

Triple-Wall Tanks

TWT®

For Extra Protection in Underground Storage

XERXES®
CORPORATION

The XERXES Triple-Wall Tank

For Extra Protection in Underground Storage

Features

- UL 1316 listed
- Extra protection with tertiary wall
- Four monitoring options
- Rustproof, corrosion-resistant fiberglass
- Added strength and robustness through use of integral ribs
- Easy to ship and easy to install
- Testable onsite and underground
- Manway (22-inch diameter)
- Gauge plates under all service openings
- Able to be reinstalled after recertification
- Available in sizes up to 40,000 gallons
- Available in tank diameters of 6 feet, 8 feet and 10 feet

Optional Features

- Manways (30-inch, 36-inch diameter)
- Manway extensions (variable lengths)
- Collars and risers (piping sumps)
- Flanged and gusseted nozzles
- Ladders (FRP, carbon steel or aluminum)
- FRP hold-down straps
- FRP fill tubes
- Concrete deadmen and turnbuckles

Increasingly aware of the need for long-term environmental protection, some communities now require tertiary containment as an extra measure of protection in certain geological circumstances. For instance, conditions such as high water tables, high earthquake activity and large aquifers may cause local regulators to require tertiary enclosure for underground collection and/or storage of petroleum-based products.

Once again, Xerxes is in the forefront of the industry with an innovative, cost-effective answer when this level of containment is required. The Xerxes triple-wall tank provides a corrosion-resistant fiberglass option that is superior to other available options. With this tank, contamination of soil and water is avoided in the highly unlikely event of product leakage from both the primary and secondary tanks. The Xerxes triple-wall tank is easy to ship, easy to install, and requires no ongoing corrosion monitoring.

Like all Xerxes tanks, the fiberglass reinforced plastic (FRP) triple-wall tank is manufactured of the finest materials — high-quality resin and glass with no sand fillers. With its unique integral-rib design, this Xerxes tank is structurally strong yet lightweight. With four monitoring options and sizes up to 40,000 gallons, the triple-wall tank fits a variety of customer needs.

At Xerxes, excellence in service is highly valued along with excellence in product design and manufacturing. This value manifests itself for customers in the ready availability of Xerxes tanks. Xerxes' five manufacturing facilities, strategically located throughout the United States, give customers prompt delivery and quality service.

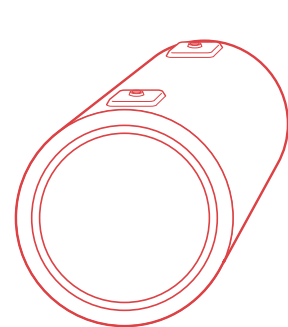
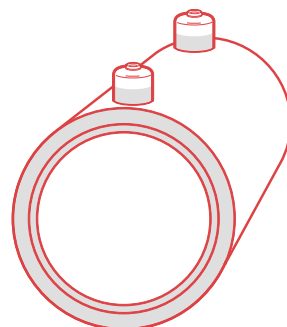
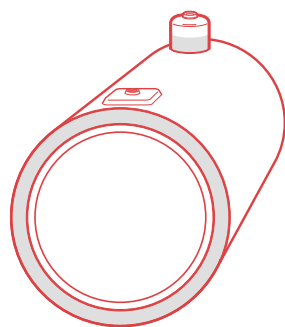
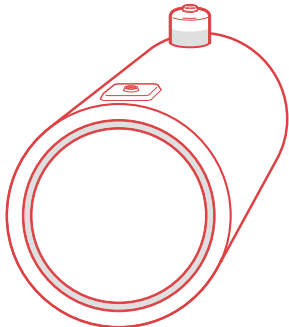
Monitoring Options: The triple-wall tank has four monitoring options.

- 1** • Primary interstice brine-filled
• Secondary interstice dry

- 2** • Primary interstice dry
• Secondary interstice brine-filled

- 3** • Primary interstice brine-filled
• Secondary interstice brine-filled

- 4** • Primary interstice dry
• Secondary interstice dry



Guide Specifications

Triple-Wall Fiberglass Tank

Short Form

The contractor shall provide triple-wall fiberglass reinforced plastic (FRP) underground storage tank as shown on tank drawings. Capacity, dimensions, fitting sizes and locations, and optional accessories shall be as shown on tank drawings. The tank shall be as manufactured by Xerxes Corporation. Tank shall be installed according to Xerxes' current Installation Manual and Operating Guidelines.

Long Form

Part I: General

1.01 Quality Assurance

A. Acceptable Manufacturer:

Xerxes Corporation, Minneapolis, Minnesota

B. Manufacturing Standards:

1. Underwriters Laboratories (UL) Standard for Safety 1316, File MH 9061 for storage of flammable liquids. A UL label shall be attached to each tank.

C. Materials:

1. Tank shall be manufactured of 100% resin and glass-fiber reinforcement, with no sand fillers.

D. Structural Design:

1. Tank shall be manufactured with integral ribs for structural integrity.

1.02 Submittals: Contractor shall submit to the engineer ___ copies of shop drawings for each tank and ___ copies of manufacturer's literature.

Part II: Products

2.01 Triple-Wall Fiberglass Underground Tanks

A. Product-Storage Requirements:

1. Tank shall be capable of storing petroleum-based product with specific gravity up to 1.1.
2. Tank shall be vented to atmospheric pressure as the tank is not designed as a pressure vessel.
3. Tank shall be capable of storing products as identified in the manufacturer's current limited warranty for triple-wall underground petroleum storage tanks.

B. Loading Conditions: Tank shall meet the following design criteria:

1. Internal Load: Tank shall withstand a 5-psig air-pressure test with a 5:1 safety factor. Installer shall test each tank for leakage prior to installation. Maximum test pressure is 5 psig.
2. Vacuum Test: To verify structural integrity, each tank shall be vacuum tested by the manufacturer at the factory to 11.5 inches of mercury.
3. Surface Loads: Tank shall withstand surface H-20 axle loads when properly installed according to manufacturer's current Installation Manual and Operating Guidelines.
4. External Hydrostatic Pressure and Burial Depth: Tank shall be capable of being buried in ground with 7 feet of overburden, the hole fully flooded and a safety factor of 5:1 against general buckling.
5. Tank shall support accessory equipment — such as drop tubes, submersible pumps and ladders-as shown on tank drawings and when installed according to tank manufacturer's recommendations.

C. Interstitial Space:

1. Tank shall have an interstitial space between the primary and secondary walls, and an interstitial space between the secondary and tertiary walls to allow for the free flow and containment of leaked product from the primary and secondary tanks. The interstitial spaces also shall allow for the insertion of monitoring devices through monitoring fittings.

2.02 Accessories

A. Optional Anchor Straps:

1. Straps shall be FRP anchor straps as supplied by tank manufacturer.
2. Number and location of straps shall be shown on tank drawings.

B. Manways:

1. All manways shall be flanged and 22-inch-i.d., complete with UL-listed cover, gaskets and hardware.
2. Location(s) shall be shown on tank drawings.

C. Optional Fill Tubes:

1. FRP fill tubes shall be 4-inch diameter, with a 6-inch x 4-inch double-tapped reducer bushing, and include a 6-inch NPT fitting. FRP fill tubes can be installed in manway cover or tank wall. Aluminum fill tubes (contractor-supplied) shall fit directly into a 4-inch NPT fitting. Fill tubes shall terminate a minimum of 4 inches above the inside bottom of the tank.
2. Location(s) shall be as shown on tank drawings.

D. Gauge Plates:

1. Gauge plates shall be installed under each service fitting and manway opening.

E. Optional Ladders:

1. Ladder material (fiberglass, carbon steel or aluminum) shall be as shown on tank drawings.
2. Ladders shall be the standard ladder as supplied by tank manufacturer.

F. Fittings:

1. All standard NPT threaded fittings shall be constructed of carbon steel.
2. All standard NPT threaded fittings shall be half-couplings, and of 2-inch, 4-inch or 6-inch diameter. Reducers are to be used for smaller sizes where shown and provided by contractor.
3. All NPT fittings shall withstand a minimum of 150 foot-pounds of torque and 1,000 foot-pounds of bending, both with a 2:1 safety factor.
4. All optional FRP nozzles shall be flat-faced, flanged and gusseted, and shall be 2-inch, 4-inch, 6-inch or 8-inch in diameter.
5. All optional FRP nozzles shall conform to ANSI B16.5 150# bolting pattern.
6. Each interstitial-space monitor fitting shall consist of a 4-inch NPT fitting.

2.03 Optional Monitoring System

A. General:

1. The tank manufacturer shall offer the option of a continuously monitored, hydrostatic, head-pressure, leak-detection system.
2. The monitoring system shall be designed by the manufacturer to detect a leak in either the primary, secondary or tertiary tank, at installations with or without groundwater.

B. Requirements:

1. The monitoring system shall include: a.) a monitoring fluid in the primary interstice delivered to the installation site, b.) fiberglass reservoir(s) mounted directly on top of the tank to provide for continuous monitoring of the fluid level.
2. The reservoir(s) shall be fitted with one 4-inch NPT fitting for installation of an electronic, reservoir-level sensor.
3. The contractor shall be responsible for field installation of monitoring fluid in secondary interstice.
4. A continuous electronic monitoring system, including a controller and the level sensor(s), shall be capable of detecting and alarming when the fluid level in the tank reservoir rises or drops beyond the allowable levels. The reservoir-level sensor(s) shall be calibrated to allow for acceptable levels of fluid variation.

Part III: Execution

3.01 Testing and Installation:

A. Tank shall be tested and installed according to manufacturer's current Installation Manual and Operating Guidelines.

Part IV: Warranty

4.01 Warranty

A. Warranty shall be manufacturer's triple-wall tank limited warranty in effect at time of sale.