



# Apricus ETC Solar Collector Basic Installation Guide

Please refer to the full installation manual, available at [www.apricus.com](http://www.apricus.com) for full installation and safety information. Installation must only be completed by suitably qualified and experienced technicians and in accordance with all local relevant codes and regulations.

## Installation Safety

- Use fall protection safety equipment when working at heights.
- Wear gloves & safety glasses as required.
- Heat Pipes are very HOT after evacuated tubes are exposed to sunlight and can cause serious burns.
- Adhere to all local safety codes and regulations.
- Ensure roof structure and attachment method is of suitable strength.

## Tightening Stainless Steel Nuts

- Using high speed power tools may cause nuts to lock-up / gall.
- Use SLOW RPM speeds combined with thread lubricant, or;
- Hand tighten using short wrench/spanner (13mm / 1/2" Head)



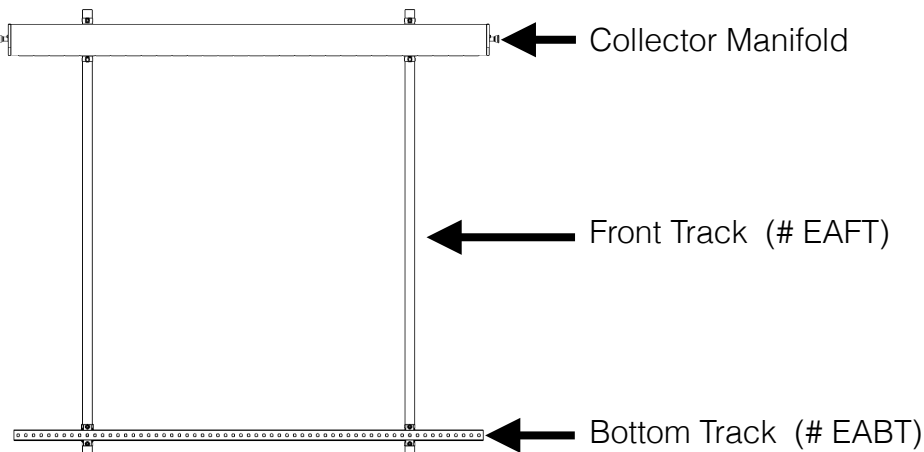
SLOW RPM + LUBRICANT



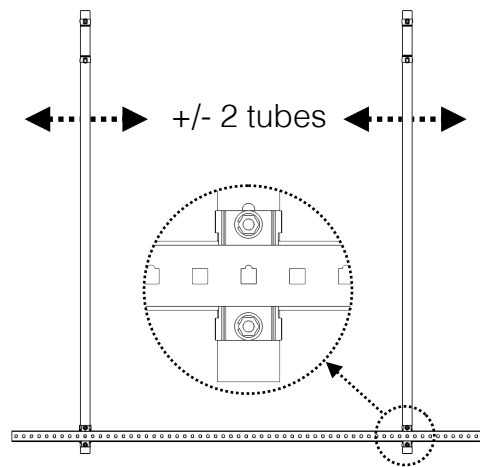
HAND TIGHTEN

## Standard Frame Assembly

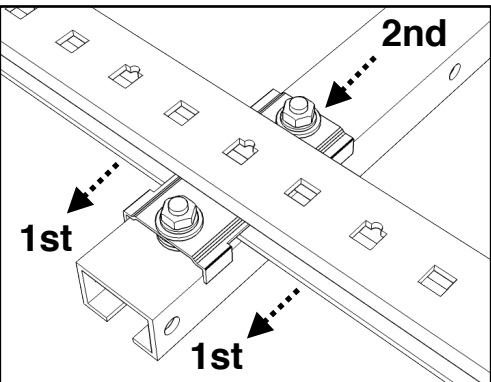
- Refer to the diagrams with the frame kits and also the full installation manual for more details.
- If possible install the frames at ground level, then lift onto roof.



### Front Track Position



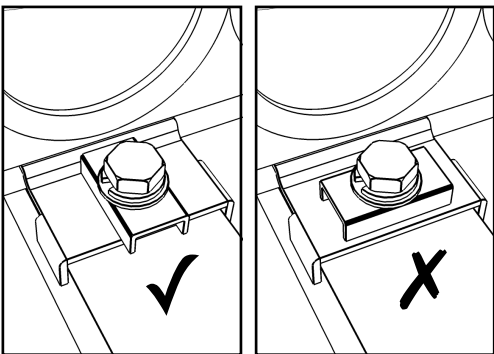
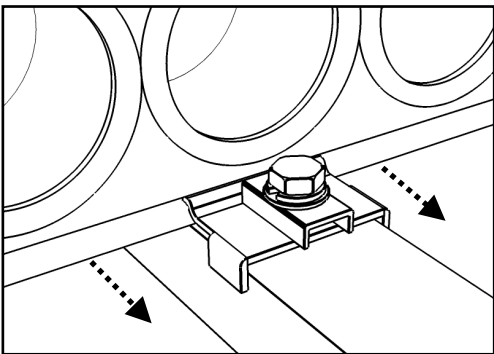
### Bottom Track Attachment



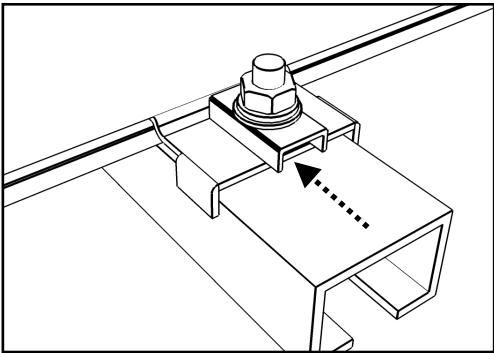
- Lay the Front Tracks out parallel on the ground with Bottom Track in place.
- Standard positions for Front Tracks are underneath tubes:
  - 10T: 8 tubes apart
  - 20T: 16 tubes apart
  - 22T: 16 tubes apart
  - 30T: 19 tubes apart
- Front Tracks must be within +/- 2 tubes (140mm / 5.5") of the standard position.
- Use the Bottom Track holes as a guide for the spacing and correct position.

- **1st:** Push Bottom Track down and finger tighten bottom attachment plate nut.
- **2nd:** Push down top attachment plate and finger tighten nut.
- Tighten top and bottom nuts with spanner/wrench.

### Front of Manifold Attachment



### Rear of Manifold Attachment

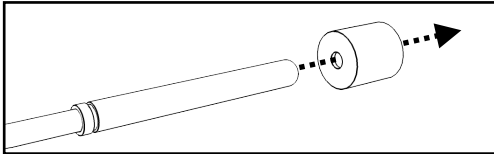


- Mount the Manifold on the Front Tracks, ensuring alignment with Bottom Track.
- Do not remove the attachment plates, just loosen nuts/bolts enough so the manifold can be dropped into place.
- Pull manifold down so that attachment plate sits in front groove.
- The U channel under the bolt head must be parallel with the front track.
- Finger tighten front attachment plates first.

- Push rear attachment plates tight into rear groove and tighten fully, then fully tighten front attachment plates.

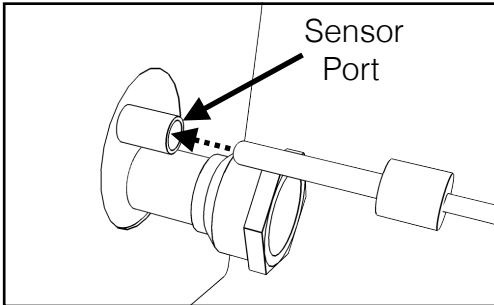
## Piping and Sensor Connection

### Sensor Rubber Plug



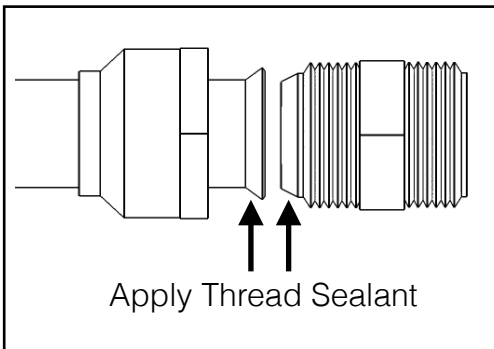
- Lubricate the sensor probe with water and slide through the rubber plug.

### Sensor Insertion (manifold outlet)



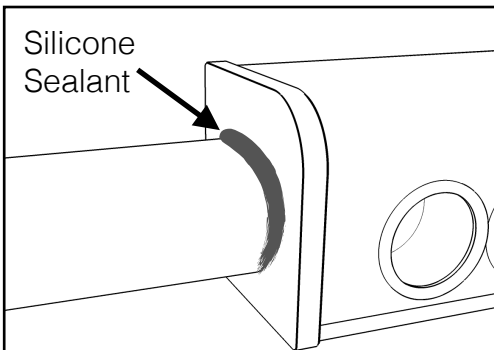
- Squirt some heat transfer paste into the sensor port and insert the sensor probe.
- Push the rubber plug into the sensor port.

### Brass fitting connection



- Only use only Apricus supplied brass fittings.
- Apply high temp rated thread sealant (>200°C / 390°F) to the flared copper pipe and brass fitting to lubricate and ensure a good seal.
- Connect copper piping to the collector inlet/outlet.

### Piping Insulation



- Insulate piping right up to the manifold with high temperature insulation (closed cell EPDM or glass wool).
- Protect the insulation with UV resistant plastic or metal cover.
- Seal the insulation to the manifold end plate with silicone sealant.
- Run the sensor cable between the insulation and outer cover.

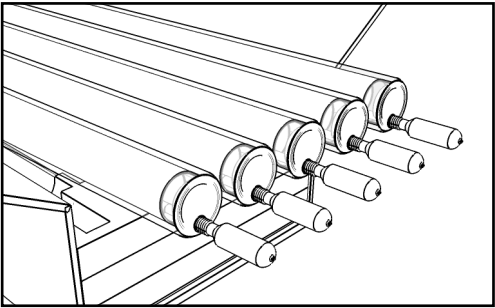
# Evacuated Tube & Heat Pipe Installation

## IMPORTANT

Complete plumbing connection, system filling, pressure test and pump operation checks **BEFORE** inserting Evacuated Tubes.

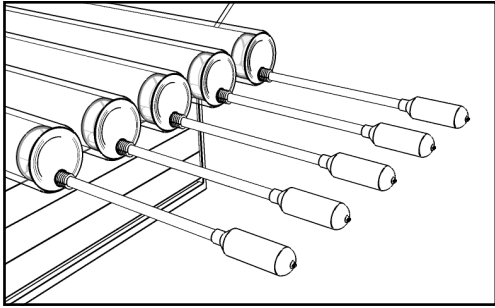
If Evacuated Tubes must be installed prior to system filling, only fill and begin operation when the solar collectors are cold (early morning or with tubes covered).

### Open Evacuated Tube Box



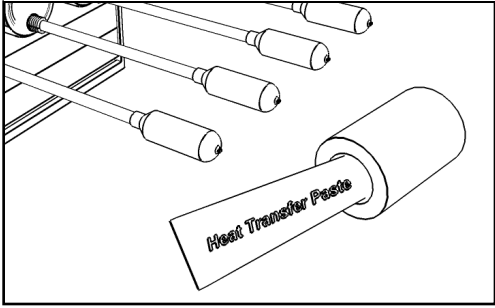
- Cut open top flaps end of the ET box to access heat pipes.
- Lift up the first row of ETs onto the foam to access the heat pipes.
- Fold the box flaps back over the tubes to shade from sunlight.

### Pull out Heat Pipes



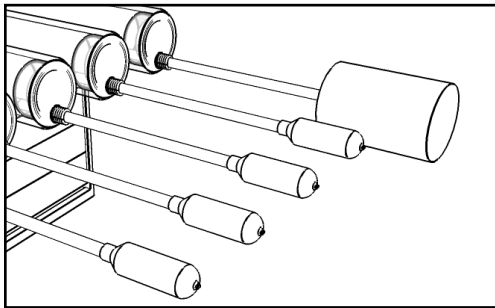
- While holding the ET top plate and spring in place with one hand, pull out each heat pipe by ~150mm / 6". This allows easy insertion of the heat pipe into the header port.

### Prepare Heat Transfer Paste



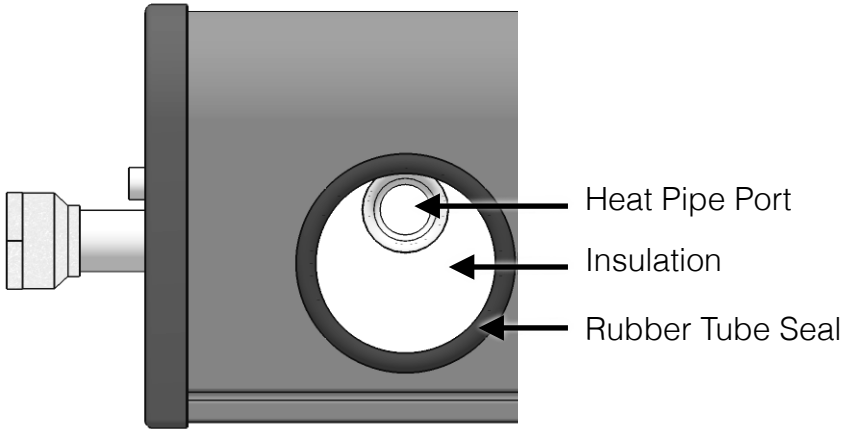
- Apply heat transfer paste to each heat pipe.
- The easiest and cleanest way to apply the paste is to use a short length (~150mm / 6") of foam pipe insulation that has an internal hole diameter slightly larger than the heat pipe bulb.

### Apply Heat Transfer Paste

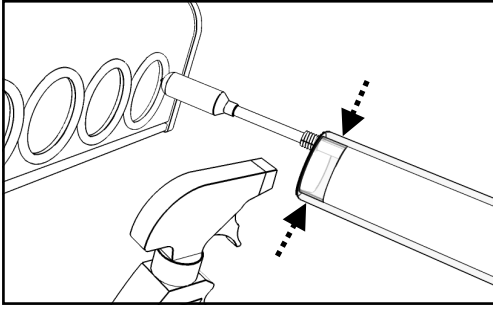


- Seal one end with tape.
- Squirt some heat transfer paste into the insulation pipe.
- Insert each heat pipe into the insulation, twist a few times and wipe off excess to leave only a **thin** layer of paste.

When installing the Evacuated Tubes, note the location of the heat pipe port is at the top of the manifold holes.

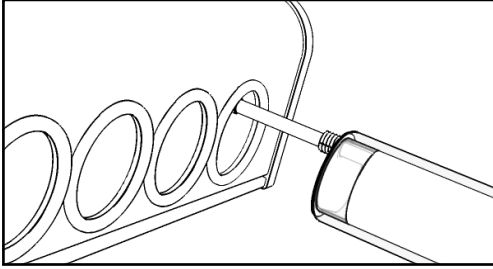


### Lubricate Top of Evacuated Tube



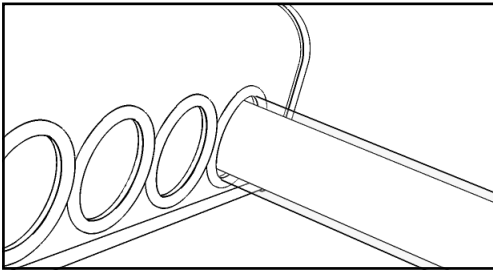
- Lubricate the outside top surface of the ET with a wet cloth or spray bottle to aid insertion past the rubber manifold seal.
- Only a small amount of water is needed.

### Insert Heat Pipe



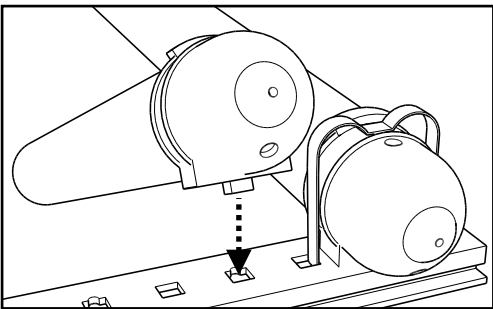
- Hold the ET with two hands, taking care not to bang the glass against the metal frame.
- Insert the heat pipe first until full depth into the header port.

### Insert Evacuated Tube



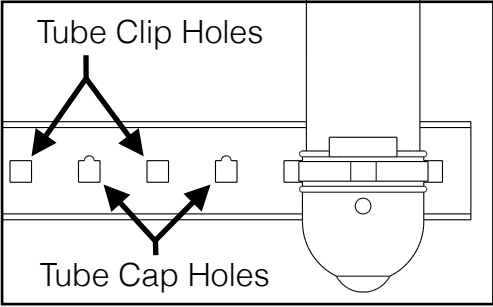
- Push up the ET past the rubber seal using a slight left-right rotations (don't rotate more than 1/4 turns).
- Push the ET in full depth until absorber coating enters the manifold casing.

### Position Tubes on Bottom Track



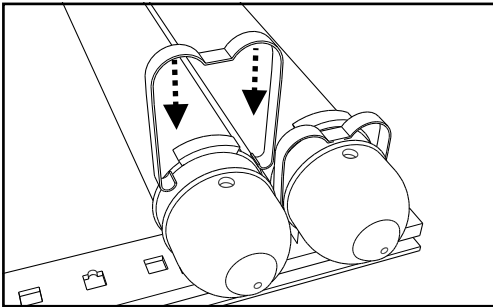
- Position the tube caps with the square rubber base into the hole in the bottom track.
- Always start installing ETs at one end of the collector.

### Different Hole Shape



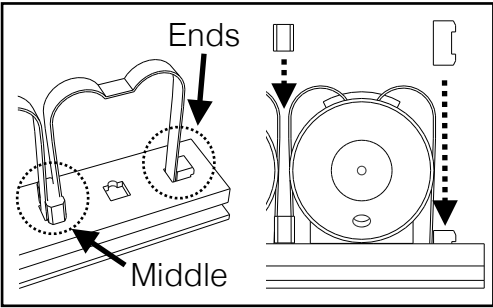
- Note the different hole shapes in the bottom track for the tube caps and tube clips.

### Installing Tube Clips



- Secure ETs to the bottom track with tube clips.
- Align one side and click the hook into the hole.
- Centralise the clip over the rubber tube cap and push down other side of clip until it clicks into the hole.
- Attached the tube clip before installing the next ET.

### Insert Rubber Spacers



- Once all ETs are installed, push rubber spacers between each tube clips plus one at each end.
- Finally clean ETs with glass cleaner.

## BEFORE YOU LEAVE

- CHECK THE OPERATION OF THE SYSTEM
  - Temperature Sensor Readings
  - Pump Flow Rate & On/Off Operation
  - No Leaks

- CLEAN UP THE INSTALLATION SITE
- COMPLETE INSTALLATION RECORD FORM
- EXPLAIN OPERATION TO THE CUSTOMER
- TAKE CLEAR PHOTOS OF THE INSTALLATION