Clean Water Begins with Sejin!

SEJIN SMC WATER TANK

Outstanding in Heat Insulation
Excellent Strength
Versatile Capacity
Excellent Sanitation
Easy Assemnbly
Perfect Watertightness

SEJIN SMC CO., LTD.

Clean Water Begins with Sejin!

The Highest Quality, Perfect Manufacture and Installation are Spirit of SEJIN SMC

company brief history

1981.02. Sejin Industries Co. was established by CEO, Kyeong-sig Choi.

1986.08. Incorporated as Sejin Co., Ltd.

1989.01. Completed the construction of a factory in Imsil, Jeollado.

1990.07. Secured KS-mark. (Korean Standard KSF-4806)

1991.03. Acquired Q-mark (Designated as a quality assured company).

1991.09. Selected as a promissing small & medium enterprise by Hanil Bank.

1991.11. Designated as a military service special case business by Military Manpower Administration.

1994.06. Selected as a promissing leading technology business by Small & Medium Business Corporation.

1997.10. Company name was changed to Sejin SMC Co., Ltd.

1998.08. Acquired ISO 9001 certificate.

2000.10. Secured GQ-mark (Good Quality).

2002.05. Designated as a promissing small & medium enterprise by Small & Medium Business Corporation.

2004.08. Completed the construction of a factory in Banwol, Gyeonggi-do.

2010.02. Acquired WRAS certificate.

contents

Ⅰ. Overview

What is SEJIN SMC water tank?

* Sheet Molding Compound (SMC) is a mixture of unsaturated polyester resin with impregnating augmentation material, filling material and glass fiber. The SMC water tank body (floor, wall and ceiling) is made of bolting type squre SMC panels, which are molded under high heat & pressure.
* SEJIN SMC water tanks guarantee sanitation, excellent durability, absolute water tightness, versatile capacity design and easy installation.

CHARACTERISTICS OF SEJIN SMC WATER TANK

1. Sanitation

- SEJIN SMC water tanks meet the Food Sanitation Act.
- Bacteria or germ formation and growth are prevented by blocking sunlight transmission completely.

2. Excellent durability

- The internal tie-rods in stainless steel are coated with PE by heat-shrink tubing process, which provides stronger corrosion resistance.
- The external components are hot dip galvanized steel, which gives semi-permanent life.

3. Absolute water tightness

- The foam type gasket with excellent elasticity and resilience assures perfect water tightness.

4. Versatile capacity design

- Various panels make installation of tanks possible in any dimensions or capacities. (L-shape, U-shape, square-shape)

5. Easy installation

The installation of tank is very user-friendly even in the restricted area by using standardized bolting type panels.

6. Outstanding insulation performance

Pre-insulated panels are also available as an option. By using the PU foam insulated panels, the temperature change of the water in the tank can be minimized at high or low environmental temperature.

Ⅲ. Reinforcement members

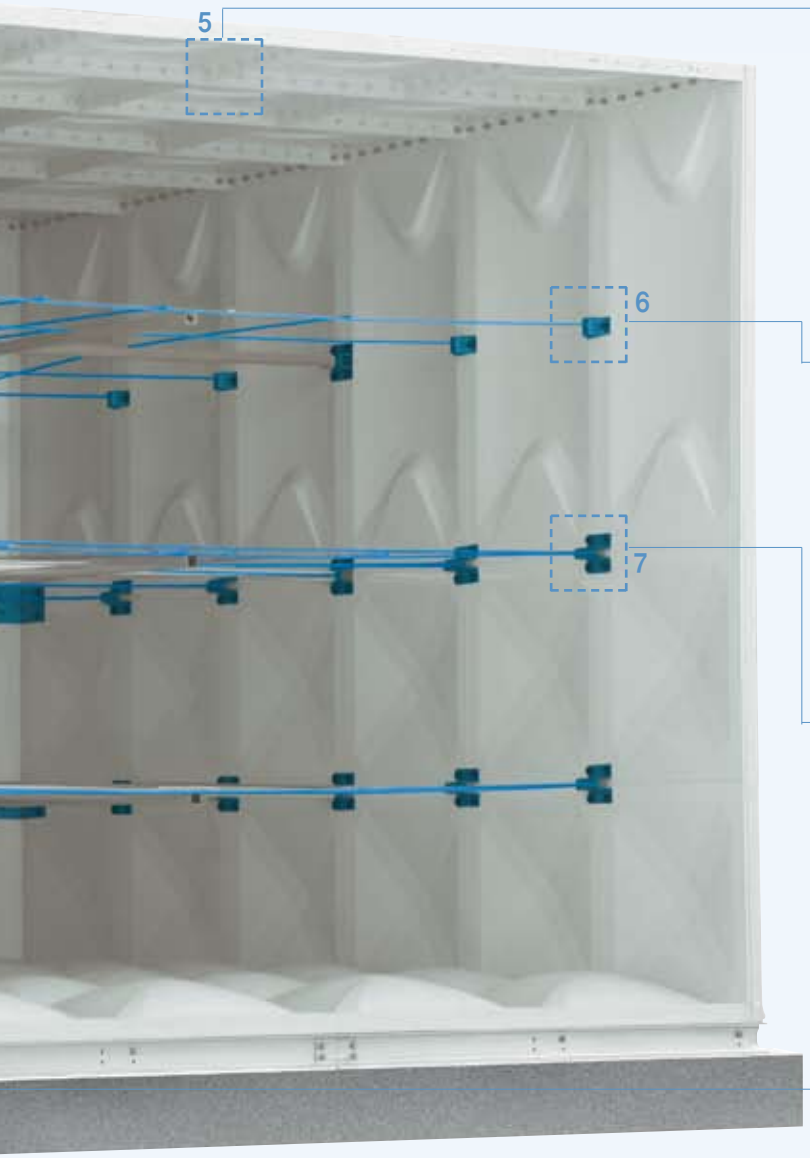
1. External reinforcement
(Upper piece–HDG)

2. External reinforcement
(Corner piece–HDG)

3. External reinforcement
(Lower piece–HDG)

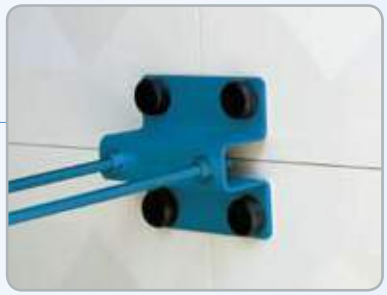
4. Flange (SMC)

Ⅲ. Reinforcement members



5. Bolts for roof panel
(High tensile plastic)

6. Internal reinforcement
(Upper piece-PE Sheathed SUS)

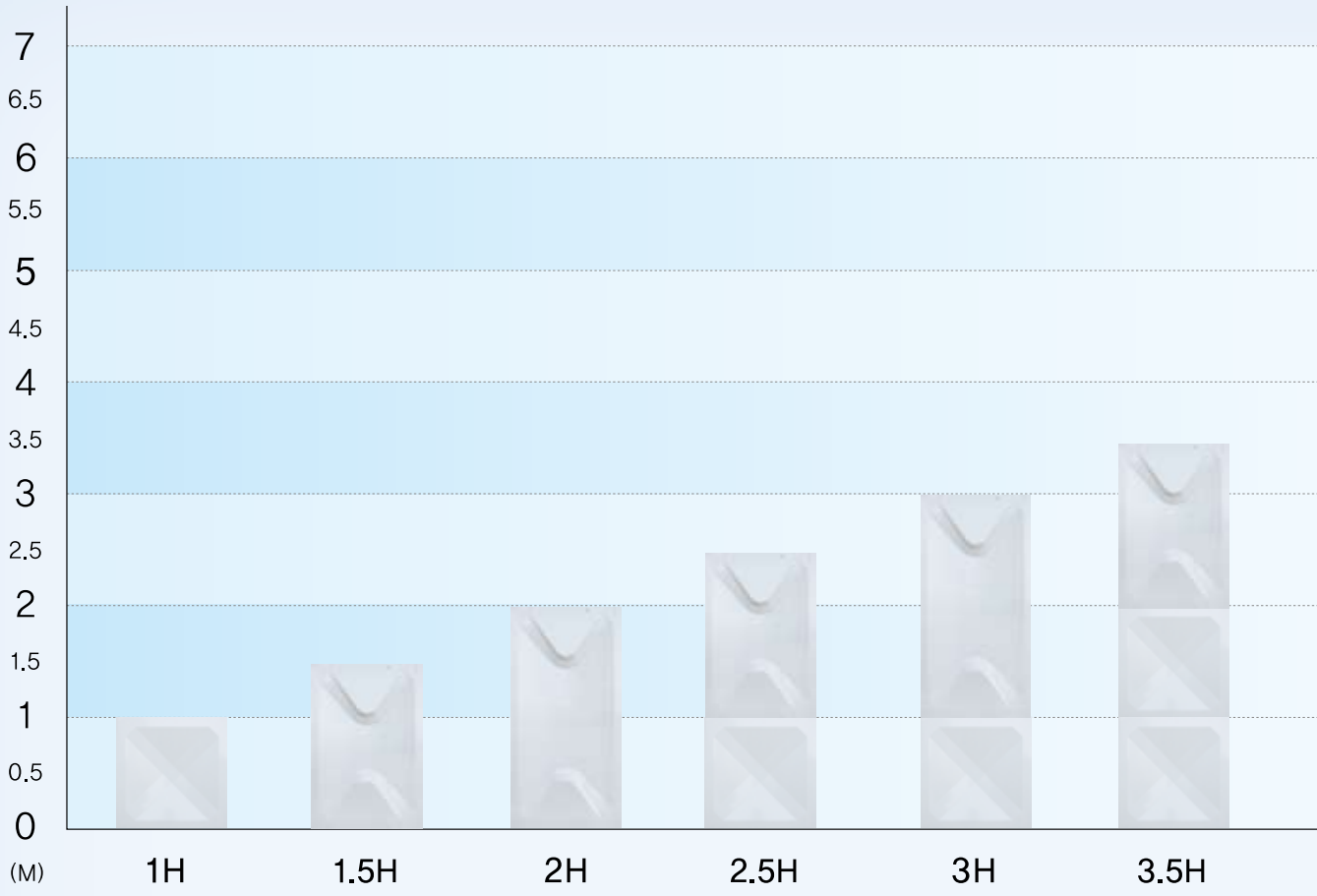


7. Internal reinforcement
(Lower piece-PE Sheathed SUS)

8. Base frame(HDG steel)

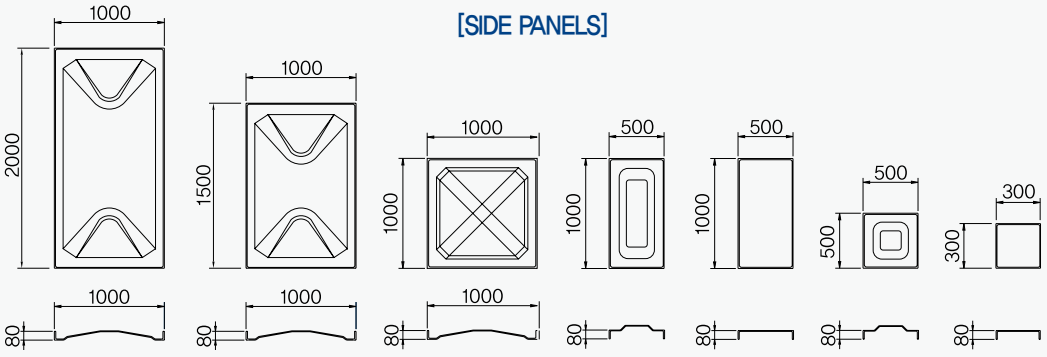
Ⅳ. Composition of SEJIN SMC Tank panels

SIDE PANEL COMPOSITION BY HEIGHT

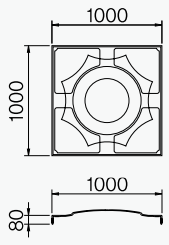


FREE CAPACITY DESIGN (FOR ANY SHAPES & DIMENSIONS)

[SIDE PANELS]

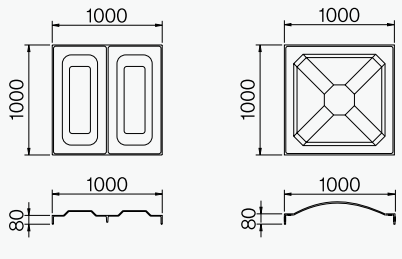


[ROOF PANEL]

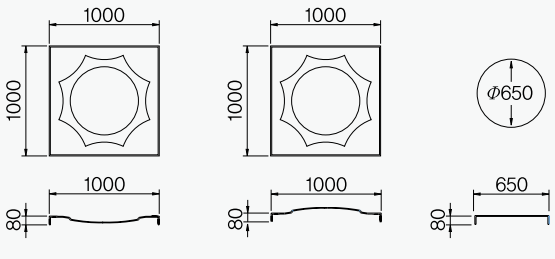


Ⅳ. Composition of SEJIN SMC Tank panels

[BOTTOM PANELS A & B]

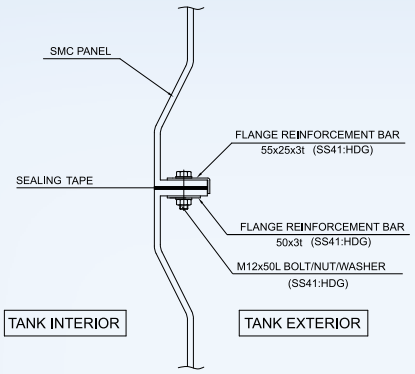


[DRAIN PANEL AND MANHOLE COVERS]

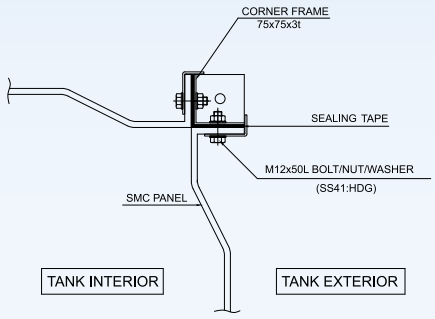


V. Assembly of SEJIN SMC panels

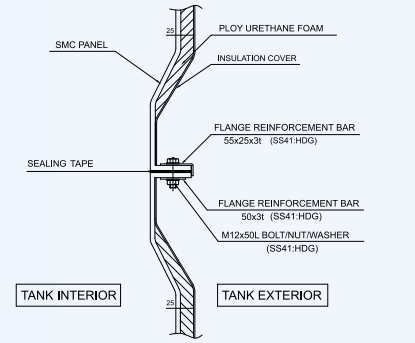
ASSEMBLY DETAILS OF SEJIN SMC TANK



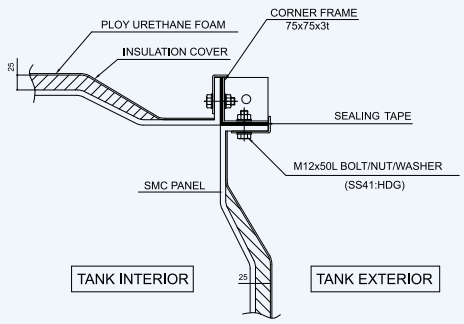
PANEL FLANGE DETAIL (SINGLE PANEL)



PANEL CORNER DETAIL (SINGLE PANEL)



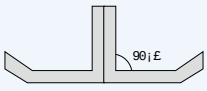
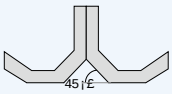
PANEL FLANGE DETAIL (INSULATION)



PANEL CORNER DETAIL (INSULATION)

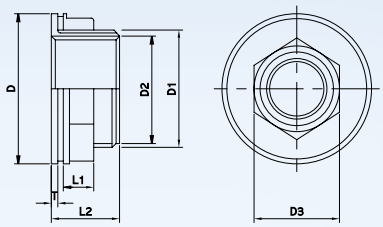
METHODS OF SEJIN SMC PANELS ASSEMBLY

SMC panels can be assembled using either 90° joint or 45° joint.
SEJIN SMC water tank adapted the 90° joint is more user-friendly due to easy handling and stable joint performance.

Joint Method / Classification	90° Joint	45° Joint
Shapes of Flange		
Sealing Material	Sealing material in tape shape is easy to handle.	Required special packing for + and T-joints
Tank Mounting on the Base Frame	Base frame and panel flange are joined together using bolts.	Special devices are required for fixing panels onto base frame.

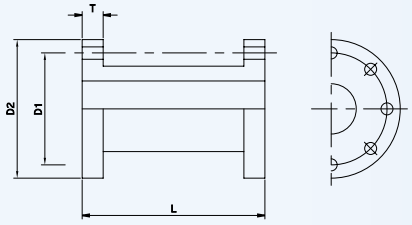
FITTINGS OF SEJIN SMC TANK

◈ SOCKET (BS)



nominal dia	D	D1	D2	D3	L1	L1	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

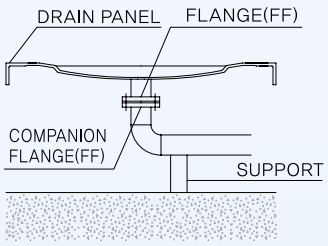
◈ FLANGE (SMC/FRP)

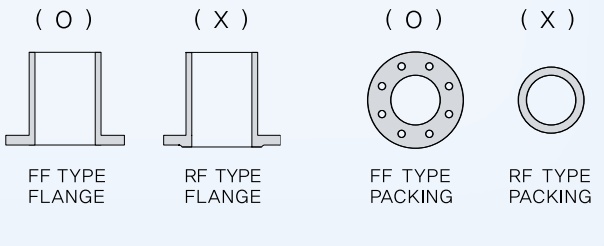


nominal dia	D1	D3	T	L
65A	140	175	18	170
80A	150	185	18	170
100A	175	210	18	170
125A	210	250	18	170
150A	240	280	22	170
200A	290	330	22	170

※CAUTIONS FOR CONNECTING PIPE TO FLANGE

1. FF type flange and packing should be used.
2. Support should be installed under pipe and valve as below drawing.





Ⅶ. Standard design condition

STANDARD DESIGN OF SEJIN SMC TANK

1. Standard Design OF SEJIN SMC WATER TANK

ITEM	DESIGN STANDARD
SEISMIC-RESISTANCE	HORIZONTAL SEISMIC INTENSITY KH = 2/3
HYDROSTATIC PRESSURE -RESISTANCE	STRENGTH OF PANEL'S HYDROSTATIC SHOULD BE 4 TIMES OR GREATER THAN THE STANDARD SAFETY LEVEL. DEFORMATION RATE AT FULL TANK SHOULD BE LESS THAN 1 PERCENT OF TANK HEIGHT.
WIND PRESSURE-RESISTANCE	≦60m/sec(MAX) AT EMPTY TANK
SNOW LOAD-RESISTANCE	SNOW LOAD 60kg/㎡ (SNOWFALL 30cm)
LIGHT PENETRATION RATE	≦0.1%

2. Physical Properties OF SEJIN SMC PANEL

QUALITY ITEM		UNIT	VALUE	KS STANDARD
PHYSICAL TEST PARAMETERS	TENSILE STRENGTH	MPa	90	≧60
	FLEXURAL STRENGTH	MPa	176	≧80
	FLEXURAL MODULUS	MPa	9591	≧6000
	FIBERGLASS CONTENT	%	33	≧25
	BARCOL HARDNESS	–	55	≧30
MELTING TEST PARAMETERS	ODOR AND FLAVOR		NONE	NONE
	DEGREE OF TURBIDITY	DEGREE	≦0.5	≦2
	DEGREE OF COLOR	DEGREE	≦1	≦5
	PB	ppm	NOT DETECTED	≦0.1ppm
	KMNO4 CONSUMPTION	ppm	1	≦10ppm
	PH		6.2	5.8~8.6
	PHENOL	ppm	NOT DETECTED	≦0.005ppm
	EVAPORATION RESIDUE	ppm	3	≦30ppm
	RESIDUAL CHLORINE REDUCTION	ppm	0.1	≦0.2ppm

HYDROSTATIC PRESSURE TEST OF SEJIN SMC PANEL (KS F 4811)

1. Hydrostatic pressure test (KS F 4811)

A unit panel type – hydrostatic pressure tester should be able to measure the minimum pressure of 0.2Mpa(2.04kgf/㎠). The pressure gauge has the scale by 0.01Mpa(0.10kgf/㎠) and the accuracy of +/–1% tolerance in the total test range.

2. Test pressure

The pressure should be increased by 0.005Mpa(0.05kgf/㎠) per minute until it reaches to the crack point of the panel.

HYDROSTATIC PRESSURE TESTER

TAINT TESTER

CRACK(ON THE SURFACE LAYER) TESTER

Ⅷ. Manufacturing process of SMC panels

Creativity, Accuracy, High Quality

SEJIN SMC Water Tank

Ⅷ. Manufacturing process of SMC panels

MANUFACTURING PROCESS OF SMC PANELS

❶ High Pressure Hydraulic press

❷ Raw material sheet cutting

❸ Raw material filling

❹ Pressurization

❺ De – molding

❻ Trimming and making hole

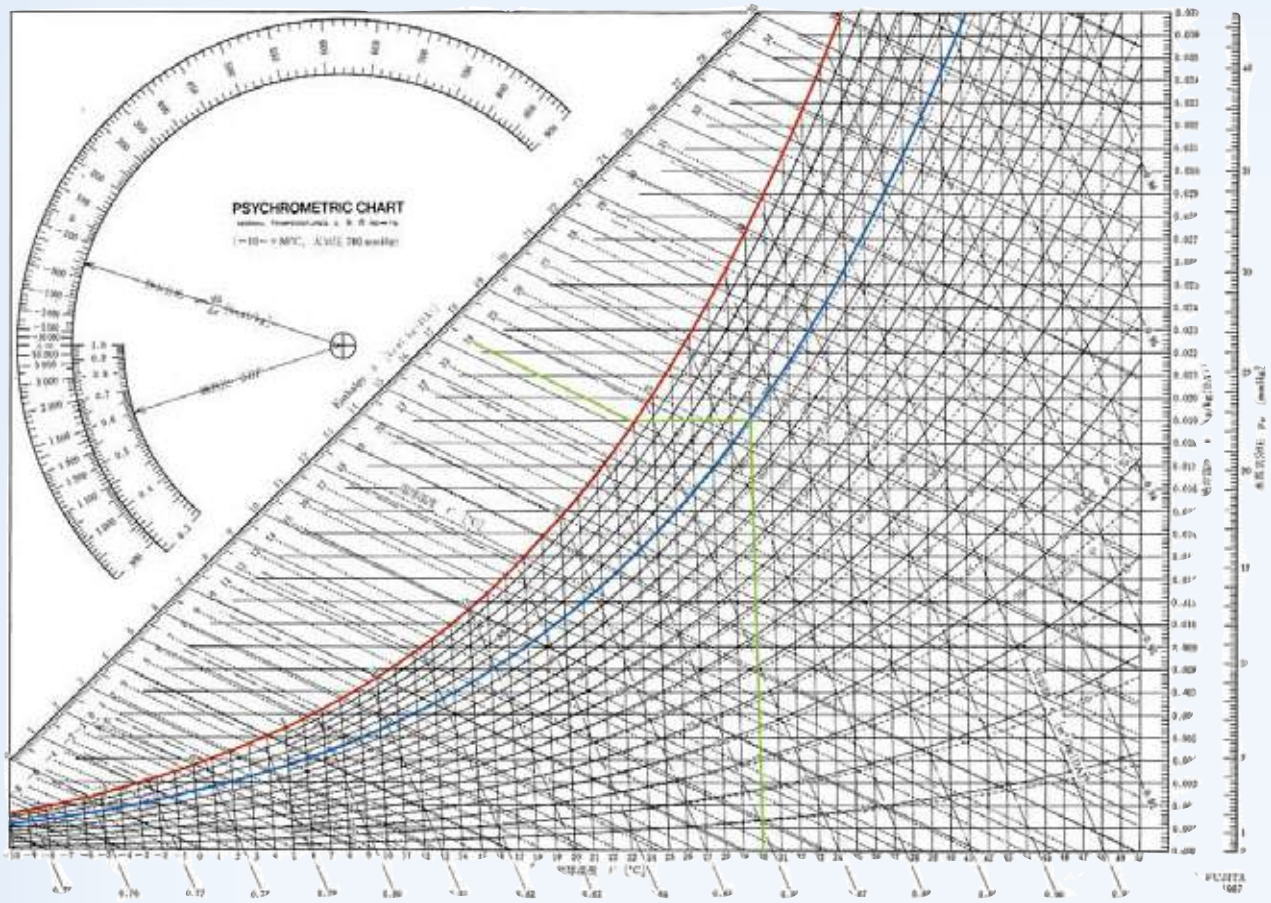
❼ Panel packaging and storage

❽ Completed water tank

Ⅸ. Dew point

DEW POINT OF SMC WATER TANK

(Psychrometric chart)



Dew point temperature ——— Relative humidity curve ——— Ambient temperature −10～50

average panel thk. (mm)	panel heat transfer coe. (kcal/㎡h℃)	insulation thk. (mm)	insulation mat'l heat transfer coe. (kcal/㎡h℃)	convection heat coe. at outside surface of panel (kcal/㎡h℃)	total heat resistance (㎡h℃/kcal)	inside surface temp. of panel(℃)	ambient temp(℃)	outside surface temp. of panel(℃)	dew point temp(℃)	condensation (Y or N)	remark
7	0.029	0	0.021	7.2	0.380	15	20	18.2	14.4	No	relatice humidity condition (70%)
7	0.029	0	0.021	7.2	0.380	15	25	21.3	19.1	No	
7	0.029	0	0.021	7.2	0.380	15	30	24.5	24.1	No	

1. Average thickness of SMC panel in water filled area is 7mm
2. Total heat resistance = average thickness / 1000 × panel heat transfer coefficient + thickness of insulation / 1000 X panel heat transfer coefficient + 1 / convection heat transfer coefficient at outside surface of panel
3. Outside surface temperature = ambient temperature — (ambient temperature — inside surface temperature of panel) / convection heat transfer coefficient at outside surface of panel × total heat resistance
4. Outside surface temperature 〉 dew point temperature ∴ no condensation

※ The condensation is greatly affected by humidity . Therefore, it can be prevented by proper ventilation.
※ Reference : Psychrometric chart

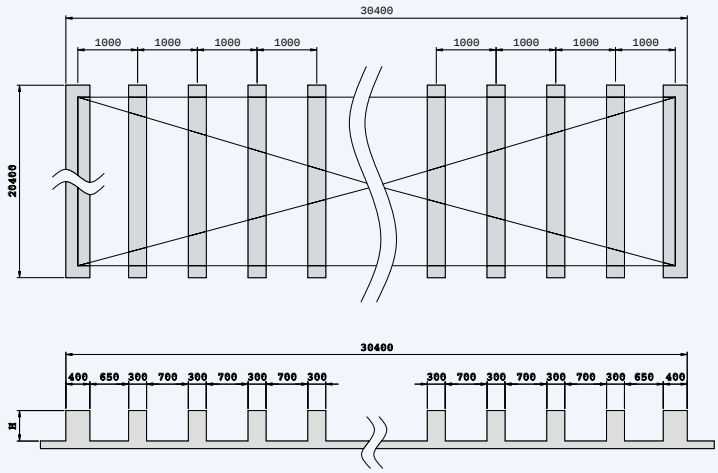
X. Foundation and maintenance space

CONCRETE FOUNDATION (BY CUSTOMER)

1. Installation of concrete plinth

Width : 400mm (min. 300mm)
Height(H) : Min. 600mm including the steel base frame
Distance : Min. 1,000mm between one plinth to another (center to center)
(In case of using 500mm unit, the maximum distance is 1,250mm)
Evenness : The top of each plinth should be levelled. (less than 1/500)
Strength of concrete : Min. 180kgf/㎠

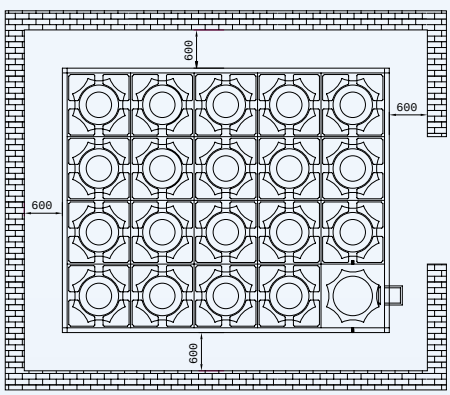
EX) 20000Wx30000Lx6000H



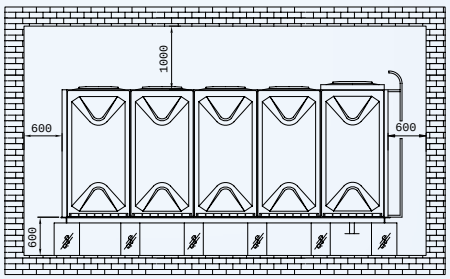
2. Maintenance space

It is required to have minimum 600mm space between tank and wall in all directions for proper installation and maintenance.
(The distance from the ceiling to the top of the tank should be minimum 1,000mm.)

PLAN



SIDE VIEW



XI. Precautions in handling & Certificates

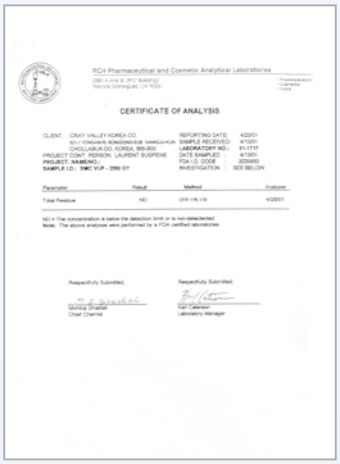
PRECAUTIONS IN HANDLING

1. Transportation & handling : Do not place any heavy load or impact on SMC panels and other parts during handling. Place buffers on the parts where come in contact with vehicle or ropes.

2. Piping : Install proper supports under pipes and do not place any over load on the tank outlet.

3. Maintenance : Drain water from the tank when it is not used for a prolonged time.
Inspection and cleaning should be done at least twice a year to assure the water quality and safety.

CERTIFICATES



XI. TMC sink-bowl & Hanstone

TMC SINK-BOWL

HERA #0031

Washing-bowl

grey culch

milky white

sanded grey

sanded sahara

snow culch

stone power

QUARTZ INTERIOR STONE (HanStone)

- Commercial application

- Kitchen countertops & tabletops

SEJIN SMC WATER TANK
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