



## Solar Panel Assembly Manual (Type FES-B20)

All-glass Evacuated Tubular Solar Collector with Heat Pipe – for technical specifications see Type FES-B20 Technical Manual

### **CAUTION:**

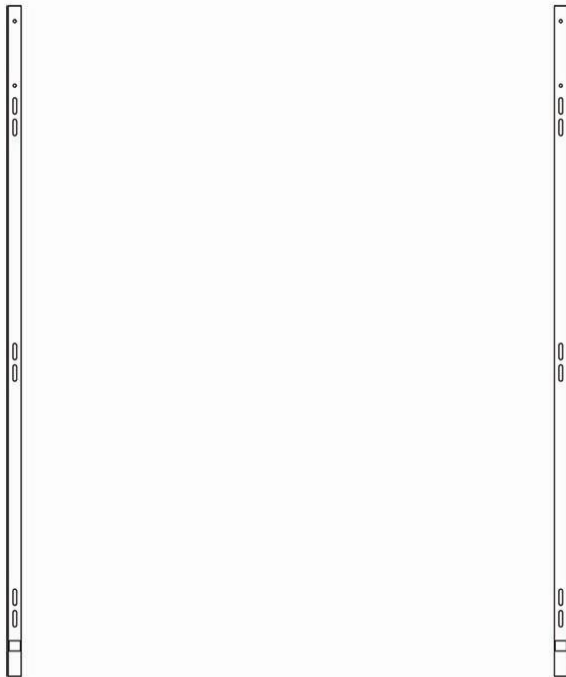
PLEASE read all of this manual before commencing the Assembly Process.

DO NOT allow the Evacuated Tube and Heat Pipe to be exposed to the Sun during Assembly, please keep them covered and beware of the heat pipe ends being extremely hot.

Depending on available Lifting equipment, it may be appropriate to assemble and attach the frame to the roof before fitting the tubes into the manifold (Step 2 onwards).

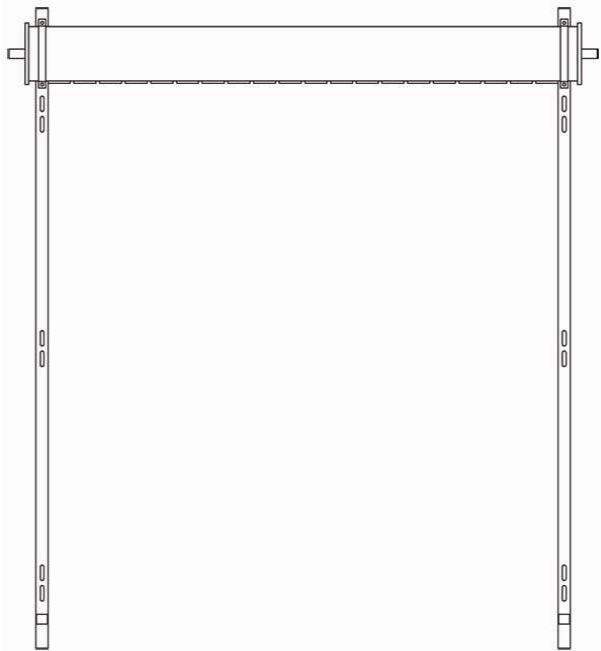
### **Step 1. Fixing the Frame and Manifold Box**

Arrange the two side bars approximately 1.4metres apart as shown below:





Put the manifold box on to the side bars as shown :



Remove the 4 short screws from the manifold, slide the manifold between the lugs on the side rails. Re-fit the screws through the lugs and tighten.



Put the horizontal bar with the notches for attaching the Evacuated tubes on to the small spaced on the side rails.



Attach the horizontal bar to the side bars using the long screws provided (see below)



The frame is now complete, continue to the next step.

## **Step 2. Fitting of the Evacuated Solar Tubes:**

First examine the heat pipes to ensure the ends have not been bent in transport. If any of the heat pipe ends (outside the glass tube) are bent, gently straighten the pipe.

Put the solar tube cap on the end of solar tube in order to protect the end of the tubes;



Keep the tubes covered from Sunlight at all times during Assembly and until the manifold is filled with fluid.



Assembly of the tubes to the frame is best completed once the frame has been secured to the roof – see separate roof fixing document for guidelines.

Loosen the screw of jubilee clip so that the jubilee clip can be opened;



Pass the open clip through the U type notch on the horizontal bar;



Daub the thermal silicon grease on the heat exchange end of the solar tube (the copper part), then gently rotate the tube whilst slowly inserting the heat pipe into the manifold;





Lay the end of the solar tube in the now attached and open jubilee clip;  
Close the Jubilee clip and tighten the clip. Do Not over-tighten the clips as the tubes may break.





To ease assembly it is suggested that once two tubes have been fitted, a reflector is fitted as better access is possible. Fit a reflector between every subsequent tube fitted (see reflector fitting instructions below)

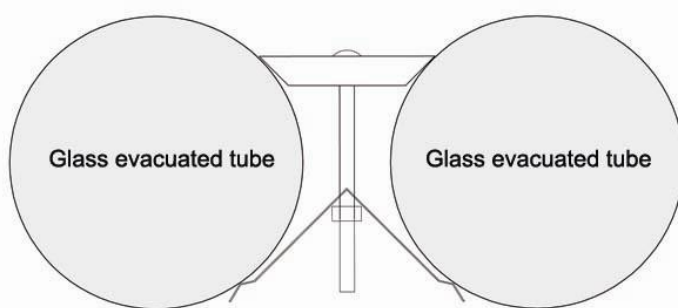
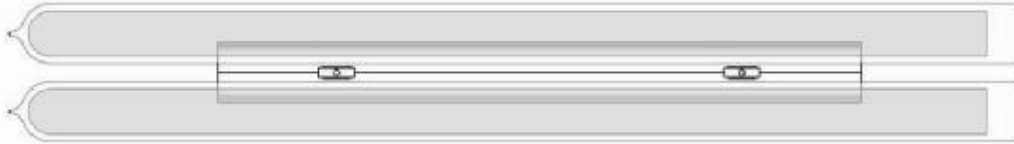
Continue to install tubes and reflectors until completed.

### **Step 3. Fix the Separated Reflectors:**

Using two of the stainless butterfly clips (see photo) and one reflector,



place the reflector and two clip assembly behind the two solar tubes, by gently pressing the reflector between the tubes turn the clip through 90° and secure the reflector between the tubes.



Attach the remaining reflectors as above, lining up the butterfly clips as you go. The Finished installation should look like the image below.



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