.75	12	1.02
300	2.40	483.0	431.8	12	25.4	7/8 - 9 UNC	26.0	521.0	450.9	16	31.8	24.0	457.0	406.4	12	25.4	460.0	400.0	12	22.0	26.0	460.0	400.0	12	26.0	
14	1.02	21.0	18.75	12	1.13	1 - 8 UNC	1.10	23.0	20.25	20	1.25	1.02	20.75	18.5	12	1.00	24.00	19.88	18.11	16	1.10	24.00	19.88	18.11	16	1.10
350	2.60	535.0	476.3	12	28.6	1 - 8 UNC	28.0	584.0	514.4	20	31.8	26.0	527.0	469.9	12	25.4	530.0	460.0	16	22.0	28.0	530.0	460.0	16	28.0	
16	1.10	23.5	21.25	16	1.13	1 - 8 UNC	1.18	25.5	22.5	20	1.38	1.10	22.75	20.5	12	1.00	26.00	22.24	20.28	16	1.18	26.00	22.24	20.28	16	1.18
400	2.80	597.0	539.8	16	28.6	1 - 8 UNC	30.0	648.0	571.5	20	34.9	28.0	578.0	520.7	12	25.4	585.0	515.0	16	26.0	30.0	585.0	515.0	16	30.0	
18	1.18	25.0	22.75	16	1.25	1 1/8 - 7 UNC	1.18	28.0	24.75	24	1.38	1.18	25.25	23.0	16	1.00	30.00	24.21	22.24	20	1.18	30.00	24.21	22.24	20	1.18
450	3.00	635.0	577.9	16	31.8	1 1/8 - 7 UNC	30.0	711.0	628.7	24	34.9	30.0	641.0	584.2	16	25.4	650.0	565.0	20	26.0	30.0	650.0	565.0	20	30.0	
20	1.18	27.5	25.0	20	1.25	1 1/8 - 7 UNC	1.18	30.5	27.0	24	1.38	1.18	27.75	25.25	16	1.00	32.00	26.38	24.41	20	1.18	32.00	26.38	24.41	20	1.30
500	3.00	695.0	635.0	20	31.8	1 1/8 - 7 UNC	30.0	775.0	686.8	24	34.9	30.0	705.0	641.4	16	25.4	715.0	620.0	20	26.0	30.0	715.0	620.0	20	33.0	
22	1.18	29.5	27.25	20	1.38	1 1/4 - 7 UNC	1.18	33.0	29.5	24	1.38	1.18	30.0	27.5	16	1.13	34.00	28.74	26.57	20	1.18	34.00	28.74	26.57	20	1.30
550	3.00	749.0	692.2	20	34.9	1 1/4 - 7 UNC	30.0	836.0	743.0	24	34.9	30.0	762.0	686.5	16	25.4	775.0	700.0	20	26.0	30.0	775.0	700.0	20	33.0	
24	1.18	32.06	29.5	20	1.38	1 1/4 - 7 UNC	1.18	36.0	32.0	24	1.62	1.18	32.5	29.75	16	1.25	38.00	30.71	28.54	20	1.18	38.00	30.71	28.54	20	1.42
600	3.00	813.0	749.3	20	34.9	1 1/4 - 7 UNC	30.0	914.0	812.8	24	41.3	30.0	826.0	755.7	16	25.4	840.0	725.0	20	26.0	30.0	840.0	725.0	20	36.0	
26	1.26	34.25	31.75	24	1.38	1 1/4 - 7 UNC	1.26	38.25	34.5	28	1.75	1.26	35.0	32.5	20	1.38	40.00	32.87	30.71	24	1.26	40.00	32.87	30.71	24	1.42
650	3.20	870.0	806.5	24	34.9	1 1/4 - 7 UNC	32.0	972.0	876.0	28	44.5	32.0	892.0	825.0	20	30.0	900.0	830.0	24	24	32.0	900.0	830.0	24	36.0	
30	1.26	38.75	36.0	28	1.38	1 1/4 - 7 UNC	1.26	43.0	39.25	28	2.00	1.26	39.25	36.5	20	1.38	46.00	37.99	35.43	24	1.26	46.00	37.99	35.43	24	1.42
750	3.20	984.0	914.4	28	34.9	1 1/4 - 7 UNC	32.0	1092.0	997.0	28	50.8	32.0	997.0	927.1	20	34.9	1000.0	900.0	24	24	32.0	1000.0	900.0	24	36.0	



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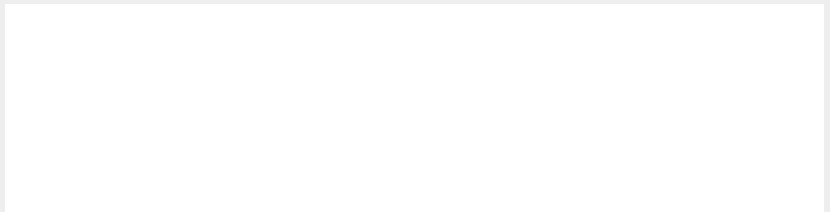


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Warning: Expansion joints may operate in pipelines or equipment carrying fluids and/or gases at elevated temperatures and pressures. Normal precautions should be taken to make sure these parts are installed correctly and inspected regularly. Precautions should be taken to protect personnel in the event of leakage or splash. Note: Piping must be properly aligned and anchored to prevent damage to an expansion joint. Movement must not exceed specified ratings and control units are always recommended to prevent damage in the event other anchoring in the system fails. Properties applications shown throughout this data sheet are typical. This information does not constitute a warranty or representation and we assume no legal responsibility or obligation with respect thereto and the use to which such information may be put. Your specific application should not be undertaken without independent study and evaluation for suitability.

PROCO™

SERIES 315

threaded metal/rubber connectors



The PROCO Series 315 Rubber Connector is designed for supply/distribution pipeline service or to connect piping to specific equipment applications such as: Pumps, Chillers, Cooling Towers, Compressors, Blowers, Fans, Absorption Machines, etc. Installed next to mechanical equipment or between the anchor points of a piping system, specify the PROCO Series 315 to: (1) Absorb Pipe Movement Stress, (2) Reduce System Noise, (3) Isolate Mechanical Vibration, (4) Compensate Alignment/Offset, (5) Eliminate Electrolysis, (6) Protect Against Start-Up/ Surge Forces. The PROCO Series 315 is engineered for tough, demanding industrial and commercial applications, as found in: Air Conditioning-Heating and Ventilating Systems, Chemical-Petrochemical and Industrial Process Piping Systems, Power Generating Plants, Steel Mills, Marine Services, Pulp/Paper Systems, Water-Wastewater-Sewage and Pollution Control Systems, where spherical expansion joints or flexible metal hose may have been previously used or specified. Our history in the manufacture of expansion joint products dates back to 1930. PROCO Products is a member of the Rubber Expansion Joint Division, Fluid Sealing Association. When you need an engineered rubber solution to a piping system problem, call PROCO.

Engineered for your Application. The PROCO Series 315 Connector materials of rubber and fabric are formed and cured in a heated compression mold using an exclusive high-pressure press. The thick outer-cover and interior-tube are of an elastomer especially compounded to satisfy the Chemical-Temperature requirements of your application. The multiple plies of tough, reinforcing fabric are molded in place during manufacture to provide a product designed for your Pressure-Vacuum requirements. Available styles include:

Style 315: Precision molded to a true sphere based upon the pipe size, for optimum noise/vibration absorption (See Figure 1)

Style 315-A: Exactly the same as Style 315, except the sphere shape is slightly modified to produce each size in a standard 8" length for ease of installation. (See Figure 1)

Style 315-HP: A heavyweight design for very high pressure applications; this connector is manufactured similar to Style 315. An additional ductile stabilizing ring is bonded between the two spheres to maintain the spherical shape at maximum pressure. (See Figure 3)

Choice of Installation Hardware. Only PROCO gives you a choice of connector attachment methods. Easy to install, all you need is a piece of threaded pipe. Standard Series 315 Connectors are furnished complete with threaded female unions for attachment to your application. (See Figure 1) An optional attachment method incorporates a threaded mating flange to which the connector is bolted. (See Figure 2) Standard connection hardware is galvanized ductile iron. Bronze, 304 and 316 Stainless materials are available on special order. Adapters are available to connect the Series 315 to copper tubing or PVC piping. (See Table 3 and Figure 4)

Chemical Or Abrasive Service Capability At Minimal Cost. Expensive, exotic metal connectors for chemical service can be replaced with the PROCO Series 315. Fabricated with low-cost chemical resistant elastomers such as: Chlorobutyl, EPDM, SBR, Hypalon, Neoprene and Nitrile; insures a rubber connector compatible with the fluid being pumped or piped. (See Table 1) Our Neoprene products should be specified when handling abrasive slurries. Use the PROCO "Chemical to Elastomer Guide" to specify an elastomer for your requirement.

Absorbs Pipe-Wall and Fluid-Borne Noise. The PROCO quiet-operating Series 315 is a

replacement for "sound transmitting" metallic connectors. Pipe-Wall sound loses energy and is absorbed as the noise carried by the piping both enters and leaves the rubber section. Fluid-borne noise is absorbed by the volumetric expansion (breathing) of the connector. This action cushions water hammer and smooths out pumping impulses.

Isolates Vibrations And Motion. Vibration originating from mechanical equipment is absorbed by the PROCO Series 315. Rubber connectors should be installed right after and ahead of the equipment generating the vibration, thus isolating the equipment. As most machinery vibrates in a radial direction from the main shaft, for optimum performance, the PROCO connector should be installed horizontally and parallel to this shaft. For major two-plane vibration/motion it is best to use two flexible rubber connectors installed at right angles, one to absorb the horizontal vibration and one the vertical vibration. A tension anchor is usually advisable to stabilize the elbow between the connectors.

Note: For maximum vibration transmission reduction the piping section beyond the rubber connector must be anchored or sufficiently rigid.

Prevents Electrolysis and Electrolytic Action. In chemical applications when metallic connectors are used, they are generally of a metal dissimilar from the pipe-line. This could create an electrolytic galvanic action that could be destructive to the connector, equipment or piping system. The use of the rubber PROCO Series 315 eliminates this potential hazard. Additionally, because the all-rubber connector eliminates metal-to-metal contact at the flange face, electrolysis is stopped.

Reduces System Stress And Strain/Compensate For Misalignment. Rigid attachment of piping to critical or mechanical equipment can produce excessive loading. Thermal or mechanically created strain-stress-shock is cushioned and absorbed with the installation of a low "force-to-deflect" flexible rubber PROCO 315 Connector. The PROCO Connector adds a flexible component that is automatically self-correcting for misalignment created by structural movements caused by setting, expansion or ground shifts.

Full Flow With Less Turbulence Or Material Entrapment. The smooth bore of The PROCO Connector allows full flow without turbulence. Metallic connectors depend upon bellows or convolutions to absorb motion. These bellows/convolutions could create flow turbulence and provide an area for material entrapment or bacteria growth.

Wide Size Range/Complete Engineering Data. We have the size you need! The series 315 includes 19 units representing 7 I.D. sizes. The widest selection of sizes available in the Americas. For engineering data review Table 2. Only PROCO provides you with (1) Recommended pipe opening, (2) Complete connector dimensions, (3) Connector weights, and (4) Accurate allowable movements. If you are concerned with tested engineering, contact PROCO!

Table 1: Available Styles • Materials • Stock

Style #			PROCO™ "Chemical To Elastomer Guide"					
For Specific Elastomer Recommendations, See:			PROCO™ Material Code	Cover Elastomer	Tube Elastomer	Maximum Operating Temp. F	Label Color	F.S.A. Material Class
315	315-A	315-HP						
X	S	X	BB	Butyl	Butyl	250°	Black	Special II
X	S	S	EE	EPDM	EPDM	250°	Red	Special II
X	S	X	NH	Neoprene	Hypalon ¹	212°	Green	Std. II
X	X	X	NJ	Neoprene	FDA-NIT.	212°	White	Std. II
S	S	X	NN	Neoprene	Neoprene	225°	Blue	Std. II
S	S	X	NP	Neoprene	Nitrile	212°	Yellow	Std. II
X	X	X	NR	Neoprene	Natural	180°	White	Std. I
X	X	X	NS	Neoprene	SBR	180°	Orange	Std. I

NOTES: 1. Hypalon is a trademark of E.I. duPont Dow Elastomers
 2. In applications where pressure is less than 15 PSIG, temperature can be increased. See Table 4.
 3. All products are reinforced with synthetic fabric plies.
 4. Material NN meets all requirements of U.S.C.G.
 5. Material Availability: X=Special Order, S=Standard Stock.
 6. To order, provide: 1. Size, 2. Style Number, 3. Material Code.

Visit Our Website: <http://www.procoproducts.com>
 email: sales@procoproducts.com

Protecting Piping And Equipment Systems From Stress/Motion

Water Environment Federation
 Preserving & Enhancing the Global Water Environment

threaded metal/ rubber connectors

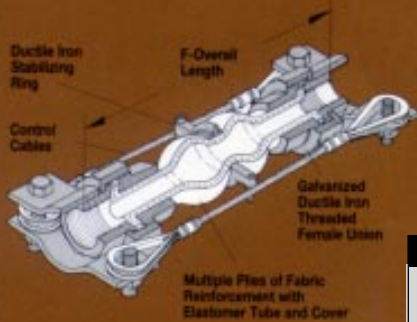


Figure 1: Style 315
With Threaded Female Unions

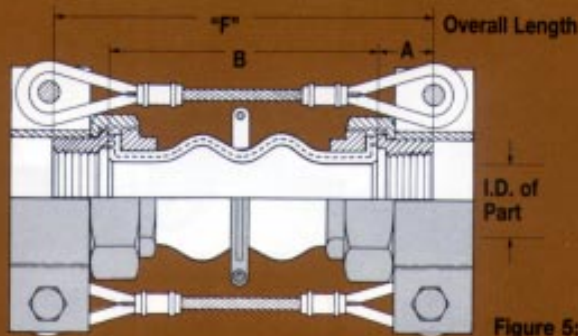


Figure 5: Product Detail

Table 2: Styles • Sizes • Movements • Dimensions • Weights

Nominal Pipe Size/ Connector I.D.	PROCO Style Number	"F" Installed Length				Total Travel		Allowable Movement From Neutral			Dimensions		Weights/Lbs.		
		"F" Overall Neutral Length	Minimum Installed	Maximum Installed	Recommended Pipe Opening	Total Compressed	Total Extended	In. Of Axial Compression	In. Of Axial Extension	± In. Of Lateral Deflection	Angular Deflection ¹	"A" - Length Of Fitting	"B" - Length Of Rubber	With Bolt On Threaded Flanges	With Screw On Unions
3/4	315	6.54	5.88	6.65	4.79	5.67	6.77	.87	.23	.87	32.2°	1.06	4.42	2.4	1.5
	315-A	8.00	7.34	8.11	6.25	7.13	8.23	.87	.23	.87	32.2°	1.06	5.88	2.6	1.6
	315-HP	7.00	6.44	7.11	5.25	6.25	7.23	.75	.23	.63	32.2°	1.06	4.88	2.7	1.7
1	315	6.77	6.11	6.88	5.02	5.90	7.00	.87	.23	.87	25.3°	1.14	4.49	3.2	2.4
	315-A	8.00	7.34	8.11	6.25	7.13	8.23	.87	.23	.87	25.3°	1.14	5.72	3.3	2.6
	315-HP	7.00	6.44	7.11	5.25	6.25	7.23	.75	.23	.63	25.3°	1.14	4.72	3.4	2.7
1 1/4	315	6.93	6.27	7.04	5.18	6.06	7.16	.87	.23	.87	20.7°	1.26	4.41	4.0	3.1
	315-A	8.00	7.34	8.11	6.25	7.13	8.23	.87	.23	.87	20.7°	1.26	5.48	4.2	3.3
	315-HP	7.00	6.44	7.11	5.25	6.25	7.23	.75	.23	.63	20.7°	1.26	4.48	4.3	3.4
1 1/2	315	7.17	6.51	7.28	5.42	6.30	7.40	.87	.23	.87	17.5°	1.30	5.57	5.1	3.9
	315-A	8.00	7.34	8.11	6.25	7.13	8.23	.87	.23	.87	17.5°	1.30	5.40	5.2	4.0
	315-HP	7.00	6.44	7.11	5.25	6.25	7.23	.75	.23	.63	17.5°	1.30	4.40	5.3	4.1
2	315	8.35	7.69	8.46	6.60	7.48	8.58	.87	.23	.87	13.3°	1.42	5.51	7.4	5.5
	315-A	8.00	7.34	8.11	6.25	7.13	8.23	.87	.23	.87	13.3°	1.42	5.16	7.4	5.5
	315-HP	7.00	6.44	7.11	5.25	6.25	7.23	.75	.23	.63	13.3°	1.42	4.16	7.5	5.6
2 1/2	315	8.82	8.16	8.93	7.07	7.95	9.05	.87	.23	.87	10.7°	1.69	5.44	11.6	9.6
	315-A	8.00	7.34	8.11	6.25	7.13	8.23	.87	.23	.87	10.7°	1.69	4.62	11.5	9.5
3	315	8.90	8.24	9.01	7.15	8.03	9.13	.87	.23	.87	8.9°	1.69	5.52	13.4	10.7
	315-A	8.00	7.34	8.11	6.25	7.13	8.23	.87	.23	.87	8.9°	1.69	4.62	13.3	10.6

NOTES: 1. The amount of Angular Movement is based on the maximum allowable Extension Movement from neutral. Angular Movement can be increased if it is in conjunction with Compression. PROCO is aware that some manufacturers of similar products list ratings of 45-50°. It is noted these companies do not give any parameters to justify their rating. PROCO questions that different I.D. sizes, each with the same Compression/Extension Movement can have the same Angular Movement.

OTHER HVAC PRODUCTS AVAILABLE FROM PROCO...



Style 240 & 242



Style FF-6201

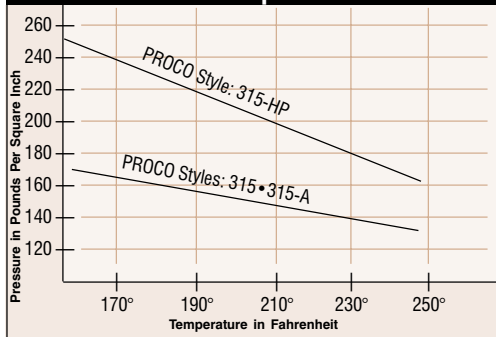


Style TTS-6201



Style SEB-6201

Table 3: Temperature/Pressure Relationship



Wide Service Range With Low Cost. Engineered to operate up to 250 PSIG and 250°F the PROCO 315 Series can be specified for a wide range of piping system requirements. Compared to competitive products, you will invest less money when specifying the engineered design industrial quality PROCO Series 315.

Large Inventories Mean Same-Day Shipment. We maintain the largest inventory of elastomer connectors and expansion joints in the Americas. Every size cataloged is in stock in several elastomers. We can ship your requirement when you need it. In fact, when it comes to rubber pipe fittings, if PROCO doesn't have your requirement...nobody does!

Table 4: Pressures

PROCO Style	Maximum Operating		Minimum	
	Positive PSIG	Negative In. of Hg.	Test PSIG	Burst PSIG
315	150	26"	225	600
315-A	150	26"	225	600
315-HP	250	26"	375	1000

NOTE: See Table 4 for Temperature/Pressure Relationship

Table 5: Available Metal Materials

Order Codes Prefix to Style Number		Materials Selections
Screw On Female Unions	Bolt-On Floating Flanges ²	
304	F	Ductile Iron, Galvanized 304 Stainless Steel 316 Stainless Steel Bronze
316	F-304	
B	F-316	
	F-B	

NOTES: 1. All Standard styles furnished complete with galvanized ductile iron female unions, with ends threaded NPT (IPT) to ANSI B-2.1. For other materials, see above table. Other threading, including: BS, DIN, JIS, etc. are available on special order.

2. This floating flange design can be furnished with end piece adaptors to connect to: copper tubing, threaded brass or PVC and cementable PVC piping.

Information-Ordering-Pricing-Delivery. Day or night, weekends and holidays...the PROCO phones are monitored 24-hours-around-the-clock. When you have a question, call us toll-free (800) 344-3246. Weekday office hours: 8:30 a.m. - 8:15 p.m. Eastern Time.

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Rev 02/01/00



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95201-0590 • USA

WARNING: Expansion joints may operate in pipelines or equipment carrying fluids and or gases at elevated temperatures and pressures. Normal precautions should be taken to make sure these parts are installed correctly and inspected regularly. Precautions should be taken to protect personnel in the event of leakage or splash.

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