

**Introduction:**

Rain Shield Enclosures are a CAD designed, CNC produced, high quality engineered system, designed to “Protect” key, sensitive components and equipment from weather, moisture, severe conditions including “Wash-Down”. Shannon Rain Shield Protective Enclosures are flexible, easy to install, remove and reinstall, allowing quick access and easy equipment serviceability. The key benefit is reduced down time, labor savings & “Re-Usability”. Rain Shield will positively impact a Zero-Waste Initiative & enhance a V.P.P. (Volunteer Protection Program)

**Applications:** Light to Heavy Duty Commercial Settings, Indoors & Outdoors, mild Wash-Down Conditions, Sanitary Water, Soaps, Detergents & light acids. Valve Actuators, Controls, Control Panels, Circuit Boards, Motors, VFD’s, Electronics, Scales, Cable Trays & Critical Operational Components that require protection.

**Markets:** Institutional, Commercial, Industrial, Oil & Gas, Food Processing, Manufacturing, Institutional, Healthcare, Pharmaceutical, Chemical, Biological, Clear Room and or Laboratory Settings.

**Service Temperature Limits:** This design is to act as a “Protective Enclosure” Barrier with a maximum service temperature of 500°F (260°C).

**Jacketing Characteristics:** The RS500LFP Rain Shield Protective Enclosure is a PTFE Teflon® Perfluorocarbon Resin Jacketing - Material Weight 13.5oz/yd<sup>2</sup> (458g/m<sup>2</sup>). The jacketing material is chemical, weather, oil and water resistant. The RS500LFP Rain Shield includes fasteners for easy install, removal and re-installation.

**Blanket Construction:** Blanket construction shall be a “Double Sewn” lock stitch with a minimum 7 stitches/inch (2.8 stitches/CM). Blanket edges will have a tri-fold PTFE Teflon® jacketing binding. No raw cut jacket edge will be exposed. Stitching will be pure 100% PTFE thread.

**Identification I.D. Plate:** For easy identification and location, upon removal, a stainless steel or Aluminum name plate tag is riveted to each Protective Enclosure. 1/8” (3.2mm) embossed lettering will show location, description, size, pressure rating and tag number sequence.

**Record Keeping:** The correlating Project Documents & Production CAD Drawings will also be kept on file with the manufacturer for a minimum of 10 years after purchase. File library will include both CAD as well as ERP Database on purchase order documentation.

**Manufacture Origin:**

Rain Shield & Rain Shield Components must be made U.S.A.



**Gas Transmission Station  
Outdoor Valve Actuators**

**Project Qualifications:** All items to be treated will require a field takeoff prior to bid submittal, and must be reviewed for proper cost estimation. Upon receipt of project contract, each and every component must be field measured for retrofitting to existing field conditions and tagged with an identification tag corresponding to an item number for installation reference. At the time of installation, Rain Shield Enclosures must have a corresponding item number shown on the Rain Shield Protective Enclosure tag and must match to an existing field tag. No standard generic Rain Shield Enclosures will be accepted, unless previously approved by the customer.

**Project Accuracy and Effectiveness:** Demonstrate the efficacy of precision through the use of State-of-the-Art CAD Design. The efficacy of precision markings, with the ability to maintain a high degree of repetitiveness and control of manufacturing tolerances for locations of identification tags, stitch lines, Hook and Loop (Velcro®) and cut lines for fabric, through the use of State-of-the-Art CNC cutters.

**Warranty:** We guarantee that all custom manufactured Shannon Rain Shield Protective Enclosures will accommodate field condition geometry and fit correctly for optimum performance as per the design specification provided in the quotation process. In addition, for 18 months, Rain Shield Enclosures will cover the cost of replacing the Rain Shield Enclosure should failure occur, due to premature degradation of any component utilized in the Rain Shield Enclosure construction, as well as any defects due to poor workmanship.

**STANDARD FASTENER Velcro® Flaps:** Jacketing flaps are secured closed by the utilization of Hook/Loop (Velcro®) fasteners. A 2” (5CM) wide section of the Hook portion of the fastener will be stitched to the outer surface of the blanket. A 2” (5CM) wide section of the Loop portion will be aligned and stitched on the mating inner surface of an extended 2” or 2 ½” (5cm-6.4cm) jacketing flap.

#### **FASTENING OPTIONS:**

**“WIRETWISTS”:** A stainless steel wire 20 Gauge (0.5 mm<sup>2</sup>) will be doubled up and twisted in a spiral fashion, with a minimum of 5-7 twists/Inch (2-3 twists/cm). Wiretwist length will be 16” (40 cm). The Wiretwist will be secured to the lacing pin at the pin stem. Pin stems will be 14 gauge (2.5 mm<sup>2</sup>). Wiretwists will be spaced at most 6” (15 cm) on center along closing seams with matching lacing pins for securing.

#### **Dual Lock® Fastener**

Jacketing flaps utilize a Dual Lock Hook/Hook Fastener. A 1” (2.5cm) wide Hook portion of the fastener will be stitched to the inner jacketing surface. A 1” wide Hook portion will be aligned and stitched onto the mating/matching flap.

**Metal “D” Ring Strap with Velcro Tab:** A three layer fabric strap is double sewn. One strap is a 12” (30 cm) long pull-down strap, the other is a 3” (8 cm) long stationary strap. Both straps are stitched to the outer jacketing of the blanket. The stationary strap includes a metal “D” Ring measuring 1”-1.5” wide (2.5-3.8 cm). This is placed ½” (1 cm) from the closing seam edge. The pull-down strap is placed 2” (5 cm) in from the closing seam edge. Both matching straps are spaced along the closing seam edge no greater than 6” (15 cm) apart. The pull-down strap includes hook-and-loop Velcro®, measuring at least 1” (2.5 cm) wide by 5” (12.7 cm) long, and is perimeter stitched to the strap surface. All closing seams have a 1.5” (3.8 cm) extended fabric flap, which is placed along the stationary strap side of the closing seam.

#### **Assembly Drawing Requirements:**

Each blanket insulation project will include an instruction package shipped with the blanket material. This package will include Assembly Drawings identifying piece location, a Material List of all pieces and Instructions for Installation on how Shannon Blanket will be installed. Accurate CAD files & project records must be kept by the manufacturer. For a minimum of ten years these records will assure accuracy in re-ordering and part replacement. All blankets are to be CAD designed / CNC produced to assure the highest manufactured quality and precise design fit.

#### **Project Accuracy:**

Demonstrate the efficacy of precision, through the use of State-Of-The Art CAD Design. The efficacy of precision markings with the ability to maintain a high degree of repetitiveness and control of manufacturing tolerances for locations of I.D. tags, stitch lines, cut lines for stuffing, cutting of jacketing materials and cutting of insulation through the use of State-Of-The-Art CNC cutting systems & software.

#### **Project Qualifications:**

All items insulated will require a site visit prior to bid submittal. Upon receipt of project contract, each item must be field measured for “Custom Fitting” to existing field conditions. Each item must be tagged and or marked for installation reference. At the time of installation, blankets must have a corresponding tag on the blanket and must match to an existing tag on the fitting. No generic standard blanket designs will be accepted. This will assure a “Custom Fit” design with maximum thermal efficiency.

#### **Warranty:**

We guarantee that all custom manufactured blankets will accommodate vibration probes, gauges, tubing, piping, brackets, etc. and fit correctly for optimum performance as per the design specification provided in the quotation process. In addition, for 18 months we will cover the cost of replacing the blanket should the failure be due to premature degradation of any component utilized in the blanket construction, as well as any defects due to poor workmanship.

#### **Design Construction Sample:**

Upon bid submittal a blanket design sample must be presented for review and product approval. A 7”x9” (18 CM x 23 CM) Sample will be required and must identify all characteristics mentioned in the above fabrication requirements. Any deviations from the above stated requirements may result in a bid rejection.

#### **Installation Guidelines:**

Shannon Rain Shield Protective Enclosures will follow these simple guidelines:

- Once material is received, open boxes with care. DO NOT “cut” deep into container to avoid damaging blankets.
- Locate the Instructions for Installation.
- Follow the Material List to determine blanket part number.
- Refer to the Assembly Drawing for orientation of each blanket part number and installation details of each part.
- Locate the Identification Tag on each blanket, for correct description and sequence of blankets.
- Material is installed in tag number sequence.

**NEMA Type 3R**

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow); and that will be undamaged by the external formation of ice on the enclosure.

**Typical Product Properties Specifications**

**Jacketing Material** PTFE Perfluorocarbon Resin Jacketing - Material Weight 13.5 oz/yd<sup>2</sup> (458g/m<sup>2</sup>)  
Teflon® LFP Jacketing - Continuous Service Temperature 500°F (260°C)  
Jacketing - Tensile Strength: 48 lbs/in (427 N/50 mm) Tear Strength: 45 lbs/in (200 N/50mm)

**Shannon-INSULTECH® Product Design Specific - Testing:**

ASTM C 335 Standard Test Method for Steady-State Heat Transfer Properties of Pipe Insulation.  
ASTM E 1222 – 90 Test Method for the Laboratory Measurement of the Insertion Loss of Pipe Insulation - USA  
ISO 15665 Test Method for the Laboratory Measurement of the Insertion Loss of Pipe Insulation – Int’l  
ASTM C 1045 – 07 Standard Practice for Calculating Thermal Transmission Properties under steady state conditions  
UL 1709 Standard Fire Test of Protection Materials for MOV / Structural Steel  
ASTM E-84-17 Surface Burning Characteristics of Building Materials (Flame Spread & Smoke)  
ASTM E-136 Combustion Characteristics of Building Materials / Fire Test Response  
ASTM D3787 Burst Strength Evaluation for ASTM F1138 – Spray Shield Compliance

**NEMA Type 3R Protection to Personnel**

**Caution:** Typical industry handling practices should be exercised for the protection of the worker. The field mechanic should wear long-sleeve loose-fit clothing, wear proper head covering, leather gloves, wear proper fitted eye protection and use appropriate respiratory protection when handling, inspecting, installing and removing Shannon Protective Enclosures. The worker should wash with soap and warm water after exposure. Since there is a likelihood of fiber exposure and the fiber may be considered a nuisance fiber, it is recommended that you wash and rinse work clothes separately. For specific handling practices, refer to the component product MSDS sheets.

**Notes:** The chemical and physical properties of INSULTECH® Rain Shield Protective Enclosures represent typical average values determined in accordance with accepted test methods. The data is subject to normal manufacturing variations and is supplied as a technical service subject to change without notice. In addition, test data are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes. Design Guidelines are as follows: To access the true limitations of this recommended design, refer to the technical data for each product component. Following these guidelines will produce the highest achievable service life. I design quality can be reduced or enhanced by changing any one component. If a question arises regarding deviations from those stated guidelines, or to insure the information is most current please contact your regional representative or call Shannon Enterprises direct.