

## **Assembly Instructions:**

**When assembling this unit make all bolts finger tight until it is fully assembled, then tighten the nuts and bolts when it is together.**

### **Assembly Manual:**

Solar water heaters consist of glass vacuum tube, water tank, frame and reflector. They are packed into four cartons.

#### **1) Step One**---- unpack the frame carton.

The frame and all fastenings are contained in a long thin carton. Please unpack this carton with care and lay out the parts. Please collect all the nuts, in fear losing one or some. Lay all the U section stainless steel arms on the floor in order of size.

#### **2) Step Two** ---- assemble reflector.

Please unpack the slim square carton.

The two or four panels are the reflectors which bolt to the two or three long U section legs. Bolt the reflector panels evenly in line across the structure.

Fit the 4 swivel feet to the lower end of the 4 legs.

Attach the 4 cradle frames to the top of the 4 legs.

**Note** there is a left and right side fit.

Select the two or three rear legs and fit the swivel feet to each.

The two or three rear legs can now be attached to the cradles and the transverse braces fitted.

The diagonal bracing arms can now be fitted.

Below the reflector panels on the front of the front legs fit the tube carriage and insert the plastic caps in the holes provided.

Ensure all bolts are tight and the frame is rigid.

#### **3) Step Three** ---- assemble water cylinder (water tank)

You are now ready to secure the frame in position, if attaching directly to the ground now lower the hot water cylinder on to the cradle at the top of the frame, ensure the bolts from the cylinder are through the slots on the cradle and fit the nuts finger tight . Using a string or straight edge, check the alignment of the tube carriage guides and tube locating holes in the cylinders. Gently turn the cylinder to achieve alignment if the holes are not aligned the unit may leak or tubes may break when being fitted. Once the cylinder is aligned tighten the bolts to lock it in place and recheck alignment.

**Using a clean rag and a small amount of silicone grease clean and lubricate each of the white silicone seals inside the 20 tube location holes on the cylinder.**

**Note: before assembly, please check the water tank to make sure there are no foreign matter / objects inside, if there are, please remove out and clean the tank with water.**

#### **4) Step Four** ----- assemble vacuum tubes

Carefully unpack the vacuum tube; remember this is glass, unlike the rest of assembly this will break unless handled carefully. Fit a black rubber dust seal to the tubes from the open end with the rounded side facing down. Slide this 200mm down the tube.

Apply a smear of silicone grease to the top 100mm of the open end of the first vacuum glass tube. Using a gentle pressure and twisting motion insert the greased tube into the locating hole until it is well inside the water tank and the bottom end of the tube is at least 25mm clear of the

tube carriage guides. Now using a gentle downward pressure and twisting motion lower the tube until it fits snugly into the carriage guide.

Slide the black rubber dust seal up the tube until it's outside edge fits flush with the cylinder.

Repeat for the rest of the tubes.

## **Installation Location:**

When considering where to locate your new solar water heater you should try to find the best location.

### **The points to consider include:**

- **distance** to largest use (typically this is the bathroom), available sunlight, **south orientation**, level, angle and load bearing capacity.
- **Weight** of the solar water heater complete and filled with water is about 225kg (20 pipe). The load is spread to 4 or 6 adjustable feet with the stand bracket you may need to check with a qualified builder to make sure that you can support this weight properly. The brackets may have to be modified for your particular installation and must be done in a proper engineering manner within the standard building codes. The unit requires a sound base capable of carrying the weight of the unit and where it can be securely fastened.
- **Always** try to locate your unit as close as possible to your largest water use to avoid wastage.
- **Solar** water heaters work best where they have the best sunlight. Avoid areas with partial shade or overhanging branches.
- **The water tank** or manifold needs to be situated on a true level with the horizontal, check with a level and adjust with shims under the feet if necessary.

### **Notice:**

- 1** Do not fill tubes after they have been exposed to direct sunlight as this might damage them. Fill the unit with water in the morning or evening without sunshine, in order to avoid the vacuum tubes bursting.
- 2.** During running snow days or cloudy days in winter and the temperature is below -18c in winter or there is nobody at home for 2 days, you should let the water go out, in order to avoid the pipes from freezing.
- 3.** Test the water temperature before using, in order to avoid scalding.

### **Trouble shooting:**

**(1)** The water in the solar water heater is not heating

- The surface of the vacuum tube is covered with dust or there are something sheltering it.
- The weather is cloudy for a few days, the water temperature might be lower.
- You have used all the hot water in the tank.
- The valve for feeding water is damaged or not shut down well, which makes slow feeding or drawing off of water for a long time, result in the inflowing of too much cold water **or** leaking of the hot water.
- The water stains (iron, calcium, lime ) in the vacuum tube is too much and influence the heat transfer.

**Solution:** you can remove the tube and clean it out with a vinegar/water solution.

**If you have problems** with water staining now, on your sinks etc, install a water filter on your water system before installing your water heater, as it will in time prevent **this style unit** from working.

**(2) The heater leaks water**

- The silica gel band is not sealed up well with the inner tank..

**Diagnostic:** dirt or debris on the silicon band. **Solution:** remove and clean the band.

- The silica gel band is aging and ruptures. **Solution:** replacing the silica gel band.

- The top of the vacuum tube has slip from the silica gel band. **Solution:** adjusting the tailstock and the heating water tank.

- The silica gel band has turned over or come off. **Solution:** adjusting the silica gel band.

- The junction between the tank and the bladder-like inner container has become flexible.

**Solution:** fix it again.

**(3) The pipeline is frozen up and not able to feed water. Solution:** you can pour some hot water into the pipe from the spout of the tank to defrost it.

Generally, the expanding rate of the heater is very low. You can solve the problems above by adjusting it yourself or consultation.

Please get in touch with the agent or our company if encountering some other problems.