



Sewer Shield Corrosion-Resistant Manhole Inserts (H2O LOAD CERTIFIED)

DESCRIPTION: SEWER SHIELD MANHOLE INSERTS are made out of SEWER SHIELD 100 and 150 epoxy resins reinforced with fiberglass to provide maintenance-free, long-lasting protection to access municipal sewer systems. The Sewer Shield epoxy resins have been used for many years providing excellent service in the coating of concrete and brick manholes. We have evolved this technology to incorporate the use of glass fibers to provide a structure for the resin so that inserts can be dropped into existing manholes and be strong enough to act as a free-standing manhole when the older concrete or brick manhole has corroded away.

Based on using proven materials in the wastewater environment, and proven technology in the fiberglass-reinforced resin industry, we have developed a product that incorporates a corrosion-resistant resin (SEWER SHIELD 100 and 150) throughout the structure of the manhole so that the manhole is not subject to failure from external contamination, nor is the corrosion resistance affected by scrapes or cutting of the manhole walls.

Material Properties at 75° F.	
Tensile Modulus	1.57 x 10⁶
Shear Modulus	0.362 x 10⁶
Poisson's Ratio	0.22
Tensile Strength, psi	18,700
Flexural Strength, psi	32,000
Density, lb/in³	.054

The Sewer Shield 100 is used as a corrosion barrier 125 mils thick on the smooth interior of the insert and is backed up by the Sewer Shield 150 reinforced with fiberglass throughout the structure. The 100 product will withstand sulfuric acid in concentrations up to 98% where the insert is exposed to the gases coming from the sewer system, the 150 product will withstand sulfuric acid in concentrations up to 50% to provide a completely corrosion-resistant product throughout the structure. Alternatively, the Sewer Shield 150 can be used as the corrosion barrier, with a standard epoxy resin that provides protection against weaker sulfuric acid.

The design of the manholes was prepared by a Professional Engineer (Conlisk Engineering) who is on both ASME design and construction standards committees for composite structures. Through careful lamination analysis and finite element analysis, a design was developed to meet or exceed the requirements of buried manholes up to 40 ft. deep. The manholes are built by professionals who are solely dedicated to the fabrication of corrosion-resistant composite equipment, carefully following the design prepared by Conlisk Engineering.

USES: SEWER SHIELD MANHOLE INSERTS when properly installed will act as free-standing manholes as the old manhole decays, and will not be affected by ground-water or other chemical attack from inside or outside of the insert.

SURFACE PREPARATION: Hydroblast to remove loose materials.

INSTALLATION PROCEDURE: SEWER SHIELD MANHOLE INSERTS are easy to install. Bell & spigot assembly allows for easy alignment of the sections, and the adjustment section and walls can be readily cut with carbide-edged power tools to adjust the heights or allow for penetrations. **SEWER SHIELD 150 or 100** is applied as a putty between the bell and spigot sections, as well as for bonding the inserts to existing piping systems. Since no single section weighs over 600 lbs., they can easily be set into place with a small crane.

To install the new insert, the top is cut off the old manhole, and the interior is hydroblasted to remove any loose materials. A Environmental Coating Grout is poured around the bottom edge of the old manhole prior to lowering the first 5 ft. section into place. Spacers are used to align the insert within the confines of the old manhole. As each 5 ft. section is set in place, a hydrophobic grout is poured between the insert and the existing manhole wall to fill any voids between the insert and the existing wall. As the sections are stacked, a Sewer Shield putty is applied to both the bell and spigot to provide a seal between the sections, and the excess material is wiped from the inside seam to provide a smooth finish. Once the sections are assembled and the adjustment section has been trimmed to size, the composite Sewer Shield top manhole access section (flat or domed) is nested on top of the vertical insert wall.

The composite Sewer Shield spacer ring and steel manhole cover are then set in place, the top is backfilled, the pavement is repaired, and the manhole is back in service.

PACKAGING: SEWER SHIELD manhole inserts come in three basic parts:

Cover section (concentric, eccentric or flat)

Riser sections (typically each 5' high to facilitate installation)

Inserts can be customized to customer specifications.

Environmental Coating hydrophobic grout and putty

The bottom section is specially designed for cutouts without losing the structural strength required to support applied loads.



Computerized filament winder



Insert w/FRP eccentric cone



Installed insert

CUSTOMER SERVICE: For any questions you may have in regard to SEWER SHIELD manholes and manhole inserts, please contact:

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