

## **GRP Tank and Quadratank Specification and Offloading Installation, Operation and Maintenance Instructions**

### **Specification**

GRP tank products are manufactured from non-corrosive materials to the requirements of EN 13280:2001 (formerly BS7491 Part 1 and 2) and incorporating the quality control requirements of BS EN ISO 9002:2000.

Internal surfaces in contact with the fluid are smooth isophthalic gel-coated with a high gloss finish to improve resistance to bacteriological growth. Resin is high grade orthophthalic and pigmented and shall be resistant to ultra-violet attack. The reinforced glass is to be 'E' glass type and to be long-stranded (40mm minimum). The proportion of glass shall be no less than 30% w/w.

The side walls and lid shall be manufactured with an integral expanded polyurethane foam core of 25mm, 38mm or 50mm thickness. The completed laminate shall equate to a minimum thermal conductance of 0.87, 0.55 or 0.46 w/m<sup>2</sup>c respectively. The external finish shall be totally sealed and be sufficiently robust to withstand normal site handling and transportation.

Internal ties, if fitted, are constructed in high grade stainless steel to 1.4401. External reinforcement, if incorporated, is mild steel construction totally encapsulated and protected within the laminate.

Internal stainless steel and external MS galvanised ladders are recommended for tanks above 1.5m high, but shall only be quoted or fitted at the customers' request.

All tanks and tank systems are factory water tested at manufacture stage.

Standard tanks are suitable for storage of water at ambient temperature. Any other proposed applications must be notified and approved in writing.

### **Offloading**

GRP tanks and Quadratanks should be unloaded and moved by fibre slings under the unit and lifting from above from a single point using a suitable crane or lifting equipment.

Dependent on the size of the tank the slings should be positioned approximately 500mm in from each end. In the case of Quadratanks with a pumpset installed the sling positions may need to be offset to allow the unit to be level when being moved. The unit should be slightly raised from its position and it should be assessed whether or not the unit is sufficiently stable to move safely.

If Quadratanks are more than 4 metres long, two pairs of slings or a spreader plate should be used to spread the load and reduce stress on the structure.

Lifting eyes are only to be used for lifting the unit sufficiently to allow slings to be passed under the unit. Do not use the lifting eyes to lift the unit clear of the ground. Do not attempt to move a tank containing any water.

Do not use chains to lift the unit except where they are above the lid and will not come in contact the tank in any way.

Whilst in temporary storage on site, tanks should be placed on a level surface and care should be taken to ensure that no sharp protruding objects are present that might damage the base.

## **Installation**

The permanent base should be level, free from any local irregularities, not vary more than 2mm in any metre and be able to support the tank throughout the complete area and be of sufficient strength to bear the weight of the tank, its water content and, in the case of a Quadratank, the weight of the pumping equipment without movement.

A Quadratank drawing should be requested prior to delivery to enable inlet/outlet ducts to be constructed in the base, positioned correctly to line up with the ducts in the Quadratank housing base.

It is good practice to provide a minimum 500mm clearance all around the tank to assist pipework installation. A minimum of 750mm is generally required above the tank for future tank and float valve-maintenance.

All pipework, valves etc connected to the tank must be supported independently to reduce stress on the GRP structure.

All tanks and tank systems are factory water tested at manufacture stage. However, connections may be disturbed during transportation and should be checked for tightness before the tank is filled with water and carefully monitored once filled to ensure there is no leakage.

It is recommended that tanks should be sterilised before putting into use. Tanks should not be sterilised until they have been filled and all pipework connections have been proved to be watertight.

If secondary insulation is required it is recommended that this is not fitted until after successful commissioning of the tank.

If tanks or housings are fitted with heaters, these are normally thermostatically controlled and for frost protection only. The thermostat should be checked to ensure that it is correctly

set to avoid unnecessary heating which will be a waste of energy and could impact on water quality.

## **Operation and Maintenance**

The main lid forms part of the structure and should not be removed unless the tank is empty.

As GRP tank products are manufactured from non-corrosive materials, they require little or no specific maintenance other than good housekeeping.

Annual Inspection – It is recommended that water storage tanks should have an annual inspection to:

- Inspect the effectiveness and operation of the incoming float-valve and/or isolation valve arrangement.
- Inspect the cleanliness of the tank and wash out if necessary by means of opening the drain valve. Additional washing down with a hose may be necessary. Quadratanks will normally have a washout valve fitted on the pumpset inlet pipework.
- Inspect the tank externally for any signs of dampness around its base which may be the result of leaking tank connections, condensation, damage or overflowing. Rectify as necessary.
- Inspect the tank fittings to ensure that any air vents, overflows, warning pipes and filter screens are clean and unobstructed, manways and inspection hatches are secure and sealed, and any access ladders are securely fixed.
- For most installations a test of water quality should be carried out by a competent environmental hygiene technician every 12 months. If test results are unacceptable, the tank should be chlorinated to improve water quality. (Note: Where water quality is unacceptable consideration needs to be given to upstream or downstream sources of contamination).
- Check any heater thermostat settings are correctly set in line with originally installed and commissioned settings.