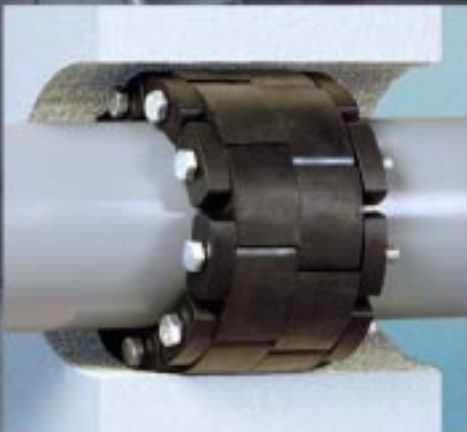




The Expansion Joint and Check Valve People

PEN-SEAL



Pipe Penetration Seals



The Expansion Joint and Check Valve People

PROCO Products, Inc. is a leading supplier of rubber and PTFE pressure piping joints, metal hose & braid, rubber check valves, and low temperature fabric fan connectors. We offer the industry's widest selection.

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Quality and service will always be PROCO's highest priority.



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PEN-SEAL

Pipe Penetration Seals

PROCO's PEN-SEAL Pipe Penetration Seals have been designed to assist in achieving an efficient, low-cost mechanical seal between any Electrical Conduit, Concrete, Cast Iron, Steel, Copper, or PVC/CPVC pipes passing through Walls, Floors, Tanks, Pipeline Casings, and Vaults. The PEN-SEAL, while being used to seal the gap in electrical conduit lines, will also act as an insulator.

The PEN-SEAL has been designed to provide a gas and watertight seal. All sizes have been tested to withstand a hydrostatic seal up to 20 psig or 40 feet of head pressure in addition to withstanding temperatures up to 250° F.

PEN-SEAL's standard elastomer material is EPDM, which is suitable for temperatures ranging from -40° F to 250° F. EPDM is suitable for most applications in water—above ground and direct burial—and will provide the electrical insulation where cathodic protection is required. Silicone material is also available for higher temperature applications up to 400° F.

Where the PEN-SEAL may come in contact with Hydrocarbons, Oil, Gas, Jet Fuel, and miscellaneous solvents, a Nitrile material is available with temperatures ranging from -40° F to 210° F.

The PEN-SEAL utilizes glass-reinforced plastic for the pressure plates and all hardware is manufactured from Steel Zinc Dichromate. For corrosion resistance, 316 Stainless Steel hardware is also available.

Various applications for the PROCO PEN-SEAL:

- Wall Sleeves
- Floor Sleeves
- Interior Piping
- Noise Dampener
- Electrical Contractors
- Pulp & Paper
- Precast Concrete
- Mining
- Marine
- Water & Wastewater
- HVAC
- Power Generation
- Valve Pits
- Offshore Oil Platforms
- Telecommunications
- Dual Containment Seal
- Underground Steel Tanks
- Coal Preparation Plants





Sizing Table for Standard Weight Steel, PVC and CPVC Pipe

| NOMINAL PIPE SIZE (Inches) | ACTUAL PIPE O.D. (Inches) | Standard Weight Steel or PVC Pipe Sleeve ¹ | | | | | Cast or Core Bit Drilled Hole ¹ | | | |
|----------------------------|---------------------------|---|-----------------------------|----------------------|--------------------------|------------------------------------|--|----------------------|--------------------------|------------------------------------|
| | | SLEEVE NOMINAL PIPE SIZE (Inches) | SLEEVE ACTUAL I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² | HOLE I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² |
| 0.5 0.75 | 0.840 | 2.000 | 2.067 | PS-200 | 4 | 1.0 | 2.000 | PS-200 | 4 | 1.0 |
| | 1.050 | 2.500 | 2.469 | PS-275 | 5 | 1.0 | 2.500 | PS-275 | 5 | 1.0 |
| 1 1.25 | 1.315 | 2.500 | 2.469 | PS-200 | 5 | 1.0 | 3.000 | PS-300 | 4 | 1.0 |
| | 1.660 | 3.000 | 3.068 | PS-275 | 7 | 1.0 | 3.000 | PS-275 | 7 | 1.0 |
| 1.5 2 | 1.900 | 3.500 | 3.548 | PS-300 | 5 | 2.5 | 3.500 | PS-300 | 5 | 2.5 |
| | 2.375 | 4.000 | 4.026 | PS-300 | 6 | 2.5 | 4.000 | PS-300 | 6 | 2.5 |
| 2.5 3 | 2.875 | 4.000 | 4.026 | PS-200 | 9 | 1.0 | 4.000 | PS-200 | 9 | 1.0 |
| | 3.500 | 5.000 | 5.047 | PS-300 | 8 | 2.5 | 5.000 | PS-300 | 8 | 2.5 |
| 3.5 4 | 4.000 | 6.000 | 6.065 | PS-325 | 5 | 6.0 | 6.000 | PS-325 | 5 | 6.0 |
| | 4.500 | 6.000 | 6.065 | PS-300 | 10 | 2.5 | 6.000 | PS-300 | 10 | 2.5 |
| 5 6 | 5.563 | 8.000 | 7.981 | PS-425 | 6 | 10.0 | 8.000 | PS-425 | 6 | 10.0 |
| | 6.625 | 10.000 | 10.020 | PS-410 | 10 | 11.0 | 10.000 | PS-410 | 10 | 11.0 |
| 8 10 | 8.625 | 12.000 | 12.000 | PS-475 | 12 | 11.0 | 12.000 | PS-475 | 12 | 11.0 |
| | 10.750 | 14.000 | 13.250 | PS-425 | 10 | 10.0 | 14.000 | PS-400 | 10 | 12.0 |
| 12 14 | 12.750 | 16.000 | 15.250 | PS-425 | 12 | 10.0 | 16.000 | PS-400 | 12 | 12.0 |
| | 14.000 | 18.000 | 17.250 | PS-400 | 13 | 12.0 | 16.000 | PS-325 | 15 | 6.0 |
| 16 18 | 16.000 | 20.000 | 19.250 | PS-400 | 15 | 12.0 | 18.000 | PS-325 | 17 | 6.0 |
| | 18.000 | 24.000 | 23.250 | PS-500 | 16 | 23.0 | 22.000 | PS-575 | 20 | 20.0 |
| 20 22 | 20.000 | 24.000 | 23.250 | PS-400 | 18 | 12.0 | 24.000 | PS-575 | 22 | 20.0 |
| | 22.000 | 26.000 | 25.250 | PS-400 | 20 | 12.0 | 26.000 | PS-575 | 24 | 20.0 |
| 24 26 | 24.000 | 30.000 | 29.250 | PS-500 | 21 | 23.0 | 28.000 | PS-575 | 26 | 20.0 |
| | 26.000 | 30.000 | 29.250 | PS-400 | 23 | 12.0 | 30.000 | PS-575 | 28 | 20.0 |
| 28 30 | 28.000 | 34.000 | 33.250 | PS-500 | 24 | 23.0 | 32.000 | PS-575 | 30 | 20.0 |
| | 30.000 | 36.000 | 35.250 | PS-500 | 26 | 23.0 | 34.000 | PS-575 | 32 | 20.0 |
| 32 34 | 32.000 | 38.000 | 37.250 | PS-500 | 27 | 23.0 | 36.000 | PS-575 | 34 | 20.0 |
| | 34.000 | 40.000 | 39.250 | PS-500 | 29 | 23.0 | 38.000 | PS-575 | 36 | 20.0 |
| 36 42 | 36.000 | 42.000 | 41.250 | PS-500 | 31 | 23.0 | 40.000 | PS-575 | 38 | 20.0 |
| | 42.000 | 48.000 | 47.250 | PS-500 | 36 | 23.0 | 46.000 | PS-575 | 44 | 20.0 |
| 48 | 48.000 | 54.000 | 53.250 | PS-500 | 41 | 23.0 | 52.000 | PS-575 | 50 | 20.0 |

Notes: 1. Minimum recommended sleeve length or wall thickness is 4" for PEN-SEAL Model PS-325 and smaller and 6" for Models PS-400 and larger.
 2. PEN-SEAL weights are based on a ten (10) link belt.
 ** PEN-SEAL sets are sold in belts of ten (10) links.



Sizing Table for Copper Tubing

| NOMINAL PIPE SIZE (Inches) | ACTUAL PIPE O.D. (Inches) | Standard Weight Steel or PVC Pipe Sleeve ¹ | | | | | Cast or Core Bit Drilled Hole ¹ | | | |
|----------------------------|---------------------------|---|-----------------------------|----------------------|--------------------------|------------------------------------|--|----------------------|--------------------------|------------------------------------|
| | | SLEEVE NOMINAL PIPE SIZE (Inches) | SLEEVE ACTUAL I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² | HOLE I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² |
| 0.5 | 0.625 | 2.000 | 2.067 | PS-275 | 4 | 1.0 | 2.000 | PS-275 | 4 | 1.0 |
| 0.75 | 0.875 | 2.000 | 2.067 | PS-200 | 4 | 1.0 | 2.000 | PS-200 | 4 | 1.0 |
| 1 | 1.125 | 2.500 | 2.469 | PS-275 | 5 | 1.0 | 3.000 | PS-315 | 4 | 3.5 |
| 1.25 | 1.375 | 3.000 | 3.068 | PS-300 | 4 | 2.5 | 3.000 | PS-300 | 4 | 2.5 |
| 1.5 | 1.625 | 3.000 | 3.548 | PS-275 | 7 | 1.0 | 3.000 | PS-275 | 7 | 1.0 |
| 2 | 2.125 | 3.500 | 4.026 | PS-275 | 8 | 1.0 | 3.500 | PS-275 | 8 | 1.0 |
| 2.5 | 2.625 | 4.000 | 4.026 | PS-275 | 10 | 1.0 | 4.000 | PS-275 | 10 | 1.0 |
| 3 | 3.125 | 5.000 | 5.047 | PS-325 | 4 | 6.0 | 5.000 | PS-325 | 4 | 6.0 |
| 4 | 4.125 | 6.000 | 6.065 | PS-325 | 5 | 6.0 | 6.000 | PS-325 | 5 | 6.0 |
| 6 | 6.125 | 8.000 | 7.981 | PS-325 | 7 | 6.0 | 8.000 | PS-325 | 7 | 6.0 |
| 8 | 8.125 | 10.000 | 10.020 | PS-325 | 9 | 6.0 | 10.000 | PS-325 | 9 | 6.0 |
| 10 | 10.125 | 14.000 | 12.000 | PS-400 | 10 | 12.0 | 14.000 | PS-475 | 14 | 11.0 |
| 12 | 12.125 | 16.000 | 15.250 | PS-400 | 12 | 12.0 | 16.000 | PS-475 | 16 | 11.0 |

Sizing Table for Electrical Metallic Tubing (EMT)

| NOMINAL PIPE SIZE (Inches) | ACTUAL PIPE O.D. (Inches) | Standard Weight Steel or PVC Pipe Sleeve ¹ | | | | | Cast or Core Bit Drilled Hole ¹ | | | |
|----------------------------|---------------------------|---|-----------------------------|----------------------|--------------------------|------------------------------------|--|----------------------|--------------------------|------------------------------------|
| | | SLEEVE NOMINAL PIPE SIZE (Inches) | SLEEVE ACTUAL I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² | HOLE I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² |
| 0.5 | 0.706 | 2.000 | 2.067 | PS-275 | 4 | 1.0 | 2.000 | PS-275 | 4 | 1.0 |
| 0.75 | 0.922 | 2.000 | 2.067 | PS-200 | 4 | 1.0 | 2.000 | PS-200 | 4 | 1.0 |
| 1 | 1.163 | 3.000 | 3.068 | PS-315 | 4 | 3.5 | 3.000 | PS-315 | 4 | 3.5 |
| 1.25 | 1.510 | 3.000 | 3.068 | PS-300 | 4 | 2.5 | 3.000 | PS-300 | 4 | 2.5 |
| 1.5 | 1.740 | 3.500 | 3.548 | PS-315 | 5 | 3.5 | 3.500 | PS-315 | 7 | 3.5 |
| 2 | 2.197 | 4.000 | 4.026 | PS-315 | 6 | 3.5 | 4.000 | PS-315 | 8 | 3.5 |
| 2.5 | 2.875 | 4.000 | 4.026 | PS-200 | 9 | 1.0 | 4.000 | PS-200 | 10 | 1.0 |
| 3 | 3.500 | 5.000 | 5.047 | PS-300 | 8 | 2.5 | 5.000 | PS-300 | 4 | 2.5 |
| 3.5 | 4.000 | 6.000 | 6.065 | PS-325 | 5 | 6.0 | 6.000 | PS-325 | 5 | 6.0 |
| 4 | 4.500 | 6.000 | 6.065 | PS-300 | 10 | 2.5 | 6.000 | PS-300 | 7 | 2.5 |

Sizing Table for Intermediate Metal Conduit (IMC)

| NOMINAL PIPE SIZE (Inches) | ACTUAL PIPE O.D. (Inches) | Standard Weight Steel or PVC Pipe Sleeve ¹ | | | | | Cast or Core Bit Drilled Hole ¹ | | | |
|----------------------------|---------------------------|---|-----------------------------|----------------------|--------------------------|------------------------------------|--|----------------------|--------------------------|------------------------------------|
| | | SLEEVE NOMINAL PIPE SIZE (Inches) | SLEEVE ACTUAL I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² | HOLE I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² |
| 0.5 | 0.815 | 2.000 | 2.067 | PS-200 | 4 | 1.0 | 2.000 | PS-200 | 4 | 1.0 |
| 0.75 | 1.029 | 2.000 | 2.067 | PS-200 | 4 | 1.0 | 2.500 | PS-275 | 6 | 1.0 |
| 1 | 1.290 | 2.500 | 2.469 | PS-275 | 6 | 1.0 | 3.000 | PS-300 | 4 | 2.5 |
| 1.25 | 1.638 | 3.500 | 3.548 | PS-315 | 5 | 3.5 | 3.000 | PS-275 | 7 | 1.0 |
| 1.5 | 1.883 | 3.500 | 3.548 | PS-300 | 5 | 2.5 | 3.500 | PS-300 | 5 | 2.5 |
| 2 | 2.360 | 4.000 | 4.026 | PS-300 | 6 | 2.5 | 4.000 | PS-300 | 6 | 2.5 |
| 2.5 | 2.857 | 4.000 | 4.026 | PS-200 | 9 | 1.0 | 4.000 | PS-200 | 9 | 1.0 |
| 3 | 3.476 | 5.000 | 5.047 | PS-300 | 8 | 2.5 | 5.000 | PS-300 | 8 | 2.5 |
| 3.5 | 3.971 | 6.000 | 6.065 | PS-325 | 5 | 6.0 | 6.000 | PS-325 | 5 | 6.0 |
| 4 | 4.466 | 6.000 | 6.065 | PS-300 | 10 | 2.5 | 6.000 | PS-300 | 10 | 2.5 |

- Notes: 1. Minimum recommended sleeve length or wall thickness is 4" for PEN-SEAL Model PS-325 and smaller and 6" for Models PS-400 and larger.
 2. PEN-SEAL weights are based on a ten (10) link belt.
 ** PEN-SEAL sets are sold in belts of ten (10) links.



Sizing Table for Rigid Steel Conduit (RSC)

| NOMINAL PIPE SIZE (Inches) | ACTUAL PIPE O.D. (Inches) | Standard Weight Steel or PVC Pipe Sleeve ¹ | | | | | Cast or Core Bit Drilled Hole ¹ | | | |
|----------------------------|---------------------------|---|-----------------------------|----------------------|--------------------------|------------------------------------|--|----------------------|--------------------------|------------------------------------|
| | | SLEEVE NOMINAL PIPE SIZE (Inches) | SLEEVE ACTUAL I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² | HOLE I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² |
| 0.5 | 0.840 | 2.000 | 2.067 | PS-200 | 4 | 1.0 | 2.000 | PS-200 | 4 | 1.0 |
| 0.75 | 1.050 | 2.500 | 2.469 | PS-275 | 6 | 1.0 | 2.500 | PS-275 | 6 | 1.0 |
| 1 | 1.315 | 2.500 | 2.469 | PS-200 | 5 | 1.0 | 3.000 | PS-300 | 4 | 2.5 |
| 1.25 | 1.660 | 3.500 | 3.548 | PS-315 | 5 | 3.5 | 3.000 | PS-275 | 7 | 1.0 |
| 1.5 | 1.900 | 3.500 | 3.548 | PS-300 | 5 | 2.5 | 3.500 | PS-200 | 5 | 1.0 |
| 2 | 2.375 | 4.000 | 4.026 | PS-300 | 6 | 2.5 | 4.000 | PS-300 | 6 | 2.5 |
| 2.5 | 2.875 | 4.000 | 4.026 | PS-200 | 9 | 1.0 | 4.000 | PS-200 | 9 | 1.0 |
| 3 | 3.500 | 5.000 | 5.047 | PS-300 | 8 | 2.5 | 5.000 | PS-300 | 8 | 2.5 |
| 3.5 | 4.000 | 6.000 | 6.065 | PS-325 | 5 | 6.0 | 6.000 | PS-325 | 5 | 6.0 |
| 4 | 4.500 | 6.000 | 6.065 | PS-300 | 10 | 2.5 | 6.000 | PS-300 | 10 | 2.5 |
| 5 | 5.563 | 8.000 | 7.981 | PS-425 | 6 | 10.0 | 8.000 | PS-425 | 6 | 10.0 |
| 6 | 6.625 | 8.000 | 7.981 | PS-300 | 15 | 2.5 | 10.000 | PS-475 | 10 | 11.0 |

Sizing Table for Ductile Iron Pipe (AWWA-Type)

| NOMINAL PIPE SIZE (Inches) | ACTUAL PIPE O.D. (Inches) | Standard Weight Steel or PVC Pipe Sleeve ¹ | | | | | Cast or Core Bit Drilled Hole ¹ | | | |
|----------------------------|---------------------------|---|-----------------------------|----------------------|--------------------------|------------------------------------|--|----------------------|--------------------------|------------------------------------|
| | | SLEEVE NOMINAL PIPE SIZE (Inches) | SLEEVE ACTUAL I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² | HOLE I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² |
| 2 | 2.500 | 4.000 | 4.026 | PS-300 | 6 | 2.5 | 4.000 | PS-300 | 6 | 2.5 |
| 2.25 | 2.750 | 5.000 | 5.047 | PS-325 | 4 | 6.0 | 5.000 | PS-325 | 5 | 6.0 |
| 3 | 3.960 | 6.000 | 6.065 | PS-325 | 5 | 6.0 | 6.000 | PS-325 | 5 | 6.0 |
| 4 | 4.800 | 8.000 | 7.981 | PS-410 | 7 | 12.0 | 8.000 | PS-410 | 7 | 12.0 |
| 6 | 6.900 | 10.000 | 10.020 | PS-400 | 7 | 12.0 | 10.000 | PS-400 | 7 | 12.0 |
| 8 | 9.050 | 12.000 | 12.000 | PS-400 | 9 | 12.0 | 12.000 | PS-400 | 9 | 12.0 |
| 10 | 11.100 | 14.000 | 13.250 | PS-325 | 12 | 6.0 | 14.000 | PS-400 | 10 | 12.0 |
| 12 | 13.200 | 16.000 | 15.250 | PS-325 | 14 | 6.0 | 16.000 | PS-425 | 12 | 10.0 |
| 14 | 15.300 | 18.000 | 17.250 | PS-325 | 16 | 6.0 | 18.000 | PS-425 | 14 | 10.0 |
| 16 | 17.400 | 20.000 | 19.250 | PS-315 | 39 | 3.5 | 20.000 | PS-425 | 16 | 10.0 |
| 18 | 19.500 | 24.000 | 23.250 | PS-475 | 25 | 11.0 | 22.000 | PS-425 | 18 | 10.0 |
| 20 | 21.600 | 26.000 | 25.250 | PS-475 | 28 | 11.0 | 26.000 | PS-525 | 19 | 21.0 |
| 24 | 25.800 | 30.000 | 29.250 | PS-400 | 23 | 12.0 | 30.000 | PS-575 | 28 | 20.0 |
| 30 | 32.000 | 38.000 | 37.250 | PS-500 | 27 | 23.0 | 36.000 | PS-575 | 34 | 20.0 |
| 36 | 38.300 | 42.000 | 41.250 | PS-400 | 34 | 12.0 | 43.000 | PS-525 | 33 | 21.0 |
| 42 | 44.500 | 48.000 | 47.250 | PS-425 | 39 | 10.0 | 49.000 | PS-525 | 38 | 21.0 |
| 48 | 50.800 | 54.000 | 53.250 | PS-425 | 45 | 10.0 | 56.000 | PS-500 | 43 | 23.0 |

- Notes: 1. Minimum recommended sleeve length or wall thickness is 4" for PEN-SEAL Model PS-325 and smaller and 6" for Models PS-400 and larger.
 2. PEN-SEAL weights are based on a ten (10) link belt.
 ** PEN-SEAL sets are sold in belts of ten (10) links.



Sizing Table for Cast Iron Soil Pipe (Extra Heavy)

| NOMINAL PIPE SIZE (Inches) | ACTUAL PIPE O.D. (Inches) | Standard Weight Steel or PVC Pipe Sleeve ¹ | | | | | Cast or Core Bit Drilled Hole ¹ | | | |
|----------------------------|---------------------------|---|-----------------------------|----------------------|--------------------------|------------------------------------|--|----------------------|--------------------------|------------------------------------|
| | | SLEEVE NOMINAL PIPE SIZE (Inches) | SLEEVE ACTUAL I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² | HOLE I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² |
| 2 | 2.380 | 4.000 | 4.026 | PS-300 | 6 | 2.5 | 4.000 | PS-300 | 6 | 2.5 |
| | 3 | 3.500 | 5.000 | 5.047 | PS-300 | 8 | 2.5 | 5.000 | PS-300 | 8 |
| 4 | 4.500 | 6.000 | 6.065 | PS-300 | 10 | 2.5 | 6.000 | PS-300 | 10 | 2.5 |
| | 5 | 5.500 | 8.000 | 7.981 | PS-425 | 6 | 10.0 | 8.000 | PS-425 | 6 |
| 6 | 6.500 | 10.000 | 10.020 | PS-475 | 10 | 11.0 | 10.000 | PS-475 | 10 | 11.0 |
| | 8 | 8.620 | 12.000 | 12.000 | PS-475 | 12 | 11.0 | 12.000 | PS-475 | 12 |
| 10 | 10.750 | 14.000 | 13.250 | PS-425 | 10 | 10.0 | 14.000 | PS-400 | 10 | 12.0 |
| | 12 | 12.750 | 16.000 | 15.250 | PS-425 | 12 | 10.0 | 16.000 | PS-400 | 12 |
| 15 | 15.880 | 20.000 | 19.250 | PS-400 | 15 | 12.0 | 20.000 | PS-575 | 18 | 20.0 |

Sizing Table for Cast Iron Soil Pipe (Service Weight)

| NOMINAL PIPE SIZE (Inches) | ACTUAL PIPE O.D. (Inches) | Standard Weight Steel or PVC Pipe Sleeve ¹ | | | | | Cast or Core Bit Drilled Hole ¹ | | | |
|----------------------------|---------------------------|---|-----------------------------|----------------------|--------------------------|------------------------------------|--|----------------------|--------------------------|------------------------------------|
| | | SLEEVE NOMINAL PIPE SIZE (Inches) | SLEEVE ACTUAL I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² | HOLE I.D. (Inches) | PEN-SEAL PART NUMBER | REQUIRED NUMBER OF LINKS | PEN-SEAL WEIGHT (lbs) ² |
| 2 | 2.300 | 4.000 | 1.026 | PS-300 | 6 | 2.5 | 4.000 | PS-300 | 6 | 2.5 |
| | 3 | 3.300 | 5.000 | 5.047 | PS-315 | 8 | 3.5 | 5.000 | PS-315 | 8 |
| 4 | 4.300 | 6.000 | 6.065 | PS-315 | 10 | 3.5 | 6.000 | PS-315 | 10 | 3.5 |
| | 5 | 5.300 | 8.000 | 10.020 | PS-425 | 6 | 10.0 | 8.000 | PS-425 | 6 |
| 6 | 6.300 | 10.000 | 10.020 | PS-475 | 10 | 11.0 | 10.000 | PS-475 | 10 | 12.0 |
| | 8 | 8.380 | 12.000 | 12.000 | PS-475 | 12 | 11.0 | 12.000 | PS-475 | 12 |
| 10 | 10.500 | 14.000 | 13.250 | PS-425 | 10 | 10.0 | 14.000 | PS-475 | 14 | 10.0 |
| | 12 | 12.500 | 16.000 | 15.250 | PS-425 | 12 | 10.0 | 16.000 | PS-475 | 17 |
| 15 | 15.620 | 20.000 | 19.250 | PS-475 | 21 | 11.0 | 18.000 | PS-425 | 15 | 10.0 |

- Notes: 1. Minimum recommended sleeve length or wall thickness is 4" for PEN-SEAL Model PS-325 and smaller and 6" for Models PS-400 and larger.
 2. PEN-SEAL weights are based on a ten (10) link belt.
 ** PEN-SEAL sets are sold in belts of ten (10) links.

PEN-SEAL

CALCULATING PEN-SEAL SIZES

Use the following method if you cannot find the correct pipe size or wall sleeve from the Sizing Charts on pages 4 through 7.

Step 1 Calculate the Annular Space

The Annular Space is the space between the Outside Diameter of the pipe and the Inside Diameter of the Wall Sleeve or opening. This is calculated by using the following formula:

$$\text{Annular Space} = \frac{\text{Wall Opening I.D.} - \text{Pipe O.D.}}{2}$$

Step 2 Selecting the PEN-SEAL Model

Select the proper PEN-SEAL model from the Dimensional Chart (shown below) by comparing the Annular Space to the Neutral State and Expanded State Thickness. The Annular Space calculated must fall between the Neutral State Thickness and the Expanded State Thickness.

Step 3 Calculate the Number of Links Required

First, calculate the Bolt Circle:

$$\text{Bolt Circle} = \frac{\text{Wall Opening I.D.} + \text{Pipe O.D.}}{2}$$

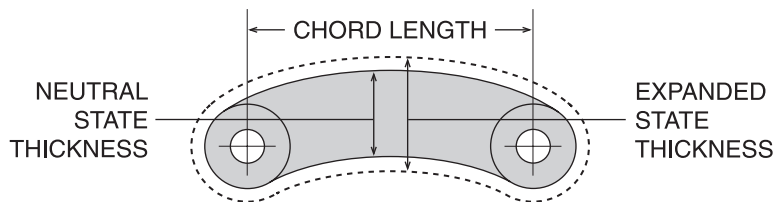
Then, determine the number of links required by using the following formula. Chord Length is found in the PEN-SEAL Dimensional Chart shown below.

$$\text{Number of Links} = \frac{\text{Bolt Circle} \times 3.14 (\pi)}{\text{Chord Length}}$$

Finally, the number of links determined must be rounded down to the next whole number.

Please Note: PEN-SEAL sets are sold in belts of ten (10) links.

PEN-SEAL Dimensional Chart



| SEALING RANGE | | | |
|---------------|----------------------------------|-----------------------------------|-----------------------|
| SIZE | NEUTRAL STATE THICKNESS (Inches) | EXPANDED STATE THICKNESS (Inches) | CHORD LENGTH (Inches) |
| PS-200 | 0.500 | 0.620 | 1.125 |
| PS-275 | 0.620 | 0.780 | 0.910 |
| PS-300 | 0.710 | 0.880 | 1.510 |
| PS-315 | 0.820 | 1.030 | 1.470 |
| PS-325 | 0.940 | 1.180 | 3.100 |
| PS-400 | 1.430 | 1.810 | 3.625 |
| PS-410 | 1.480 | 1.910 | 2.600 |
| PS-425 | 1.130 | 1.450 | 3.625 |
| PS-475 | 1.620 | 1.900 | 2.625 |
| PS-500 | 2.370 | 2.810 | 3.860 |
| PS-525 | 2.180 | 2.500 | 3.860 |
| PS-575 | 1.810 | 2.350 | 3.100 |
| PS-600 | 3.200 | 4.000 | 4.000 |

Materials Guide

| TYPE | SEAL MATERIAL | PRESSURE PLATES | BOLTS & NUTS | TEMPERATURE RANGE (°F) | APPLICATIONS* |
|-----------|---------------|--------------------------|-----------------------|------------------------|--|
| E | EPDM Black | GLASS REINFORCED PLASTIC | STEEL Zinc Dichromate | -40° to +250° | Suitable for most applications in water, above ground and direct burial. Provides electrical insulation where cathodic protection is required. |
| ES | EPDM Black | GLASS REINFORCED PLASTIC | STAINLESS STEEL (316) | -40° to +250° | Suitable for environments where the corrosion resistance of stainless steel hardware is required. |
| P | NITRILE | GLASS REINFORCED PLASTIC | STEEL Zinc Dichromate | -40° to +210° | Resistant to most hydrocarbons, oil, gas, jet fuel, and many solvents. |
| PS | NITRILE | GLASS REINFORCED PLASTIC | STAINLESS STEEL (316) | -40° to +210° | Same as above, but with corrosion resistance of stainless steel hardware. |
| K | SILICONE | STEEL Zinc Dichromate | STEEL Zinc Dichromate | -40° to +400° | High temperature applications. |

*For more details and complete chemical compatibility contact PROCO.

PEN-SEAL

WALL SLEEVES



Standard Weight Steel or PVC Pipe Sleeves

Available in steel or PVC, wall sleeves are positioned in the wall before the concrete is poured. Wall sleeves offer a cleaner installation for every engineered piping system.

| SLEEVE NOMINAL PIPE SIZE (Inches) | SLEEVE ACTUAL I.D. (Inches) | STANDARD SLEEVE LENGTH (Inches) | STANDARD WATERSTOP HEIGHT (Inches) | SLEEVE WEIGHT (lbs) | |
|-----------------------------------|-----------------------------|---------------------------------|------------------------------------|---------------------|--------|
| | | | | STEEL | PVC |
| 2.00 | 2.07 | 12.00 | 2.00 | 6.00 | 0.75 |
| 2.50 | 2.47 | 12.00 | 2.00 | 8.00 | 1.50 |
| 3.00 | 3.07 | 12.00 | 2.00 | 10.00 | 1.50 |
| 3.50 | 3.55 | 12.00 | 2.00 | 12.00 | 1.75 |
| 4.00 | 4.03 | 12.00 | 2.00 | 14.00 | 2.00 |
| 5.00 | 5.05 | 12.00 | 2.00 | 18.00 | 2.75 |
| 6.00 | 6.07 | 12.00 | 2.00 | 23.00 | 2.75 |
| 8.00 | 7.98 | 12.00 | 2.00 | 34.00 | 3.75 |
| 10.00 | 10.02 | 12.00 | 2.00 | 47.00 | 5.00 |
| 12.00 | 12.00 | 12.00 | 2.00 | 57.00 | 5.00 |
| 14.00 | 13.25 | 12.00 | 2.00 | 62.00 | 6.50 |
| 16.00 | 15.25 | 12.00 | 2.00 | 72.00 | 7.25 |
| 18.00 | 17.25 | 12.00 | 2.00 | 80.00 | 11.25 |
| 20.00 | 19.25 | 12.00 | 2.00 | T.B.D. | 12.00 |
| 22.00 | 21.25 | 12.00 | 2.00 | T.B.D. | 17.50 |
| 24.00 | 23.25 | 12.00 | 2.00 | T.B.D. | 22.00 |
| 26.00 | 25.25 | 12.00 | 2.00 | T.B.D. | 23.00 |
| 28.00 | 27.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 30.00 | 29.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 32.00 | 31.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 34.00 | 33.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 36.00 | 35.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 38.00 | 37.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 40.00 | 39.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 42.00 | 41.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 44.00 | 43.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 46.00 | 45.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 48.00 | 47.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 50.00 | 49.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 52.00 | 51.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |
| 54.00 | 53.25 | 12.00 | 2.00 | T.B.D. | T.B.D. |

Custom lengths and heights available upon request.

PEN-SEAL

Order Form / RFQ

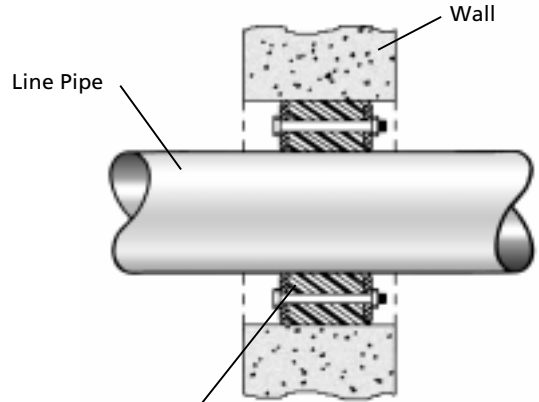
PEN-SEAL / MODEL PS

The PROCO PRODUCTS PEN-SEAL forms a mechanical rubber seal between pipes going through walls, floors, vaults, tanks, and pipeline casings and makes a watertight seal between a pipe and a wall hole. It can also be used to seal a gap between an inner pipe and an outer pipe sleeve or pipeline casing. The PEN-SEAL also will seal the gap between the electrical conduit and the outer conduit, or between the electrical conduit and the wall hole it passes through.

PROCO PRODUCTS PEN-SEAL is designed to form a hydrostatic seal of up to 20 psig and up to 40 feet of head. The PEN-SEAL, in addition to its sealing properties, helps absorb vibrations, shocks, and sound waves. It also insulates the inner pipe from all other outer structures, including outer pipe sleeves, pipeline casings, walls and tanks.

The PEN-SEAL is made from synthetic rubber with heavy-duty plastic pressure plates, which are resistant to sunlight and ozone. All bolts and nuts are plated with an anti-corrosive coating. Stainless steel nuts and bolts are also available.

- IPS = Schedule 40 or Standard Weight Pipe
Plastic Pipe
API Pipe
Electrical Conduit
Any pipe with same O.D.
- CT = Copper Tubing
Any pipe with same O.D.
- EMT = Electrical Metallic Tubing
- IMC = Intermediate Metal Conduit
- RSC = Rigid Steel Conduit
- DI = Ductile Iron Pipe
Plastic Pipe
Any pipe with same O.D.
- CI (EH) = Cast Iron (Extra Heavy)
- CI (SW) = Cast Iron (Service Weight)



PEN-SEAL Wall Penetration Seal by PROCO PRODUCTS, INC.

To use as Order Form or Request For Quotation (RFQ), photocopy this page and fax your information to PROCO PRODUCTS, INC. at (209) 943-0242.

| QTY. | NOMINAL PIPE SIZE (Inches) | TYPE OF PIPE | PIPE O.D. | INNER PIPE THROUGH A CORE DRILLED HOLE | | | INNER PIPE THROUGH A WALL SLEEVE | | | NOTES |
|------|----------------------------|--------------|-----------|--|-----------------------|--------------------------|----------------------------------|-----------------------|--------------------------|-------|
| | | | | HOLE DIA. (Inches) | PEN-SEAL MODEL NUMBER | REQUIRED NUMBER OF LINKS | SLEEVE I.D. (Inches) | PEN-SEAL MODEL NUMBER | REQUIRED NUMBER OF LINKS | |
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CUSTOMER _____

PROJECT _____

ENGINEER _____

ARCHITECT _____

ORDER NO. _____



PROCO
PROCO PRODUCTS, INC.

The Expansion Joint and Check Valve People

DESCRIPTION: **PEN-SEAL / MODEL PS**

| | | |
|------------------|---------------|----------------------|
| DRAWN BY: MWL | DATE: 4/02 | DRAWING: PEN-SEAL |
|------------------|---------------|----------------------|

PEN-SEAL

Easy Installation



1. Properly select the size of the PEN-SEAL required to seal the penetration using the Sizing Charts on pages 4 through 7.



2. Wrap the PEN-SEAL around the pipe and connect the ends.



3. Slide the PEN-SEAL into position.



4. Tighten each bolt on each pressure plate about 2–3 turns, going around the pipe (do not cross-tighten bolts) until a proper seal is formed. A socket or offset wrench for 5/16, 1/2, 3/8, 9/16, 3/4, or 1-13/16" bolts will handle all installations.



The Expansion Joint and Check Valve People

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