



FINETANK  **GRP**

**HOT PRESS
GRP SECTIONAL
WATER TANKS**



by H&L



FINETANK is a trusted brand name for water storage tanks manufactured and supplied by H&L, serviced by staffs with decades of experience in the same field.

FINETANK offers a wide selection of GRP or Stainless Steel in material and rectangular or cylindrical type in shape, so you can choose a water tank that fits your installation location and purpose.

You can be assured ! Our decades-long experience in hot press molded GRP sectional water tanks business is good enough to satisfy valued customers by providing quality services from design, manufacturing, technical support and after sales service.

TOTAL SERVICE is available. On request, we provide all related items like pumps, valves, and other accessories with water tanks.

Enriching Human Lives

Since 2014, H&L has been expanding its business area from GRP tank manufacturing to water treatment systems and other related products/services that enrich human lives.

H&L has a sense of responsibility towards the community and environment. H&L promises to be a humble & lifeful global company that delivers bright and positive energy to society.

HOT PRESS MOLDED GRP SECTIONAL WATER TANKS

The best solution for water storage !

FINETANK - GRP Sectional Tanks made of hot press molded GRP panels and steel reinforcements are offered in various capacities of 0.5m³~10,000m³ with height 0.5m~5m and different shapes to fit into any spaces for various applications (residential/commercial buildings, water treatment plants, fire fighting, irrigation, etc.).

The GRP (Glassfiber Reinforced Plastic) panel is being made by hot press molding method by processing SMC (Sheet Molding Compound of isophthalic unsaturated polyester resins and chopped glassfiber) and long continuous glassfiber mat under high temperatures up to 150 °C and high pressure of min. 500~1500 tons (min. 45 Kg/cm²), thus it's durable and hygienic.

BENEFITS

Reliable Quality in Strength & Durability

We pursue the system superiority via sophisticated interpretation of hygiene, durability, rigorous design criteria, quality management, and reliable structure strength. The basis of structure analysis ensures safety factor design on limits. The finest safety factor, considering external forces expected based on property after a long-term use of over 15 years, is applied on FINETANK.

Hygienic Properties

All materials - GRP panels, steel reinforcement members and sealant etc. - used in FINETANK have high hygienic performance and are suitable for potable water. The WRAS approved non-toxic GRP panels with uniformly smooth surface finish hardly gets moss and sediment, and prevent the growth of algae, fungi and bacteria by blocking sun-light transmission.

Water Tightness

The joints of each panel are completely sealed with a food grade foam-type sealing strip with excellent weather resistance and resilience.

Easy & Speedy Construction

The standardized GRP panels and reinforcement members give operational efficiency in the transportation, on-site installation and maintenance. The uniformity of panel dimensions and the constant mechanical properties reduces construction errors and increase its accuracy.

Design Flexibility

Versatile sizes of FINETANK panel modules allows to design the most optimal tank capacity and shapes to meet required capacity within the allowing available space.

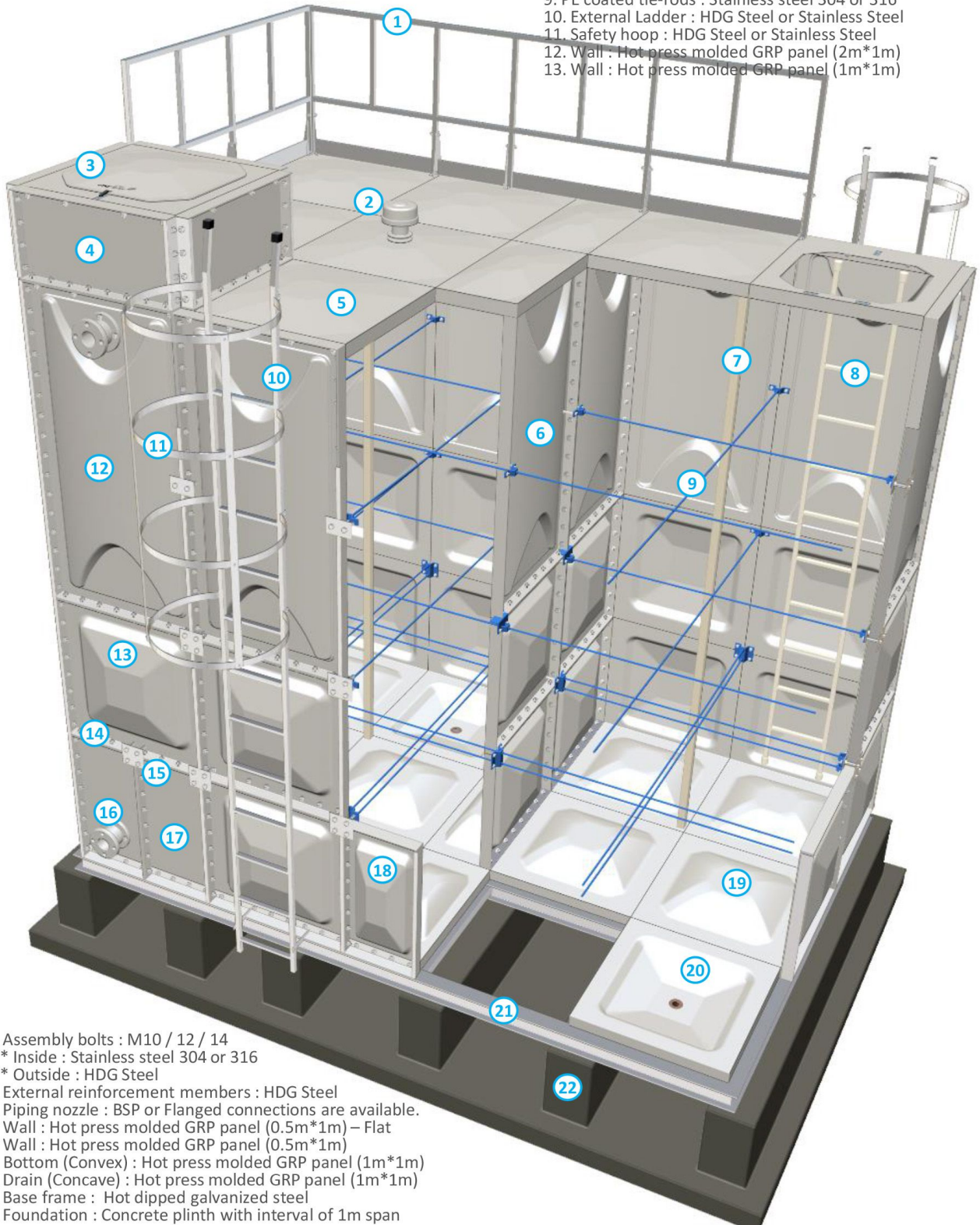
Outstanding Thermal Insulation

The thermal insulation panel with 3-layer (GRP panel + PU foam + Plastic cover) structure minimizes temperature change of the stored water and prevents dew condensation. This feature is recommended under hot or cold environment.

INTERNAL REINFORCEMENT SYSTEM

FINETANK - GRP Sectional Tank basically adapts the internal reinforcement system which ensures the better reliability and rigidity in the structure.

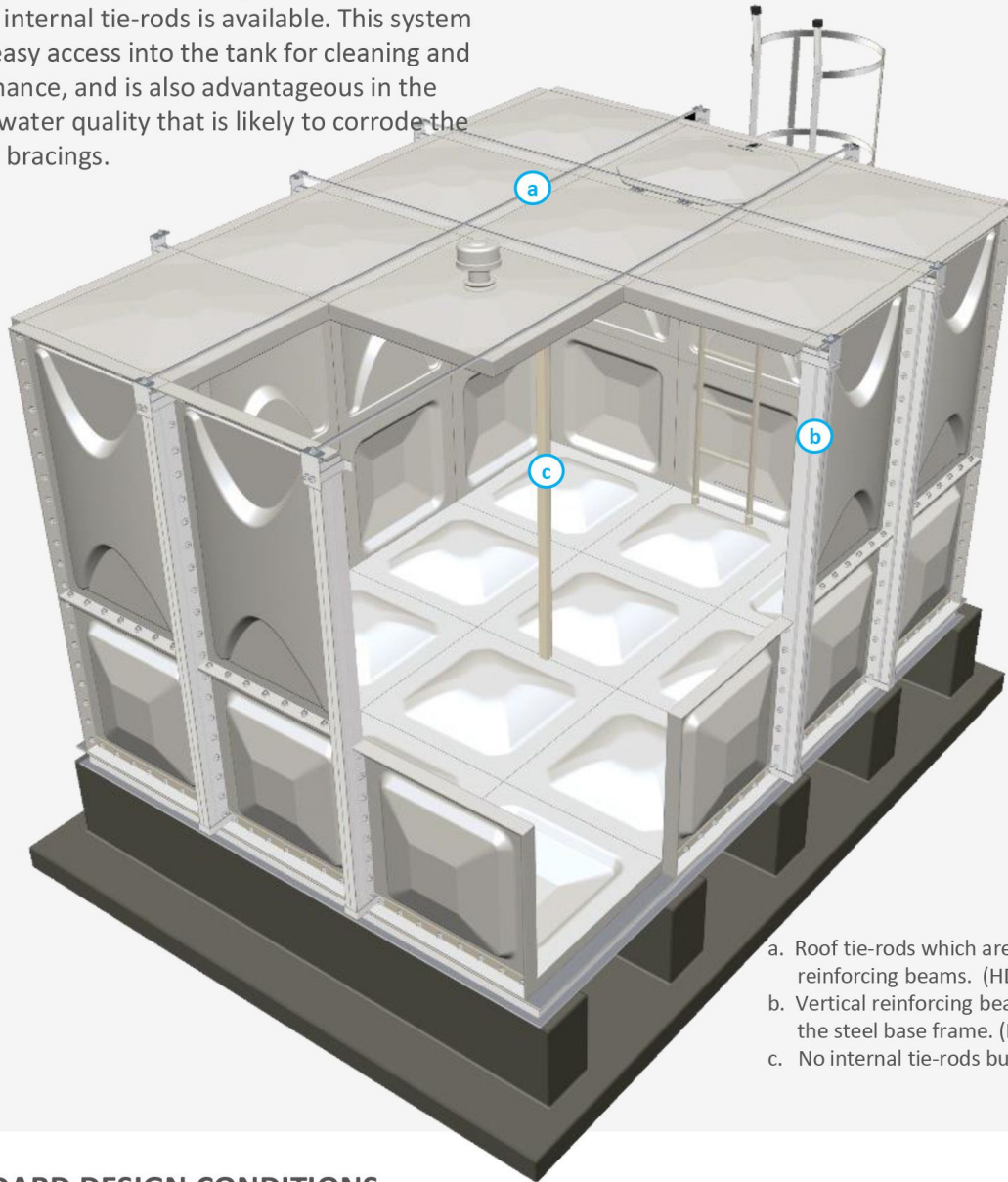
1. Safety guardrail with kick plate : Hot dipped galvanized steel
2. Mushroom shape air-vent with PE mesh : $\varnothing 50$ or $\varnothing 100$
3. Manhole with a lockable cover ($\varnothing 850$) : Dust proof
4. Float valve chamber : 1mL*1mW*0.5mH / 2mL*1mW*0.5mH
5. Roof (Convex) : Hot press molded GRP panel (1m*1m)
6. Partition panels : To divide the tank into multi compartments
7. Roof support : Pultruded FRP
8. Inner ladder : Pultruded FRP
9. PE coated tie-rods : Stainless steel 304 or 316
10. External Ladder : HDG Steel or Stainless Steel
11. Safety hoop : HDG Steel or Stainless Steel
12. Wall : Hot press molded GRP panel (2m*1m)
13. Wall : Hot press molded GRP panel (1m*1m)



14. Assembly bolts : M10 / 12 / 14
* Inside : Stainless steel 304 or 316
* Outside : HDG Steel
15. External reinforcement members : HDG Steel
16. Piping nozzle : BSP or Flanged connections are available.
17. Wall : Hot press molded GRP panel (0.5m*1m) – Flat
18. Wall : Hot press molded GRP panel (0.5m*1m)
19. Bottom (Convex) : Hot press molded GRP panel (1m*1m)
20. Drain (Concave) : Hot press molded GRP panel (1m*1m)
21. Base frame : Hot dipped galvanized steel
22. Foundation : Concrete plinth with interval of 1m span

EXTERNAL REINFORCEMENT SYSTEM

By client's request, externally reinforced system with no internal tie-rods is available. This system allows easy access into the tank for cleaning and maintenance, and is also advantageous in the case of water quality that is likely to corrode the internal bracings.



- a. Roof tie-rods which are fixed with the vertical reinforcing beams. (HDG)
- b. Vertical reinforcing beams which are fixed with the steel base frame. (HDG)
- c. No internal tie-rods but only the Roof supports

STANDARD DESIGN CONDITIONS

FINETANK complies with international standards, ISO 9001 : 2015, KS F 4811 : 2005, BS6920-1:2000 and/or 2014.

Item	Design Standard
Seismic-resistance	Horizontal seismic intensity $kH = 2/3$
Hydraulic pressure-resistance	Strength of panel should be 4 times (or greater) hydrostatic pressure. Deformation are at full tank should be lesser than 1% or tank height.
Wind pressure-resistance	$\leq 60\text{m/sec}$ (max. at empty tank)
Snow load-resistance	Snow load 60 Kg/m^2 (Snowfall 30 Cm)
Light transmission	$\leq 0,1\%$

• ISO 9001:2014



• WRAS certificate, UK



MORE OPTIONS

FINETANK - GRP Sectional Tanks are supplied in various options to meet different market demands. The variety of panel sizes (1m, 1.5m, 2m, half panels and more) allows to build tanks in any shapes and any capacities to fit into limited spaces. Depends on environmental conditions, insulated or non-insulated tanks also can be applied.

VARIETY OF TANK SHAPES

Regardless of the posts or other obstacles on the job site, FINETANK can be tailored and installed according to site requirements in a variety of shapes to make the most of the available space.



• Regular-shape



• L-shape



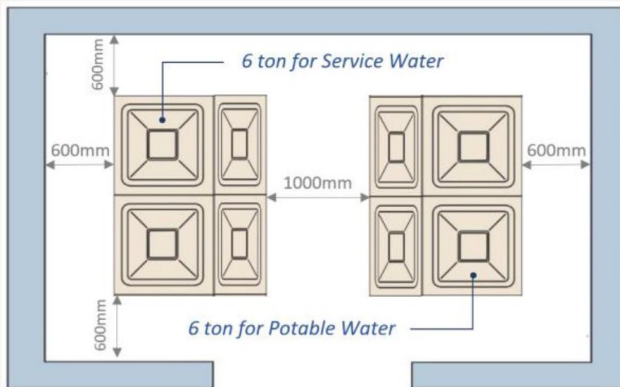
• C-shape



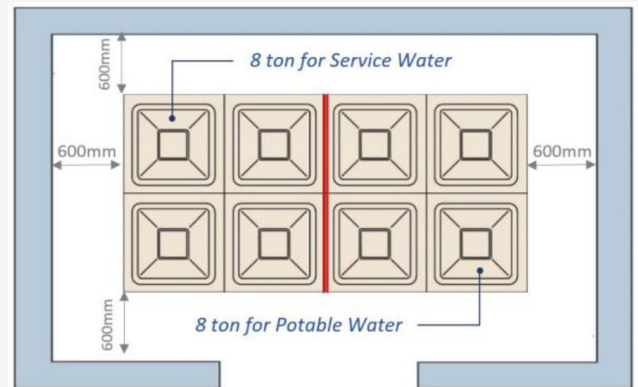
• O-shape

INTERNAL PARTITIONS

FINETANK can be divided into two or more compartments for each use. Divisions shall be stayed to enable one compartment of the tank to be emptied for cleaning and maintenance whilst the other compartment is in service. Partitioned tank is also recommended in a narrow space where multiple tanks for different uses (domestic water, firefighting, etc.) are required.



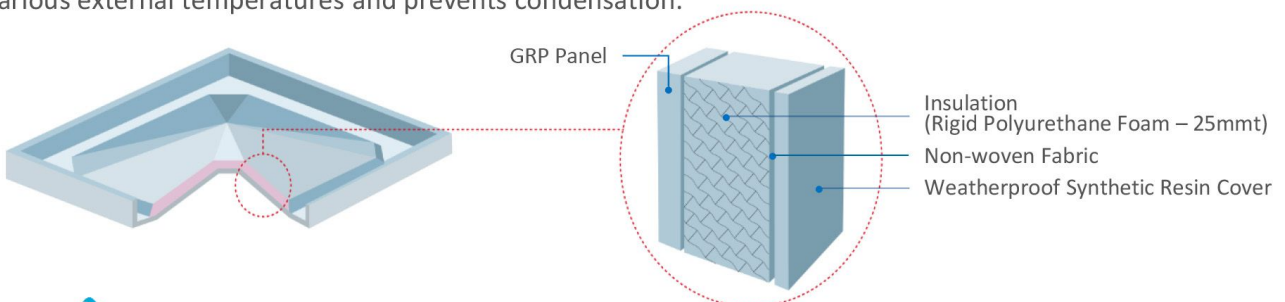
• Two tanks with in sufficient capacity due to tight space.



• One tank with an internal partition allows to secure more capacity

THERMAL INSULATION

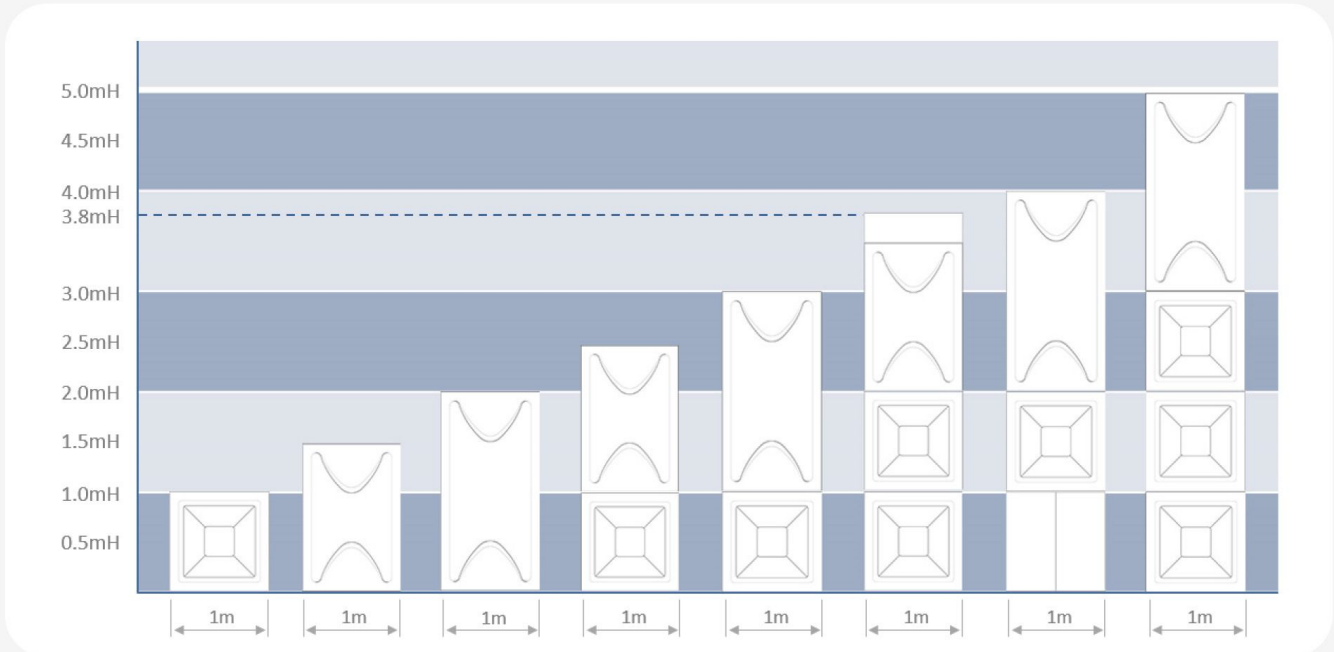
The pre-insulated thermal insulation panel minimizes the temperature change of the storage water due to various external temperatures and prevents condensation.



PANEL TYPES AND ARRANGEMENT

WALL PANEL ARRANGEMENT BY HEIGHT

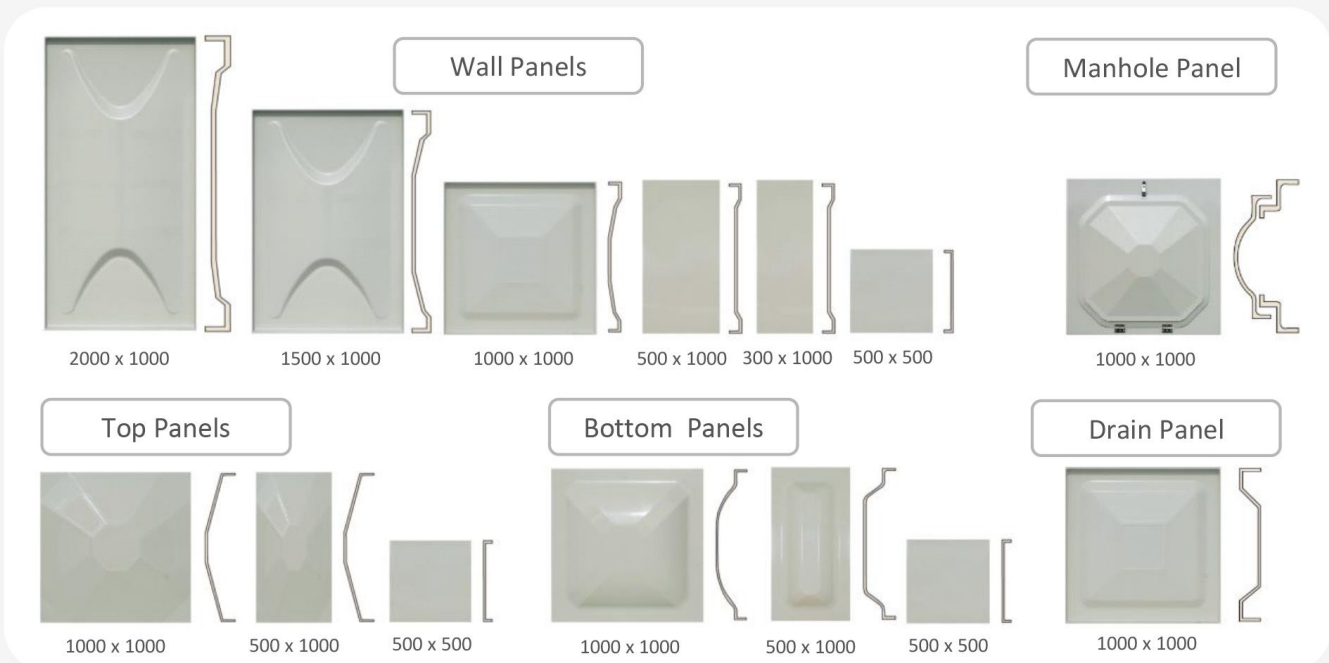
Tanks can be erected to height range of 0.5m~5m in 0.5m and 1m increments. The following is only an example and there can be more variations by combinations of different panels.



PANEL TYPE AND SIZE

FINETANK panel is optimally designed in various shapes to withstand the different loads applied to each part of the tank.

The top panel is designed in a convex shape so that rainwater does not collect on the tank top and is drained immediately, and the dia. 800mm manhole of sufficient size not only features stainless steel hinges and locks but is also designed to block dust or rainwater. The bottom panel is convex and the drain panel is concave to drain the stored water quickly and completely, which is advantageous for cleaning or maintenance.

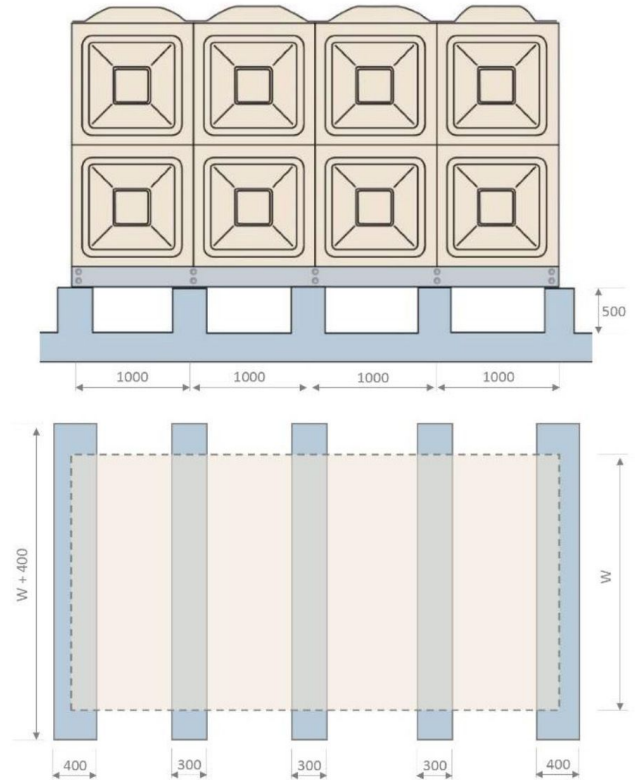


TANK CONSTRUCTION

FOUNDATION WORK

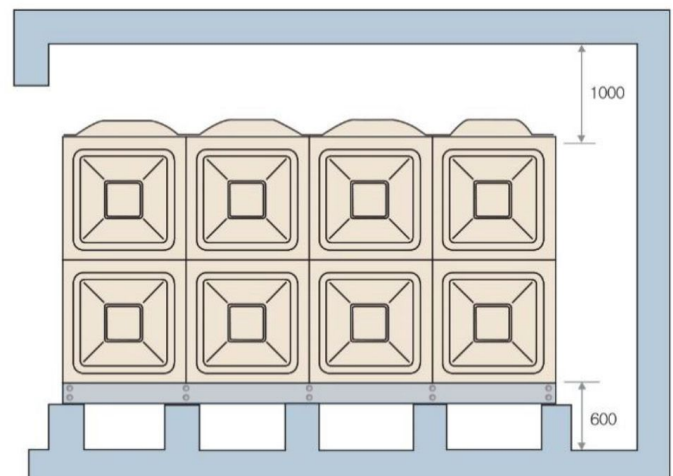
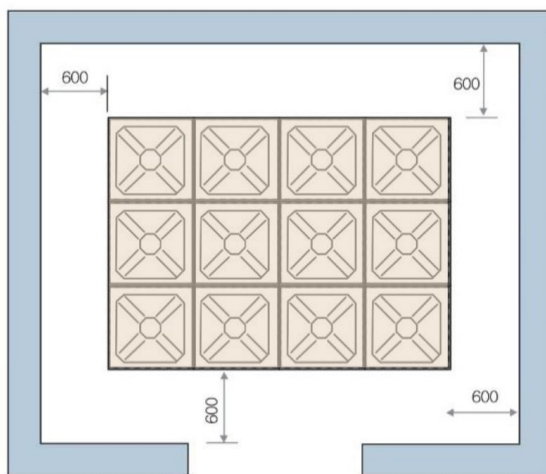
Customers are requested to make concrete foundation according to the specifications designed considering the strength of the soil.

Item	Design Standard
Width	400mm (min. 300mm)
Height	Min. 600mm including the steel base frame
Distance (center to center)	Min. 1,000mm between one plinth to another (if at intervals of 500mm, 200mm width is acceptable.)
Evenness	The top of each plinth should be leveled. (less than 1/500)
Strength of concrete	Min. 180kgf/cm ²
Thickness of mortar on concrete foundation	Max. 20mm



CLEARANCE REQUIREMENTS

A clearance of 600 mm is required all around the tank for proper installation and maintenance. (The recommended clearance above the tank is 1000mm.)

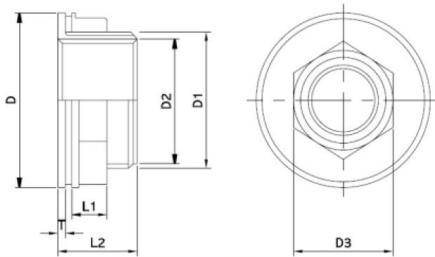


FITTINGS

NOZZLE SIZES & LOCATIONS ON EACH PANEL

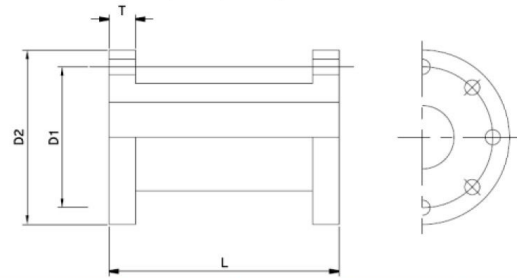
Side Panel (1000×2000)			Side Panel (1000×1500)			Side Panel & Drain Panel (1000×1000)			Side Panel (500×1000)			Roof Panel (1000×1000)		
A	W	H	A	W	H	A	W	H	A	W	H	A	W	H
65A	500	160	65A	500	160	65A	500	160	65A	500	160	65A	500	160
80A	500	164	80A	500	164	80A	500	164	80A	500	164	80A	500	164
100A	500	176	100A	500	176	100A	500	176	100A	500	176	100A	500	176
125A	500	197	125A	500	197	125A	500	197	125A	500	197	125A	500	197
150A	500	212	150A	500	212	150A	500	212	150A	500	212	150A	500	212
200A	500	240	200A	500	240	200A			200A	500	240	200A		
250A			250A			250A			250A	500	272	250A		
300A			300A			300A			300A	500	295	300A		

• SOCKET TYPE (BRASS)



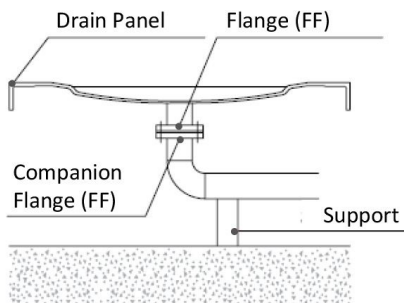
A	D	D1	D2	D3	L1	L2	T
20A	55	33.5	24.1	38	10	25	3.5
25A	65	40	30.3	46	12	30	4
30A	79	49	39	55	12	30	4
40A	85	55	45	61	14	30	4
50A	95	66.5	56.7	72	14	30	4

• FLANGE TYPE (PVC/FRP)

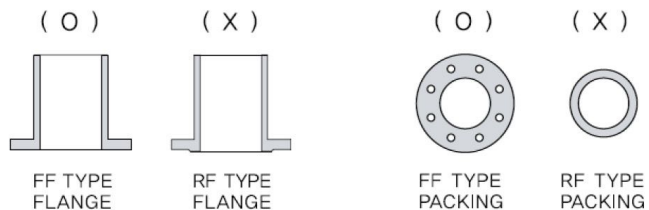


A	D1	D2	T	L
65A	140	175	18	170
80A	150	185	18	170
100A	175	210	18	170
125A	210	250	18	170
150A	240	280	22	170
200A	290	330	22	170

PRECAUTIONS WHEN CONNECTING PIPE & NOZZLES



- FF type flange and packing should be used.
- Supports must be installed under the pipe and valve



Manufacturing Procedure of GRP Panels



Cutting Sheet Molding Compound
SMC, the mixture of unsaturated polyester resin, Glass fiber, filler, mold release agent and catalyzer



Measuring Weight
The weight depends on the panel size and the panel assembly position.



Placing Materials in Molds
Charge the molds with materials (SMC and Glassfiber mat) according to designed patterns.



Press Molding
Press SMC with GF mat under high temperature up to 150 °C and high pressure of min. 500~1500 tons.



Ejecting Molded Panel
After certain time of molding, take out the molded panel from molds.



Trimming
Trim the rough edges of the panel.



Marking the Panel Grade
Stamp the panel grade, so that the panel assembly position is easily recognized.



Drilling Bolting Holes
Depends of panel assembly position, the bolting hole locations also vary.



Ready for Delivery
After piling the panels on pallet, wrap with wrapping vinyl.



Completion of Installation
Assembly panels with steel reinforcement members on site



WARRANTY

Supplier warrants that FINETANK fully complies with specifications agreed by each party and shall be free from defects under following terms and conditions.

Purchaser warrants and undertakes that it shall use the goods strictly in accordance with the technical documents of the supplier.

This warranty is not applicable to damage or failure that may occur as the result of incorrect or careless storage, incorrect or careless service, excessive duty or incorrect usage of the commodity, incorrect assembling, or non-observance by the purchaser.

This warranty is waived if

1. Damages are caused by natural disasters including (but not limited to) flood, fire, lightning, thunderbolt or landslide or by any other external circumstances such as building collapse.
2. In situations where the tank has been used to store anything other than normal- temperature drinking water in excess of 40°C.
3. In situations where faulty concrete foundation (including, but not limited to, unlevelled or insufficient strength of the concrete) has caused damage.
 - ✘ Manufacturer's recommendation ;
 - * Foundation concrete: must possess minimum compression strength of 180 kg/cm²
 - * The level differences in the foundation concrete, foundation frame, and bottom plate : 2mm or less.
 - * As for the foundation concrete and frame foundation, the degree of the horizon should be 1/500 mm or less (and the total or accumulated degree of the horizon should be 2mm or less)
4. In situations where the frame foundation is excessively deflected or lacks flexural strength, which leads to defects in the bottom panel.
 - ✘ Manufacturer's recommendation ;
 - * The maximum amount of deflection for the frame foundation : L/500 up to a maximum of 5mm when the tank is full of water.
 - * Flexural strength : 1600 kg/cm² or more.
5. In situations where the tank is deformed due to concussion or compression damage.
6. In situations where there has been a structural change without supplier's approval (including arbitrary changes in internal or external components).
7. In situations where facilities, including pipes, which have been installed without fixtures, around the FineTANK have directly or indirectly applied loads to the tank.
8. In situations where failure to follow the cleaning guidelines has led to damage.
 - ✘ Manufacturer's recommendation ;
 - * Cleaning frequency : Twice a year (this is required to check whether the re-filled water is of adequate quality)
 - * No rough sponges or any organic solvents (thinner or acetone) may be used for cleaning.
 - * No high-pressure jet washing is available.
9. In situations where the customer has not followed the "Management Instructions for GRP Water Tank Users".
10. In situations where the tank installation has not followed the stated standards suggested in the construction manual.//



Water Treatment, Storage and more



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