

Pipeline Seal & Insulator, Inc. Riser-Wrap™ Heat-Shrink & Sealing System for Concrete Manholes - Application Specifications

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1.0 GENERAL

1.1 This specification will cover field application and installation of the PSI RISER-WRAP™ Heat Shrink Sleeve for concrete manhole or vault surfaces. The primary purpose of the PSI RISER-WRAP™ system is to reduce infiltration of groundwater and other contaminants through joints, pores or cracks in vaults and/or manholes. It shall be installed where indicated by owner.

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 the System Properties and sizes as per PSI latest RISER-WRAP™ publication.

1.3 The contractor responsible for the application of the RISER-WRAP™ system shall furnish all equipment, 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 Installation Guideline, latest edition, as posted at www.riser-wrap.com and is welcome to contact representatives of PSI and the end-user before or during installation.

1.4 The contractor shall be responsible for verifying the integrity of all RISER-WRAP™ components prior to commencing work. Damaged items shall be repaired at the contractor's expense. The contractor shall supply all repair material and tools as well as repairs to concrete structure prior to application of RISER-WRAP™ System.

1.5 At the request of the end-user company or the construction contractor, PSI will instruct the contractor and/or the end-user on the proper application of the PSI RISER-WRAP™ 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 is installed in accordance to PSI installation guidelines and quality control standards for the RISER-WRAP™ system.

2.0 MATERIALS and Material Storage - RISER-WRAP™ is supplied in bulk rolls (11" AND 17" WIDE BY 50' LONG) along with Polyken #1027 liquid adhesive (furnished in 1-gallon cans) and 6" wide joiner- 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 or containers. Cartons, sleeve rolls, joiner-strips 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 4°F (-20°C) and not to exceed 130°F(54°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. 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. It should not be removed until time of application.
- 2.7 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.
- 2.8 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, and shall be properly disposed of in accordance with all regulations when depleted or upon job completion.

3.0 SURFACE PREPARATION for Concrete Manholes

- 3.1 The exterior of the manhole or vault 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/or moisture is apparent on the surface. The function of preheating is primarily to remove excess moisture and warm the surface where RISER-WRAP is to be installed. In many cases, preheating may not be required.
- 3.3 Visible oil and/or 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 be allowed to sit for extended periods under wet or humid conditions prior to the application of

the Riser-Wrap™ system.

3.5 Dust and/or other loose materials shall be removed prior to application of primer by dry air blow or broom brushing.

4.0 PRIMER APPLICATION

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

4.2 The primer shall be thoroughly mixed prior to application. 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 or contamination and shall be disposed of properly.

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 or vault surface for extremely wet areas.

5.1.3 **Manhole Joint Sealing** -seals joined sections of manholes or vaults.

5.2 **Measuring & Cutting:** For street surface enclosures allow approximately 5" (13cm) 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. **{Example:** If the sleeve roll width is 17" (43cm), then subtract 5" (13cm) and mark the manhole cone (bottom edge line) 12" (30cm) 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.}

Note that concrete manhole cones have changing circumferences. Always measure the sleeve twice prior to cutting from the longest (largest circumference) place where sleeve is to be installed.

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; removing 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 the joiner-strip (white textured side) and place the 6" (15cm) wide joiner-strip vertically across the overlapped sleeve edges (black side out). Hold in-place and apply a small amount of heat to the joiner-strip while gently patting it down with a gloved hand. Adjust torch to medium-high output and begin heating the sleeve (minimum of 6" from joiner-strip) along the bottom edge of RISER-WRAP™, 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 adhesive 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 outer surface informs the applicator that the sleeve is thoroughly heated 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. Cuts can be made later after the RISER-WRAP has cooled to ambient temperature if desired.

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 joiner-strips on each successive wrap should be horizontally staggered to avoid vertical stacking.

5.9 Filler cord material may be required for step-downs exceeding 1" (2.5cm) in variation and/or to repair damaged concrete areas or cover sharp protrusions that cannot be removed by other means.

6.0 RISER-WRAP™ SYSTEM REPAIR

6.1 Repairs to damaged RISER-WRAP shall be accomplished by use of joiner-strips where applicable or complete removal and re-installation of the RISER-WRAP™ System. Consult owner and PSI for additional details prior to proceeding.

6.2 Coated manhole sections that are damaged prior to 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 SUGGESTED EQUIPMENT AND TOOLS FOR PROPER INSTALLATION
OSHA or Company Detailed Safety Equipment (such as, but not limited to glasses, hardhats, and protective clothing) shall be used at all times.

7.1 Tape measure (25' or longer)

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