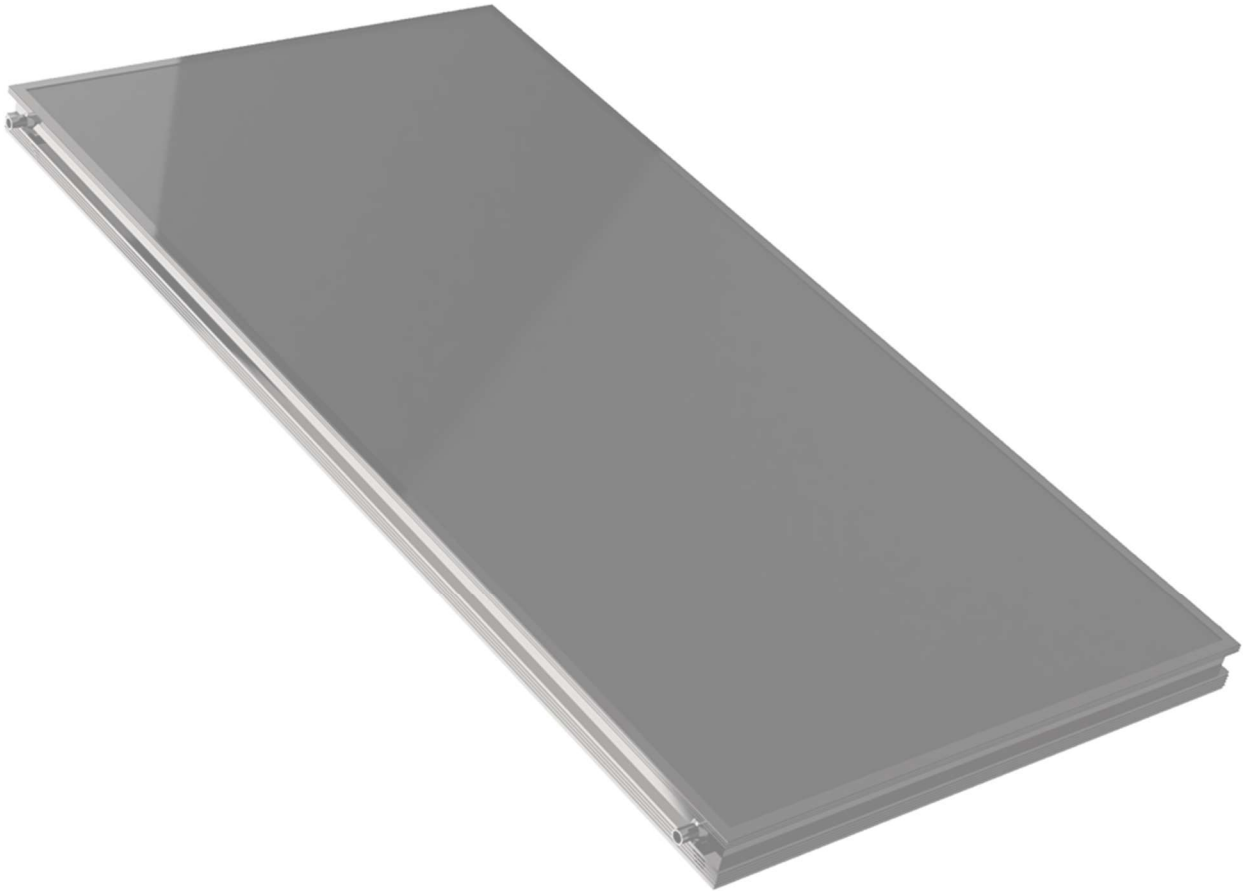
Flat Plate Solar Collectors
Installation Manual



Eausun Series

1. Foreword

This manual is intended to be used in conjunction with other literature provided with the Eausun Flat Plate Collector. Installation should be made in accordance with the regulations of the authority having jurisdiction, local code authorities, and utility companies which pertain to this type of water heating equipment. Authority having jurisdiction (AHJ) may be federal, state, local government, or individuals such as fire department, labor department, health department, building official, electrical inspector, or others having statutory authority. In some circumstances, the property owner of his/her agent assumes the role, and at government installations, the commanding officer or departmental official may be the AHJ.

Installation and maintenance of Eautek products must be performed by authorized professionals where solar, plumbing, and electrical work is required.

This document is intended to provide information only and does not form a contract with third parties.

Note: EauTechnik (Eautek) reserves the right to modify and update product technical specifications, components, and documentation without notice and without obligation to update existing equipment. It is the user's responsibility to ensure that the latest version of this manual is being used that is available by contacting EauTechnik GmbH or any of its authorized distributors.

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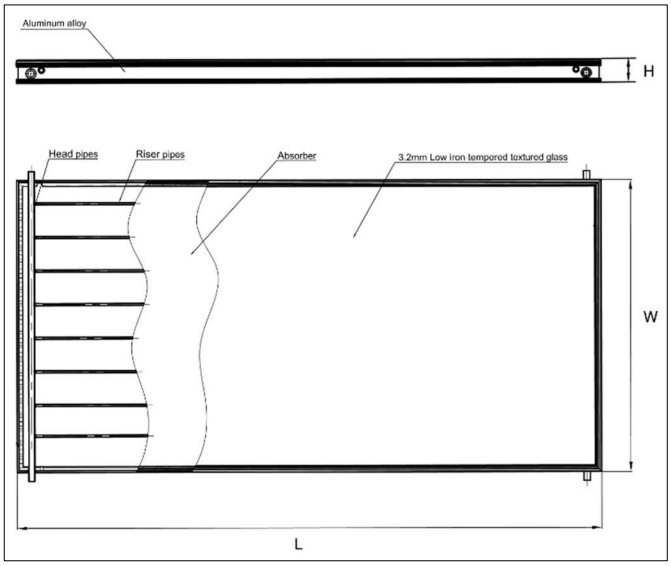
2. General Instructions

1. Read these instructions and warnings carefully. Instructions contain vital information regarding the safe installation, operation, and maintenance of this product. Failure to comply with the instructions in this manual can cause product/property damage, severe personal injury, and/or loss of life for which the manufacturer shall not be liable.
2. This manual must be kept in suitable place with easy access for users and operators, protected from dust and damp. The manual must accompany the unit during the entire life cycle
3. The responsibility of installation lies with the installer and must be performed by an authorized and qualified professional.
4. Using the product for reasons other than those specified in this manual are strictly prohibited. The manufacturer shall not be held liable for any damage caused by improper or unjustifiable use or by failure to comply with the instructions in the manual.
5. Incorrect handling, installation, operation, and maintenance of the product may cause personal injury or damage to property. The manufacturer shall not be held liable for such damage.
6. A roof with an insufficient load-bearing capacity may collapse due to the additional load of the collectors. Above all, additional wind and snow loads may result in higher forces which could cause the roof to collapse. Ensure that a structural engineer has confirmed the roof to be suitable for collector installation and has adequate load-bearing capacity.
7. Before installation on sloped roofs, block off the areas in the fall area below the place of work to a sufficient extent so that people cannot be injured by falling objects. Indicate the working area with information signs in accordance with the applicable regulations. Keep the installation area clean and free of objects that may hinder the installation process. Do not allow other people, apart from the installation expert, to get near the tools and installation location. Only use parts and tools compatible with the product. Use of unsuitable parts or tools may cause accidents or pose other hazards.
8. Connect the collector system to a lightning protection device in accordance with applicable regulations. Ensure maintenance of solar collectors periodically as per the maintenance schedule.
9. Installation, maintenance, and other special work on the product must be performed by an authorized professional, always in compliance with instructions provided in this manual and any other further instructions provided by the manufacturer.
10. Keep all packaging materials out of reach of children.
11. All repairs must be performed exclusively by an authorized specialist, using only the appropriate parts. Failure to comply with the instructions above may affect your safety and relieves the manufacturer of all responsibility.

Note: Failure to follow the procedures and instructions in this manual will void the warranty and EauTechnik may not be held liable for any damages to property nor injury or death.

3. Product Information

The primary components of the Eausun flat plate solar collector are the absorber, copper riser pipes, transparent cover plate, glass wool insulation, and aluminum alloy frame. The collector is designed to provide reliable hot water heating in hot, mild, or cold climates.



4. Technical Data

Model	LxWxH (mm)	Aperture Area (m^2)	Gross Area (m^2)	Max Operating Pres. (bar)	Stagnation Temp. (°C)	Empty Weight (Kg)	Fluid Volume (lt)	Fluid
151B	1000×1500×80	1.39	1.5	10	215	24	1.5	Water/ Propylene Glycol
152B	1500×1000×80	1.39	1.5			24	1.5	
201B	1000×2000×80	1.87	2			31	1.7	
202B	2000×1000×80	1.87	2			31	1.7	
241B	1000×2400×80	2.25	2.4			37	2	
242B	2400×1000×80	2.25	2.4			37	2	
251B	2500×1000×80	2.34	2.5			39	2	
252B	2100×1200×80	2.34	2.52			39	2	
301B	3000×1000×80	2.84	3			46.5	2.3	
302B	2500×1200×80	2.84	3			46.5	2.3	

5. Handling And Storage

To prevent damage to the collectors during storage, the collector must be kept on the pallet or stored vertically against a wall until they are ready to be installed. The collector must not be stored on the side which has the hydraulic connections, as this may cause damage to the hydraulic connections. The

collectors must also be covered to prevent them from absorbing light until they are ready to be commissioned. Failure to do this may result in damage to the collectors which would not be covered under warranty.

Ensure necessary supports and harnesses are available during carrying and transportation of collectors. Do not carry or support the collector by the hydraulic connections.

Unpack the collector carefully to prevent damage to the hydraulic connections or the special glazing on the collector but keep the collector absorber plate covered to prevent collectors from absorbing light and generating heat. The packaging is designed to be recyclable. Dispose of all packaging in an environmentally friendly way by taking it to a recycling center.

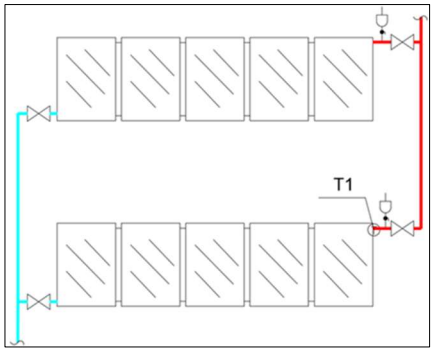
The absorber plate, hydraulic connections and any connected pipe work may become very hot when exposed to sunlight (even on dull days). Exercise extreme caution when working on or near the collectors.

6. Installation

6.1. Flat Roof Installation

Collectors on flat roofs are generally installed using a frame that ensures the collector sits at the ideal angle to maximize heat generation output throughout the year.

Necessary protection shall be provided against lightning according to local rules and regulations. It is advisable to earth/ground the frame, collector brackets, and copper circulation of the collector.



Piping connections for solar collector array for incoming unheated fluid in blue and outgoing heated fluid in red.

6.2. Locating The Collectors

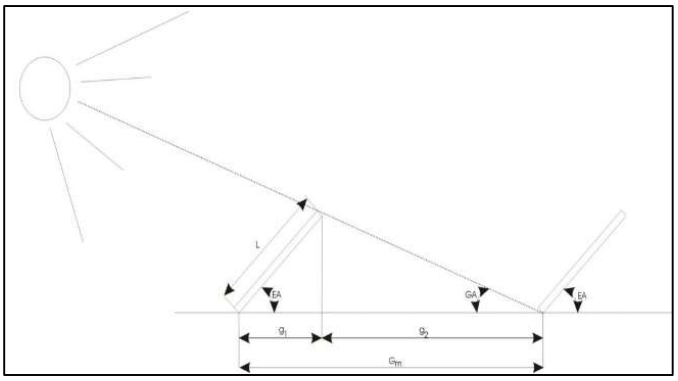
Positioning the collector is important for optimum performance. Ideally the collectors should be mounted South Facing when installed in the northern hemisphere. A deviation of up to 15° from due south is acceptable and will have minimal effect on heat output.

The collector should be installed between angles of 20° to 80° - lower angles will perform better in the summer and a steeper angle will perform better in the winter. An angle of 45 ° will give a good middle position to cover all the seasons within the year.

Avoid positioning the collectors in areas of shade such as those caused by building or trees. Partial shading due to small objects such as antennas may be ignored.

To avoid long pipe runs, the collector should be positioned as close as possible to the storage tank.

When using multi- row arrays, note that the clearance Gm between the arrays must be large enough to avoid shadows falling over adjacent collectors.



Angle of Inclination (EA)	Clearance Gm (Horizontal Installation)
25°	2.63 m
30°	2.87 m
35°	3.09 m
40°	3.29 m
45°	3.46 m
50°	3.61 m
55°	3.73 m
60°	3.82 m

Gm = L [(sin EA / GA tan) + cos EA]

L: length of the solar collector

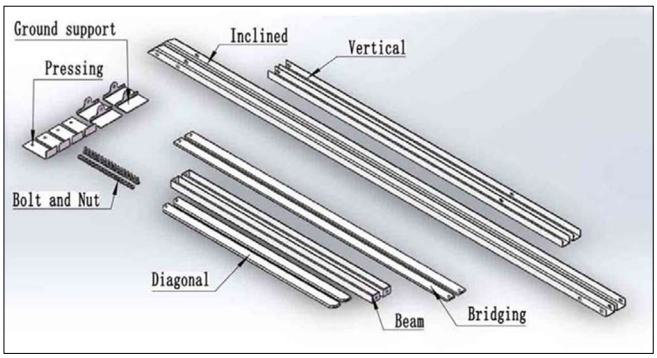
Gm: Collector minimum distance

EA: Collector angle of inclination

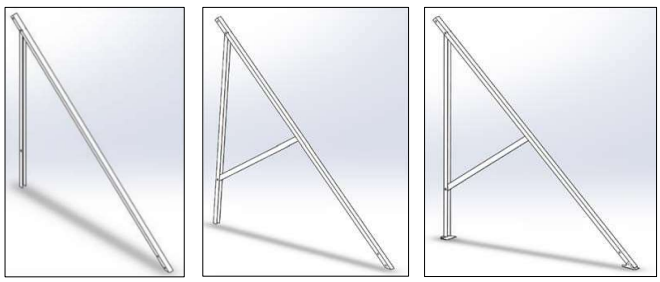
GA: it is required for the angle of the shadows

6.3. Installation of Single Vertical Flat Plate Solar Collector

6.3.1. Preparation:



6.3.2. Installation:



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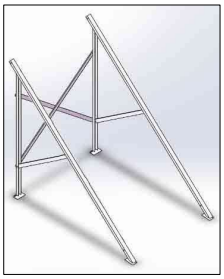

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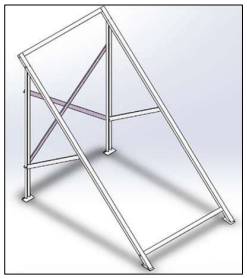

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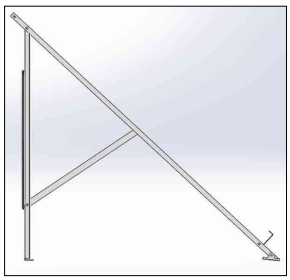


(6)

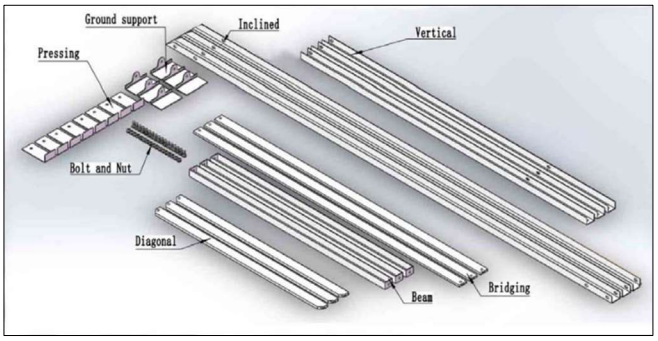
(7)

(1) Connect standing vertical brace and inclined brace.
(2) Connect diagonal bar.
(3) Install ground support.
(4) Install bridges.
(5) Install beam.
(6) Install pressing plate.
(7) Fix solar collector on support

Note: Images are for schematic representation only, actual product may differ in appearance.

6.4. Installation of Two Vertical Flat Plate Solar Collectors

6.4.1. Preparation:



6.4.2. Installation:

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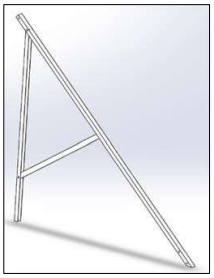

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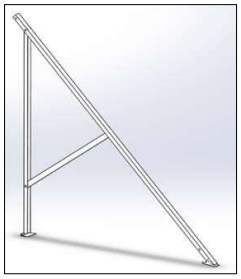

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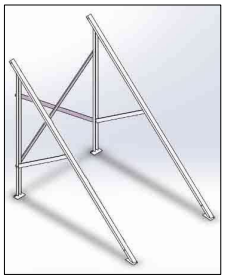

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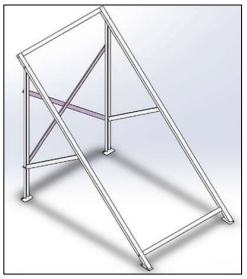

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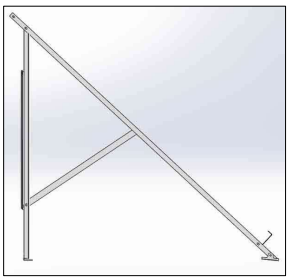

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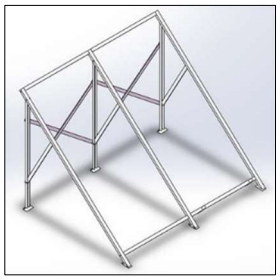

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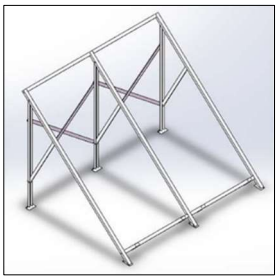

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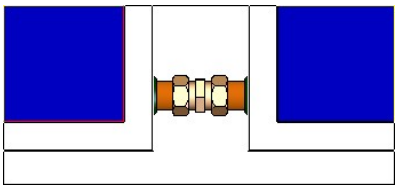

(11)

(1) Connect standing vertical brace and inclined brace.
(2) Connect diagonal bar.
(3) Install ground support.
(4) Install bridges.
(5) Install beam.
(6) Install pressing plate.
(7) Install the second support.
(8) Install the beam of the second support.
(9) Install the pressing plate of the second support.
(10) Fix the collectors onto the frame.
(11) Collector Connection

Note: Images are for schematic representation only, actual product may differ in appearance.

7. Maintenance

The following maintenance should be carried out monthly by the owner of the equipment if the collector is easily accessible. If access to the collector requires climbing onto the roof or requires the use of a ladder, then contact an authorized professional or EauTechnik service partner to perform the maintenance:

7.1. Monthly:

- Ensure the collector surface is clean. If collectors are particularly dirty, wash with a soft warm cloth using soapy water or glass cleaning solution. Do not use any abrasive materials to clean the glass. Cleaning activities should happen early in the morning before the collector begins heating.
- Inspect visually the complete solar water heater system (including the collectors, piping connections, and frame) to see that no damage has occurred to the system and is free from leaks.

7.2. Annually (by an authorized service engineer):

- Check the system pressure to ensure that system pressure is +/- 0.5 bar within the initial fill pressure. If the system has an abnormal pressure outside this range, report it to a qualified service engineer.
- For installations in colder climates, take a small sample of glycol from the system and inspect it with a refractometer to analyze the antifreeze level of the glycol.
- With another sample, dip a pH test strip to check if the pH level is approximately 7.5. As glycol breaks down, the pH value drops indicating it being more acidic which may cause damage to the system and its components. Replace the glycol if it drops below a pH level of 7.
- Visually inspect the system and its components (collector glass, mounting frame, temperature & pressure relief valves, expansion valves, thermostatic mixing valves, storage tank, circulation pump, controller, pipe insulation) for leaks and damages.

If during maintenance or in preparation for cold conditions, drainage of the collector may be required (if fluid used is water). To drain the collector, turn off the water supply to the solar storage tank. For drainage of solar storage tank or other components, refer to the instruction manuals of those components. If the storage tank is not being drained, isolate the piping to and from the collector using the isolation valves installed in the system. Immediately open the drain valves on both lines (or undo the fittings). Never leave the isolation valves in the off position while the collector is full of water and exposed to the sunlight as it will cause the water heat and cause a pressure buildup which may rupture fittings/connections. Also, take care when opening the drain valve as the water may be hot. It is preferable to do drainage early in the morning before collector heats up.

In case of emergency or if any damage is noticed on the collector or the system, shut off the water supply to the system, switch off the power to the controller and heating element and contact your local distributor or an authorized service engineer.

In case of any repairs or replacement of parts, contact your local distributor for EauTechnik products.

Follow the maintenance instructions of the manufacturers of the other components used in the system (tank, pressure vessel, pumps, controller, etc.).

8. Troubleshooting

The following is a listing of possible causes and remedy for solar collectors which may be responsible for poor system performance:

No.	Possible Cause	Remedy/Check
1	Collectors partially shaded	Reduce shading or move the collectors
2	Improper orientation	Check direction and face south
3	Improper tilt angle	Check tilt angle, set equal to latitude +/-15 degrees
4	Insufficient collector area	Install more collectors if required
5	Dirty Glazing	Clean collector glass, when cool
6	High heat losses	Check insulation for splits, deterioration, absence