

# PROCO™

## SERIES 190-D

## SERIES 450

### sleeve type pipe connectors



The PROCO Series 450 Sleeve Type Pipe Connectors are used for tough demanding applications found in: Refrigeration Pump Systems, Industrial Process Piping Systems, Power Generating Plant Pump Systems, Pulp/Paper Plant Pump Systems, Water-Wastewater Sewage and control systems where lower pressure and sleeve ends are used in lieu of flanged spool type rubber expansion joints. The Series 450 Sleeve Type Pipe Connectors are constructed of Neoprene rubber and reinforced with impregnated woven nylon.

The PROCO Series 190-D Navy Sleeve Type Pipe Connectors are used for tough demanding marine applications found in: Shipboard Fuel Oil, Ballast and Bilge Drainage Systems. (The PROCO Series 190-D Navy Sleeve Type Pipe Connectors are constructed of the same materials as the Series 450 and come with an aluminized glass cloth outer cover to meet Mil-E-15330 Class B specification.)

Specify the PROCO Series 190-D and Series 450 for installations near mechanical equipment in piping systems to: (1) Absorb Pipe/Movement/Stress, (2) Reduce system Noise, (3) Isolate Vibration, (4) Eliminate Electrolysis, (5) Compensate Alignment/Offset & (6) Protect Against Start-Up/Surge Forces. Our history in expansion joint products dates back to 1930. When you need an engineered solution to a piping systems problem, call PROCO.

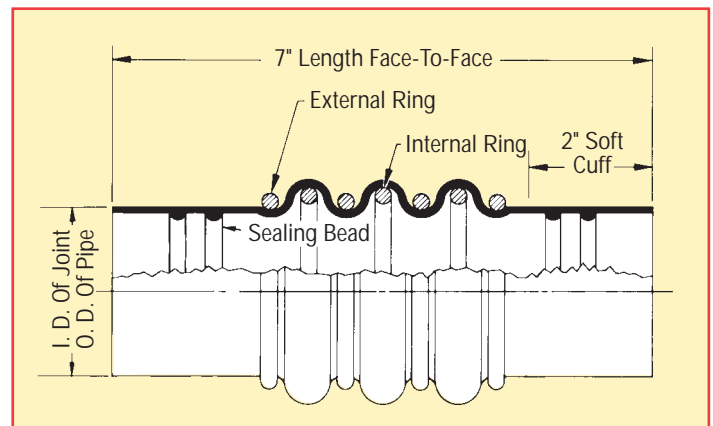
**Construction of Sleeve Type Pipe Connectors:** The Series 190-D and Series 450 Sleeve Type Connectors are constructed of neoprene rubber and reinforced with impregnated woven nylon. Sealing beads are molded on the interior of the sleeve and provide extra sealing action for the clamping area. Internal reinforcing rings prevent deformation of the connector during surge or temporary negative pressure conditions. The outer reinforcement rings are provided to add external reinforcement.

**Fastening Method:** The Series 190-D and Series 450 Sleeve Type Pipe Connectors require heavy duty, stainless steel, 1" wide "T" bolt clamps to provide proper clamping strength. Clamps are not stocked by PROCO Products, Inc. and are to be provided by others.

Dimensions			Allowable Movements			Operating Conditions			Force To Move (Lbs.)		Wt.-Lbs.
Nominal Pipe Size	O.D. of Pipe I.D. of Joint	Length of Joint	Axial		Angular ± Degrees	Pressure (PSIG) Note 1	Vacuum (In. Hg.)	Temp F° Note 2	Axial Extension	Axial Compression	Sleeve
			Extension	Compression							
1.5	1.900	7.0	.5	1.0	10°	75	20	225	30	26	1.4
2.0	2.375	7.0	.5	1.0	10°	75	20	225	35	30	1.6
2.5	2.875	7.0	.5	1.0	10°	75	20	225	40	34	1.8
3.0	3.5	7.0	.5	1.0	10°	75	20	225	45	40	2.0
3.5	4.0	7.0	.5	1.0	10°	75	20	225	48	43	2.2
4.0	4.5	7.0	.5	1.0	10°	75	20	225	50	45	2.4
4.5	5.0	7.0	.5	1.0	10°	75	20	225	53	52	2.7
5.0	5.563	7.0	.5	1.0	10°	75	20	225	57	60	2.9
6.0	6.625	7.0	.5	1.0	10°	75	20	225	65	75	3.4
8.0	8.625	7.0	.5	1.0	10°	75	20	225	100	145	4.3
10.0	10.750	7.0	.5	1.0	10°	75	20	225	265	255	5.1
12.0	12.750	7.0	.5	1.0	10°	75	20	225	650	400	6.7

Coupling to be slipped over pipe to a depth of 2".  
Coupling is a flexible member, and pipe must be properly anchored and guided.  
All dimensions are in inches.

Notes: 1. Burst pressure rated at four times operating pressure.  
2. Can withstand an intermittent temperature of 275° F.



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