

# USER MANUAL

## SOLAR WATER HEATER MODULAR STORAGE UNIT



SOLAR WATER HEATER

**500 LPD ETC  
PR MDLR-GL**

Modular Design

GLASS LINED  
INNER TANK

HIGH DENSITY  
PUF INSULATION

PPGI  
OUTER CLADDING

## **INSTRUCTION MANUAL FOR V-GUARD MODULAR WATER HEATING SYSTEM**

Dear Customer,

We congratulate you for being the proud owner of a V-Guard Solar Water Heating System. This Product comes to you from a company committed to total quality and dedicated to customer delight, since 1977. The immense trust and support our valued customer give us has always been, and always will be, our motivation to strive harder and harder to live up to their expectations. By using this product, you are not only helping the country save on raw materials (which goes into the generation of electricity) but also contribute towards a greener environment. We, the members of V-Guard, thank you and wish you many years of free hot water.

## PRODUCT INTRODUCTION

Large heating & storage capacities are required for large multi-unit residential projects and industrial projects. These large units will be difficult to manufacture, transport, install & service. To overcome all these challenges without reducing the performance V-Guard is introducing unique modular design where the tanks and plumbing is connected such way that it reduces the assembly time and service cost.

## TECHNICAL SPECIFICATION- 500 L PRESSURIZED MODULE

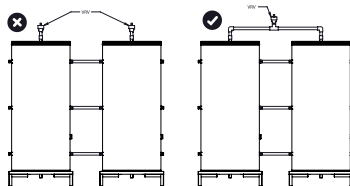
<b>INSULATED HOT WATER STORAGE TANK MODULE - PRESSURIZED</b>	
Hot Water Tank	Direct heating hot water insulated storage tank
Capacity (Litre)	500
Material	MS Glass Lined, Thickness : Shell - 2 mm & End Dish - 2.5 mm
Orientation	Cylindrical - Vertical
Corrosion protection	Sacrificial Anode
Tank Welding	High quality TIG Welding
Electric backup (Optional)	3kW
Cleaning /service provision	Circular Flange on Bottom
Supporting Structure	ISA/ISC MS Powder Coated
Designed pressure rating	Working up to 4 bar
System Interconnecting Pipes material	MS Glass Lined - Pipe Nozzles
Size of interconnecting Pipes (cm)	2.54 (1)
Overnight Temperature Drop	<= 5°C
Safety valves	PRV, ARV cum VRV
Weight of Tank with stand (kg)	106
Tank Dimensions (LxWxH), cm	78 x 78 x 215
Tank Insulation	
Material	Industrial PUF Insulation, Density-32-36 kg/m3
Thickness	50 mm
Outer cladding	
Material	26 SWG, Precoated GI sheet
Packaging	
Material	Carton Box

## Technical Specifications- ETC Collector, Pressurized

Heating Technology	Glass Evacuated tube with Copper heat pipe solar collector- Indirect Heating
Number of tubes	44 tube collector
Collector Holdup capacity	25L
Tube Specifications	Three Target Borosilicate glass tubes Absorptivity > 92, Emissivity < 0.065 OD=5.8 cm, ID= 4.7 cm, length = 180 cm Aluminium Fins - Special shaped Al fins for maximum indirect heat transfer Copper Heat Pipe- Advanced heat transfer technology with high efficiency
Significance of three Target	1. Cu- Infrared Reflection Layer 2. SS-ALN – Bonding agent cum absorption layer 3. ALN – Absorption cum antireflection layer
Manifold Inner Tank Material	SS-304 L, thickness suitable for 6 bar Gauge pressure. , TIG welded.
Manifold outer Tank Material	28 SWG, Aluminium Stucco
Insulation	High density PUF insulation without gaps.
System working pressure	4 kg/cm <sup>2</sup>
Inner Sealing	High temperature silicon rubber
Outer sealing	EPDM rubber
Collector Structure	Powder Coated steel
Gross Collector Area (Sq.m)	7.9
Weight of Collector (kg)	140
Dimensions	L= 375.4 cm, W=223cm, H= 109.5cm

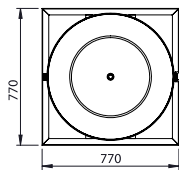
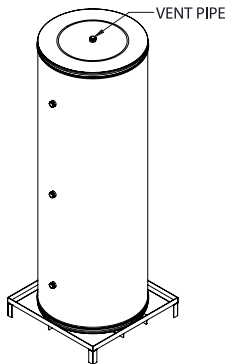
## Plumbing Instructions:

1. For plumbing connections please refer the provided connection diagram.
2. Please ensure all safety devices, valves are placed at correct position.
3. Ensure that the Airvent is installed properly.
4. For plumbing, use only pipes which can withstand temperature up to 100°C at the outlet, for hot water.
5. Exposed pipelines carrying hot water should be properly insulated, to avoid heat losses.
6. Each part connected to unit needs to connect with union and installed with ball valve.
7. Install a drain valve at the lowest point of the system to enable the system to be drained.

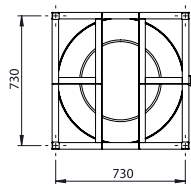
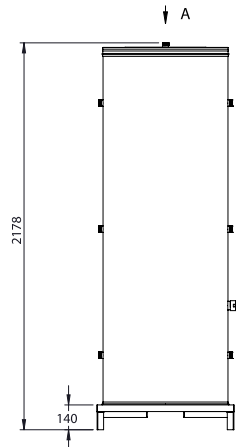


## Safety Precautions:

1. Ensure level of all tanks
2. Tank stand should be properly grouted on terrace surfaces.
3. Safety valves should be checked and maintain with regular intervals.
4. Ensure that electric shock protection device, like ELCB. Is incorporated in the electric circuit before giving power supply to the backup heater.
5. Ensure that the heater is properly earthed.
6. For pressure pump connection, pressurized models must be selected.
7. Customer should ensure that the system is protected with a earthing / lightning Arrester.



TOP VIEW A



## NORMAL WATER QUALITY STANDARDS

Sl.No	Description	Desirable Limit
1	pH	6.5 - 8.5
2	Total Hardness	300 ppm (maximum)
3	Alkalinity	200 ppm (maximum)
4	Total Dissolved Solids	500 ppm (maximum)
5	Chloride	200 mg/l (maximum)

\*Normal Inlet Water Quality standards are applicable for only ETC Header.

### MAINTENANCE INSTRUCTIONS:

Though the maintenance required for this product is minimal, the customer is advised that a little bit of care (a few easy-to-do jobs) is required to maintain the high level of performance and life of the system. This is so, especially since this product is designed to be left unattended in the open air, through it's life.

Item	Maintenance procedure	Maintenance schedule
Sacrificial Anode	Check the condition anode	Once every 6 months
Electric wiring	Check earthing and continuity	Once every 3 months
Plumbing	Check for leakages	Once every 6 months
Valves	Check for smooth functioning	Once every 3 months
Collector glass	Drain & flush with plain water	Once in every 6 months

## Terms and conditions

### The warranty does not cover

1. Rust formation on supports, damage(s) / defect(s) of any nature resulting from repairs effected by unauthorized persons, improper selection of model/ capacity or misuse of any kind.
2. Any parts of the system which are replaced / repaired.
3. Accessories external to the original equipment.
4. Damage(s) due to improper selection of accessories external to the original equipment.
5. Tank leakage and repairs due to scale formation if the system is connected to hard water\*\* supply.
6. Damage(s) due to improper plumbing, civil and electrical work.
7. Damage(s) resulting from exceeding the maximum permissible water pressure as specified by V-Guard.
8. Damage(s) resulting from absence or improper installation of VRV\*/ Pressure Release Valve\*.
9. Damage(s) resulting from not grouting the supports properly.
10. Heat loss resulting from not insulating the outlet plumbing properly and / or not providing a horizontal NRV at inlet.
11. Damage(s) resulting from natural calamities such as storm, heavy rain, hail stone falling, earthquake, fire etc.
12. Cleaning of scale deposits inside the evacuated tubes, if the system is connected to hard water supply.

\*\*Refer normal inlet water quality standards.

\*NEGATIVE PRESSURE, IF DEVELOPED INSIDE THE WATER HEATER STORAGE TANK, CAN CAUSE TANK LEAKAGE. PLEASE NOTE THAT HIGH PRESSURE CAN DEVELOP INSIDE THE TANK IF PRESSURE RELEASE VALVE IS NOT PROVIDED OR IF THE PRESSURE RELEASE VALVE IS NOT INSTALLED AS PER THE PROCEDURE SPECIFIED IN THE PLUMBING INSTRUCTIONS. IN SUCH CASES V-GUARD WILL NOT BE RESPONSIBLE AND THE TANK REPLACEMENT WILL BE ON A CHARGEABLE BASIS.

### The warranty is void

1. If the installation of the system is not in accordance with the installation / plumbing instructions specified by V-Guard.
2. If the installation / repair / replacements are carried out by unauthorized persons.
3. If the system is shifted to a new location from the location at which the system was originally installed by authorized direct marketing associates / dealers of the company.
4. If the system is not connected directly to an overhead tank.
5. If the modifications / alterations are made by unauthorized persons.
6. Warranty does not cover if the system is connected to the water supply which does not meet the inlet water quality standards mentioned in this Instruction manual.

## PRODUCT DISPOSAL INSTRUCTION

Material categories	Instruction
Metals (Stainless steel, Aluminium, Galvanized iron, Mild steel, Brass, copper)	The materials shall be disposed through authorized recycler in order to protect environment at the time of product final disposal.
Paper (Carton box, Corrugated buffer, Instruction Manual, sticker)	
PUF	
Rockwool	
Rubber	
Thermocol	
Plastics	
Glass	

Plastic Waste EPR Reg. No.: BO-13-000-07-AAACV5492Q-22



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SCAN TO AVAIL THE  
**DIGITAL**  
**WARRANTY**  
BY REGISTERING YOUR  
PRODUCT ONLINE



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CIN: L31200KL1996PLC010010