ТΜ **SERIES** 240/242 molded expansion joints

PROCO™ Series 240 and Series 242 Non-Metallic Expansion Joints are designed for tough demanding PROCO[™] Series 240 and Series 242 Non-Metallic Expansion Joints are designed for fough 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 Sys-tems, Water-Wastewater-Sewage and Pollution Control Systems. Installed next to mechanical equipment or between the anchor points of a piping system, specify the PROCO[™] 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 manufacture of expan-sion joint products dates back to 1930. When you need an engineered rubber solution to a piping system roblem call PROCO 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 Arch" types. 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 build-up, thrust area and the effects of thrust on the piping system equipment when compared to the "high-arch" design of Hand Fabricated-Old 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 thus easier to install in non-standard openings, caused by equipment shifting or settling. By precompressing or pre-extending the bellows to the required length, there will still be enough movement capabilities for operation. (See Tables 2 and 6.)

Easy Installation With Alignable Metallic Flanges. The floating metallic flanges freely up installation time (see figures 1, 2, 3 & 4). Gaskets are also not required with the Series 240 or Series 242. Tapped Holes on flanges are standard for the series 240 and Series 242 designs (up to 12" I.D.) which eliminate the added cost of nuts for battering the series 240 or series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up to 12" I.D.) which eliminate the added cost of nuts for the series 240 designs (up bolting requirements.

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 A and C or Styles 242 A and C 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" Arch Types as shown in the Rubber Expansion Joint Division, Fluid Sealing Association "Technical Handbook - Sixth Edition" Table V.

TABLE 1: Available Styles/Materials

For Specific Elastomer Recommendations, See: PROCO™ "Chemical To Elastomer Guide "											
240-A	MT00084 240-C 240-C 240-AVD,E,M Material 2600 C 242-A,B,C 242-A,B,		Material	Cover Elastomer	Tube Elastomer	Maximum Operating Temp. °F	ldentifying Color Band/Label				
	X X X	X X	X X	/BB /EE /EE-9 /ET-9	Butyl EPDM EPDM EPDM	Butyl EPDM EPDM Teflon	250° 250° 265° 265°	Black Red Red Red			
X	X X X X	X X X	x x x	/HH /NH /NJ /NN /NP /NT	Hypalon Neoprene Neoprene Neoprene Neoprene Neoprene	Hypalon Hypalon FDA-Nitrile Neoprene Nitrile Teflon	230° 230° 230° 230° 230° 230° 230°	Green Green White Blue Yellow			

NOTES: 1. 2. Hypalon is a registered trademark of DuPont Dow Elastomers. Teflon is a registered trademark of the DuPont Company Prypator is a registered trademark of DuPoin town classifiers. Tenor is a registered trademark of the buPoint Company.
 Expansion joint "cover" (outside) can be Hypalon painted on special order.
 Products with Tefton "tube" (inside) are not recommended for vacuum service.
 All elastomers include nylon reinforcing, except EE-9 which is steel cord.
 All relatains meet or exceed the Rubber Expansion Joint Division, Fluid Sealing Association 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 good for up to 300°F for pressures is PSI or less.



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-born 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 PROC0[™] Spherical 240 and 242 connectors are furnished complete with plated carbon steel flanges for corrosion protection and are tapped (up to 12" I.D.) to ANSI 150# standards (see Table 7 and Figures 3 & 4). Stainless steel flanges are also available on special order. Other drilling standards such as: ANSI 250/ 300,#, British Standard 10, DIN and JIS are also available from stock and are listed in Table 7

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). Use the PROCO[™] "Chemical/Rubber Guide" to specify an elastomer recommendation compatible for your requirement. 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 Arch" types, 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 on 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!

call us.

IUII IIEE	. 000 / 344-3240 USA/UANADA
International Calls	209/943-6088
Fax	209/943-0242
Email	
Website	www.procoproducts.com

Weekday Office Hours: 5:30 a.m. - 5:15 p.m. (PST)



series 240 expansion joints

TABLE 2:	240 Sei	ries Expa	nsion Joir	nts • Size	es • Move	ements •	Pressur	e • Flang	ge Stand	dards • V	Veights					
Nominal			240 Capability: From Neutral Position											nt/Pounds		
	Neutral Length	PROCO Style Number	Axial Com- pression Inches	Axial Extension Inches	±Lateral Deflection Inches	±Angular Deflection Degrees	Thrust Factor	Positive PSIG	Vacuum- ing Hg	Flange 0.D.	Bolt Circle	No. Hole	Bolt Hole Size	BoltHole Thread	Weight- Joint & Flanges	Weight- Control Unit Set
1	6.00	240-AV	0.500	0.375	0.500	37	4.43	225	26	4.25	3.13	4	-	1/2-13 UNC	3.8	3.3
1.25	3.74 5.00 5.00 6.00	240-D 240-C 240-E 240-AV	3.120 1.063 5.000 5.000	0.188 1.250 0.375 0.375	0.312 1.188 0.500 0.500	17 45 31 31	6.34	235 225 225 225 225	26 21 26 26	4.63	3.5	4	0.500 0.500 0.500 —		4.6 5.0 5.0 5.0	3.3
1.5	3.74 4.00 5.00 5.00 6.00	240-D 240-M 240-C 240-E 240-AV	0.375 0.375 1.063 0.500 0.500	0.188 0.188 1.250 0.375 0.375	0.312 0.312 1.188 0.500 0.500	14 14 45 27 27	6.49	225 225 235 225 225	26 26 18 26 26	5.0	3.88	4	0.500 0.500 0.500 0.500 		5.4 5.5 5.1 6.0 6.1	4.6
2	4.00 4.13 5.00 5.00 6.00 6.00 6.00	240-M 240-D 240-C 240-E 240-A 240-HW 240-HW 240-AV	0.375 0.375 1.063 0.375 1.188 0.500 0.500	0.188 0.188 1.250 0.375 1.188 0.375 0.375	0.312 0.312 1.188 0.500 1.188 0.500 0.500	11 11 45 20 45 20 20 20	7.07	225 225 235 225 235 235 300 225	26 26 18 26 18 26 26 26	6.0	4.75	4	0.625 0.625 0.625 0.625 0.625 0.625 0.625 		8.3 8.5 7.1 8.5 7.1 11.0 12.3	6.3 6.3 6.3 6.3 7.6 7.6
2.5	4.00 4.53 5.00 5.00 6.00 6.00	240-M 240-D 240-C 240-E 240-A 240-A 240-AV	0.375 0.500 1.063 0.500 1.188 0.500	1.188 0.250 1.250 0.375 1.188 0.375	0.375 0.375 1.188 0.500 1.188 0.500	8 11 45 17 43 17	11.05	225 225 235 225 235 235 225	26 26 18 26 18 26	7.0	5.5	4	0.625 0.625 0.625 0.625 0.625 0.625 		12.0 12.3 10.6 12 12 12 12.3	7.6
3	5.00 5.00 5.14 6.00 6.00 6.00 8.00	240-C 240-E 240-D 240-A 240-HW 240-HW 240-AV 240-AV	1.063 0.500 0.500 1.188 0.500 0.500 0.500	1.250 0.375 0.375 1.188 0.375 0.375 0.375 0.375	1.188 0.500 0.500 1.188 0.500 0.500 0.500	40 14 14 38 14 14 14 14	13.36	235 225 235 300 225 205 225	15 26 15 26 26 26 26	7.5	6.0	4	0.625 0.625 0.625 0.625 0.625 0.625 		13.3 14.0 14.0 13.8 17.5 14.0 15.0	8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.7
3.5	6.00	240-AV	0.500	0.375	0.500	12	18.67	225	26	8.5	7.0	8	-	5/8-11 UNC	17.6	7.4
4	5.00 5.00 5.32 6.00 6.00 6.00 8.00	240-C 240-E 240-D 240-A 240-HW 240-HW 240-AV 240-AV	1.063 0.750 0.750 1.188 0.750 0.750 0.750	1.250 0.500 0.500 1.188 0.500 0.500 0.500	1.188 0.500 0.500 1.188 0.500 0.500 0.500	32 14 14 30 14 14 14	22.69	235 225 225 235 300 225 225	15 26 15 26 26 26 26	9.0	7.5	8	0.625 0.625 0.625 0.625 0.625 0.625 		16.5 17.0 17.1 17.5 26.0 18.3 19.3	7.4 7.4 7.4 7.4 7.4 7.4 7.4 7.8
5	5.00 5.00 6.00 6.69 8.00	240-C 240-E 240-A 240-AV 240-D 240-AV	1.063 0.750 1.188 0.750 0.750 0.750	1.250 0.500 1.188 0.500 0.500 0.500	1.188 0.500 1.188 0.500 0.500 0.500	27 11 25 11 11 11	30.02	235 225 235 225 225 225 225	10 26 10 26 10 26	10.0	8.5	8	0.750 0.750 0.750 0.750 		20.3 22.0 21.8 22.8 23.6 25.0	8.3 8.3 8.3 8.3 8.5 10.8
6	5.00 5.00 6.00 6.00 7.09 8.00	240-C 240-E 240-A 240-HW 240-AV 240-D 240-AV	1.063 0.750 1.188 0.750 0.750 0.750 0.750	1.250 0.500 1.188 0.500 0.500 0.500 0.500	1.188 0.500 1.188 0.500 0.500 0.500 0.500	23 9 21 9 9 9 9 9	41.28	235 225 235 300 225 225 225	8 26 10 26 26 26 26	11.0	9.5	8	0.750 0.750 0.750 0.750 		22.6 26.0 24.0 39.0 26.8 29.0 29.1	10.4 10.4 10.4 10.4 10.4 10.6 10.8
8	5.00 5.00 6.00 6.00 6.00 8.07	240-C 240-E 240-A 240-HW 240-AV 240-D	1.063 0.750 1.188 0.750 0.750 1.000	1.188 0.500 1.188 0.500 0.500 0.563	1.188 0.500 1.188 0.500 0.500 0.875	17 7 16 7 7 8	63.62	235 225 235 300 225 225	8 26 26 26 26	13.5	11.75	8	0.750 0.750 0.750 0.750 0.750		35.5 40.0 38.5 70.0 40.6 41.3	13.4 13.4 13.4 13.4 13.4 1 3.4 14.0
10	5.00 5.00 8.00 9.00 9.45 10.00	240-C 240-E 240-A 240-AV 240-AV 240-D 240-AV	1.063 1.000 1.188 1.000 1.000 1.000 1.000	1.188 0.625 1.188 0.625 0.625 0.625 0.625	1.188 0.750 1.188 0.750 0.875 0.875 0.750	14 7 13 7 7 7 7 7	103.87	235 225 235 225 225 225 225 225	6 26 26 26 26 26 26	16.0	14.25	12	0.875 0.875 0.875 0.875 	 7/8-9 UNC 7/8-9 UNC 7/8-9 UNC	49.3 56.0 53.6 56.6 57.0 58.5 60.5	21.0 21.0 21.3 21.3 22.0 22.0 26.5
12	5.00 5.00 8.00 8.00 9.00 10.24	240-C 240-E 240-A 240-HW 240-AV 240-AV 240-D	1.063 1.000 1.188 1.000 1.000 1.000 1.000	1.250 0.625 1.188 0.625 0.625 0.625 0.625	1.188 0.750 1.188 0.750 0.750 0.750 0.875	12 6 11 6 6 6	137.89	235 225 235 300 225 225 225	6 26 26 26 26 26	19.0	17.0	12	0.750 0.750 0.750 0.750 		73.4 74.0 80.0 100.0 83.0 88.0 89.0	26.5 26.5 27.0 27.0 27.0 27.0 28.0
14	8.00 8.00 9.00 10.43	240-HW 240-AV 240-M 240-D	1.000 1.000 1.000 1.000	0.625 0.625 0.625 0.625	0.750 0.750 0.750 0.875	5	182.65	225 150 150 150	26 26 26 26	21.0	18.75	12	1.000 	1-8 UNC 	162.0 115.0 117.0 120.0	28.0 28.0 29.0 29.0
16	8.00 8.00 8.00 9.00 10.43	240-C 240-HW 240-AV 240-M 240-D	2.063 1.000 1.000 1.000 1.000	1.063 0.625 0.625 0.625 0.625 0.625	1.188 0.750 0.750 0.750 0.975	8 4 4 4	240.53	145 225 125 125 125	6 26 26 26 26	23.5	21.25	16	1.000 1.000 	1-8 UNC 	136.0 186.0 165.0 168.0 170.0	26.8 26.8 26.8 27.0 27.0
18	8.00 8.00 9.00 10.43	240-HW 240-AV 240-M 240-D	1.000 1.000 1.000 1.000	0.625 0.625 0.625 0.625	0.750 0.750 0.750 0.875	4	298.65	225 125 125 125	26 26 26 26	25.0	22.75	16	1.125 	1 1/8-7 UNC	209.0 168.0 169.0 170.0	31.4 31.4 33.1 33.1
20	8.00 8.00 8.00 9.00 10.43	240-C 240-HW 240-AV 240-M 240-D	2.063 1.000 1.000 1.000 1.000	1.063 0.625 0.625 0.625 0.625 0.625	1.188 0.750 0.750 0.750 0.875	6 3 3 3 3 3	363.05	145 225 125 125 125	6 26 26 26 26	27.5	25.0	20	1.125 1.125 	 1 1/8-7 UNC 	154.0 234.0 170.0 173.0 175.0	32.4 32.4 32.4 34.1 34.1
22	10.00	240-AV	1.000	0.625	0.750	3	433.74	115	26	27.5	25.0	20	-	1 1/4-7 UNC	210.0	34.5
24	8.00 10.00 10.47	240-C 240-AV 240-D	2.063 1.000 1.000	1.063 0.625 0.625	1.188 0.750 0.875	5 3 3	510.70	145 110 110	6 26 26	32.5	29.5	20	1.250 	1 1/4-7 UNC	214.0 255.0 265.0	44.0 45.5 46.0
26	10.00	240-AV	1.000	0.625	0.750	3	593.96	110	26	34.25	31.75	24	-	1 1/4-7 UNC	270.0	46.5
<u>28</u> 30	10.00	240-AV	1.000	0.625	0.750	3	683.49	110	26	36.50	34.0	28	-	1 1/4-7 UNC	283.0	51.5
otes:	10.00	240-AV	1.000	0.625	0.750	2	779.31	110	26	38.75 ed on neutral i	36.0	28		1 1/4-7 UNC	295.0	57.0

Standard PROCO Style 240 AV Expansion Joints are shown in Bold Type for your convenience.

Notes:

To determine End-Thrust: Multiply Thrust Factor by Operating Pressure of System. This is End Thrust in PS.I.G.
 Pressure rating is based on 170°F operating temperature. The pressure rating is reduced slightly at higher

Prosour tamp to based on the toporating temperature. The prosour tamp to toporating pressure is 1.5 times "operating pressure".
 Pressure shown are recommended "operating pressure". Test pressure is 1.5 times "operating pressure".

Vacuum rating is based on neutral installed length, without external load. Products should not be installed "extended" on vacuum applications.

All expansion joints are furnished complete with flanges. Control units are recommended on applications where movements could exceed rated capabilities.
All dimensions are in inches. All weights are in pounds.
"HW" denotes Heavy Weight Construction.

control units



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 Table 4).

- 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 & 6.
- Unanchored Systems: Control unit assemblies are always recommended in unanchored systems. Additionally, control unit assemblies must be used when maximum pressure exceeds the limit shown in Table 3, or the movement exceeds the rated movements as shown in Tables 2 & 6.
- 3. Spring-Mounted Equipment: Control unit assemblies are always recommended for spring-mounted equipment. Control units must be used when the maximum pressure is higher than the ratings shown in Table 3, or the movement as shown in Tables 2 & 6. Additionally, when control units are not used, the expansion joint must be installed "extended" in accordance with PROCO[™] installation instructions.

Special Applications. Certain Style 240 (Single Sphere) and 242 (Twin Sphere) expansion joints are available in High-Pressure Designs. For specific pressures, see Table 5. Style designations are listed as 240-HW (sizes stocked in Table 2) and 242-HA, 242-HB & 242-HC (sizes stocked in Table 6.) The High-Pressure Design is recommended when the connector is to be installed into ANSI 250/300# piping systems.