

## Heliodyne Solar Collector Limited Warranty

### Coverage

Heliodyne Inc. warrants its solar thermal collectors to be free from defects in materials and workmanship under normal use and service for a period of **ten (10) years** from the date of installation, if installation and maintenance are performed according to Heliodyne's guidelines.

This warranty is applicable only to the original purchaser and is non-transferable.

### Warranty Includes:

- Structural integrity of the collector absorber, frame, and glazing
- Manufacturing defects in welding, brazing, and material assembly
- Performance deterioration due to internal corrosion **only if water quality parameters are met** as specified below

### Exclusions:

This warranty does not cover:

- Damage due to freezing, overheating, fire, natural disaster, or accident
- Failure caused by improper installation, handling, or maintenance
- External corrosion or discoloration due to environmental exposure
- Internal corrosion due to **poor water quality**, particularly excessive chloride content or hardness beyond specified limits

### Water Quality Conditions for Warranty Validity

To maintain full warranty coverage, systems installed in open-loop configurations must meet the following water quality standards:

Parameter	Maximum or Recommended Range
Chloride ( $\text{Cl}^-$ )	$\leq 6 \text{ mg/L}$
Hardness (as $\text{CaCO}_3$ )	$\leq 31.8 \text{ mg/L}$
pH	7.8 – 8.0
Free Chlorine ( $\text{Cl}_2$ )	$\leq 0.22 \text{ mg/L}$
Total Dissolved Solids	<b>Not specified</b> (limit implied via LSI)
Sulfates ( $\text{SO}_4$ )	<b>Not specified</b>
Copper (Cu)	$\leq 1.3 \text{ mg/L}$

Fluoride (F)	$\leq 0.94 \text{ mg/L}$
Potassium (K)	$\leq 1.8 \text{ mg/L}$
Langelier Saturation Index (LSI)	$\leq 0$ (non-scaling)

Exceeding any of these parameters will void the warranty with regard to internal corrosion or pitting of the collector absorber and piping.

### **Verification & Claims**

Customers must retain documentation of water testing conducted prior to installation. In case of warranty claim, Heliodyne may request:

- Proof of system installation date
- Photos or samples of failed components
- Independent water quality report (dated within 90 days of installation)

### **Water Quality Compliance & Installer Responsibility**

Installers are expected to:

- Conduct site water testing prior to installation
- Inform homeowners of water quality conditions that may void the warranty
- Offer filtration or treatment options as needed
- Obtain waivers if customers decline appropriate water quality safeguards

### **For Additional Support:**

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## **Heliodyne Water Quality Guidelines for Solar Thermal Systems**

These guidelines serve as a practical supplement to the Heliodyne Limited Warranty. In open-loop systems using potable water, maintaining appropriate water quality is critical to prevent internal corrosion, especially in copper piping used in solar collector absorbers.

### **Recommended Testing Methods**

Installers and homeowners can easily test for critical parameters using the following tools:

- **Chloride test strips** (LaMotte, Hach)
- **Hardness test kits**
- **TDS meters**
- **pH test strips or digital meters**
- **Lab-based or service provider water reports**

### **Recommended Water Treatment Options**

To bring water quality within acceptable levels:

- **Point-of-entry water softeners** (reduce hardness)
- **Reverse Osmosis (RO) filtration** (reduce chloride and TDS)
- **Polyphosphate feeders** (reduce corrosion potential)
- **Blending water sources or rainwater use** in high-chloride areas

Heliodyne encourages installers to document testing and educate customers on water quality's impact on system durability.

These documents shall be included with all collector shipments and made available to all licensed installers and distributors.