

## **GUIDE SPECIFICATION FIBERGLASS DIRECT BURY WATER STORAGE TANKS**

This information is offered to assist in the purchasing and proper installation of underground direct bury fiberglass tankage. Use the following guideline to communicate with tank manufacturers and installing contractors. Please note that Darco Inc. does not offer factory installation services, however we do provide a comprehensive installation manual and verbal assistance to contractors installing our products.

### DESCRIPTION OF WORK:

Provide and /or install the following underground direct bury fiberglass tank as directed by the storage system Owner, Agent, Architect, or Engineer of record

### BID SUBMITTALS SHALL INCLUDE:

- Manufacturer's quotation drawing including the location and size of all appurtenances
- Support illustrations for accessories and special equipment depicted in the drawing
- Manufacturer's backfill material requirements and proper placement procedure
- Anti-buoyancy information with the manufacturer's suggested anchoring details
- Lifting lug locations and rigging procedure for safely unloading the tank delivery trailer
- Total F.O.B. delivered price and the estimated lead time necessary for manufacturing
- Shop construction approval drawing set [provided only after formal order placement]

### REFERENCE DESIGN STANDARDS:

- ASTM D3299 & D4021 - Those sections pertaining to materials selection, construction techniques, workmanship, earth loading, & hydrostatic testing for buried service
- ANSI-AWWA D120 - Those vessels self certified for underground potable water service

### ENGINEERING DESIGN CALCULATIONS:

When requested [upon formal order placement] provide P.E. sealed structural tank design calculations corresponding to the diameter and family of vessels involved

### DIRECT BURY DESIGN STANDARDS:

- *External Hydrostatic Pressure:* In empty condition, anchored, backfilled, and totally submerged below 5 feet of gravel flooded to grade; the tank shall remain water tight and structurally unaffected during a 24 hour test period
- *Traffic Loading:* When installed according to the manufacturer's instructions, the vessel shall meet H -20 vehicle axle load carrying requirements
- *Specific Gravity:* Design for potable water or domestic sewage at 1.2 S.G.
- *Temperature:* Design for a maximum hot water impingement temperature of 150 F.
- *Venting:* Design for internal atmospheric pressure, including fill and discharge cycles
- *Bury Depth:* Design for direct bury to a maximum soil cover depth of 5 feet with deeper bury designs and corresponding structural calculations available upon request

### INSPECTION:

- *Factory Testing:* Tanks shall be vacuum proof tested by the manufacturer for external buckling resistance to 10 inches of mercury and then low air pressure tested for pinhole leak detection under a soap / water spray solution
- *On Site Field Testing:* Installing contractor shall perform hydrostatic leak-down testing as specified in the manufacturer's installation instructions

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### MANUFACTURING DESIGN STANDARDS:

- *Fit and Finish:* All external and internal seams and fitting penetrations shall be smooth and overlaid with mat to eliminate all crevices, exposed edges, and protruding fibers
- *Structural Glass Fiber Content:* The average structural glass fiber content of any vessel shall be no less than 35%
- *Potable Water Applications:* The tank internal water contact resin layer shall meet FDA food industry standards and be listed under NSF 61 as suitable for culinary or domestic food and water contact
- *Tank Fittings:* Standard fittings shall be of fiberglass compatible construction with a flat faced flange or female tapered pipe thread design. Fittings over 3 inch diameter shall withstand 300 foot pounds of torque if threaded or a moment load of 2000 foot pounds if flanged. Fiberglass or PVC stub pipes shall also be available
- *Lifting Lugs:* The combined capacity of designated lifting lugs shall be 2 times the empty tank weight
- *Fasteners:* All bolts shall be 300 series stainless steel with gall resistant brass nuts
- *Gaskets:* Seals and gaskets shall be EPDM sheet rubber or closed cell neoprene foam
- *Nominal Capacity and Size:* The volume of the tank shall be \_\_\_\_\_ gallons with a nominal tank diameter of \_\_\_\_\_ feet by a nominal length of \_\_\_\_\_ feet

### IDENTIFICATION:

- *Labels and tags:* Each vessel shall be placarded with a confined space warning, stenciled to note the empty lifting weight, and labeled inside the manway collar per the American Water Works Association vessel identification requirements

### SHIPPING:

- *Tank Protection:* Transport trailer beds shall be fitted with rubber pads to capture and support the ribs during shipment. Woven fabric straps shall be used for tie down
- *Exposed Openings:* All fittings and openings shall be taped or covered to exclude road splash and other avoidable internal contamination

### WARRANTY:

- *Limited Warranty with Optional Extended Coverage:* A standard structural and corrosion (2) two year limited factory warranty shall become effective upon the delivery date of any vessel purchased. In addition, an optional Extended Warranty Program (at extra cost) with *unlimited* years of extended coverage, shall be made available, but only at the time of the initial purchase

### PREFERRED SUPPLIER:

**DARCO INCORPORATED – 980 DARCO DRIVE – BENNETT, COLORADO 80102**