WARRANTY TERMS ON PACIFIC SOLAR WATER HEATERS

1. Warranty

1.1. Pacific Solar provides initial customers of solar water heating products with a warranty based on these warranty terms.

1.2. Should the products become defective within the warranty period, Pacific Solar shall at their discretion repair or replace the products for the initial customer under warranty. The customer does not have further claims from this.

2. Warranty cases

2.1. **Vacuum Tubes for all systems**: the warranty period is five years for the vacuum tubes on workmanship, excluding wear and tear and acts of God. The vacuum tubes outer glass is 2mm and is warranty against hail not larger than 35mm in diameter.

2.2. **The Thermosiphon Solar Water Tanks:** the warranty period is five years on factory defects and workmanship, but not including corrosion and normal wear and tear, and acts of God

2.3. **The Heat Pipe Solar Water Tanks,** the warranty period is five years on factory defects and workmanship, but not including corrosion and normal wear and tear, and acts of God

2.4. **The Collectors,** the warranty period is five years on factory defects and workmanship, but not including corrosion and normal wear and tear, and acts of God

2.4. **Other accessories**: Electric Heating Elements, TP Valve, Digital Controller for all models of the products, the collector frames, the tube supporters and other accessories are covered by one year warranty on workmanship, but not including corrosion and normal wear and tear.

3. Warranty terms

3.1. The warranty period begins on the date of the original purchase receipt.

3.2. The warranty is only valid against manufacturing defects or wrong workmanship and excludes corrosion and normal wear and tear, and becomes void in the following cases:

- If planning, construction, installation, connection, commissioning, operation or maintenance of the system does not comply with Pacific Solar's installation and operating instructions and other instructions,
- If the system was not installed and operated properly, or was installed and operated under inappropriate conditions, or was insufficiently maintained or serviced,
- If the system is modified or supplemented without the approval of Pacific Solar,
- If the system was damaged by third parties,
- If the system was decommissioned,
- If the defects have little effect on the value and the usability of the system,
- If the faults can be traced to use or other natural wear,
- If the defects were caused by operating fluids, accessories, supplements or replacements which are not approved by Pacific Solar, or
- If the defects can be traced to storage and transport damage for which Pacific Solar is not responsible.

3.3. Warranty claims must be made in writing without delay after the defect is discovered, and submitted along with the original purchase receipt and the original delivery slip.

3.4. Pacific Solar shall not bear the costs for dismantling, installation, transport and travel, or storage and transport risks.

3.5. Replaced parts become the property of Pacific Solar.

3.6. Pacific Solar reserves the right to claim appropriate compensation for use for replaced parts.

3.7. When replacing defective components Pacific Solar reserves the right to provide a comparable component equal in value, if the defective component is no longer produced.

3.8. Provision of warranty services neither extends the warranty period nor does a new warranty period begin when warranty services are provided.

4. Water Requirements

4.1. Pacific Solar's Collector takes water as the heat transfer medium, and the requirements for the water quality are strictly based on the German standard VDI 2035. For units with a total capacity exceeding 50 kW, a total volume exceeding 50 l per square meter collector area or which are refilled with more than three times the total water quantity of the installation during their lifetime, it is necessary to check whether the conductivity of the supply water is below 200 µSiemens/cm. If not, it should be desalinated to a value between 50 and 100 µS/cm.´The other installations can be filled with tap water of drinking quality. The pH-value should range between 7.0 and 9.0. Additives for alkalisation must not be used without the agreement of Pacific Solar. The whole heating installation has to be diffusion tight against penetrating oxygen. Therefore plastic tubes and plastic fittings must not be used. There must not be mud or silt from protective agents (undiluted or diluted).
Pacific Solar accepts no liability for damages caused by mud and silt, usage of not allowed chemical additives or diffusion of oxygen into the heating water. If it is possible that oxygen penetrates into the heating system, the separation of the system by a heat exchanger is recommended. The use of a fine particle separator, prescribed by Pacific Solar, is mandatory if the solar collector system is connected to heating networks. On commissioning and maintenance the performance and the volume of the installation and the appearance, the pH-value, the conductivity and the oxygen content of the heating water have to be checked. The filling water must not contain more than 30 mg/l of chloride ions. If the solar collector system feeds directly into heating networks that do not meet the above mentioned water quality criteria, the water circulating in the system must be analysed regularly and the results recorded. This must be reflected in the contract and have been approved by Pacific Solar during the planning phase, otherwise the warranty is void. If chemical additives are used for corrosion protection of the installation, they must not react, change composition, cause deposits etc. during water vaporisation, in steam temperatures of 300 °C and during condensation. If chemical additives are used Pacific Solar is not liable for corrosion damage to or blocking of Pacific Solar collectors.

4.2. Pacific Solar thermo-siphon solar water heaters shall work with water quality limitations as follows: PH value of water shall be between 6.5-8.5, chloride shall be less than 100mg/L whereas calcium shall be less than 300mg/L.