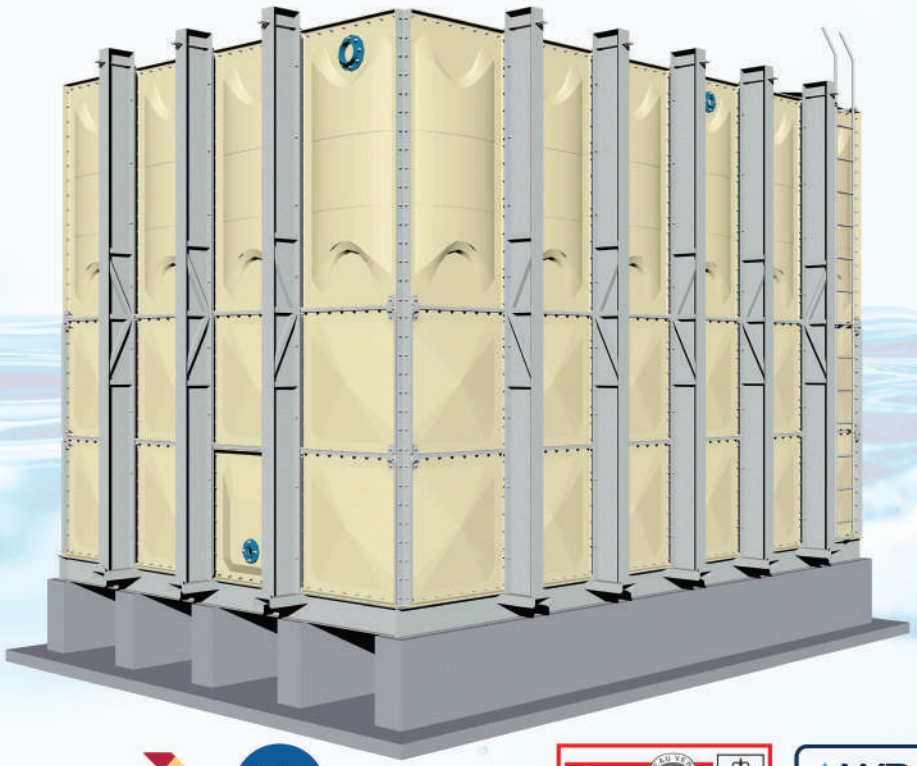
SOLICO TANKS®

a Trademark of Solico Fiber Glass Factory (L.L.C.)

PROVIDING LIQUID STORAGE SOLUTIONS SINCE 1966

GRP PANEL TYPE WATER TANK



بلدية دبي
DUBAI MUNICIPALITY

NSF

ISO 9001 BUREAU VERITAS Certification

WRAS APPROVED MATERIAL

Developed in Partnership With

BASF The Chemical Company

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 certified by NSF 61 (USA), WRAS (UK) & Dubai Municipality (DCLD-UAE) and designed to the most relevant international GRP panel type water tank's standards such as BS EN 13280, 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.

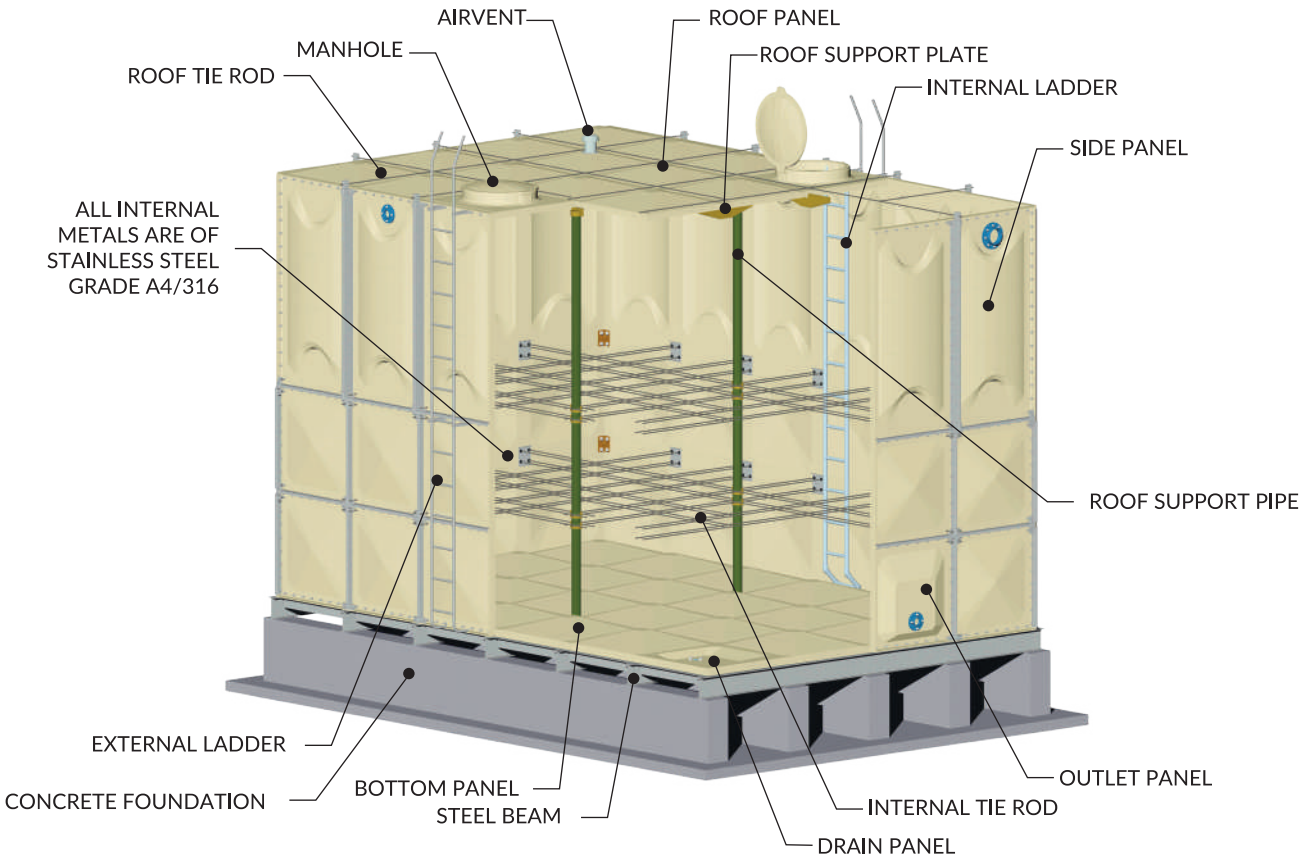
Solico Panels are manufactured using State of the Art SMC Hot Press Molding Process, combining Japanese technology and German machinery under pressure reaching up to 2,000 Tons and at a temperature of 150°C. These panels are manufactured using specialized **isophthalic resins** for safe storage of potable water and to ensure **anti-bacterial & UV resistant properties.**

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 :	60 °C (Max)
Seismic Load :	CLASS A (S1 = 0.18, Ss = 0.36)
Seismic Zone :	B2
Upgraded Design Available for Higher Seismic Zones:	
	CLASS B (S1 = 1.00, Ss = 2.00)
	CLASS C (S1 = 1.50, Ss = 3.50)

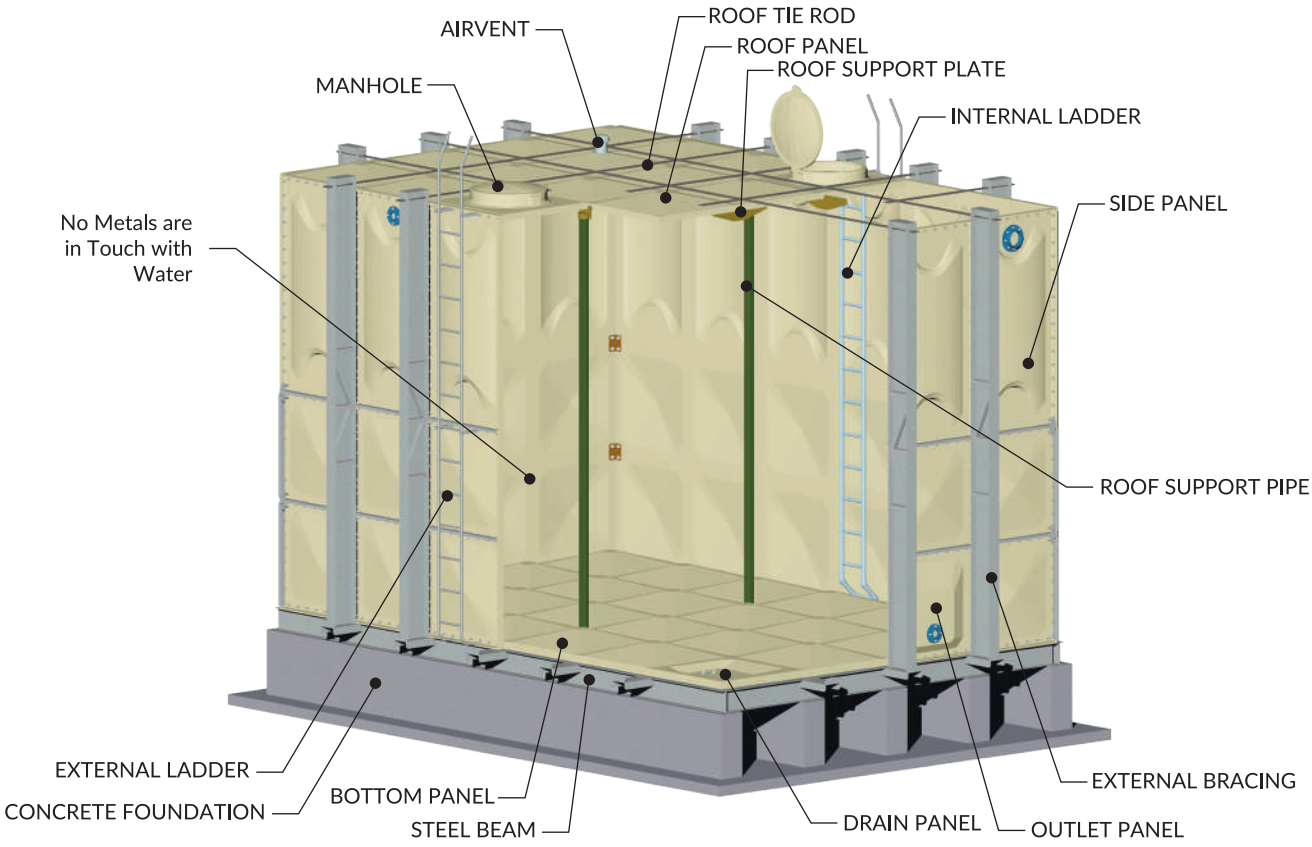
Technical Characteristics

DESCRIPTION	GRP	DESCRIPTION		GRP
Specific Gravity	1.80	Thermal Conductivity	(Single Panel)	0.096 w/mK
Glass Content	33%		(Insulated Panel 25mm)	0.036 w/mK
Tensile Strength	100 MPa		(Insulated Panel 50mm)	0.029 w/mK
Young's Modulus	13 GPa	Coeff. of Overall Heat Transmission (Thermal Conductance)	(Single Panel)	13.48 w/m^2 K
Flexural Strength	220 MPa		(Insulated Panel 25mm)	0.97 w/m^2 K
Impact Strength	80 Kgf.cm/cm^2		(Insulated Panel 50mm)	0.46 w/m^2 K
Compressive Strength	300 MPa	Thermal Expansion		1.66 x 10^{-5} /°C
Shear Strength	100 MPa	Water Absorption		Less than 0.1%
Barcol Hardness	66	Light Transmission	Ivory	0.0%
Flame Spread (FSI)	60	Fire Rating Class	B / 2	
Smoke Development (SD)	40			

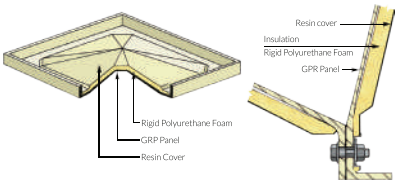
Internal Tie Rod Reinforcement



External Bracing Reinforcement



Materials of Construction



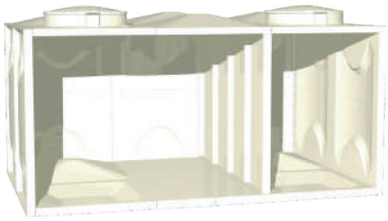
Insulation

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



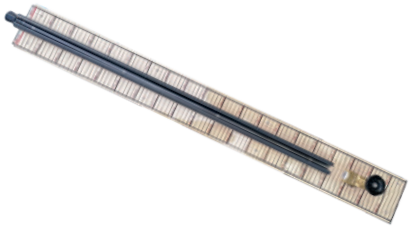
Sealant

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



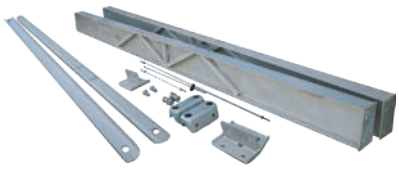
Panel

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



Tube Type Water Level Gauge

With GRP Backing, Acrylic tube & Brass fittings



Reinforcements

External: HDG Structural Steel Beams, Angles & Brackets
Internal: S/S Grade A4/316 Tie Rods or Diagonal Struts



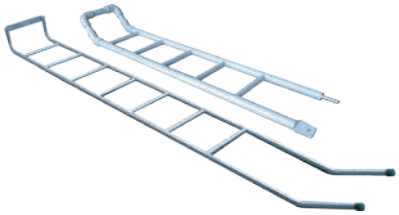
Roof Supports

PVC/GRP roof support pipes
GRP Roof Brackets



Bolts & Rubber Capped Bolt sets

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)

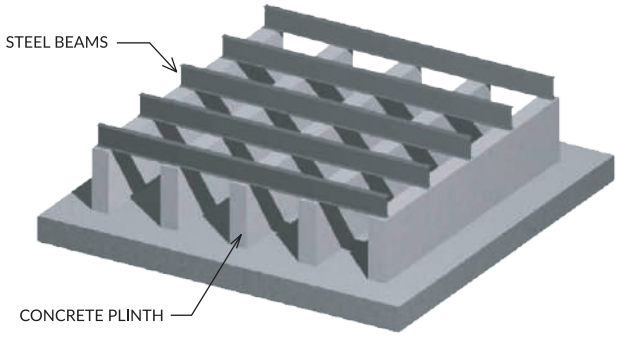


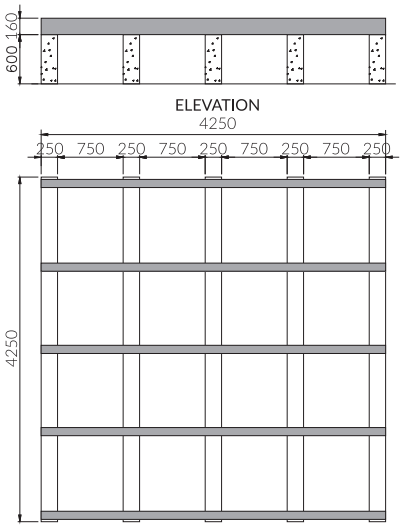
Airvents

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

Steel Support Beams

For 1.5 and 2mH

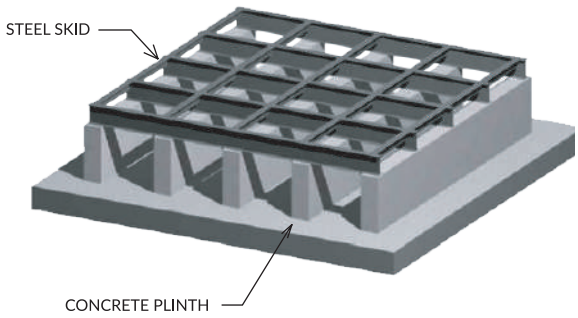


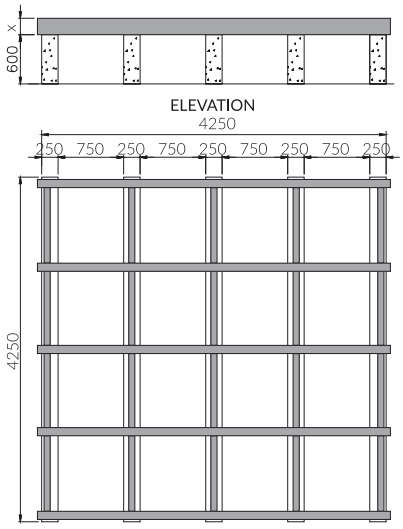


Plan View (Example for 4x4x2mH tank)

Steel Skid

For 2.5 to 6mH





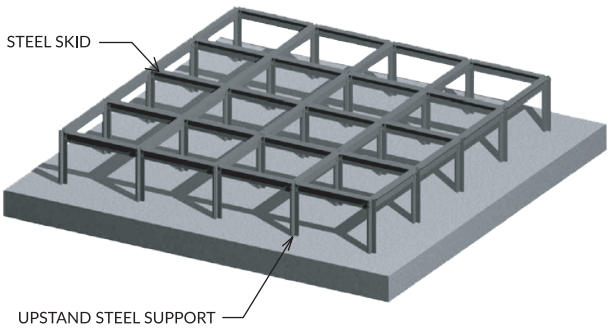
Plan View (Example for 4x4x4mH tank)

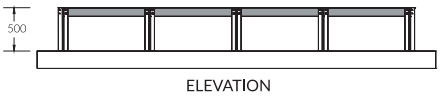
X= 160, 2.5 & 3mH
X= 200, above 3mH

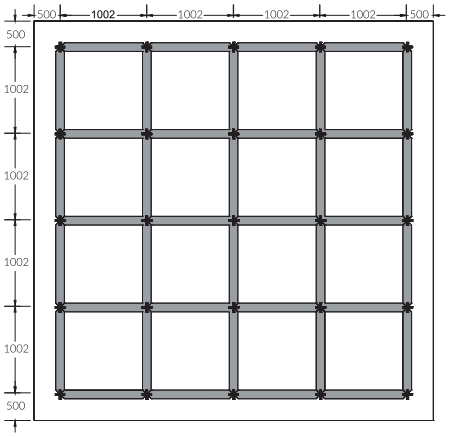
Steel Upstand Support

To Avoid Concrete Beams
(Recommended For Indoor Installation Only)

For 1 to 4mH





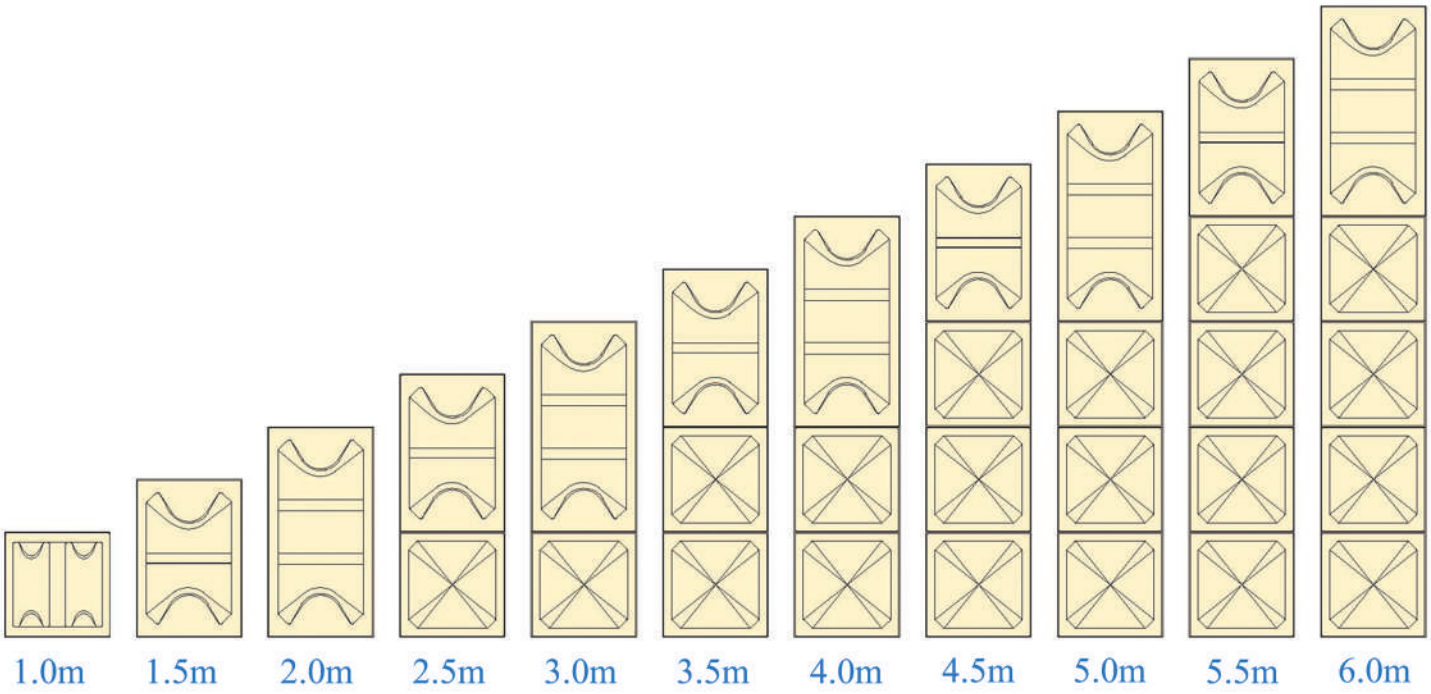


Plan View (Example for 4x4x1mH tank)

Concrete Foundation

Solico provides shop drawings of the concrete foundations required for each tank to all clients, as detailed
(Length of tank +250mm) x 250mm width x 600mm Height of single concrete plinth.

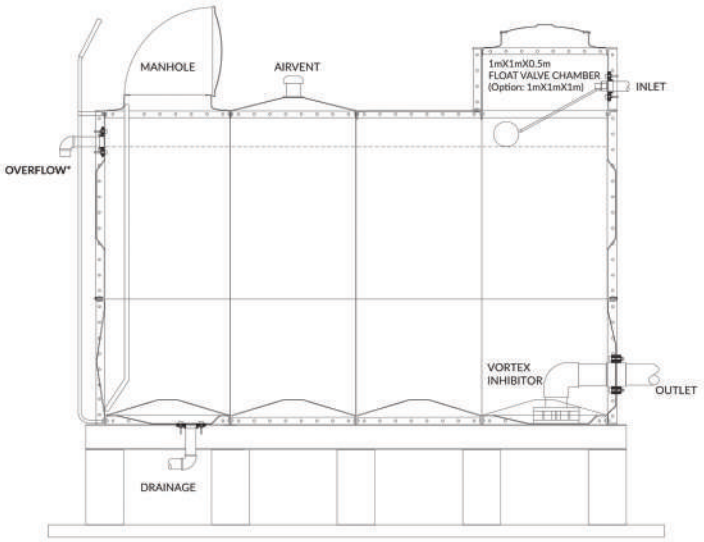
- Minimum space requirement along all sides = 500mm
- Minimum space requirement above roof panel for manhole opening = 1000mm



Side Panel Height Structure

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 opening area should be at least twice the inlet and shall flow freely without obstrcution at all times.*

Type of Flanges

PVC flanges are used by default (other types are optional)



GRP / PVC BOLTED FLANGE



BRASS SOCKET FLANGE



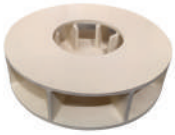
HDG BOLTED FLANGE



STAINLESS STEEL BOLTED FLANGE



GRP/PVC SPOOL FLANGE



GRP VORTEX INHIBITOR

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 60°C 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.

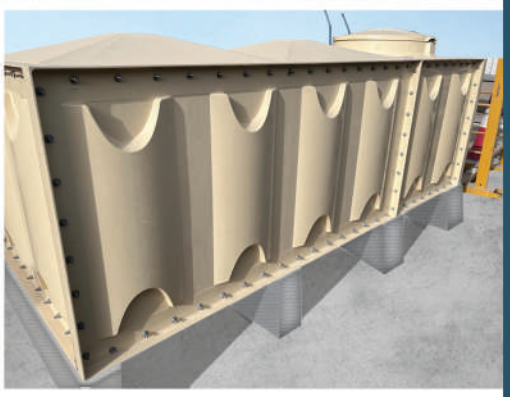
Projects













Contact Details

Sales Office (UAE)
Phone: +971 4 880 1888
Fax: +971 4 884 9885
E-mail: sales@solicotanks.com

Sales Office (International)
Phone: +971 4 880 1800
Fax: +971 4 880 1018
E-mail: export@solicotanks.com

Website
solicotanks.com

P.O.Box
61426 Dubai, UAE

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