

Pipeline Seal & Insulator, Inc.

**Riser-Wrap™ for Concrete Manholes
Application Specifications**

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Contents

1.0 General

2.0 Materials and Material Storage

3.0 Surface Preparation

4.0 Primer Application

5.0 RISER-WRAP™ Sleeve Application

6.0 RISER-WRAP™ System Repair

7.0 Required Equipment and Tools for Proper Application

1.0 GENERAL

- 1.1 This specification will cover the proper application and installation of the PSI Heat Shrink Sleeve for concrete manhole surfaces (RISER-WRAP™).
- 1.2 The RISER-WRAP™ system shall be applied in accordance with PSI and the end-user specifications. The RISER-WRAP™ system shall be installed in accordance with size specifications per PSI suggestions.
- 1.3 The contractor responsible for the application of the RISER-WRAP™ system shall furnish all equipment and properly trained and supervised labor and service required for the specified application of the joint coating system. All equipment and tools required for the application of the RISER-WRAP™ system shall be subject to the approval of the end-user company. The contractor shall follow the PSI application specifications and is welcome to work in harmony with representatives of PSI and the end-user to alleviate any difficulties during the application and installation.
- 1.4 The contractor shall be responsible for verifying the integrity of the RISER-WRAP™ prior to commencing work. Damaged coating shall be repaired at the contractor's expense. The contractor shall supply all repair material.
- 1.5 At the request of the end-user company or the construction contractor, PSI will instruct the contractor and/or the end-user coating inspector with the proper application of the joint coating system.
- 1.6 The PSI service person shall have the authority, through the end-user representative, to suspend the application of the RISER-WRAP™ system until such time that the application satisfies PSI application and quality control standards for the RISER-WRAP™ system.
- 1.7 Coating inspectors qualified either by experience or certified training should perform inspection of the RISER-WRAP™. The RISER-WRAP™ system shall be applied by properly trained personnel in the application of the RISER-WRAP™ system and meet the approval of Tyco Adhesives or PSI.
- 1.8 PSI RISER-WRAP™ sleeves are supplied with a plastic release liner on the adhesive side. This release liner is required to prevent the highly aggressive adhesive from prematurely bonding to itself and protect the adhesive surface from contamination.

2.0 MATERIALS and Material Storage - RISER-WRAP™ is shipped in bulk rolls (11" AND 17" WIDE BY 50' LONG) along with Polyken #1027 liquid adhesive (furnished in 1-gallon or 16oz. spray cans) and 6" wide closure strips. Contact your local PSI RISER-WRAP™ representative for other material width and roll length sizes. (Low VOC #1039 liquid adhesive is also available)

- 2.1 All Riser-Wrap™ coating material shall be stored, handled, and transported in such a manner as to prevent damage to individual carton

containers. Cartons, sleeve rolls, closures or individual repair sleeves removed from the storage pallets shall not be dropped, rolled, or thrown in any manner as to damage the coating material. Cartons or sleeve rolls shall not be handled with hooks, ropes, cables, or any other mechanical devices as to damage the coating materials.

- 2.2 Factory rolls and/or cartons shall be stacked on end at all times and no higher than seventy-two (72) inches (182.88 cm).
- 2.3 The coating material shall be stored and/or transported in a dry, ventilated location. Storage temperature shall be a minimum of 60°F (16°C) and not to exceed 150°F (65°C).
- 2.4 Individual cartons or rolls of coating material shall not contact bare ground or bare warehouse floor. Tools or equipment shall not be stacked on top of the rolls.
- 2.5 PSI RISER-WRAP™ materials that have been damaged or show signs of deterioration shall be inspected by representatives of the owner and/or PSI and at the discretion of the end-user may be rejected.
- 2.6 Polyken #1027 liquid adhesive shall be stored in accordance with regulations that govern hazardous material storage. Primer inventory shall rotate on a first in - first out basis. Primer containers shall be marked with receiving date.
- 2.7 RISER-WRAP™ system waste material, primer containers, stub rolls, empty cartons, release liners, separator papers, and related waste materials shall NOT be discarded along the construction right-of-way.

3.0 SURFACE PREPARATION for Concrete Manholes

- 3.1 The exterior of the manhole shall be brushed by broom or hand wire tools to remove any loose cement dust or small rock particles from the surface. Sharp edges or points should be also removed or flattened.
- 3.2 Preheating is only necessary below when ambient temperatures are below 60°F (16°C.) and moisture is apparent on the surface. The function of preheat is primarily to remove excess moisture. In many cases, preheating may not be required.
- 3.3 Visible oil and grease shall be removed by use of a suitable solvent. KEROSENE shall NOT be used for solvent cleaning.
- 3.4 Cleaned surfaces of manhole sections shall not remain overnight or for extended periods under wet or humid conditions prior to the application of the Riser-Wrap™ system.

4.0 PRIMER APPLICATION

- 4.1 The PSI joint sealing system shall always be applied with the Polyken #1027 or #1039 liquid adhesive primers.

- 4.2 The primer shall be thoroughly mixed prior to application on pipe. The primer is applied to the concrete surface with a brush or paint roller to a wet thickness of no less than two (2) mils and no greater than five (5) mils. Primer container shall remain covered when not in use.
- 4.3 The primer shall cover the entire exposed concrete surface and manhole cover frame including the indentations caused by the irregular concrete surface where the Riser-Wrap™ material is to be installed
- 4.4 The primer shall be "dry to touch" prior to the application of the RISER-WRAP™. Under no circumstances shall the sleeve be applied over a wet primer surface.
- 4.5 The primer shall not be diluted. Primer cans shall remain covered when not in use, to avoid solvent evaporation and contamination.

5.0 RISER-WRAP™ SLEEVE APPLICATION

- 5.1 Three types of sleeve applications are possible:
 - 5.1.1 **Street Surface Enclosure** -encapsulates cast iron manhole ring, concrete grade rings and top portion of manhole cone.
 - 5.1.2 **Full Encapsulation** -complete sealing of manhole surface for extremely wet areas.
 - 5.1.3 **Manhole Joint Sealing** -seals joined sections of vertical manhole material.
- 5.2 **Measuring and Cutting:** For street surface enclosures allow 6" (15cm) of sleeve material to extend upward above the manhole cast iron ring (manhole cover frame). This excess material will fold down over the ring during application. **Note** that concrete manhole cones have changing circumferences. Always measure the sleeve cut installation position from the bottom sleeve edge.
(**Example:** If the sleeve roll width is 17" (43cm), then subtract 6" (15cm) and mark the manhole cone 11" (28cm) down from the cast iron ring. After marking the bottom edge line with a pen, measure sleeve length along this line and add 6" (15cm) to insure a good overlap.
- 5.3 Remove 8" (20cm) of liner from back of sleeve and attach the edge vertically to the manhole section. Hold edge in place and begin to unroll sleeve along marked line and also remove liner as you move around the manhole cone section until you have overlapped the starting edge.
- 5.4 Using a small amount of flame, heat the adhesive side of closure and place the 6" (15cm) wide closure strip vertically across the overlapped sleeve edges. Hold in place and apply a small amount of heat to the closure while gently patting it down with a gloved hand.
Adjust torch to medium- high output and begin heating the sleeve along the bottom edge, moving in one direction and keeping the torch moving in a continuous up and down motion. Continue heating sleeve towards top edge. Watching the sleeve closely, so adhesives edges do not touch!

- 5.5 Use roller to move adhesive towards outer sleeve edges and to remove wrinkles or bubbles. Do not cut sleeve to remove wrinkles.
- 5.6 The PSI RISER-WRAP™ embossed sleeve surface informs the applicator that the sleeve is attached. When the embossment disappears and also when the adhesive is showing on the outer edges. This is a permanent indicator and provides the inspector information that the heating process has been completed.
- 5.7 Do not cut the RISER-WRAP™ sleeve while applying over cast iron manhole gussets. Gently fold the heated sleeve around them.
- 5.8 For complete encapsulation application-begin installation at lowest point, applying sleeves upward in layers that overlap the previous sleeve by 2" (5cm) Also, the vertical placement of the closure strips when starting should vary to avoid stacking.
- 5.9 Filler material may be required for step-downs exceeding 1" (2.5cm) in variation.

6.0 RISER-WRAP™ SYSTEM REPAIR

- 6.1 If required, the RISER-WRAP™ system shall be electrically inspected for holidays according to National Association of Corrosion Engineers (NACE) Standard RP-02-74. The travel rate of the holiday detector shall not exceed one (1) foot (30.48 cm) per second, nor shall an activated holiday detector remain stationary over the coated field joint.
- 6.2 Coated manhole sections that are damaged prior to lowering in and backfilling shall be repaired with coatings approved by the end-user.
- 6.3 The damage area shall be cleaned. The repair coating is then applied in accordance with the coating manufacturer specifications or suggestions.

7.0 REQUIRED EQUIPMENT AND TOOLS FOR PROPER INSTALLATION **OSHA Standard safety equipment such as glasses, hardhats, and protective clothing**

- 7.1 Tape Measure (16')
- 7.2 Razor knives
- 7.3 Paint brush or paint roller for liquid adhesive
- 7.4 Marking pens
- 7.5 HEAT resistant gloves
- 7.6 Approved torch assembly and regulator and Propane bottle
- 7.7 Approved surface rolling device (4" roller)
- 7.8 Wire brush or broom for surface cleaning
- 7.9 Approved solvent or cleaner and rags