

# PROCO

SERIES

# 230/220

spool type wide arch  
rubber expansion joints



**PROCO Series 230, Styles 231, 232, & 233 Non-Metallic Expansion Joints** are designed for tough, demanding industrial applications, as found in: Chemical/Petrochemical Plants, Industrial Process Piping Systems, Marine Services, Power Generation Plants, Pulp/Paper Plants, Steel Mills, Water/Wastewater and Pollution Control Systems. Installed next to mechanical equipment or between the anchor points of a piping system, specify the PROCO Series 230 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. Our history in the manufacture of expansion joints dates back to 1930. When you need an engineered rubber expansion joint solution to a piping problem, call PROCO!

**Series 230 Replaces Series 220.** The new and improved PROCO Series 230 replaces the PROCO Series 220 rubber expansion joints. (Series 220 products will be available only in short neutral lengths.) This new hand-built product has been completely re-engineered to provide improved strength, flexibility, movement and spring rate capabilities. Manufactured utilizing tire industry technology, the Series 230 combines woven nylon fabric and nylon tire cord into a fabric matrix bonded with elastomer and reinforced with wire to create a product with greater operating performance. The nomenclature for the new PROCO Series 230 is as follows:

**Single Arch Series 230, Style 231**

**Double Arch Series 230, Style 232**

**Triple Arch Series 230, Style 233**

**Greater Movements With A Lower/Wider Arch Profile.** The movements for the PROCO Series 230 exceed the specification of the Fluid Sealing Association's Rubber Expansion Joint Division Technical Handbook (Sixth Edition), Table V. Due to a new and improved lower, wider profile arch, more axial compression and axial extension coupled with lateral misalignment, angular and torsional movements can be obtained without increasing the face-to-face requirements. Installation of the Series 230 in a piping system will negate the need for long and expensive multi-arch products. For greater movements based on re-engineering and new product construction, specify the PROCO Series 230.

**Less Turbulence Or Material Entrapment.** The PROCO 230 Series molded integral flange joins the body at a true 90° angle. Our product will install snug against the mating pipe flange without voids. The flange body of the rubber expansion joint is difficult to form and many manufacturers radius the edge angles. The resulting void between the mating flange and the edge angle can create flow turbulence and allow for material entrapment or bacterial growth. You can avoid these problems by specifying PROCO Series 230 rubber expansion joints.

**Chemical Or Abrasive Service Capability.** Expensive metallic designs for chemical service can be replaced with the more cost-effective PROCO Series 230. Built with low-cost chemical resistant elastomers, such as Chlorobutyl, DuPont Dow Elastomer Hypalon® rubber, EPDM, Natural, Neoprene and Nitrile, assures an expansion joint compatible with fluid being pumped or piped (See Table 1). When handling abrasive products such as any solids or slurries, Natural or Neoprene filled arch products should be specified. Please refer to PROCO "Chemical to Elastomer Guide" for recommendations on elastomer chemical compatibility for piping processes.

**Exclusive Sealing Bead Means A Quick Seal.** PROCO has built an "O-Ring" on each flange face of the Series 230. Available only from PROCO, the Series 230 seals faster with less torque at installation. For these exclusive features, specify the PROCO Series 230 rubber expansion joints.

**Specifications Met.** PROCO has assigned conservative pressure ratings to the Series 230 rubber expansion joints. The ratings, however, meet the requirements of the Fluid Sealing Association's Rubber Expansion Joint Division Technical Handbook (Sixth Edition), Series C. The pressure ratings for the Series 230 rubber expansion joints have been fully tested and are based on a minimum four-to-one safety factor. For pressure protection with confidence, specify the PROCO Series 230.

**Tested Force Pound And Spring Rate Tables.** The Series 230 rubber expansion joints are in accordance with and/or lower than the guidelines for spring rate data as listed in the Fluid Sealing Association's Rubber Expansion Joint Division Technical Handbook (Sixth Edition), Table V. Due to a lower, wider arch profile, the PROCO Series 230 will provide more flexibility than conventional spool-type rubber expansion joints. In addition, the lower/wider arch profile coupled with a modified radial tire cord construction will result in lower flange forces. Lower resultant forces mean reduced stress of related piping system components. PROCO is currently testing each rubber expansion joint size and will list actual test data as opposed to listing hypothetical data normally associated with spring rate tables.

**Absorbs Vibration • Noise • Shock.** The PROCO Series 230 quiet-operating rubber expansion joints are a replacement for "sound transmitting" metallic expansion joints. Sound loses energy traveling axially through an expansion joint. Water hammer, pumping impulses, water-borne noises and other forms of strain-stress-shock are cushioned and absorbed by the molded elastomer expansion joint, not related to piping. Install the Series 230 in a system to reduce vibration transmission when the piping section beyond the expansion joint is anchored or sufficiently rigid. For quiet, stress-free systems, specify the PROCO Series 230.

**Wide Service Range With Low Cost.** Engineered to operate up to 200 PSIG or up to 250°F, the PROCO Series 230 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 and industrial quality of the PROCO Series 230.

**Large Inventory Means Same-Day Shipment.** We maintain the largest inventory of elastomeric expansion joints in the world. Every size cataloged up to 72" is in stock in a variety of elastomers. We can ship the products you need when you need them! In fact, when it comes to rubber expansion joints, **if PROCO doesn't have them in stock ... 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.

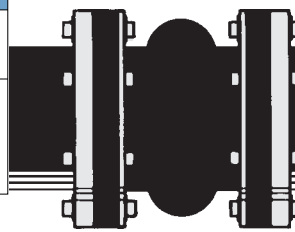
**Table 1: Available Styles • Materials • Temperatures**

For Specific Elastomer Recommendations, See:

PROCO™ "Chemical To Elastomer Guide"

PROCO Style Numbers		Cover <sup>2</sup> Elastomer	Tube Elastomer	Maximum Operating Temp. °F (°C)	Branding Label Color	F.S.A. Material Class
Filled Arch (Single) <sup>6</sup>	Open Arch (Single) <sup>6</sup>					
FA231/BB	231/BB	Butyl <sup>4</sup>	Butyl <sup>4</sup>	250° (121°)	Black	STD. III
FA231/EE	231/EE	EPDM	EPDM	250° (121°)	Red	STD. III
FA231/NH	231/NH	Neoprene	Hypalon <sup>1</sup>	212° (100°)	Green	STD. II
FA231/NN <sup>5</sup>	231/NN <sup>5</sup>	Neoprene	Neoprene	225° (107°)	Blue	STD. II
FA231/NP	231/NP	Neoprene	Nitrile	212° (100°)	Yellow	STD. II
FA231/NR	231/NR	Neoprene	Natural	180° (68°)	White	STD. I

Notes: 1. Hypalon is a registered trademark of DuPont Dow Elastomers.  
2. Expansion joint "cover" can be coated with Hypalon® on special order.  
3. All products are reinforced with steel and fabric materials.  
4. The term "butyl" is synonymous with chlorobutyl (CIR).



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

Series 230

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World Wide**

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