

From Concept to Completion

GRP PANEL TYPE WATER TANK







Developed in Partnership With

Solico GRP Panel Type Water Tank

Since 1966 SOLICO has been known as a reputed supplier of GRP water storage solutions in the UAE and GCC countries.

In 1984, SOLICO pioneered the introduction of groundbreaking technology, Hot Pressed GRP Panel Type Water Tanks, gaining market share by offering the top of the range Japanese Bridgestone Brand with high levels of service and reliability.

This innovation, coupled with SOLICO's awareness and continuous marketing efforts for clean water storage systems resulted in a paradigm shift, from the conventional storage means to a cleaner and healthier solution.

In 2012, SOLICO inaugurated its own Hot Pressed SMC state of the art GRP Panel Type Water Tanks; the Solico Panel Tank Brand developed in partnership with BASF.

With this new Brand, the company continues to offer the same high quality product complying with numerous international standards, combined with our enhanced service level and competitiveness.

This decision was taken to capitalize on the company's extensive composite manufacturing experience as well as SOLICO's excellent reputation for their service and quality in the Hot Pressed GRP tank business after nearly 50 years.



Design Standards

Solico Panel Tanks are WRAS approved and designed to the most relevant international GRP panel type water tank's standards such as BS 7491 (UK), SS245 (Singapore) and the latest AWWA D121-12 (USA).

The panel shapes are designed using Finite Element Analysis to allow optimization and ensure the required panel and tank safety factor.

Solico Panels are manufactured using State of the Art SMC Hot Press Molding Process, combining Japanese technology and German machinery under pressure reaching up to 2,000 Tons and at a temperature of 150°C.



Panel Strength :	Hydrostatic Pressure x6 (Safety Factor)
Wind Velocity :	60 m/sec
Roof Load :	120 Kgf/m ²
Ambient Temperature :	55 °C (Max)
Water Temperature :	65 °C (Max)
Seismic Load :	Peak Ground Acceleration PGA = 0.25 (Group A)
Seismic Zone :	B2
Upgraded Design Availab	le for Higher Seismic Zones:
	(Group B) 0.25 < PGA < 0.40

(Group C) $PGA \ge 0.40$

Technical Characteristics

DESCRIPTION	GRP	DESCRIPTION		GRP
Specific Gravity	1.75		(Single Panel)	0.10 w/mK
Glass Content	30%	Thermal Conductivity	(Insulated Panel 25mm)	0.036 w/mK
Tensile Strength	110 MPa		(Insulated Panel 50mm)	0.029 w/mK
Young's Modulus	13 GPa	Coeff. of Overall	(Single Panel)	14 w/m ² K
Flexural Strength	230 MPa	Heat Transmission	(Insulated Panel 25mm)	1 w/m²K
Impact Strength	80 Kgf.cm/cm ²	(Thermal Conductance)	(Insulated Panel 50mm)	0.5 w/m ² K
Compressive Strength	160 MPa	Thermal Expansion		1.66 x 10 ⁻⁵ /°C
Shear Strength	100 MPa	Water Absorption		Less than 0.1%
Barcol Hardness	66	Light Transmission	lvory	0.0%
Flame Spread (FSI)	60	Fire Detine Class	D ()	
Smoke Development (SD)	40	Fire Rating Class	B/Z	

Internal Tie Rod Reinforcement



External Bracing Reinforcement



Materials of Construction



Insulation

Rigid Polyurethane: From Density 40 Kg/ m3 Thickness: 25mm (Optional 50mm) Insulation Cover: 2mm U.V. Resistant ASA Sheet



Sealant

SEBS material Strong, Durable and U.V. Resistant "O" Ring Shaped for added security



Panel

SMC Hot Pressed Glass Reinforced Polyester (GRP or FRP) with Reinforced Roving Mesh



Steel Skid Hot Dipped Galvanized Steel Beams and Skids



Reinforcements External: HDG Structural Steel Beams,

Angles & Brackets Internal: S/S Grade A4/316 Tie Rods or Diagonal Struts



Roof Supports PVC/GRP roof support pipes Hard Polyurethane Brackets



Bolts & Nuts External: HDG Grade 8.8 (Optional S/S Grade A4/316) Internal: S/S Grade A2/304 (Optional S/S Grade A4/316)



Ladders External: HDG Steel (Optional S/S or GRP) Internal: GRP (Optional S/S)



Airvents PVC4"DIA with Nylon mesh#22 Properties: Light, Dust, Insect Proof

Steel Support Beams

Solico provides Structural Steel Beams & Skids in Hot Dipped Galvanized Finishing.



Plan View (Example for 4x3x2mH tank)

Plan View (Example for 4x3x4mH tank)

Concrete Foundation

Solico provides shop drawings of the concrete foundations required for each tank to all clients, as detailed (Length of tank +200mm) x 200mm width x 600mm Height of single concrete plinth.

Clearance and Capacities



• Minimum space requirement along all sides = 500mm

• Minimum space requirement above roof panel for manhole opening = 1000mm

Flange Connections

The specially designed panels provide easy and safe flange connections for the plumber to connect his pipe works to the tanks. Typical Tank Connections are shown below.



*Overflow should be at least twice the size of inlet and shall flow freely without obstruction.

RECOMMENDED FLANGE SIZES									
SIZE OF TANKS		INLET		OUTLET		OVERFLOW		DRAIN	
$1m^{3}-5m^{3}$	Up to 1,300 USG	25A	1"	50A	2"	65A	1 ¹ / ₂ "	40A	1 ¹ / ₂ "
6m³- 10m ³	Up to 2,600 USG	40A	1 ¹ / ₂ "	65A	2 ¹ / ₂ "	65A	2 ¹ / ₂ "	40A	1¹/ ₂ "
11m³-20m³	Up to 5,300 USG	40A	1 ¹ / ₂ "	65A	2¹/ 2"	65A	2 ¹ / ₂ "	40A	1 ¹ / ₂ "
$21m^{3}-50m^{3}$	Up to 13,200 USG	50A	2"	80A	3"	80A	3"	40A	1 ¹ / ₂ "
51m³- 100m³	Up to 26,500 USG	80A	3"	100A	4"	125A	5"	50A	2"
101m³- 200m³	Up to 53,000 USG	80A	3"	150A	6"	125A	5"	50A	2"
201m³- 500m³	Up to 132,000 USG	100A	4"	200A	8"	150A	6"	80A	3"
Over 500m ³	Over 132,000 USG	100A	4"	200A	8"	150A	6"	80A	3"

Solico GRP Panel Tanks Cautions

- 1 Solico GRP Panel Tanks should be safely transported, stored and installed under Solico supervision or as per Solico's assembly instructions.
- 2 Tank cleaning should be done twice a year by using soft sponge and normal hose water. No hard material, chemical or brush should be used.
- 3 Solico GRP Panel Tanks are designed to store water up to a maximum of 65 oC temperature.

- 4 No flame or heavy load should be directly imposed on Solico Panel Tanks and all piping connections should be self supported to avoid any direct stress.
- 5 Do not use any sub-standard parts and accessories other than original provided and approved by Solico.
- 6 Do not use any other liquid than water with a pH value of 5-9 without Solico recommendation.

- 7 Monthly inspection should be done to ensure tightening of bolts, no overload, no harmful material around, no leakage, manhole tightness, no clogging in air vent and overflow for safety assurance.
- 8 Do not bury Solico GRP Panel Tanks and keep standard space clear all around the tank for easy access during maintenance.
- 9 Maintain minimum and maximum water level inside Solico GRP Panel Tank for safety and long life.

Projects





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PROVIDING LIQUID STORAGE SOLUTIONS SINCE 1966



"FROM CONCEPT, TO COMPLETION "



Developed in Partnership With

D - BASE

Stainless Steel Cylindrical / Rectangular Tanks



Stainless steel has many favorable characteristics that makes it a well-suited material for the storage of many types of liquids, ingredients and compounds for a range of industries. It has many unique benefits such as being durable, versatile and recyclable. Stainless steel requires minimal maintenance, outlasting many other competing materials and is highly resistant to corrosion. Because stainless steel reacts with very few chemi cals, it means almost any cleaning solution can be used on it.



Galvanized Steel Cylindrical / Rectangular Tanks

Galvanized Mild Steel Cylindrical Tanks are manufactured in panel sizes of (2500mm x 1250 mm) and (1200mm x 1200mm) for the recatngular type. These tanks are designed to be flanged together with nuts and bolts on site. Galvanizing is unique, the hot dip process produces a coating which is bonded metallurgically to the steel. No other coating process has this feature, and as a result galvanized steel has by far the greatest resistance to mechanical damage during handling, storage, transport and erection. Well-documented years of experience have proved the benefits of hot dip galvanized protection. At least 10-20 years are commonplace in industrial environments, more than 25 years (frequently much more) in rural atmospheres. When mainte nance eventually becomes necessary, it is straightforward: no complex preparation treatments are necessary.

Flexible (PVC / Rubber) Pillow Tanks



Pillow tanks also called as Flexible or Bladder tanks are the perfect solution for immediate and temporary storage of water asl well as a wide variety of fuels including Diesel, Jet Fuel and Hydraulic, Crude, Lube and Dielectric Oil. These bladder tanks are also suitable for other mild chemicals and raw or salt water storage due to their durable, multi-purpose construction. The liner material can also be customized to your specific needs depending on the type of liquid you will be storing in the tank. The capacity of these pillow tanks range from 250 gallons up to 210,000 US gallons and present several benefits over other storage means such as fast and easy Installation, Removal, and transport due its foldable features.

Zinc Alume Cylindrical Steel, Liner Tanks



ZINCALUME® steel was developed after extensive research into improving the traditional performance of galvanized steel. By blending aluminum with zinc in an alloy coating, researchers discov ered a way to greatly enhance corrosion resistance. ZINCALUME® steel's lifespan is up to four times that of ordinary galvanized steel. Lightweight, versatile and durable, ZINCALUME® steel is the smart building choice, delivering long-lasting performance at a cost-competitive price. Construction methods allow tanks to be erected within days by a supervisor and team of semi-skilled la borers. ZINCALUME® pre-installed liner sealed tanks permit the storage of other liquids such as salt water, TSE, petrochemicals and light chemicals.

Epoxy Powder Coated Steel Tanks



Glass Line Steel Tanks

Epoxy coated tanks provide the latest developments in steel tank coating technology, ensuring significant added value through engineering and cost benefits to users extending the range of applications and storage options. Chemical corrosion is common in indus trial plants because harmful chemicals are often used for cleaning and machinery operation. An epoxy coating is ideal because it will protect your tank from these harsh chemicals. Many processing tanks are placed outdoors, which can cause corrosion issues. With epoxy coating your tank will be able to withstand extreme tem peratures, such as up 200 degrees Celcius. It will also be water re sistant. No need to dread the spring; with epoxy coating you will be covered!



Glass-Fused-to-Steel (Glass-Lined-Steel) is a unique tank finish. The two materials are fused together to achieve the best proper ties of both – the strength and flexibility of steel combined with the corrosion resistance of glass. Applied to both interior and exterior surfaces, Glass-Fused-to-Steel is able to provide many years of trouble free service in harsh environments. This system has been proven over many decades on thousands of installations and is sup ported by international standards which cover the design and finish requirements.

	ZincAlume Liner Tank	Galvanized Liner Tank	Galvanized Tank	EpoxyCoated Tank	StainlessSteel Tank	Glass Line Tank	Pillow Bladder Tank
Shape	Cylindrical	Cyfindrical	Cylindrical Rectangular	Cylindrical	Cylindrical Rectangular	Cylindrical	Rectangular
Liquid Storage (Usage)	Fresh Water Fife protection system Raw water retention • Effluent catchment • Commercial and Industrial uses.	Fresh Water Fins protection systems Raw water retention effluent catchment Commercial and Industrial uses.	* Fresh Water * Gasoline * Oll * Diesel * Potable Water	Fresh Water Potable Water Salt Water Chemical Solutions	Fresh Water Chemical Gases Foed Liguids Potable Water Sewage Waste Water	Fresh Water Food Liquids Potable Water Sewage Waste Water Biogas Production Bio-Diesel Ethanol	 Fresh Water Dratking Water Grey Water Foel Combination of Liquids
Size Range	700 to 4,000,000 US Gallons	700 to 4,000,000 US Gallons	250 to 4,000,000 US Gallons	700 to 4,000,000 US Gallons	250 to 4,000,000 US Gallons	700 to 4,000,000 US Gallons	250 to 250,000 US Gallons
Life Expectancy	111	V V	14	11	111	11	11
Price Range	\$ \$	\$	\$	\$\$	\$\$\$\$	\$\$\$	\$\$
Speed of	1111	111	111	11	111	11	11111

Tank Features :





About Us,

Solico group of companies was established in the U.A.E in 1966. Since then, the company evolved and specialized in Manufacturing, Trading, Contracting and Investments with an international presence in the Middle east, America, Europe, Australia and Asia offering expertise to governments, corporations and individuals to achieve their objectives.

For nearly five decades Solico has continuously provided value, quality and service to its customers, earning the reputation of market leaders in its sphere of specialization.

After the inception of its Jebel Ali State of the Art manufacturing facility for GRP Panel tanks in 2012, Solico has now partnered with several international Bolted Steel tanks manufac turers to become one of the first companies in the UAE that covers most options to offer its clients the right solutions to their liquid storage needs.

Solico's focus remains to offer the same high quality products and comply with numerous international standards, as well as ensure an enhanced level of service and competitiveness.



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