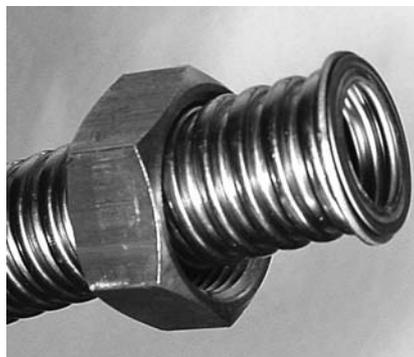


# Tubing

## MOUNTING INSTRUCTIONS

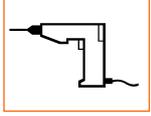


## Tubing

### Required tools



13 mm open jaw wrench



Percussion drill with 8 mm and 10 mm stone drill adapter



Tubing pliers



Philipps screwdriver



Tube cutter



Metal saw



Deburrer

### Required material

- Stick screws
- Pipe clamps (with diameter of insulation)
- Dowels
- Pipes with insulation in the required length

Before placing the tubes, decide where to put them and provide the required wall and ceiling lead-throughs (watch out for structural limitations). Tubing for the solar circuit can as well be placed inside unused wells and chimney shafts. If you want to place tubing inside a chimney shaft, first check with local authorities.

If you place tubing on an exterior wall or surface, be sure to protect the tubes from potential weather damage. Moreover, the insulation must be UV resistant.

Some precautions must be taken that are not required for conventional heating systems. Antifreeze products are used in solar systems because very low temperatures can occur.

There are two choices for tubing: either copper tubes or flexible, stainless steel corrugated tubes. Copper tubes can be soldered or be attached with metallic clamps. Stainless steel corrugated tubes offer the advantage that no soldering work is required.



Steel tubes and galvanized steel tubes are not suitable since they tend to accumulate sludge when they come into contact with glycol. Plastic tubes are not suitable either since they are not resistant to extremes of temperature.



Do not use teflon tape in solar circuits. If required, seal with hemp packaging material or Fermitol.



**Important !**

Never install galvanized steel tubes downstream of copper tubing, even when there is a storage tank installed between them. The galvanized steel will be aggressed by copper ions. However, it is acceptable to install copper tubes downstream of galvanized steel tubes.

The solar circuit must always be filled up to its highest point with a water/antifreeze mixture.

When installing the tubing, ensure proper venting of the solar system. Therefore, avoid "curves" in the tubing. If you have no other choice, provide vents. For solar systems, manual vents are the less expensive solution.

Do not use automatic vents since they allow the solar fluid to leak out at high temperatures, or if condensation occurs in the collector. If you still want to use automatic vents, include a vent that can be closed manually.

Always install vents at the highest point of the system. Take into consideration the direction of the flow .

Insulate the tubes to reduce heat loss in the tubing. Regular insulation material which is available in specialized shops can be used for

hot and cold water tubing, as well as for the additional heating tubes. Make sure to conform to local rules and regulations.



Solar circuit tubing must be able to withstand temperatures of up to 200° C. Regular insulation material is not suitable for this reason. Use special insulation suitable for solar circuits. Mineral fibre insulation materials may be used as well. Your solar consultant will help you to find appropriate materials and will tell you where to purchase them.



Follow the instructions in the mounting and operating guides for the different components of the solar system.



Flushing and filling of the system should not take place during sunny weather with direct sunbeam. If you must flush or fill the system in bright sunshine, be sure to cover and cool down the collectors before flushing or filling could start. If there is a risk of frost, do not flush or pressure test the system (because of the risk of freezing). Prior to start-up, the solar storage tank must contain enough water, otherwise the temperatures in the solar return can get too high and may damage the pump, the flowmeter and/or the filling or draining taps. In new buildings, you might have to fill the storage tank with a hose. The water must not be under pressure.

When starting up solar domestic water or combination storage tanks, always follow the sequence described in the storage tank mounting and operating instructions for pressurizing the different tank portions (domestic water and buffer side) ! Combination storage tanks consist of a domestic water and heating water portion. The pressurization sequence varies depending on the domestic water insert of the storage tank, which can be either a water container (e.g. 200 L stainless steel insert) or a spiral formed tube (e.g. stainless steel tube). Never exceed the maximum permissible operating pressure on the storage tank side (not even when you pressure test the system !!!). Failure to follow this directive will cause damage to the system and the storage tank. Any

damage caused by not following the instructions in the mounting and operating guides will not be covered by the warranty.

The pump in the solar circuit can only provide a sufficient flow rate if the tubes are not too long. Remember: the more collectors you use, the higher the total flow rate and the bigger the pipe diameter must be.

For the maximum tube length per section, refer to the operating instructions for the respective collectors.

PHÖNIX SonnenWärme AG  
Ostendstraße 1  
D - 12459 Berlin  
Fax: +49 (0)30 530007-17  
[info@sonnenwaermeag.de](mailto:info@sonnenwaermeag.de)  
[www.sonnenwaermeag.de](http://www.sonnenwaermeag.de)