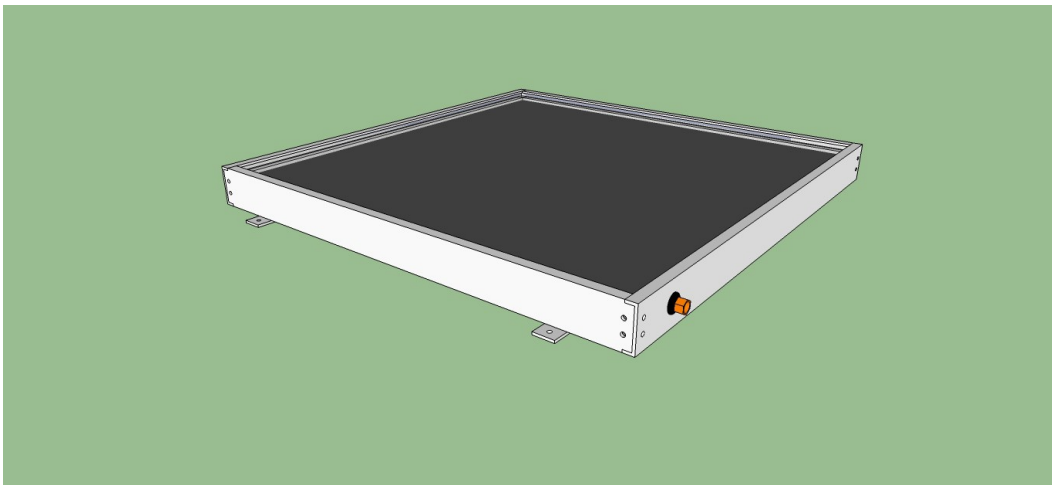
Data Sheet: MH-38

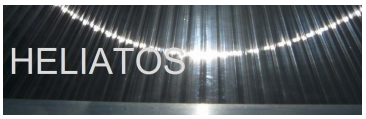


General Information:
The MH-38 solar water heater panel is designed to be used in marine active solar water heating applications. It can be connected directly to the use water supply. Alternatively it can be used in glycol based systems. The design is tolerant of light freezing. Lightweight materials as well a very low total volume of water in the panel keep the weight low to minimize added deck loading and to facilitate installation.
Water inside the panel only comes into contact with ACR type copper tubing and brass fittings, both approved for use in residential and commercial potable water systems. If a heat transfer fluid other than water is used it must be non-corrosive to alloy C12200 copper. All corrosion protection and other measures applicable to residential and commercial copper pipe potable water systems should be followed identically.
MH-38 panels include special corrosion protection measures so they can be used in marine environments with heavy salt water exposure.

Materials:

Glazing	UV resistant twin wall polycarbonate
Frame	Powder coated architectural grade aluminum alloy 6063
Insulation	Polyiso foam (meets requirements for ASTM-C1289, Type 1 specification)
Water Conduit	Copper Tubing (Alloy C12200 certified for public water supplies meeting EPA Lead and Copper Rule 56 FR26460, June 7th, 1991)
Fittings	Brass, Lead Free compliant with **Federal Reduction of Lead in Drinking Water Act** ,Dezincification resistant
Internal Corrosion Protection	Zinc phosphate, polyurethane foam sealant, high endurance silicone
Seals	Butyl rubber

Data Sheet: MH-38



Physical:

Length	60.9	Centimeters
Width	64.10	Centimeters
Height	5.400	Centimeters
Active Collector Area	0.341	Mt^2
Mounting Hole Spacing	62.86 x 41.91	Centimeters x Centimeters
Volume of Liquid in Collector	227.72	Ml.
Total Panel Weight	6.35	Kg.
Input and Output Connections	3/8 “ Compression Fitting	-

Maximum Ratings:

Pressure	200 – 1378.95	Psi – Kpa
Collector Temperature	95	ºC
Mounting Surface Unevenness	6.35	mm (corner to corner)

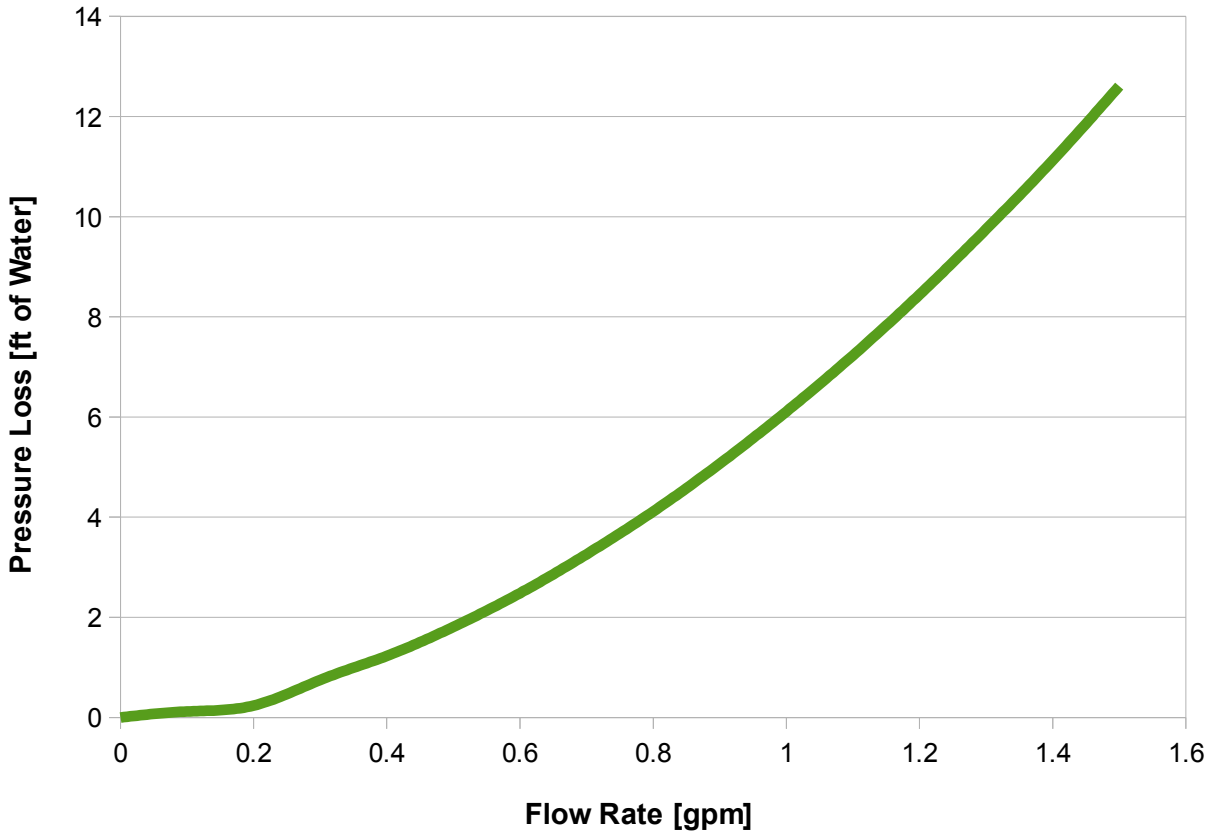
Mounting:
This panel is supplied with four mounting tabs. The most common mounting method is to attach the panel to the mounting surface with four #10 screws. For wood mounting surfaces deck screws may be used, and for metal rails depending on the specifics #10 machine screw can be used. If the mounting hardware requires the use of a 1/4-20 bolt the mounting holes in the tabs may be enlarged up to 1/4”. The use of larger bolts is not recommended.
For mounting systems that require bolts through the side of the panel the installer can drill and tap holes in the lower half of the sides. Please make sure water cannot penetrate after mounting is complete. Do not drill into the upper half of the side of the panel as this may damage the absorber, collector assembly.

Freezing:
As this panel is built for using directly with potable water care has to be taken to account for the effect of freezing outside temperatures. Water in the panel is contained within copper tubing. When the water freezes it will expand and due to the ductility of the copper tubing will expand the diameter slightly. Once the water thaws the increased diameter of the tube will remain. As a result repeated freezing of water within this panel will cause the copper tubing to expand until it eventually tears. Experiments have shown this tearing to occur after between 10 and 14 freezing cycles. If outside temperatures at your site are below freezing for prolonged times, or if freezing occurs nightly, some type of freeze protection will be needed. **This panel is not designed to be exposed to freezing temperatures repeatedly or for prolonged periods without appropriate freeze protection.**

Data Sheet: MH-38

Glazing:
The glazing is extremely durable unbreakable polycarbonate. The material is specially made to provide thermal insulation to keep the radiant energy of the sun inside the panel. The slightly elastic nature of the polycarbonate allows installation of the panels on slightly uneven surfaces, where glass would crack.
Excessive weight on the glazing can lead to permanent deformations, so please **do not put heavy objects on the panels and do not step on them.**

Flow Characteristics:
Water can flow through the panel in both directions.
To minimize total weight and roof loading water in the panel flows through small diameter tubing such that depending on the flow rate a significant pressure drop occurs. The total system has to be designed taking this pressure drop into account. Insufficient flow rate (due to lack of pumping capacity) combined with high solar radiation can lead to boiling in the panels and should be avoided. This graph can be used to match pumping capacity and system pressure drop to achieve proper flow levels.

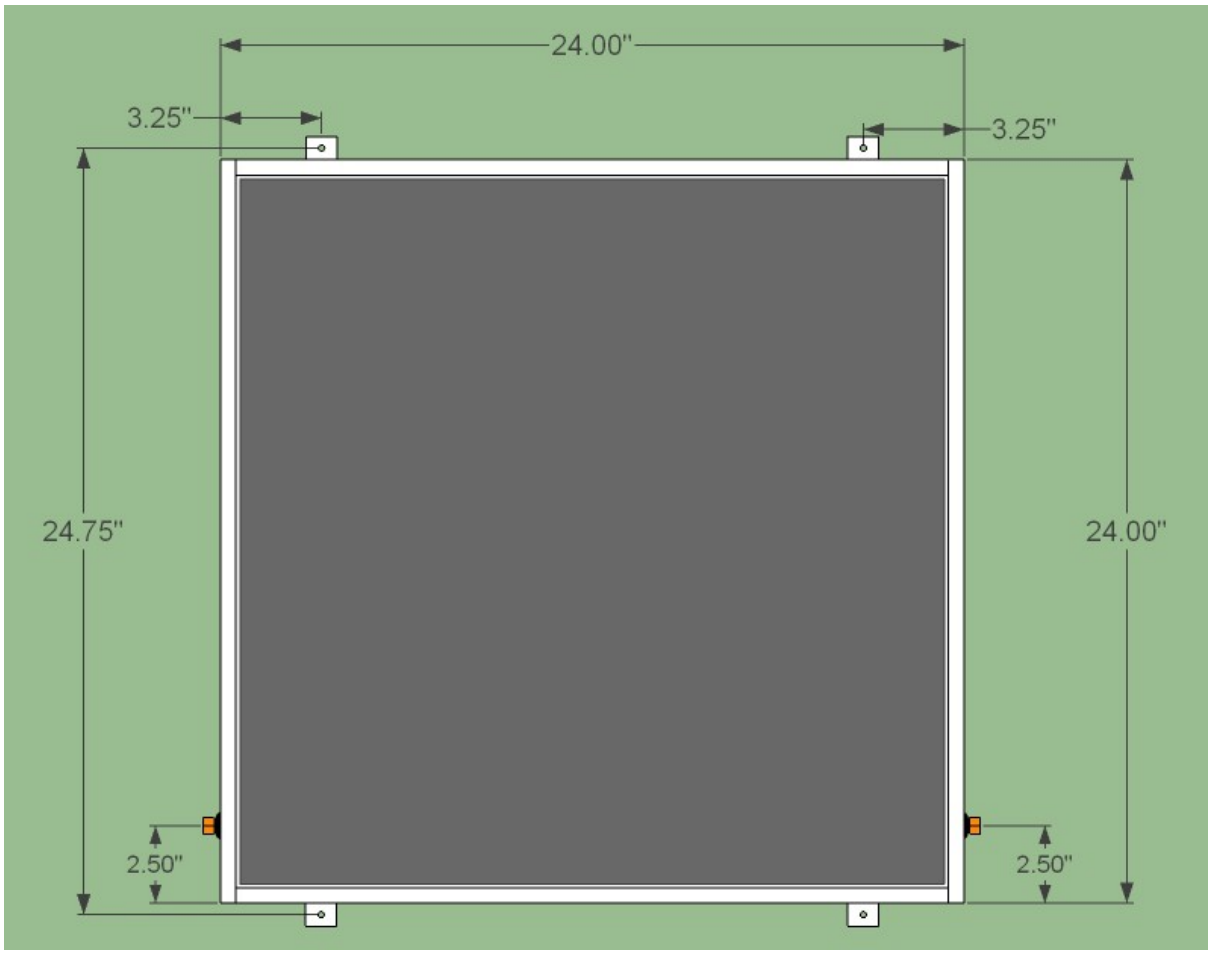


www.heliatos.com Phone: +1 661 7SOLAR7 (+1 661 776 5277) FAX : +1 866 378 6856 support@heliatos.com

Data Sheet: MH-38

Maintenance:
The tubing and other parts of the collector itself are maintenance free for the life of the panel. Do not dis-assemble the panel as the seals will be broken and cannot be restored without specialized equipment. Light salt spray on the glazing does not degrade the heater's performance significantly, but if the glazing is covered with excessive salt spray rinse with small amount of water. **Never wipe this surface with a dry cloth.**
Once a year we recommend that you clean the glazing using water with a dash of dish detergent and a soft cloth. Scratches also do not affect the performance, but if desired they may be removed with an approved plastic polish using a clean cotton cloth and following the cleaner manufacturers instructions.

Technical Drawing: (*measurement in inches)



www.heliatos.com Phone: +1 661 7SOLAR7 (+1 661 776 5277) FAX : +1 866 378 6856 support@heliatos.com