



SUPPLYING CLEAN WATER 

# GENESIS TANK

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**SMC**(GRP) HOT PRESS PANEL TANK





“  
**CLEAN  
WATER**  
IS  
**OUR  
LIFE**  
”





## Company Profile

Excellent in clean & hygienic and non-leakage.  
Sectional GRP water tank for easy to design and installation.

Our company specializes in the development and production of GRP water tanks.

Located in gimhae, our large-scale plant and research center are dedicated to on going development and production to lead the industry. Our advanced technology has received NSF61(USA), BSEN(UK), PSB(SINGAPORE), WRAS(UK), ISO 9001, ISO14001, certification and is garnering world acclaim.

In addition, with a corporate ideology rooted in placing our customers first, we base our management and product development upon this foundation of trust contributing to technological innovation, quality improvement, and added value enhancement.

In order to carry out such customer-oriented management, we constantly keep in mind the priorities of stringent quality management and environmental protection. In following, we adopted ISO product quality and environmental management standards from the very beginning and our efforts to grow as an environmental friendly company along with our customers are never ending.

We ask for your continuing interest and support.

Thank you.





# GENESIS

SMC (GRP) HOT PRESS PANEL TANK

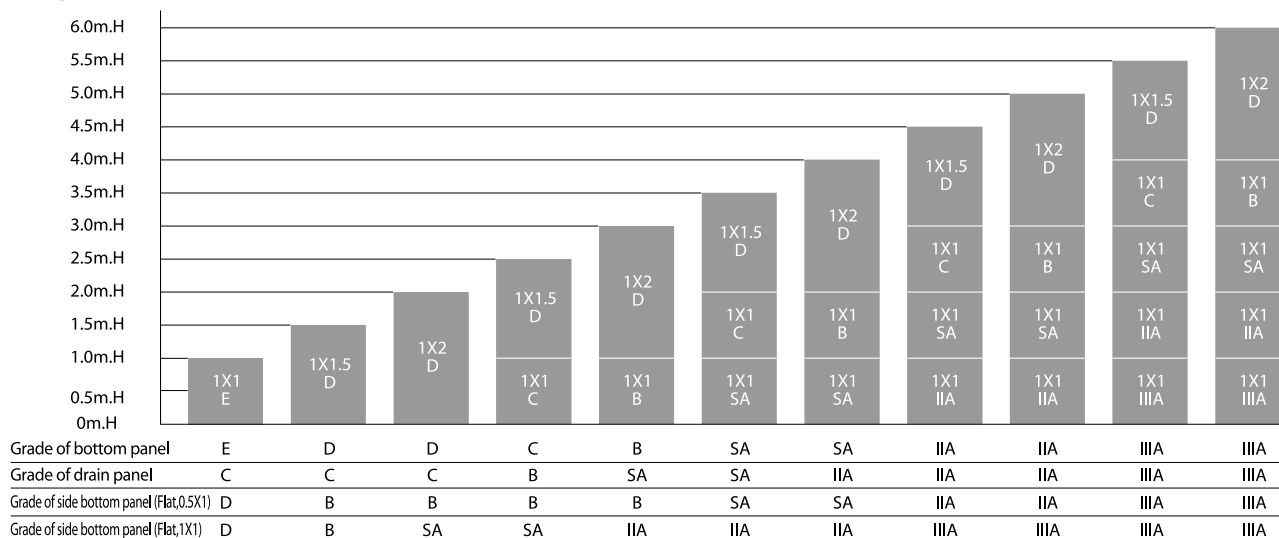
# TANK

GRP water tank always keeps clean water with excellent water pressure resistance & corrosion resistance.



## GRP Panel Composition by Height

Height of water tank



※ Current A grade → Unify to SA grade ※ Current IA grade → Unify to IIA grade



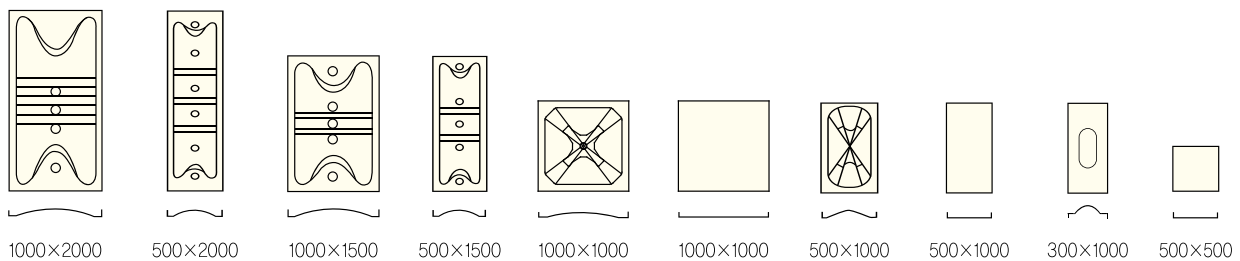
## Characteristic of GRP Water Tank

- Various capacity design
- Watertightness
- Intensity and durability
- Heat insulation and dewdrops prevention

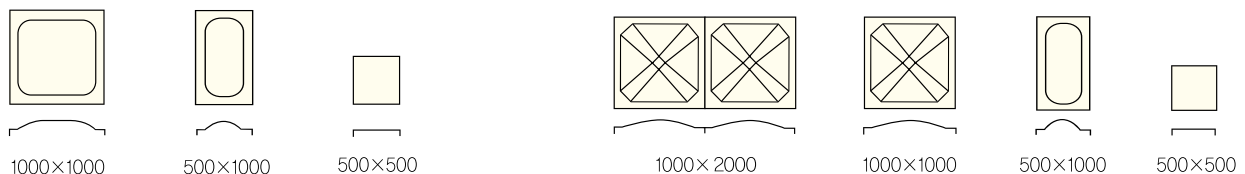
## Panel Physical Properties (KS F 4811 Standard)

Item	Unit	Standard	Result	Test method
Tensile strength	MPa	Over 60	91.4	KS F 4811:2016
Bending strength	MPa	Over 80	200	KS F 4811:2016
Elastic modules in bending	MPa	Over 6000	15287	KS F 4811:2016
Glass fiber content	%	Over 25	31	KS F 4811:2016
Barcol hardness	-	Over 30	61	KS F 4811:2016
Water absorption	%	Below 1.0	0.05	KS F 4811:2016
Hydrostatic pressure	-	Over 4 times	4 times	KS F 4811:2016

## GRP Panel Type & Size



Wall Panel



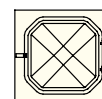
Bottom Panel

Roof Panel



1000x1000

Drain Panel



1000x1000

Manhole Panel

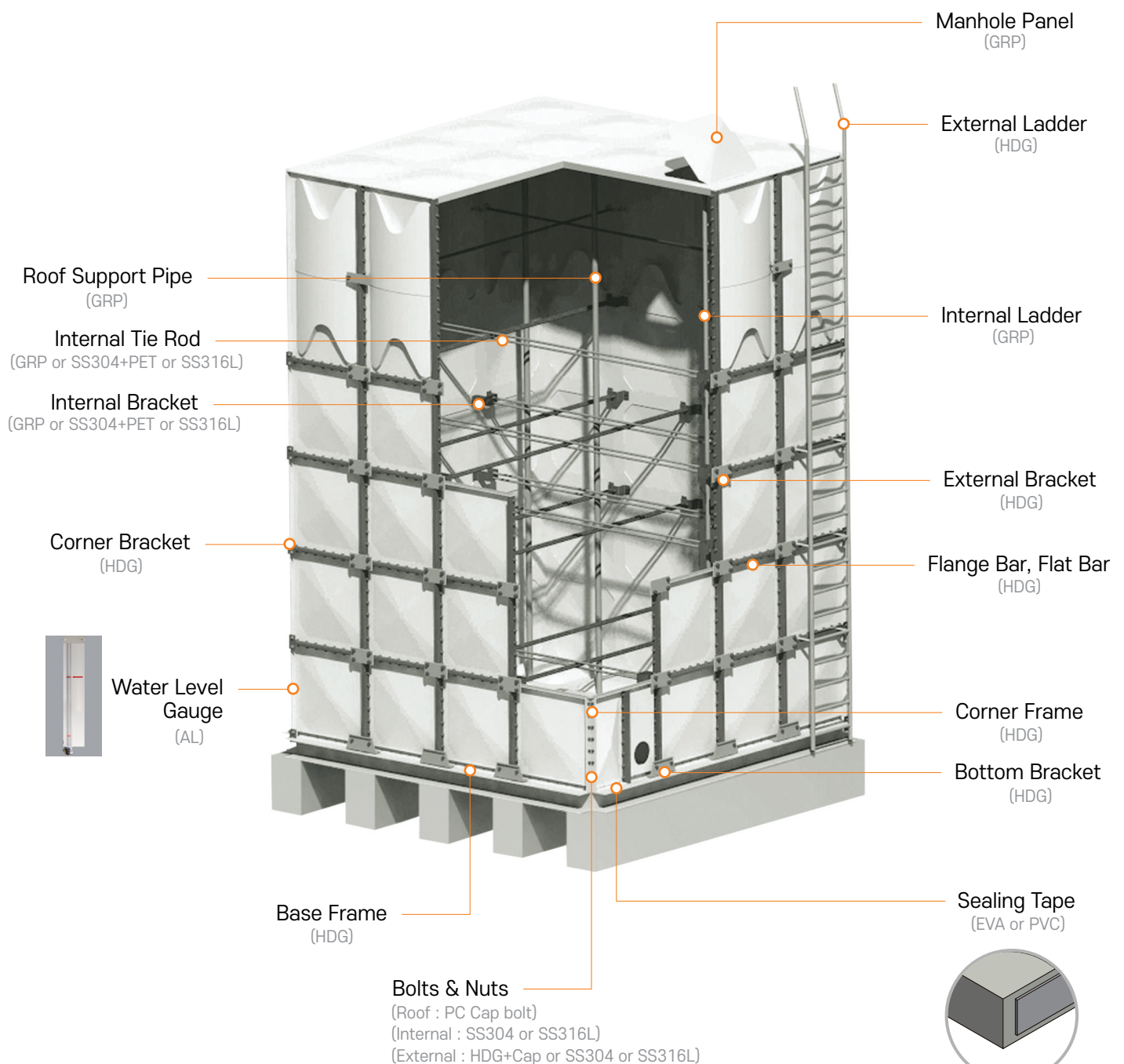




## Internally Reinforced System

It is possible that various capacity's design and flexible space should be used by GRP panels standardized.

Excellent watertightness, hygienic conditions and non-leakage applied internally reinforced stay(Stainless or GRP).



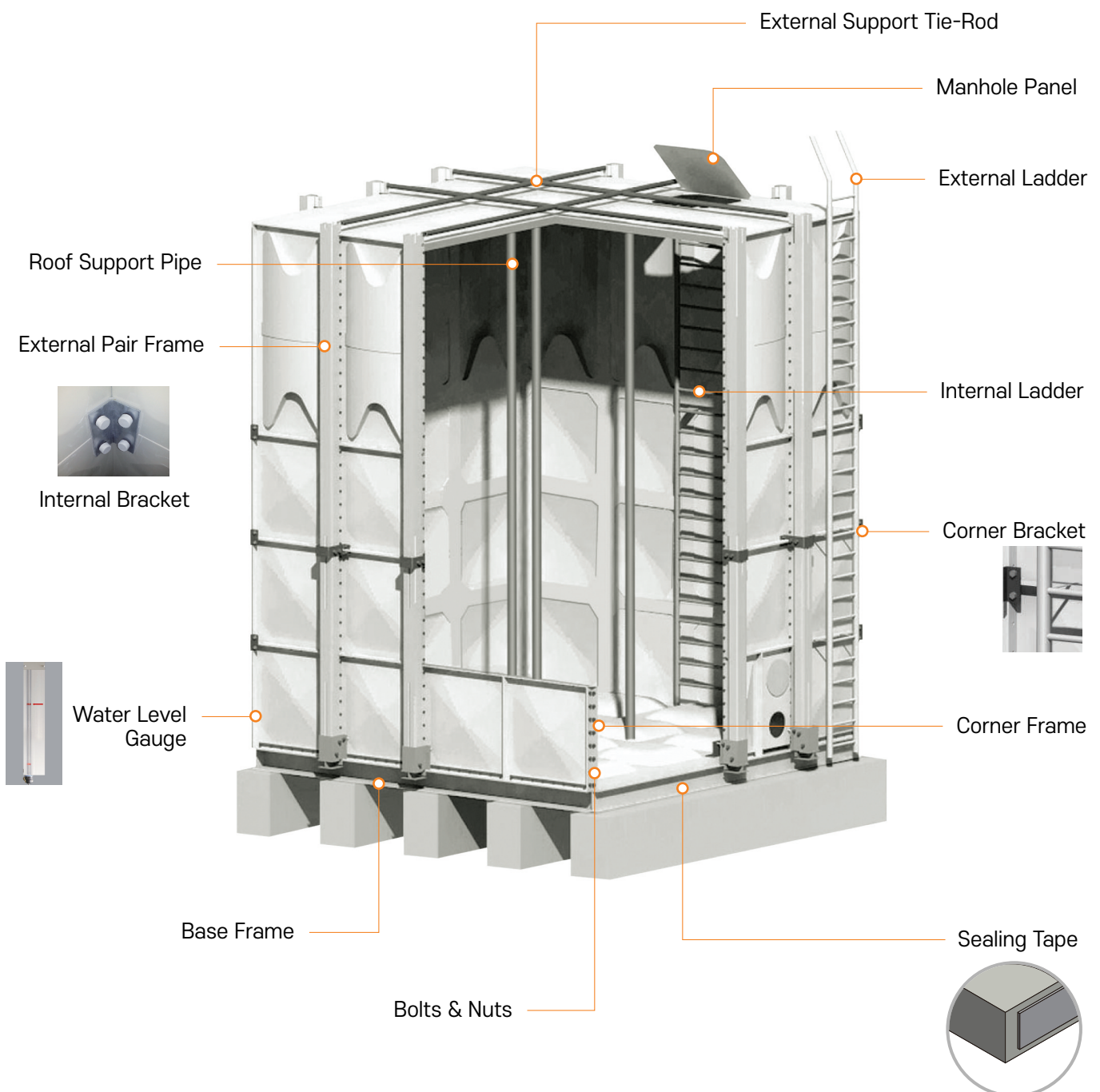


# GENESIS SMC (GRP) HOT PRESS PANEL TANK TANK

## Externally Reinforced System

Glass fiber reinforced panel is mulded under condition of high temperature and pressure to maintain the best endurance.

Since using stainless steel for inside structure, plated steel for outside and HDG for outside, it shows best performance against corrosion.







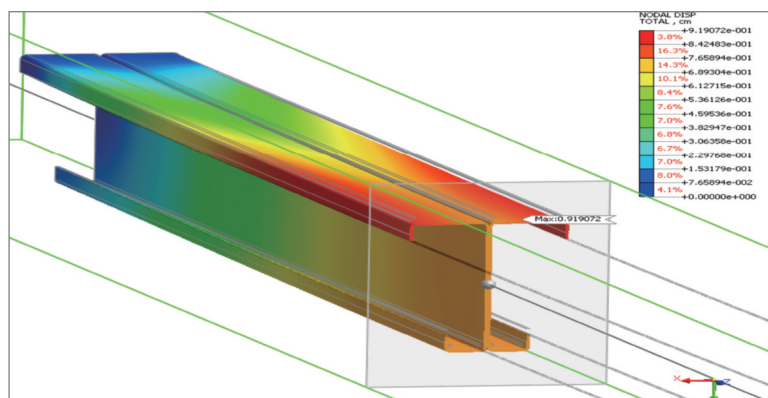
“  
**PROVIDE  
CLEANER WATER  
WITH SUPERIOR  
TECHNOLOGY**  
”



## Externally Reinforced System Structural Analysis

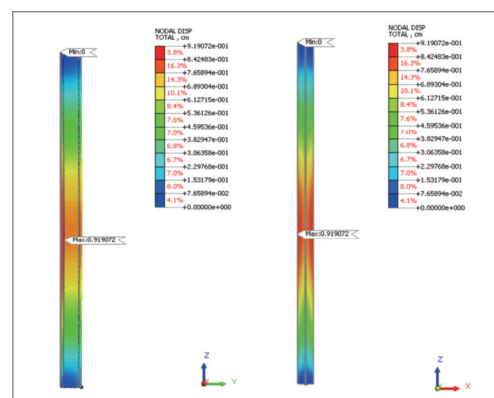
### FEM

Water tank height (3MH-75m<sup>3</sup>)



### FEM

External pair frame (3MH-75m<sup>3</sup>)



Result of skid base strength review (safety factor 2.0)

Height	Contents		Bending stress (kg/cm <sup>2</sup> )	Result
3.0mH	Main skid base	Long term	1520<1600 (Allowable value)	OK
		Short term	2130<2400 (Allowable value)	OK

## Strength & Durability of GRP Water Tank

Section	Design standard
Hydrostatic pressure	Water pressure reinforcement 4 times standard Transformation rate in filled u with water : less than 1% form water tank heigh
Wind force	Less than 60m/sec
Earthquake force	Stable and safe till magnitude 5.0 (over magnitude 5.0, it needs additional reinforcement)
Snow load	60Kg/m <sup>2</sup> , snow fall less than 30cm
Illumination rate	Less than 0.1%
Out-fit force	No leakage under condition of vertical 100Kg after install of 100A fitting with 70mm span supprot
Water temperature	Usable temperature : less than 30°C / limited temperature : max 70°C
Water quality	Tap water, well water : chlorine below 50mg/ℓ Seawater : application externally reinforced water tank (max 3m height)

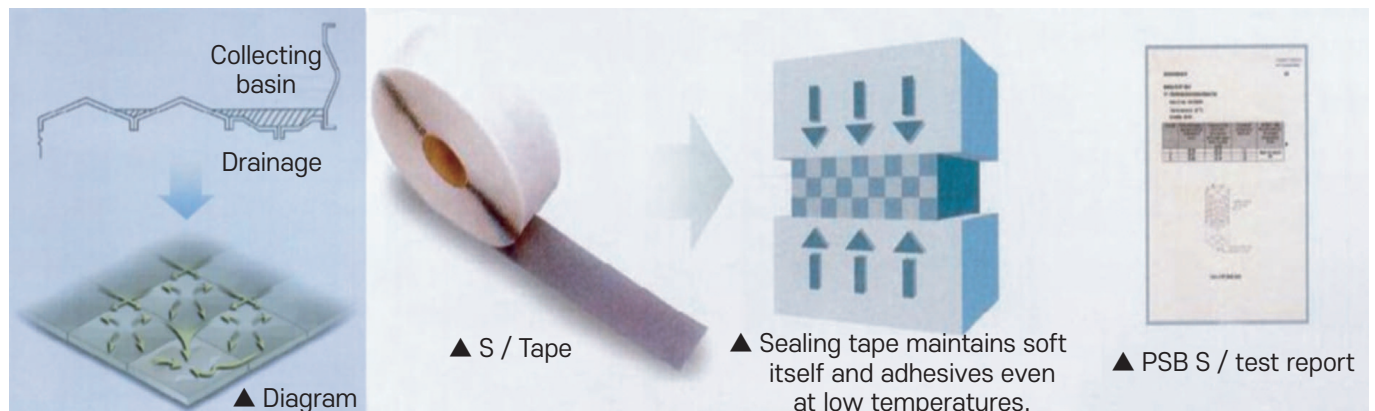




## Perfect Watertight & Drain System

As using foaming type sealant tape which is excellent water proof & force of restitution, maintains perfect non-leakage of the water tank. The concave drain panel facilitates complete and quick drainage.

Type of sealing tape		Characteristic
Optional items	EVA+PVC	Applicable to 50°C
	Butyl+PVC	Preventing to stick PVC tape out from GRP panel

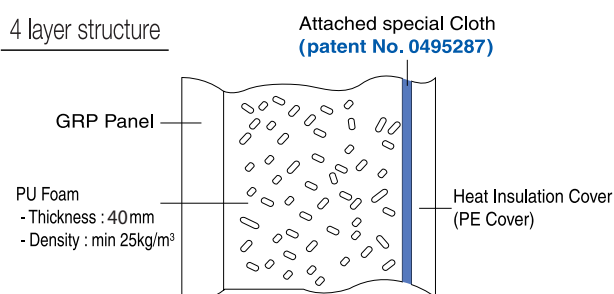




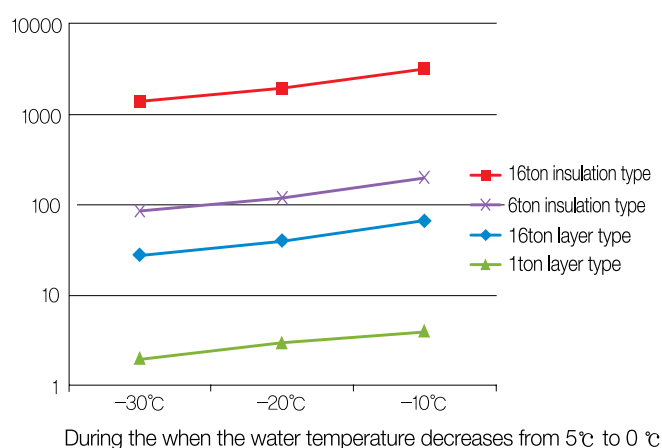


## Composition of Insulation Panel

- Excellent insulation of GRP material itself with eco-friendly polyurethane heat insulating material prevents freeze & water condensation.
- There is non-woven fabric with excellent adhesion inside GRP insulated panel, ensuring shape stability of panel throughout longer time periods.
- GRP insulated panel with 4 layers structure ensures excellent insulating effect.
- Thickness of insulated panel : 40mm



During the time when the water temperature decreases from 5° to 0°



Capacity	Classification	Temperature of atmosphere		
		-10°C	-20°C	-30°C
16 tons	Single layer type	35 hr	20 hr	13.5 hr
	Insulation type	164 hr	81 hr	58.5 hr
1 tons	Single layer type	11 hr	6 hr	4 hr
	Insulation type	37.5 hr	23 hr	13.5 hr

### ※ Test condition

- Tank is filled with water
- No further water supply or drainage during the test

It is possible to eliminate unusable space, and utilize the maximum space, by installing a partition type tank.  
Economical and effective for maintenance.

## Special Feature

- Utilizing maximum capacity

In the basement or other confined areas, it is possible to eliminate unusable space, and utilize the maximum space, by installing a partition type tank.

- Various uses

If partition type tanks are installed, one section can be used for drinking water, and the other section for service water (ex. fire fighting).

- Easy maintenance

It is convenient for maintenance, because two tanks can be installed as one unit.

- Cost effectiveness

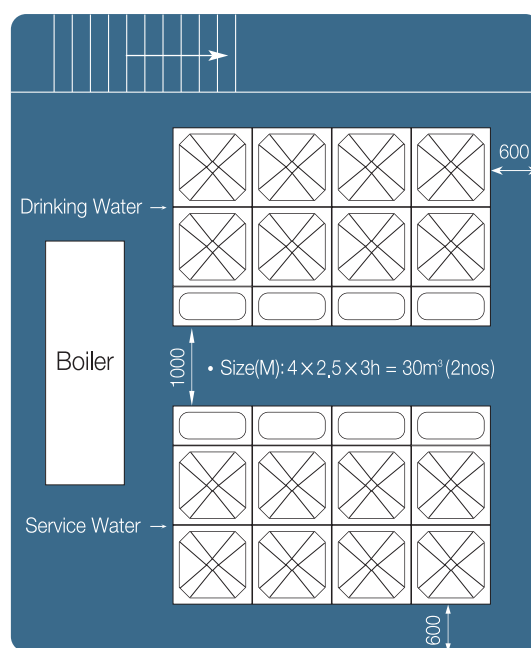
The cost and installation of 1 partition tank is cheaper than 2 separate tanks.

### Effect for Partition Water Tank System

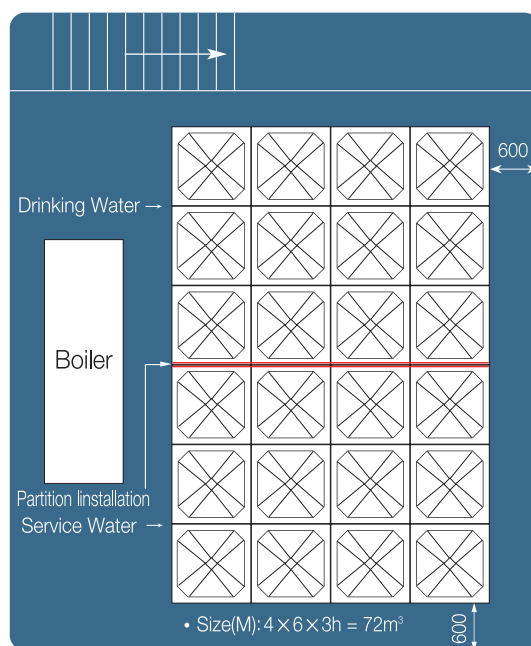
If tanks for two different uses are needed in a confined area or boiler room, a 72 ton partition type tank can be installed to use half for drinking water, and half for service water.

If separate tanks are installed, however, you have to installed two tanks with a maximum of 30 tons, because you need to have 1 meter distance between tanks for maintenance and operating space.

## Partition Installation



### Non partition type



### Partition type

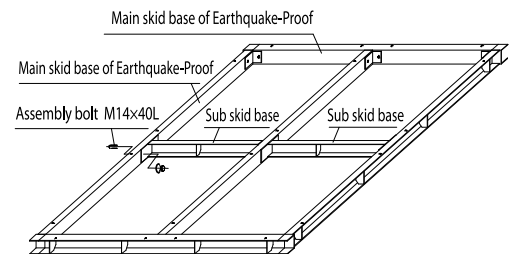


## Earthquake - Proof Skid Base System

Height of water tank 2.5mH, height of water tank 4m, GRP sectional panel, putting water to 85% of water tank height, earthquake-proof strength 5.0

- Result of skid base strength review (safety factor 2.0)

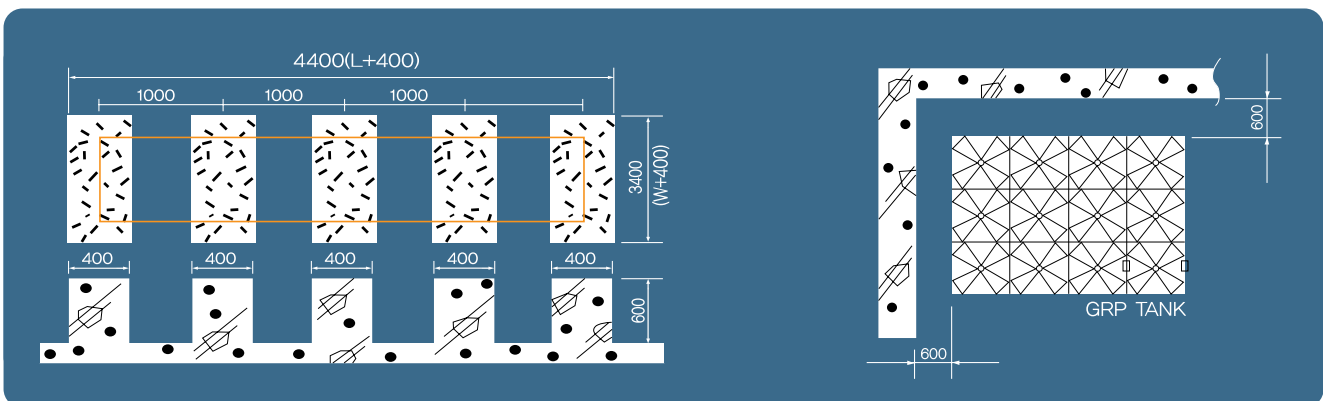
Height	Contents		Bending stress(kg/cm <sup>2</sup> )	Drooping(cm)
2.5mH	Main skid base	Long term	1170 < 1600(Allowable value) ■ O.K	0.15 < 0.25(Allowable value) ■ O.K
		Short term	1340 < 2400(Allowable value) ■ O.K	0.17 < 0.33(Allowable value) ■ O.K
	Sub skid base	Long term	1590 < 1600(Allowable value) ■ O.K	0.21 < 0.25(Allowable value) ■ O.K
		Short term	1830 < 2400(Allowable value) ■ O.K	0.25 < 0.33(Allowable value) ■ O.K
4mH	Main skid base	Long term	790 < 1600(Allowable value) ■ O.K	0.06 < 0.25(Allowable value) ■ O.K
		Short term	900 < 2400(Allowable value) ■ O.K	0.27 < 0.33(Allowable value) ■ O.K
	Sub skid base	Long term	1540 < 1600(Allowable value) ■ O.K	0.15 < 0.25(Allowable value) ■ O.K
		Short term	1750 < 2400(Allowable value) ■ O.K	0.17 < 0.33(Allowable value) ■ O.K



## Installation Standard (Pad and Space)

### Standard of Base Concrete PAD Installation and Space

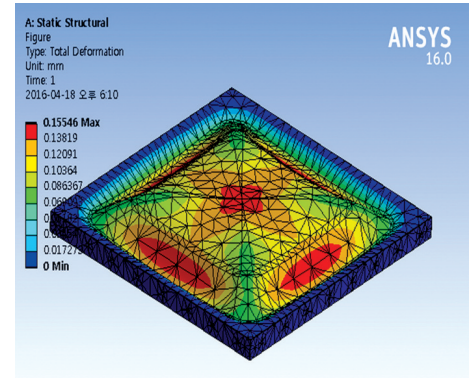
For maintenance of GRP tank, it needs extra space at least 600mm from wall and 1,000mm from ceiling.



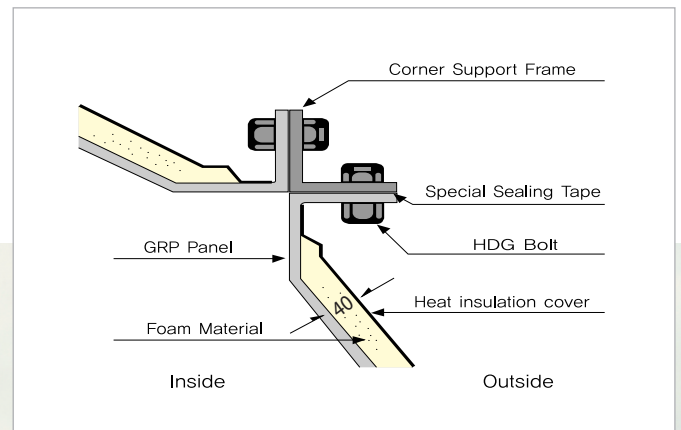
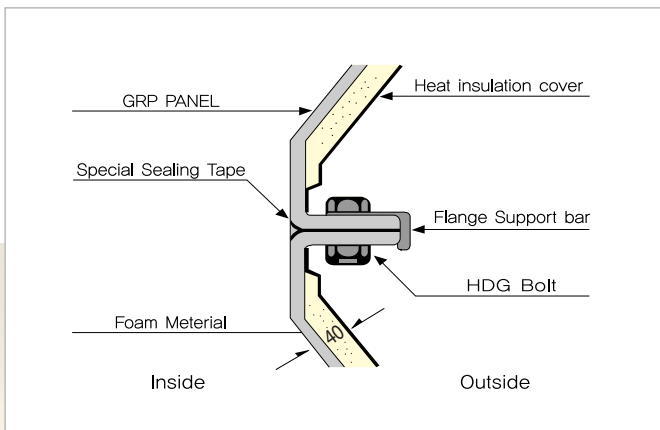
## Stress Analysis of GRP Panel

GRP water tank panel is designed with special shape for maximizing safety against stress and deformation, so it has better structural strength than normal circle designed panel.

As GRP water panel is manufactured by oil-hydraulic press under high temperature and high pressure, it maintains top water pressure strength and there is no dimensional deviation by temperature change.



## Drawing of the Panel Joint Part / Corner Part



※ Heat insulation foam core thickness : 40 mm







## Maintenance Control

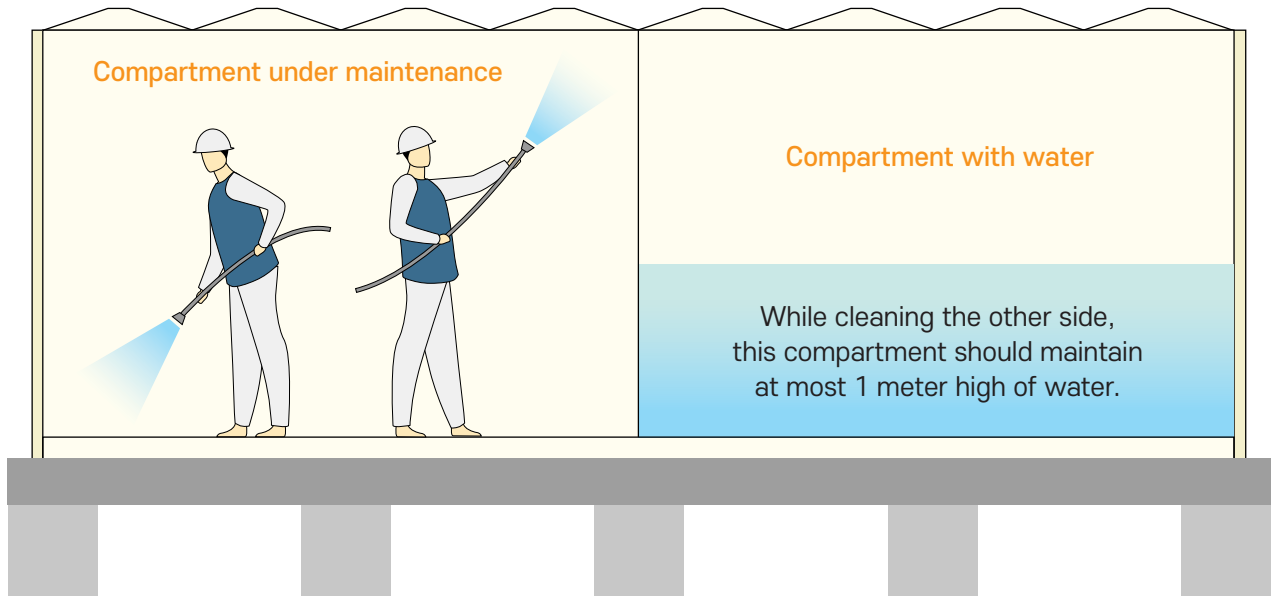
To keep the tank clean and ensure its safe use, please perform the following inspection and maintenance work.  
GRP water tanks are designed and manufactured for long-term service.  
Maintenance and inspection must be conducted to secure hygienic and long life.  
To facilitate easy and safe maintenance and inspection, a proper space must be secured around water tanks.

01. Caution the damage to the water tank from outside shock.
02. Do not use the GRP water tank for other napproved purpose. (for example chemical storage tank)
03. Do not dismantle internal components or change it to other components without official approval.
04. Prohibit to install unapproved components or non-consent equipment.
05. Maintain standard water level at all times (keep the 85% water level of water tank height)
06. Clean the inner side of water tank at least 2 times per a year.
07. In case of partition water tank, keep under 50% water level of the water tank heigh in opposite side when clean water tank.
08. Do not use any organic solvent such thinner, acetone, chlorine bleach when cleaning inner side of water tank and recommend with soft material.
09. Ventilating water tank frequently.

Maintenance item	Interval	Remarks
Clean the inner side of water tank	2 times / year	When cleaning innder side of water tank, need to use soft materials like soft cloth or sponge, do not use rough materials like steel brush or wire.
Looseness of the bolts and nuts	2 times / year	Retighten any loose bolts and nuts. (Do not use impact wrench)
Check standard water level	1 time / month	Checking operation of water level control valve.
Check clogginess of airvent, overflow	1 time / month	Removing foreign body and cleaning.
Manhole cover	1 time / month	Make sure that the manhole cover is completely shut. Always keep it locked.
Turbid water	1 time / month	Check the inner parts of the tank, the outlet and the other places for turbid water.
Water leakage and deformation of the tank	1 time / month	If the water tank leaks or deformed immediately contact the local sales representatives.
Internal & external pressure other than hydrostatic pressure	1 time / month	If any pressure other than hydrostatic pressure applied to the tank, immediately return the tank to its normal state.
Looseness of the bolts and nuts for ladder.	1 time / year	- Fasten loose bolt for ladder. - When bolt rusted, need to remove the rusting and coat for rustproofing on the bolt. - When the bolt is corroded, need to replace the bolt.

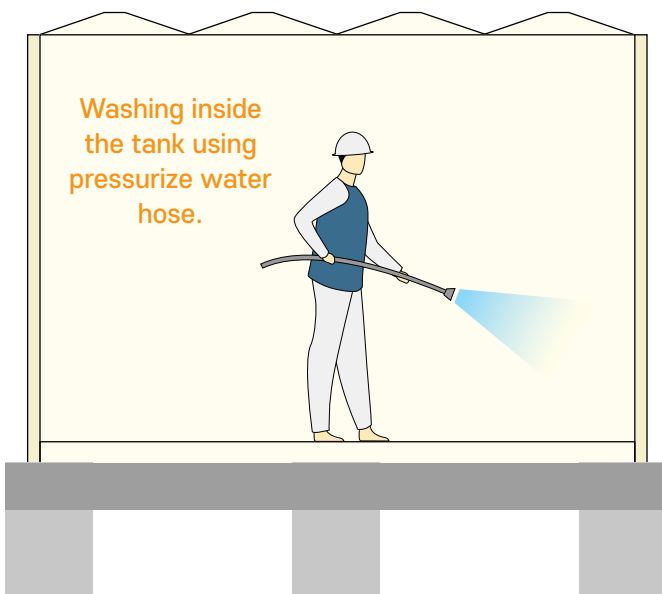


# Advantages of GENESIS GRP water tanks



## Partitioning

Partitioned GENESIS GRP water tanks provide the facility of using one section of the tank while the other section undergoes cleaning and maintenance while providing continuous water supply during operations.



## Cleaning

GENESIS GRP water tanks can easily be cleaned due to the ease of full drainage using a medium water pressure hose to wash down any dirt without using any chemicals. During cleaning, the tank should have at least 5 inches of water remaining. Check and wipe the silt from the bottom before draining the water completely.



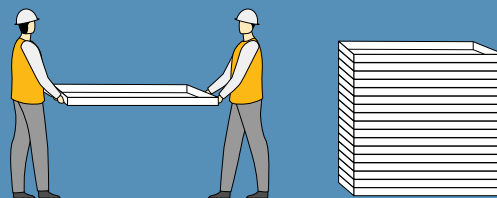
# Caution and maintenance

## 01. Timely inspection

- Piping
- No leakage
- No overload
- No harm material around
- Tightening of bolts

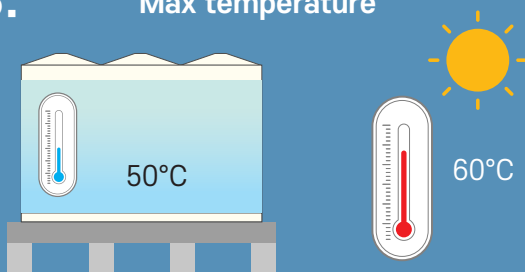
Jan	✓	Jul	✓
Feb	✓	Aug	✓
Mar	✓	Sep	✓
Apr	✓	Oct	✓
May	✓	Nov	✓
Jun	✓	Dec	✓

## 02. Safe delivery

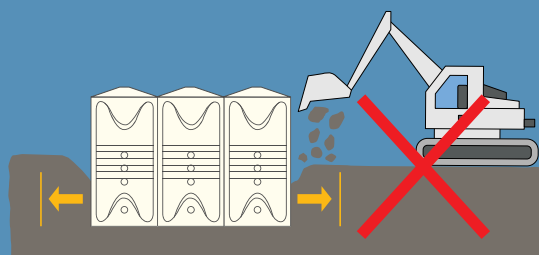


Should be safely transported and stored

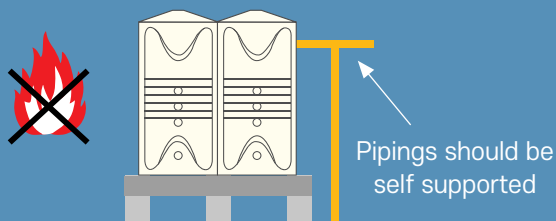
## 03. Max temperature



## 04. Do not bury keep all sides clear



## 05. No flame or heavy load

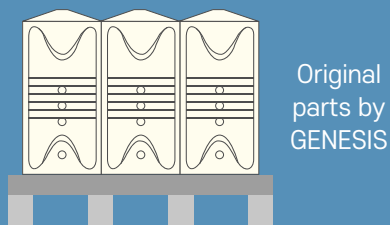


## 06. Timely cleaning

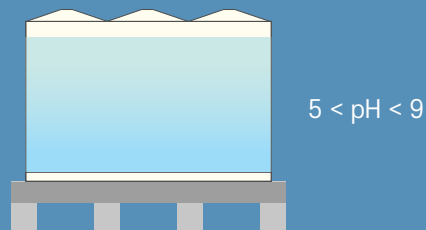
During cleaning maintain water at other side.  
Clean with sponge, soft material, no wire brush or hard material to clean.

January ✓  
July ✓

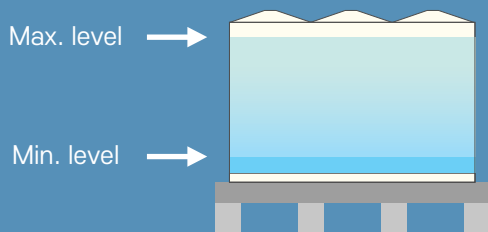
## 07. Stick with original parts



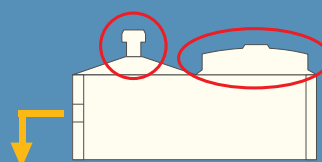
## 08. Use water only



## 09. Maintain water level



## 10. Keep manhole tightly closed and do not block airvent and overflow





# GRP Water Tank Installation Processing

## 01. Base Concrete PAD & Bottom Panel Assembly



## 02. Wall Panel Assembly



### Installation and Caution

01. Customers are requested to make foundation pad construction according to the designed specifications and the strength of the site.
02. Check the evenness of foundation (within 5mm) and the flatness of base material.(within 0.5mm)
03. Check rust of the external reinforced material and any bolts and nuts, their tightness.
04. Check installed state of the external ladders and water level gauge.
05. Check bending of the water tank wall panel(maximum up to 1% of water tank height) and check skewness of the water tank.
06. Check a corrosion inhibitor coating on the internal reinforced material and bolts tightness.





## 03. Internal Tie-Rod & Roof Support Assembly



## 04. Assembly Completed



- 07. Check drooping the internal reinforced stay and check assembled state the internal bracket.
- 08. Check assembled state of the internal ladder and roof supports.
- 09. Check the size of socket for plumbing will be installed.
- 10. Check assembled state of a socket for plumbing.





# GRP Two-Pieces Water Tank

## Excellent heat Insulation

Insulated panel with 4 layers structured & using eco-friendly polyurethane heat insulating material ensure excellent insulating effect.

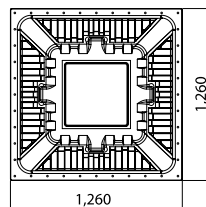
## Easy to clean & excellent hygienic

Because of wide manhole, it is easy to clean inside of water tank & it has excellent hygienic & watertightness.

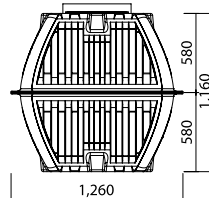
## Excellent durability

It secures excellent surface strength & durability as using high-temperature & high pressure press machine (2,500 ton).

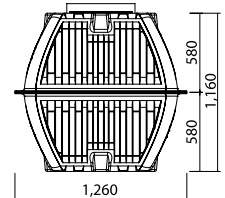
### - GRP Two-pieces **1m<sup>3</sup>** type



Floor plan

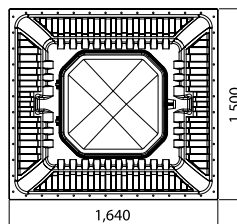


Side view

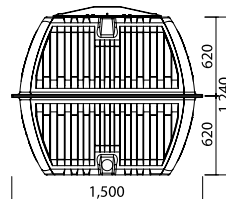


Front view

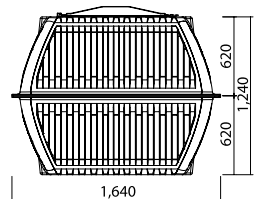
### - GRP Two-pieces **2m<sup>3</sup>** type



Floor plan

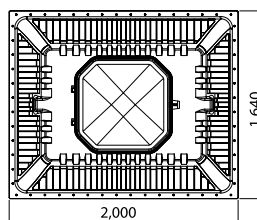


Side view

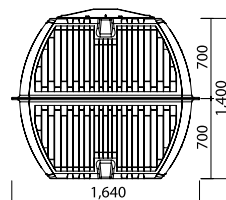


Front view

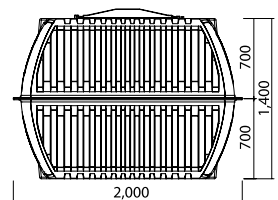
### - GRP Two-pieces **3m<sup>3</sup>** type



Floor plan



Side view



Front view

### Competitive price

Excellent price competitiveness & high quality water tank with no tie-rod type.

### Easy & quick to install

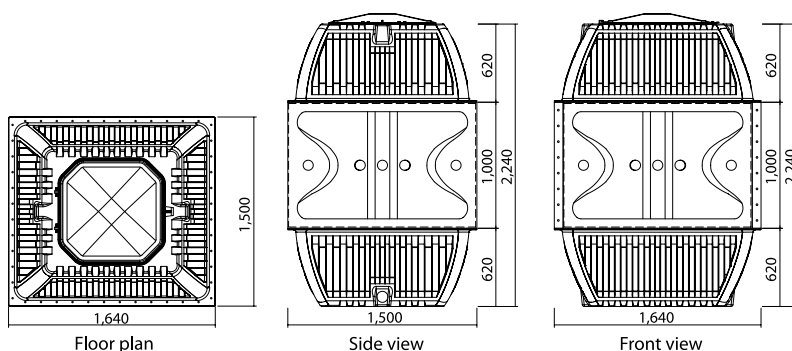
It is easy and quick to install with easy assembly of upper & lower panels.

### Structure of non skid base

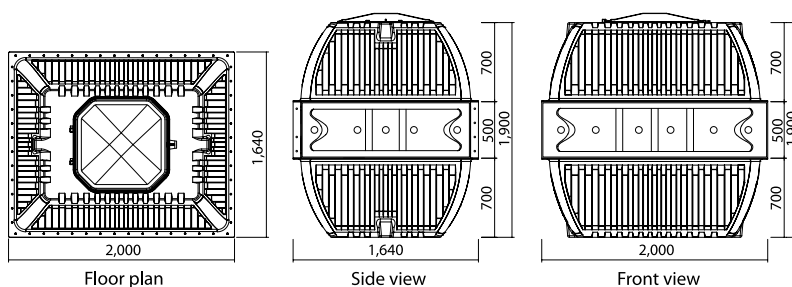
Excellent earthquake-resistant without concrete frame & skid base.

## Earthquake Resistant Reinforced Type

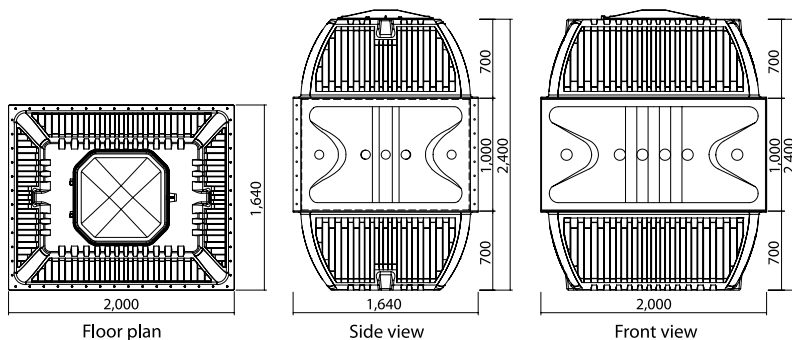
### - GRP Two-pieces **4m<sup>3</sup>** type



### - GRP Two-pieces **5m<sup>3</sup>** type



### - GRP Two-pieces **6m<sup>3</sup>** type





# Certificates for GRP Water Tank

- Getting all international certificates and test reports for GRP water tank.
- Realization of customer satisfaction through quality management system.
- GRP water tank of best quality with competitive price.



ISO 9001



ISO 14001



WRAS Certificate  
(U.K)



NSF61  
(USA)



BSEN  
(U.K)



PSB Test Certificate  
(Singapore)

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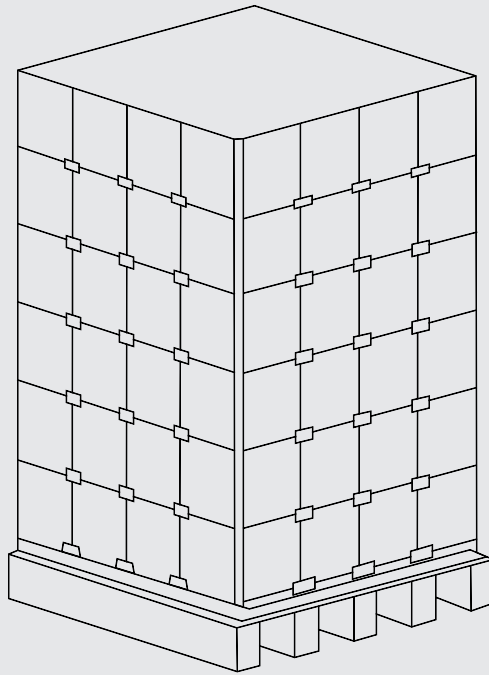


“

CREATE A  
**CLEAN**  
**WORLD**  
FOR  
**TOMORROW**

”





# GENESIS

SMC (GRP) HOT PRESS PANEL TANK

# TANK



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