



## **SPECIFICATION SUMMARY:**

An exceptionally low-maintenance, above ground, bolted steel ground storage tank designed to contain fluids within an internal multi-layered, woven-reinforced liner. The internal liner prevents all contact between the stored liquid and the profiled tank shell. The profiled tank shell is manufactured from Zincalume® hot-dipped coated steel for superior corrosion resistance. The profiled panels and overall tank construction are engineered specifically for the purpose of safely and efficiently storing a variety liquids.

### **1. SCOPE OF WORK:**

Manufacture, supply, delivery, Installation, and commissioning of **SBS Tanks** on a site and compacted sand filled concrete ring beam prepared by others.

Provide engineer sealed shop drawings and calculations of the SBS Tank for submittals.

Provide tank specific ring beam minimum standards guideline to engineer responsible for foundation and final ring beam design.

### **2. Type of Tank:**

Tank shall be a circular shaped Zincalume coated steel, bolted ground storage tank with NSF 61 approved, multi-layer, woven, reinforced internal lining and domed roof.

### **3. General:**

**Licensed Engineer Seal on Drawings:** All shop drawings and structural calculations must be reviewed and sealed by a licensed local engineer certifying that the tank is fit for its intended purpose at the location specified.

**Quality Control Requirements:** Tank must be designed and manufactured within a factory carrying the ISO 9001 Certification for Quality Control Systems.

**Guarantee/Warranty:** Tank shall carry a 12 month guarantee on materials and workmanship and conditional 10 year no leak warranty.

**Operator's Manual:** Full operators manual along with inspection schedule and warranty certificate shall be provided to the operator within 30 days of commissioning of tank.

### **4. Materials:** All materials used in the manufacture of the tank body and roof shall be fully traceable to their origin and test certificates to confirm adherence to these specifications provided to the engineer on request.

**Body Panels:** Panels shall be fabricated from high tensile, G300 Zincalume® steel having a heavy-duty AZ 150 coating and minimum thickness of 22 gauge (0.8mm) in either single or laminated configuration depending on tank size and structural design requirements.

**Roof Sheeting:** Corrugated sheets used for the tank roof shall be of Zinalume® heavy-duty AZ150 coated steel high tensile grade G550 with a minimum thickness of 26 gauge (0.47mm).

**Bolt Specifications:** Bolts shall be either 7/16" (M10) or 1/2" (M12) and have a flanged and serrated head. Bolts shall be hot dip galvanized and 8.8 grade. Bolt certification shall be provided on request to the engineer.

**Steel Fabricated Items:** Roof Trusses, ladders, escape hatches and other steel components shall, where applicable, be of carbon steel. Carbon Steel. Fabricated items, without exception will be hot dipped galvanized after fabrication. No items will be welded on site and post galvanized.

**Stainless Steel:** When specified and/or required certain accessory items such as ladders and nozzles may be fabricated from stainless steel.

**Tank Liner:** The internal liner material shall be NSF 61 approved and comprise of multiple layers fabricated from a heavy duty, approved non-toxic food grade material such as PVC, polyethylene, polypropylene or a combination of such materials. Liner base fabric shall have no less than 8x8 threads per square centimetre.

## 5. **Components:**

### **Panels:**

- Nominal size of each panel shall be 88.58 Inches × 46.89 Inches.
- Panels shall have an approved profile specifically designed and engineered as a primary component of a liquid storage tank with the specified dimensions and gross capacity.
- Panels shall be factory pre-curved by the manufacturer for each reservoir model /size.
- Panels shall be designed and tested to withstand all anticipated applied loadings including wind and earthquake in conjunction with the associated vertical stiffeners (Wind Girts)
- Panels shall be overlapped in both the vertical and horizontal plains. This overlap shall include 2 sets of the specified bolts at either end of the panel vertically and 5 equally spaced bolts at the lap joint horizontally.

### **Vertical Stiffeners (Wind Girts):**

- Vertical stiffeners shall be of minimum 13 gauge (2.4mm) galvanized steel and formed into a suitably engineered profile to withstand bending.
- Zinalume protective covers shall be fitted upon completion of tank.

### **Roof Trusses:**

- Roof trusses and/or truss sections shall be fabricated from hot rolled first class steel square tube or angle iron.
- Where bridges and/or bracing between truss members are used, these items shall be bolted to the main truss members at both ends and at all intersecting points.
- Truss to wall attachment plates shall be of a fixed mating angle type allowing for correct and accurate alignment of trusses. At point of attachment the truss must be bolted to the tank body with a minimum of four grade 8.8 M10 bolts.
- The truss attachment should also have a strengthening plate bolted to it externally measuring no less than 4 inches x 3 inches.

**Top and Bottom Hoops:**

- The tank shall be provided with strengthening hoops at the upper outer edge of the top panel and lower outer edge of the bottom panel.
- Hoops shall be fabricated from steel rectangular tube, pre-curved to suit the reservoir diameter and hot dipped galvanised after fabrication.
- Hoop sections shall be joined together with galvanised joiners inserted into the hoop sections. There shall be a minimum of 4 inches overlap in the two adjacent sections.

**Tank Hold-Down Brackets:**

- The tank shall be secured to an engineer designed and approved steel reinforced concrete ring beam or slab base by means of original manufacturer's equipment suitable steel hold down brackets. These brackets shall be designed taking into account all anticipated loadings on the tank.
- The hold down brackets shall be bolted to the tank wall at the panel joins at the base of the tank by no less than 6 x M12, 8.8 grade HDG bolts and nuts, and provision shall be made to allow for fixing to the concrete base by means of suitably approved sleeve anchors / expansion bolts.
- Provision shall be made in the bracket design to allow for expansion and contraction of the tank.

**Liner**

- The liner material must be internationally certified by a recognised authority or testing body for use in contact with drinking water.
- Liner must be 'supported' by way of an internal central layer/scrim. No unsupported liners will be acceptable.
- Liner shall be factory fabricated in a controlled environment with all seams homogeneously welded by means of an RF or hot air/wedge welding process under controlled conditions to form a watertight seal.
- Suitable stiffening shall be provided around the top perimeter of the liner to provide an adequate base for the fastening of the liner to the tank wall.
- Reinforced attachment straps fabricated from the same material as the liner shall be welded at suitable intervals to the outer face of the liner complete with eye-lets to allow fastening to the panel joint bolts.
- If required by the procuring body, the liner material must demonstrate that the seams will not leak or permanently deform by undergoing a flume test using a tube made up of the relevant liner material and with a standard welded seam along its length. The sample must withstand a constant pressure of 3 bar for 30 minutes without evidence of leaks/weeping or permanent deformation.
- The completed liner must be provided with a non-leak guarantee backed by the manufacturer for a minimum of ten years.
- The liner material must be capable of being easily repaired on site in the event of damage.

For Further Information on SBS Tanks® please contact our Conroe, Texas Head Office location at (832) 702-7430 or [sales@sbstanksusa.com](mailto:sales@sbstanksusa.com) .