# USER MANUAL

## SOLAR WATER HEATER
## MODULAR STORAGE UNIT

**SOLAR WATER HEATER**

**500 LPD FPC**
**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.

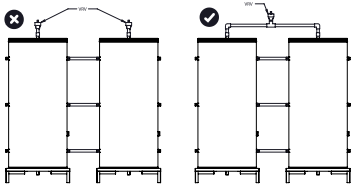
TECHNICAL SPECIFICATION- 500 L PRESSURIZED MODULE

| INSULATED HOT WATER STORAGE TANK MODULE – PRESSURIZED | |
|---|---|
| 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 6 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 |

| FLAT PLATE COLLECTOR | |
|---|---|
| | Solar Flat Plate shall be BIS marked and as per IS :12933/2003 |
| Type | Copper-Aluminium |
| Collector size | 203 x 103 x 10 cm + 0.5 cm |
| Collector Frame | Extruded Aluminium, 1.1mm ,Aluminium extrusion, ANODIZED. |
| Finish | Powder coated off white |
| Glass retainer | Extruded Aluminium, 1.2mm |
| Finish | Powder coated |
| Header | Copper – 25.4 mm (1) Ø, 0.5 mm thick |
| Riser | Copper – 12.7 mm (1/2) Ø, 0.50 mm thick- 9 Nos |
| Fin | Aluminium – 0.19 mm thick |
| Width of Fin | 12 cm |
| Number of Fins | 9 |
| Bottom sheet | Aluminium sheet, riveted & sealed with silicone Sealant from inside |
| Glass | Toughened textured prismatic glass, 3.2mm thick |
| Glass Beading | EPDM |
| Grommets | EPDM |
| Flanges | Brass |
| Bottom Insulation | Fiberglass/Rockwool 50 mm thick |
| Side Insulation | Fiberglass/Rockwool 25 mm thick |
| Reflective foil | Aluminium, 50 microns |
| Frame Corners | Sealed from inside with Silicone Sealant |
| Fasteners | SS 304 grade |
| Coating | Selective, black chrome – NALSUN |
| Absorptivity, | > 0.95 |
| Emissivity | < 0.2 |
| Bonding between Fin & Raiser | Ultrasonic welding |
| Working pressure | 4.0 kg/sq.cm |
| Collector insulation | Rock wool pads for side & bottom. -25 mm |
| Flanges | Brass, round with four bolt holes. |
| Collector area | 2.0 sq.m |
| Collector Weight | 40 kg |
| Collector Structure | Powder Coated steel |

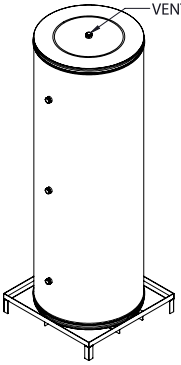
## Plumbing Instructions:

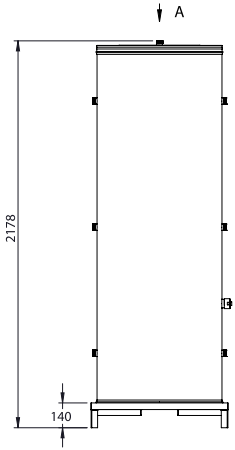
1. For plumbing connections please refer the provided connection diagram.
2. Please ensure all safety devices, valves are place at correct position.
3. Ensure that the Airvent is installed properly.
4. For plumbing, use only pipes which can withstand temperature up to 100°C at the outlet, for hot water.
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.

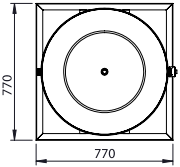


## Safety Precautions:

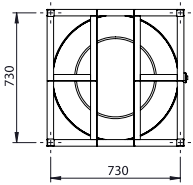
1. Ensure level of all tanks
2. Tank stand should be properly grouted on terrace surfaces.
3. Safety valves should be checked and maintain with regular intervals.
4. Ensure that electric shock protection device, like ELCB. Is incorporated in the electric circuit before giving power supply to the backup 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




V-GUARD

## 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 FPC panel.

### 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, throught it's life.

| Item | Maintenace 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. Corrosion of the absorber tubes and header pipes inside the collector due to hard water.

**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**

V-GUARD

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

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1860 180 3000
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9633503333

www.vguard.in/home/customer-care

CIN: L31200KL1996PLC010010