



# ECOplus - Solar Cylinder

## Connection Diagram

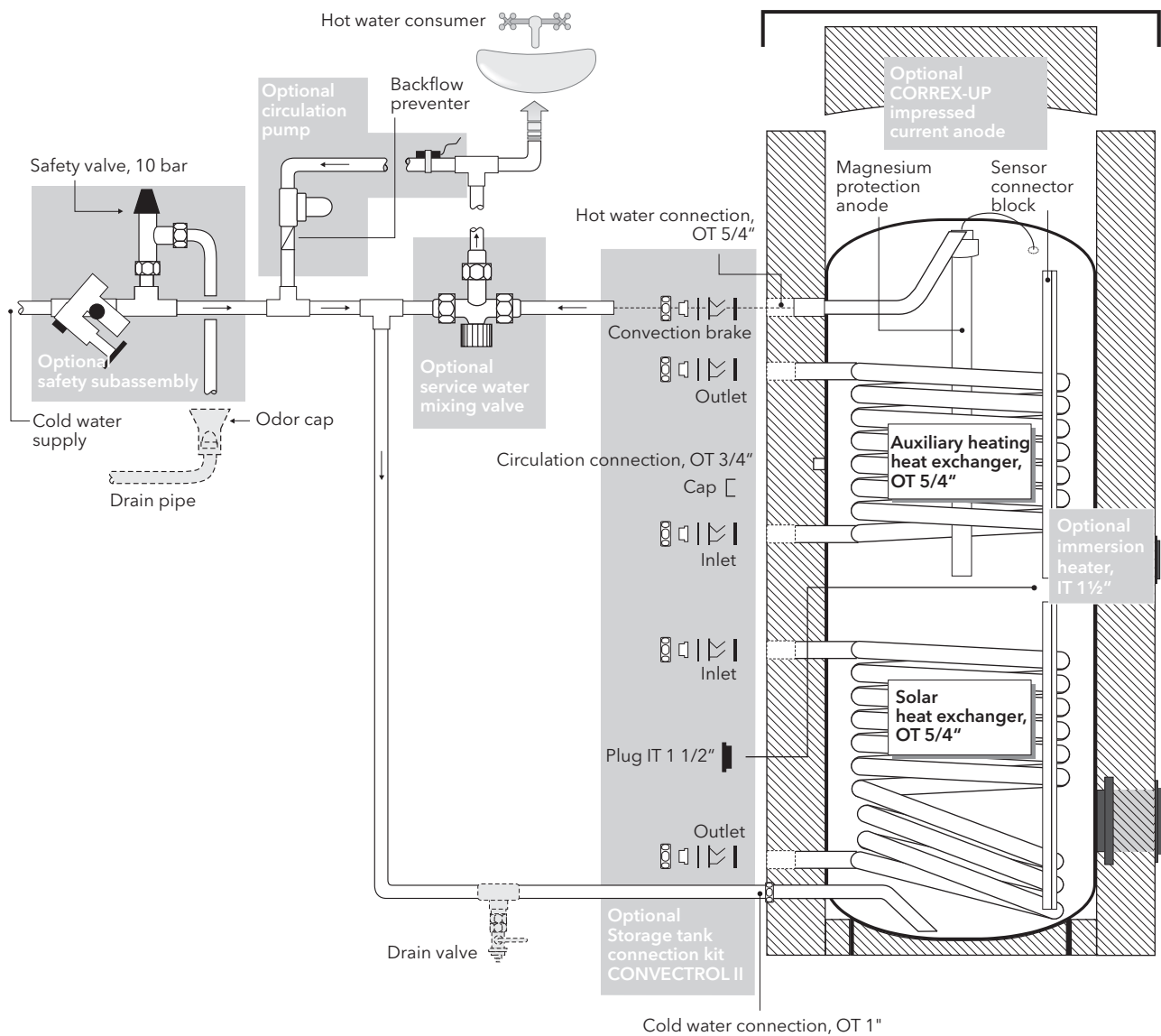


Image 1 ECOplus solar cylinder connection diagram.

# 1. Assembly

## 1.1 Preparation

Please install the solar cylinder ECO plus as depicted in the illustrations and take note of the following important information first:

### Convection Brake CONVECTROL

The convection brakes are included in the CONVECTROL II solar cylinder connection kit. Please consult the assembly instructions included with the kit.

As an alternative to the convection brakes, it is also possible to use threaded connections (5/4" - 1") or solder connections (e.g. 5/4" - 22 mm) with flat gasket seals.

### Cold and Hot Water Line

Make sure there is no shutoff between the safety valve and the solar cylinder.

The valve must be designed for a blow-off pressure that corresponds with the permissible working overpressure of the cylinder. In case of 10 bar and higher waterline pressure, install a pressure reducer behind the water meter.

When heating the cylinder, water is dripping out off the safety valve. Collect this water with a siphon funnel and re-route or use a membrane expansion vessel suitable for potable water as an alternative.

### Service Water Circulation Line

When a service circulation line has been installed, the circulation pump must be controlled with a timer and a thermostat to reduce heat losses. The timer ensures the pump is operated only during those times when hot water is needed. The thermostat switches the pump off whenever the temperature in the circulation line exceeds 30°C, for example. The described functions are already integrated in the SunGo controller. The circulation pump should have a rather low throughput (max. 600 l/h).

We recommend the circulation pump BW152 (Article No. 160 102 14) with integrated shutoff valve and backflow preventer as well as the switching layout depicted in image 1.

The circulation backflow should be integrated between safety subassembly and cold water supply of the service water mixing valve to realize a circuit.

If the suggested circulation control with thermostat and timer cannot be realized because of local circumstances, apply the circulation line to the connection (3/4" M) of the flange of the potable water solar cylinder.

### Insulation

The solar cylinder insulation consists of PU foam with a laminated polystyrene cover layer and hook closure.

The properties of plastics are subject to significant temperature fluctuations! The higher the ambient temperature, the more flexible the PU foam, and due to the shrinkage behavior of the cover layer, these must be applied at least at room temperature.

In case of polystyrene, the breakage tendency drops with a rising temperature.

Do not install insulation below 20°C and allow insulation stored at cold temperatures to reach room temperature before installing.



### Solar Cylinder Connections

All connections require flat seals. If raised seals are used, the potable water connections may be subject to corrosion.

## 1.2 Hydraulic Installation

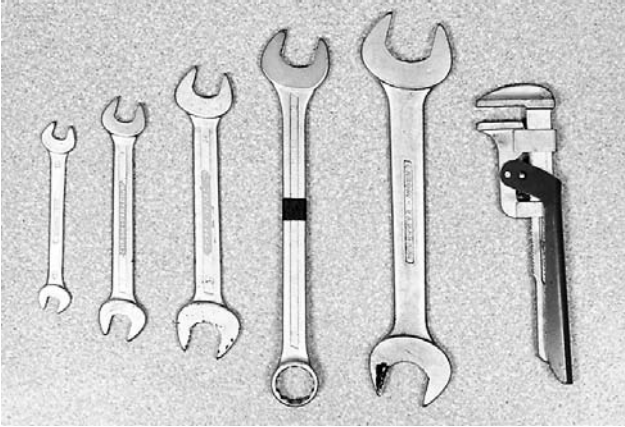


Image 2 The following tools are required for installing the solar cylinder tank: Wrench sizes 10, 13, 24, 30, 37, and fitting wrench (or pipe wrench).

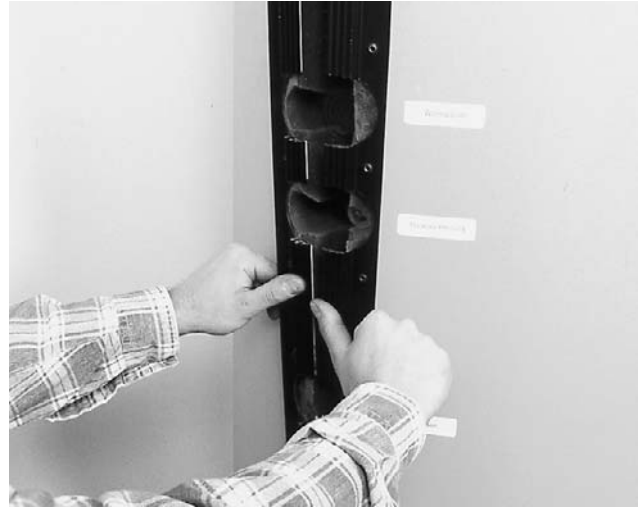


Image 3 Open insulation at hook closure, set aside, unscrew solar cylinder from pallet, set up at installation location.



Image 4 Tilt solar cylinder and insert inner section of the floor insulation. If circulation and electrical immersion heater connections are not utilized, close off with plug or cap.



Image 5 When installing the convection brakes (part of the solar cylinder connection kit), please consult the assembly instructions included with the kit.



Image 6 Connect solar circuit with flow pipe at top to the inlet of the solar heat exchanger and with return pipe at the bottom to the outlet. Apply sealing paste to flat seals and tighten tightly with cap nut.



Image 7 Connect auxiliary heating circuit with flow and return. The inlet for the auxiliary heating heat exchanger is at the bottom and the outlet at the top.



Image 8 Option: If needed, now install the electrical auxiliary heating. Please consult the information included with the immersion heater.



Image 9 Connect cold water line (with cold water filling and emptying tap) at the bottom of the solar cylinder.



Image 10 Option: Install the safety group into the cold water line above the solar cylinder instead of the shutoff, check, and safety valves. No shutoff between safety subassembly and solar cylinder!



Image 11 Connect hot water line at top of solar cylinder.



Image 12 Insert service water mixing valve into hot water line to limit temperature. See printed on for terminal assignment. Then insulate pipes.



Image 13 Option: If desired, install service water circulation pump according to the connection diagram and mount the piping sensor as close to the last hot water tapping point as possible.



Image 14 Screw down the temperature sensor for the solar controller below the connector block at the solar cylinder. Please consult the positioning dimensions in Table 1 for optimal control.

Tab. 1 Temperature sensor	Height of sensor position from floor (mm)			
	ECOplus 300	ECOplus 400	ECOplus 500	ECOplus 750
Thermost. solar cylinder bottom sensor (solar circuit)	230	245	250	305
Thermost. solar cylinder top sensor (aux. heat)	1100	1170	1255	1490



Image 15 Option: Screw CORREX impressed current anode into socket on lid of solar cylinder. Remove an existing magnesium anode first. No reduction needed with CORREX 5/4" thread.

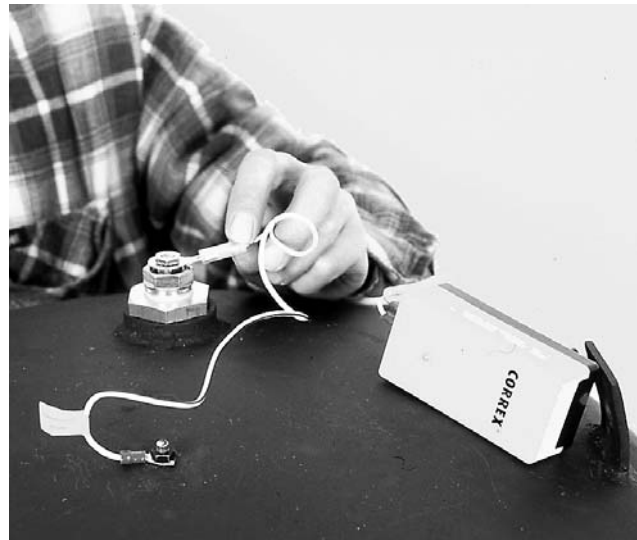


Image 16 Option: Fasten a cable from the electronics device to the grounding screw and attach the other end to the electrode.



Image 17 Option: Install wall socket and plug in CORREX electronics device. Everything is okay if the light is green. Please consult the operating manual if the light flashes red.

## 1.3 Cylinder Insulation

After setting up the solar cylinder and before connecting the potable water, circulation, and heating lines, the insulation must be applied at the installation location.

### During installation:

- Place insulation loosely around solar cylinder and press into place opposite the row of connections.
- Adjust the insulation by tapping with the flat of your hand, i.e., tap or stroke from the rear in the direction of the hook closure until the rows of the hook closure are lined up properly and can be closed by applying slight pressure.
- Make sure the heat insulation is tightly fitted to the wall of the solar cylinder.
- Retighten the hook closure starting at the top until the heat insulation fits tightly against the cylinder.



Please do not use tools or tightening straps and do not close the hook closure by force. This could damage the insulation and diminish its effectiveness.



Image 18 Now place the insulation ring around the bottom of the solar cylinder.



Image 19 Close cylinder insulation with hook closure. First snap into the weakest groove position and then alternately retighten.



Image 20 Insert upper circular insulation panel and attach lid.

## 2. Commissioning



- Please observe the instructions in the „Commissioning the System“ manual.
- Setup, installation, and proper commissioning as well as maintenance of the solar cylinder must be carried out by an accredited company.
- The cylinder must be installed in a frost-free room with short lines to the consumer.
- When connecting to water lines, observe and comply with the corresponding regional and national regulations and guidelines as well as the specifications of your water utility or provider.
- Observe regional and national regulations and guidelines as well as the specifications of your electric utility company when performing electrical connections.
- A corresponding water filter meeting current technology standards is to be installed into the cold water supply line.
- The max. temperature in the solar cylinder must not exceed 90 °C. Make sure the correct settings are set at the solar controller (max. solar cylinder temperature already preset with SUNGO S/ SL/ SXL) and at the boiler controller (max. boiler temperature).
- After the initial startup, check all screw connections and flanges for leaks and retighten as needed.



The correct commissioning must be certified on the acceptance and inspection record by a technically trained person to ensure that a warranty claim can be filed should this become necessary.



Image 21 For commissioning, fill solar cylinder with cold water using the shutoff valve at the safety group in the cold water supply. Open cock at the hot water side to allow air to escape.



Image 22 Thoroughly flush and vent solar and heating circuit. Please consult the solar installation's operating manual – especially concerning frost protection within the solar circuit!



Image 23 After the initial startup, check all connections (including at convection brakes), flanges, and anode screw connection for leaks and retighten as needed.



Image 24 Insulate pipes connected to the solar cylinder and press down insulating tubes firmly onto the insulation of the solar cylinder.

### 3. Maintenance

- The solar system and the solar cylinder must be serviced every 2 years.
- The functionality of the safety valve must be checked regularly (once or twice a month) by lifting up as outlined by DIN 4753 or relevant local regulations. The exhaust vent must never be closed or restricted.
- The solar cylinder must be cleaned and serviced at least every 2 years.
- The protection anode made from magnesium must be checked after two years and then at regular intervals and replaced by a qualified service technician if required.



The regular service and maintenance must be certified on the acceptance and inspection record by a technically trained person to ensure that a warranty claim can be filed should this become necessary.



*Image 25 Check the factory-installed magnesium protection anode every two years. Unplug cable and measure current with multimeter. Inspect and possibly replace if measurement yields less than 0.3 milliamperes.*