

Installation Instructions for ZCL Filament Wound Fiberglass Vessels on Support Saddles

Double Wall Filament Wound Fiberglass Process Vessels for Oilfield Service (50 barrel and 99 barrel vessels)

These instructions apply to ZCL's Double Wall Filament Vessels on support saddles only. They are intended to provide a summary and quick check of the critical procedures and requirements to ensure a trouble free installation

Important: Compliance with these instructions is necessary for the proper installation of these vessels. Failure to comply will void the warranty and may cause vessel failure.

- 1) Shipping & Handling
 - Use lift lugs provided. Do not use chain or cables around the vessel.
 - Do not drop or roll vessels.
 - Shipping lugs are provided for securing the vessel to the truck deck during transport.
 - Do not lift vessels while they are bolted to their pre-cast concrete pad.
 - Lift using minimum six foot long, two point slings.
- 2) Visual Inspection
 - Inspect the exterior of the vessel for deep gouges or missing insulation.
- 3) Foundation
 - ZCL Filament Wound Fiberglass Vessels and supplied concrete pad must be installed onto a foundation designed to support the weight of the vessel and its contents. This pad should be set on a compacted gravel base that is a minimum of eight inches in thickness, and extending at least two feet beyond the pad. Remove any organic topsoil from the area prior to building the base. Base material is to be ¾" crushed gravel consisting of hard, durable, angular particles, free from clay lumps, cementation, organic material, frozen materials, and other deleterious materials.
 - Steel skid frames supported on piles may also be acceptable.
- 4) Pre-cast Concrete Pad
 - The pre-cast concrete mounting pad is equipped with four 1" - UNC threaded anchor bolts that have been placed so that they accept the tank's mounting saddles. Each anchor bolt is provided with one 3" x 3" x ¼" plate washer, a lock washer, and a nut for securing the saddles to the pad.
- 5) Place Vessel
 - Lift the vessel by the lifting lugs provided at the top of the vessel, using appropriate lifting equipment.
 - Orient the vessel as required and place it onto the pre-cast concrete slab, so that the anchor bolts align with the holes in the bottom of the saddles. To secure the tank to the concrete pad use the supplied hardware. Place the 3" x 3" x ¼" plate washer over the anchor bolt, then the lock washer, and finally the nut. Snuggly tighten the nut.

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- 6) Level Gauge Assembly
- A flange labeled “LEVEL” has been provided on the top of the vessel for mounting the mechanical float level indicator board.
 - Remove the float and its attached rod and indicator from the box and carefully lower the float through the flange until it rests on the bottom of the vessel.
 - Place a gasket onto the face of the flange.
 - Remove the flanged gauge board from the box and set it over the indicator and align the flange bolt holes and gauge board for best visibility.
 - Torque flange studs to 25 ft-lb.
- 7) Heater Start-up
- The valve enclosure under the vessel is fitted with a catalytic gas heater. This heater is fitted with an orifice for either natural gas or propane. Ensure that the heater provided is equipped for the fuel gas that you will be using.
 - Connect the heater to a pressure regulated fuel gas supply.
 - Turn on the gas supply.
 - Connect the starter cables to a 12 volt battery (or 110 volt AC).
 - Depress and hold the button on the safety shut-off valve. Continue depressing the button until it will stay depressed when released.
 - After 5 minutes, the starter cables can be disconnected.
 - Set the thermostat at 8 or higher.
 - To shut off the heater during warmer months, turn off the gas supply.
- 8) Piping Connections
- Commence piping connections once the vessel has been secured to the foundation.
 - All horizontal pipe runs that connect to the vessel must be self-supporting. Flexible connectors are recommended to absorb differential settlement and thermal effects.
 - All connections to fiberglass flanges must use elastomer gaskets with hardness not exceeding 65 Durometer (Shore A). Torque all studs to 25 ft-lbs. ZCL recommends the use of flat face steel flanges when making connections to fiberglass flanges. Raised face steel flanges may be mated with a fiberglass flange only if a 1/16” thick elastomer support ring is used between the raised face flange and the elastomer gasket.
 - A threaded grounding stud is provided on the pump-out nozzle, for draining off static charges from inside the vessel. This grounding stud must be connected to a suitable grounding rod.
- 10) Pressure Relief
- Install the pressure relief device. A pressure relief valve set at 103 kPa or less must be in place at all times when the vessel is in service.

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