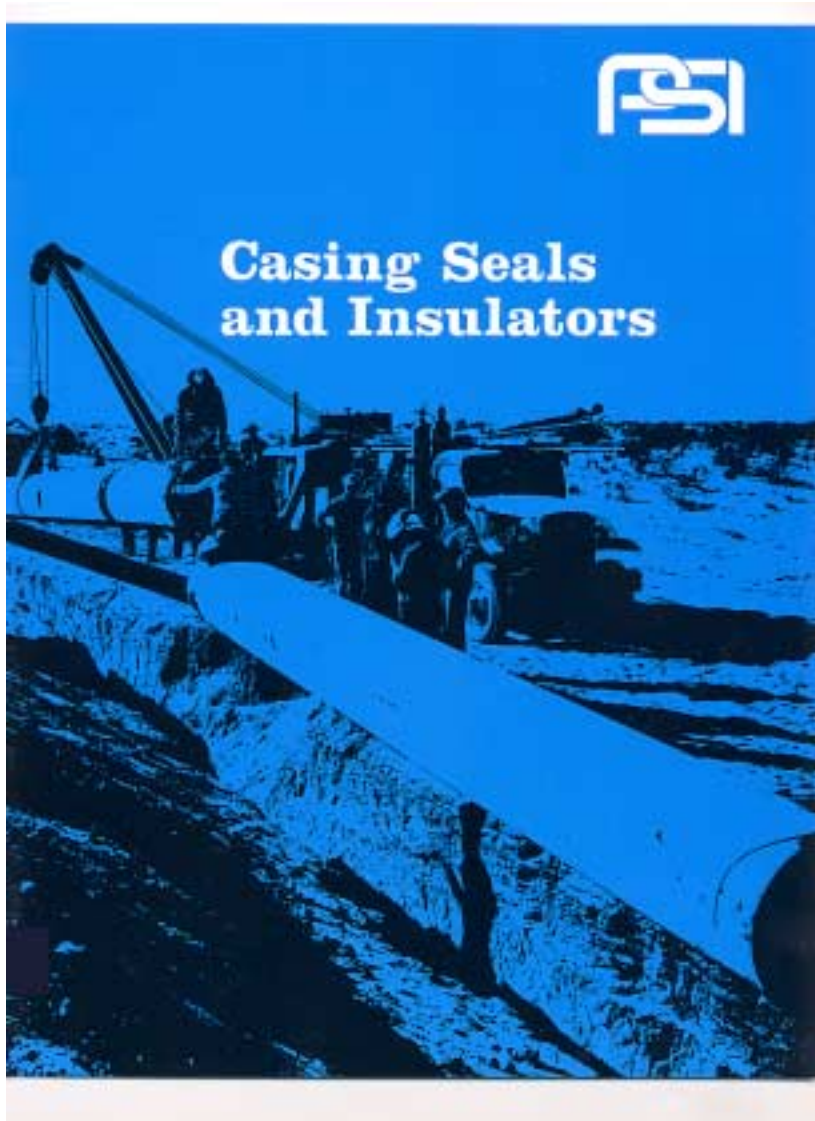




Casing Seals and Insulators



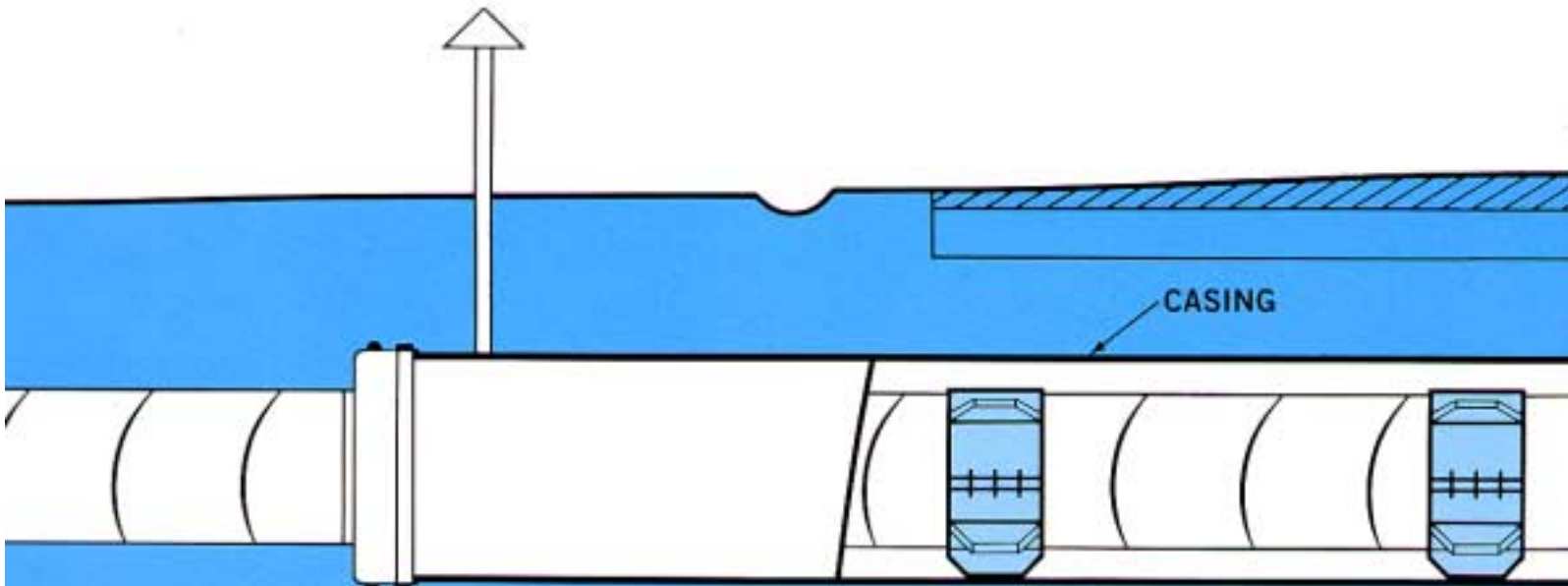


PSI is one of the world's leading manufacturers of products for the oil, gas, chemical, power and related industries. Manufacturing facilities are located in the United States and Europe, with sales and service facilities located worldwide.

Casing insulators developed and manufactured by Pipeline Seal and Insulator, Inc. are used throughout the world to support and electrically insulate a pipeline from a casing or appurtenance

through which it must pass. PSI end seals of various configurations and materials are used to seal the ends of the casing.

Tough, heavy duty steel casing insulators are available for large diameter pipe, for unusually heavy pipe, for long casings, or wherever maximum strength and toughness are required. Plastic casing insulators are available for use where economy is a major consideration. Both are available in a wide range of sizes, materials and runner configurations.



Typical Road Crossing

The drawing above illustrates a typical road crossing. Similar applications apply to river crossings, canal crossings, bridge crossings and insertion of smaller pipe in existing old pipelines. Recommended maximum spacing of

crossing insulators to prevent coating damage on normal crossings is:

Model PE - 8 feet (2.4M) to 12 feet (3.7M)

Model A8/C8 - 10 feet (3.0M) to 15 feet (4.6M)

Model A12/C12 - 12 feet (3.7M) to 18 feet (5.5M)

Special Applications

On AC pipe, place spacers at marked support points when available. Insert shows use of spacers for asbestos-cement or cast iron pipe. One spacer should be installed on each side of joint to support the weight of the pipe and contents.

Insulator - Maximum of one foot (.3M) from each side of joint.



AC Coupling or
Cast Iron Joint



PSI Casing Seals and Insulators

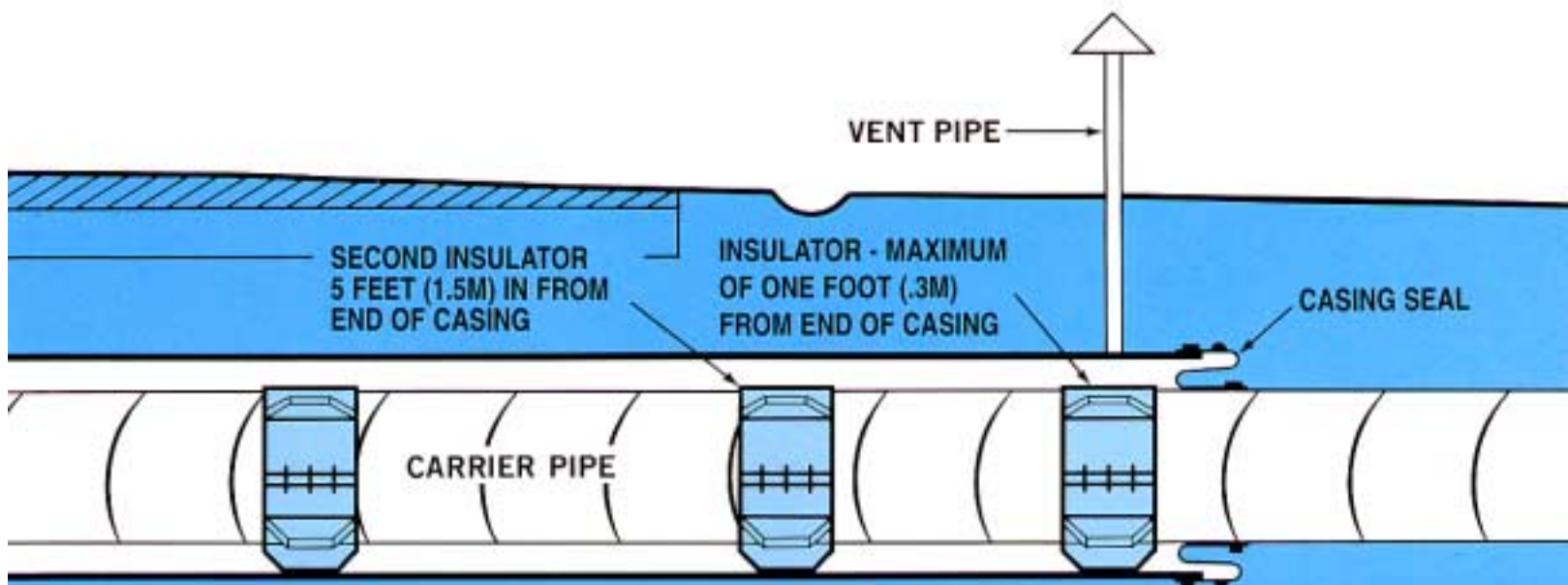
Specially designed casing insulators and end seals are available to meet the requirements of virtually any individual application.

The toughest, most rugged casing insulator is the least expensive part of the pipeline crossing installation — but, the casing insulator selected for low initial cost, and without due consideration

for quality in design and construction, can become the most expensive part of the installation — if it fails.

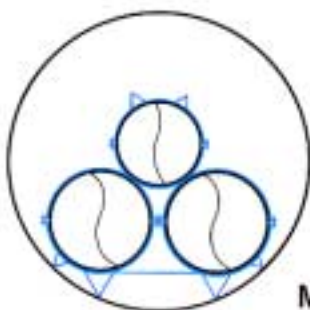
Don't take your casing insulators for granted. Look to PSI for casing insulators that are designed and built to stand up during installation and to serve for the life of the pipeline.

- **Steel casing insulators for maximum strength and toughness.**
- **Plastic casing insulators for low initial cost.**
- **Casing end seals for all types of sealing requirements.**
- **PLUS, specially-engineered casing insulators for virtually any casing insulation job — large, small or unusual.**



The use of a full insulator within 6" (152mm) of each end of the casing is recommended. (Cradles may be substituted if stable soil conditions permit). All insulators must be firmly bolted around pipe.

Casing end seals should be installed as indicated to allow for lateral movement of pipe due to expansion and contraction.



Multiple Carrier

Special Applications

Special application of insulators for multiple carrier pipes in a single casing.

Model PE Plastic casing insulators for economy in casing insulation

High density (linear), injection molded polyethylene casing insulators provide positive insulation, high abrasion resistance and low coefficient of friction. They are available in sizes from 3/4" (19mm) through 48" (1200mm) and larger.

- Ribbed inner surface prevents slippage and guards against coating damage
- Molded from virgin polyethylene material
- Light weight for ease of handling and installation
- Screwdriver only needed for installation

Sizes 3/4" (19mm) through 12" (300mm) are made in two halves, while sizes 14" (350mm) and larger are made in multiple segments. Special runner heights are available on 4" (100mm), 6" (150mm) and 8" (200mm) insulators to facilitate their use for 2" (50mm) as well as 4" (100mm) and larger carrier-casing differentials. Special runner heights are available on 14" (350mm) and larger insulators to facilitate their use for 4" (100mm), 6" (150mm) carrier-casing differentials.*

Specifications:

Compressive strength (ASTM D693) - 3200 psi (225 kg/cm²)
Tensile strength (ASTM D638, D651) - 3100-5500 psi (218-387 kg/cm²)
Water absorption (ASTM D570) - 0.1%
Temperature - 180°F Max. (80°C)
Impact strength (ASTM D256) - 1.5-2.0 ft. lb/in. (.8 newton-meter/cm.)
Color - Natural
Bolts and Nuts - Cadmium plated steel (square nuts)

Plastic cradles are available in sizes from 3/4" (19mm) through 48" (1200mm) and larger. Cradles for 3/4" (19mm) through 12" (300mm) consist of one-half of the corresponding size full casing insulator. Multi-segmented cradles, made of sections of the larger casing insulators, are used for 14" (350mm) and larger.



*Casing insulators are available for both American and European standards.

Model A8 Model A12



A choice of steel casing insulators for every piping requirement

MODEL A8 - Steel casing insulator with an 8" (203.2mm) wide steel band.

MODEL A12 - Steel casing insulator with a 12" (304.8mm) wide steel band.

Any of the runners pictured to the right may be used with the above casing insulators. Other runners are available on request. To order, indicate band width and type of runner desired. For example, a steel casing insulator with a 12" (304.8mm) wide band (A12) and 1" (25.4mm) wide glass reinforced runners (G-1) would be ordered by indicating A12G-1.

PSI combines innovation in design, expertise in manufacturing and a long-standing knowledge and awareness of the industry's requirements to produce steel casing insulators that will serve virtually every piping application.

Standard models include sizes 4" (100mm) and larger with 8" (203.2mm) and 12" (304.8mm) band widths to provide the optimum strength for every requirement.

Specially designed models include a nest of prefabricated casing insulators for use with multiple carrier casings, special centering insulators to improve the endurance of expandable type end seals and insulators with "high rise" runners for large diameter casings.

You get these features and more with a PSI steel casing insulator:

- A casing insulator that is custom made for your job
- A ribbed inner liner surface that prevents slippage and protects the coating
- Runners that are welded to the band per AWS specifications
- A heavy retaining edge on the liner for extra coating protection
- Deeply embossed flanges that allow adequate tightening to prevent slippage
- Non-conductive inner liner that provides back-up insulation
- A corrosion resistant finish or a special, lifetime plastic coating (see below)

Model C8G-2 Model C12G-2



Fusion coated steel casing insulators for the ultimate in strength, toughness and extended life

MODEL C8G-2 - Coated casing insulator with an 8" (203.2mm) wide steel band and 2" (50.8mm) wide glass reinforced runners.

MODEL C12G-2 - Coated casing insulator with a 12" (304.8mm) wide steel band and 2" (50.8mm) wide glass reinforced runners.

Only 2" (50.8mm) wide glass reinforced runners available on coated insulators.

See other side flap for coating specifications.

To order indicate band width and type of runner desired. For example, a steel casing insulator with a 12" (304.8mm) wide steel band (C12) and 2" (50.8mm) wide glass reinforced runners (G-2) would be ordered by indicating C12G-2.

and a choice of runners to match



1" (25.4mm) Wide Glass Reinforced Plastic Runner (G-1)

All plastic insulating runner 14 Ga. hot rolled, pickled steel angles

Sizes available:

Length

8.5" (21.6cm)

12.5" (31.8cm)

Effective height

1.070" & 1.700" (27.2mm & 43.2mm)

1.070" & 1.700" (27.2mm & 43.2mm)



2" (50.8mm) Wide Glass Reinforced Plastic Runner (G-2)

2" (50.8mm) wide glass reinforced plastic molded under high pressure

Sizes available: Length - 7" & 11" (17.8cm & 27.9cm)

Effective heights (all lengths) - 1.07" (27.2 mm) & 1.7" (43.2mm)

Material Specifications: Rockwell hardness (M) - (ASTM D785) - 90

Tensile strength - (ASTM D638) - 17,600 psi (1238 kg/cm²)

Flexural strength - (ASTM D790) - 25,300 psi (1779 kg/cm²)

Compression strength - (ASTM D695) - 18,000 psi (1266 kg/cm²)

(10% deformation)

Deflection temp. @264 psi (18.5 kg/cm²) - (ASTM D648) - 405°F (205°C)

Deformation under load

(@ 122°F (50°C) - 2000 lb.(910 kg) load) - (ASTM D621) - 1.2%



***Steel Runner - Non-Insulating (S)**

12 Ga. hot rolled pickled steel or heavier, V formed with no loss of thickness.

* Consult factory

Other runners are available on request. Please contact factory for sizes and material specifications. See PSI Casing Spacer Brochure for water and sewer pipe application.

Steel casing insulators for maximum strength and toughness

Innovation is a habit at PSI - and it has resulted in a series of "firsts" that are incorporated into the PSI line of steel casing insulators - making them the strongest, toughest and most rugged casing insulators in the industry.

Here, for example, are some of the features that were offered first to the industry by PSI, and have since become accepted standards for the industry:

Example No. 1 - PSI was the **first** to offer a plastic, steel capped runner, which combines the abrasion resistance of steel with the insulating qualities of plastic - and without the cold flow characteristics of rubber.

Example No. 2 - PSI was the **first** to offer a flange that is deeply embossed for added strength, and to permit more secure tightening of flange bolts.

Example No. 3 - PSI was the **first** to offer PVC inner lining as back-up insulation, and to protect the pipe coating.

Example No. 4 - PSI was the **first** to offer phenolic runners - the toughest of all materials for plastic runners.

Example No. 5 -

For the ultimate in strength, toughness and durability, it's the heat fused plastic coated steel casing insulator with reinforced plastic runners.

An extremely tough and durable heat fused plastic coating is now available on steel casing insulators in sizes 6" (150mm) and larger, with 8" (203.2mm) and 12" (304.8mm) band widths. The cold formed steel casing insulator band, complete with runner studs installed, is vapor degreased, primed, heated and fusion coated with plastic, providing a minimum .010" thick coating over the entire band, including the runner studs. A post cure cycle strengthens the bond and provides an even more uniform coating. Polyvinyl chloride is currently available as a standard coating. Other heat fused plastic coatings are also available on special order.

Polyvinyl Chloride Coating Specifications:

Durometer - shore A2 (10 Sec.) (ASTM D1706-61T)	- 80
Max. operating temperature (constant)	- 150°F (65°C)
Aging properties	- Excellent
Electrical properties (ASTM D149-61) (short time .010")	- 1380 V/Mil
Resistance:	
Salt spray (ASTM B117)	- Excellent
Acids	- Good
Alkalies	- Good

Casing insulators are equipped with 2" (50.8mm) wide reinforced plastic runners **molded under high pressure**.

The runners are attached with 3/8" (9.5mm) diameter studs, which are fusion welded to the band before it is plastic coated. They are recessed far below the wearing surface of the runner. After the runner is anchored to the band, the stud counterbore is filled to assure a water tight seal for the stud and lock fastener.

A choice of end seals for every pipeline casing application

All end seals have stainless steel bands and clamps — and require no special tools for installation.



The Standard Pull-On (Model S) is a highly flexible S-shaped seal for easy installation. It is made of special synthetic rubber for long life. Band locating ribs are on the outside, with special sealing ribs on the inside under the band to prevent leakage. Multiple clamps are available on the larger sizes. All popular carrier-casing combinations are available.



The Custom Pull-On (Model C) is individually designed for unusual carrier-casing combinations or where unusual lateral movement of carrier is expected. It is made of 1/8" (3.1mm) thick specially compounded synthetic rubber for long life and easy installation.



The Wrap-Around (Model W) is specially designed for use where a carrier line is welded together prior to installation of casing seal. To make installation it is only necessary to remove plastic from self-curing rubber and press exposed surfaces together. Available for all combinations of carrier-casing installations.



Fire Resistant Casing Seals (Model FW) have been developed exclusively for situations involving a need for fire retention. They are applicable to casings through dikes in tank farms, fire walls or wherever a casing may be in a fire prone area.

Warranty

All products are warranted against failure caused by manufacturing defects for a period of one year. Any product found to be defective and returned within one year from date of shipment will be replaced without charge.

The above warranty is made in lieu of, and we disclaim, any and all other warranties, expressed or implied, including the warranties of merchantability and fitness for a particular purpose, and buyer agrees to accept the products without any such warranties.

We hereby disclaim any obligation or liability or consequential damages, labor costs or any other claims or liabilities of any kind whatsoever.

Steel casing insulators

Specifications:

Band - 14 Ga. (.074") (1.88mm) steel, hot rolled and pickled. [12 Ga. (.104") (2.64mm) available on special order.] Two piece through 36" (900mm) carrier size, three piece 38" (950mm) carrier and larger.

Liner - Polyvinyl chloride

Thickness - .090" (2.29mm) min. Hardness - Durometer "A" 85-90

Dielectric strength [1/8" (3.18mm) thick] Surge test - 60,000 V. min. Step-by-step test - 58,000 V. min.

Water absorption - 1% max.

Studs, nuts and washers

Cadmium plated, 5/16" - 18 x 2 1/2" studs, 5/16" hex nuts, 5/16" washers SAE 2330

Number: 8" (203.2mm) band - 6 studs, 12 nuts and washers

12" (304.8mm) band - 8 studs, 16 nuts and washers

Runners - (See back of flap for types and specifications)

Number: 4" (100mm) through 14" (350mm) - 2 top, 2 bottom 16" through 36" - 2 top, 4 bottom
38" (950mm) and larger - Consult factory

All runners are projection welded to band per AWS specifications

Finish - Synthetic enamel with rust inhibiting pigment

Runner and finish specifications do not apply when ordering the coated casing insulators. See coated casing insulator specifications.

How to order

See order form on catalog page for Casing Materials