

1 Safety

Before installing the device, please read this manual carefully. Please note that the installation must be executed according to relevant technical rules. The installation must also be adapted to the conditions provided by the customer. Damages by improper using or incorrect modification of installation and construction on customer site are immediately leading to warranty exclusion.

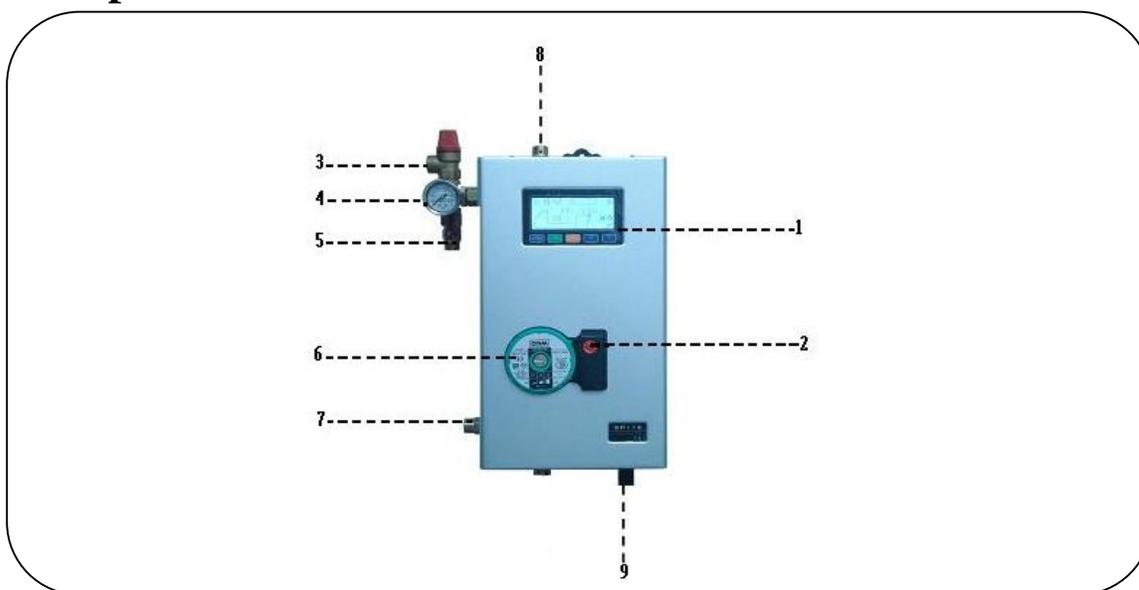


Attention: This manual is for trained personals only!



Note: As faults can never be excluded, we don't offer a guarantee for the completeness of the drawings and texts of this manual, they only represent some examples.

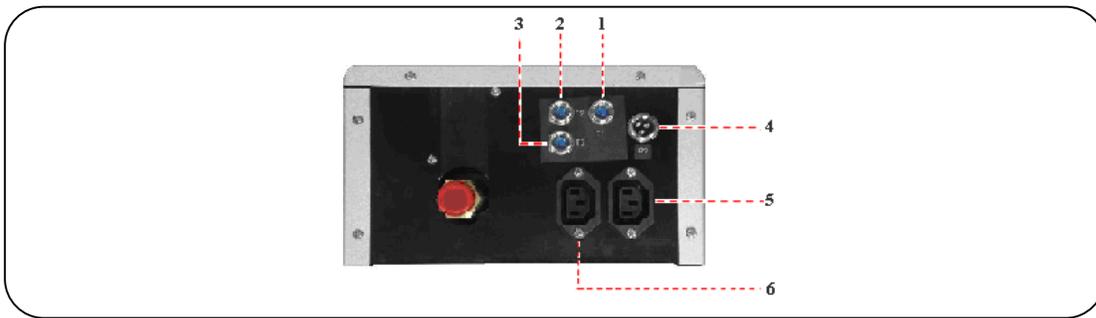
2 Components



No	Components	Function description
1	Operating screen (LCD)	Display operating menu.
2	Pump speed regulation	Three speed levels available, offers different flow rate.
3	Security valve	Protect the system against over-pressure.
4	Manometer	Display system pressure (Max. 10 bar, normal working pressure is approx. 2 bar)
5	Filling and flushing connector	Through this connector medium can be pumped into solar system
6	Circulation pump	WILO Star RS 15/6 (110V or 220V)
7	Expansion vessel connector	Connect expansion vessel. Expansion vessel balances the system pressure.
8	Return flow	Copper material, left side. Max. working temperature 150 °C, screw thread 1/2" (DN15) as standard
9	Input and output signals	Temperature sensors, power cord and other outputs.

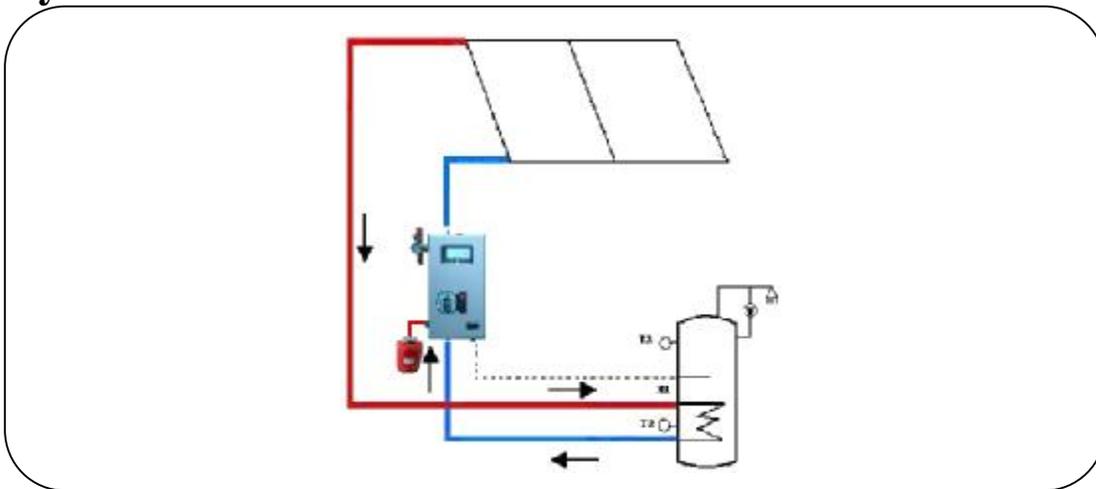
3 Input and output signals

3.1 Single-pipeline solar control system: SP116



1	T1 connector	4	P2 circulation pump connector
2	T2 connector	5	Power plug connector
3	T3 connector	6	Auxiliary heating connector

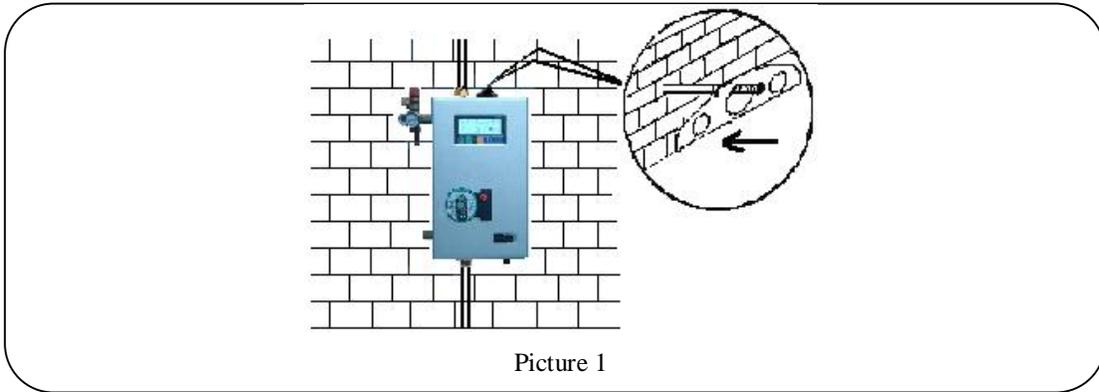
4 System demonstration with model SP116



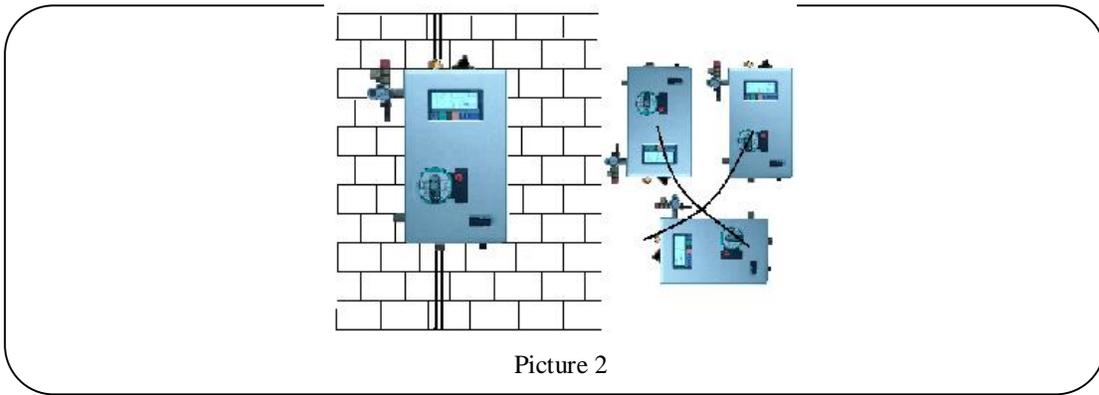
5 Installation

5.1 Mounting

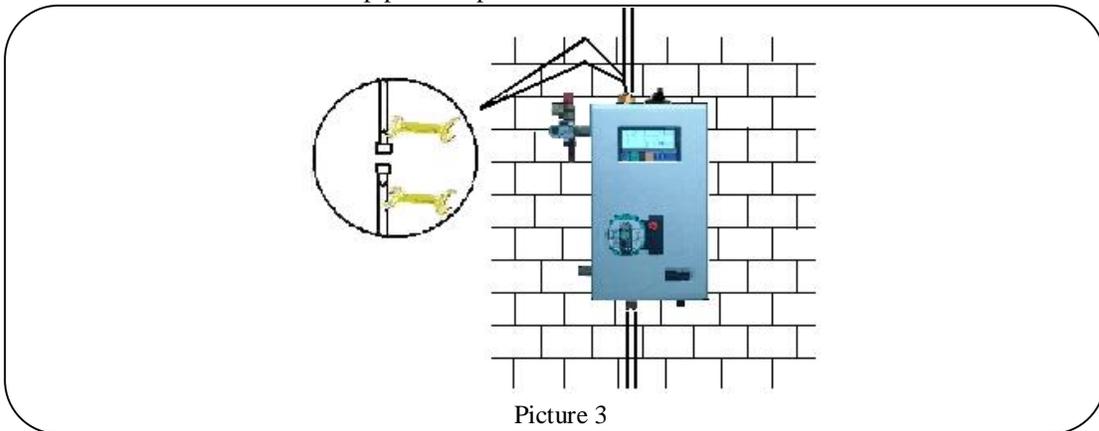
- ◆ Open the package carton and take out the solar control system carefully.
- ◆ Determine the mounting position of the solar control system, considering the mounting place for expansion vessel. See picture 1.



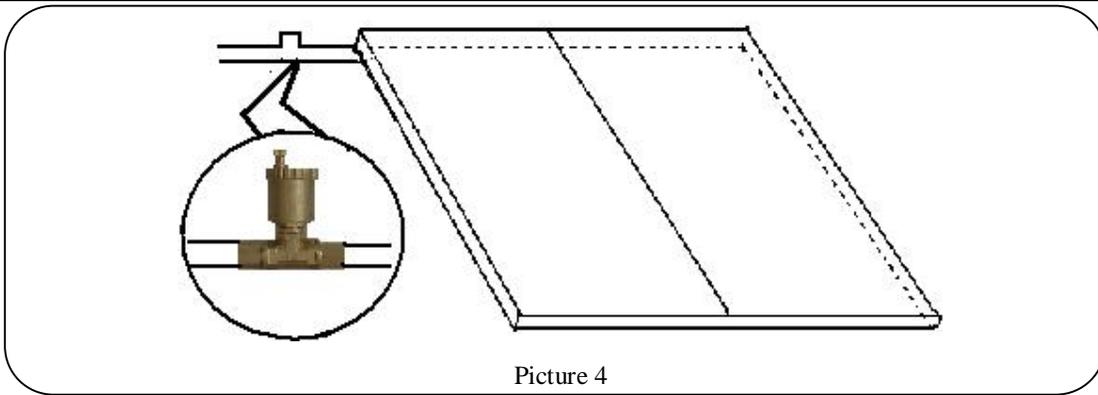
- ◆ Drill the holes for dowels, put the dowels into the holes, fixed the solar control system on the wall using fastening screws. The solar control system must be vertically installed. See picture 2.



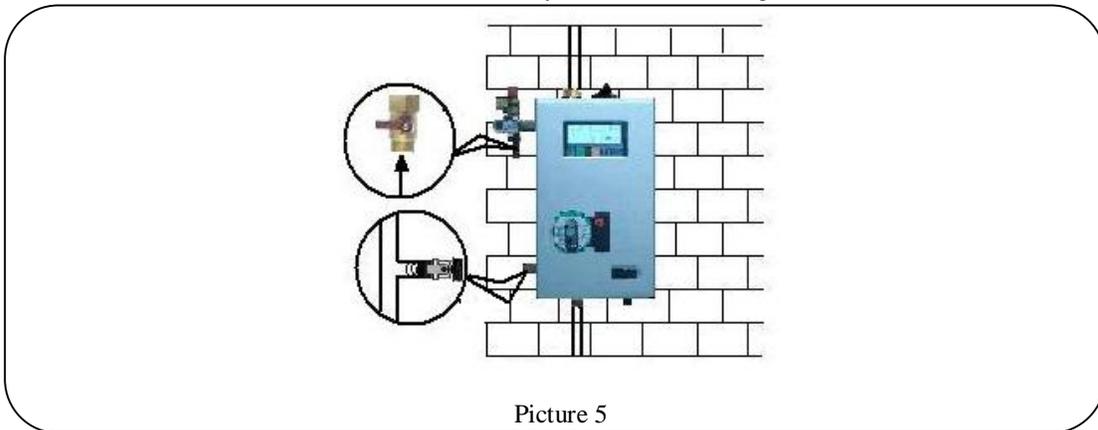
- ◆ Use two wrenches to connect the pipes. See picture 3.



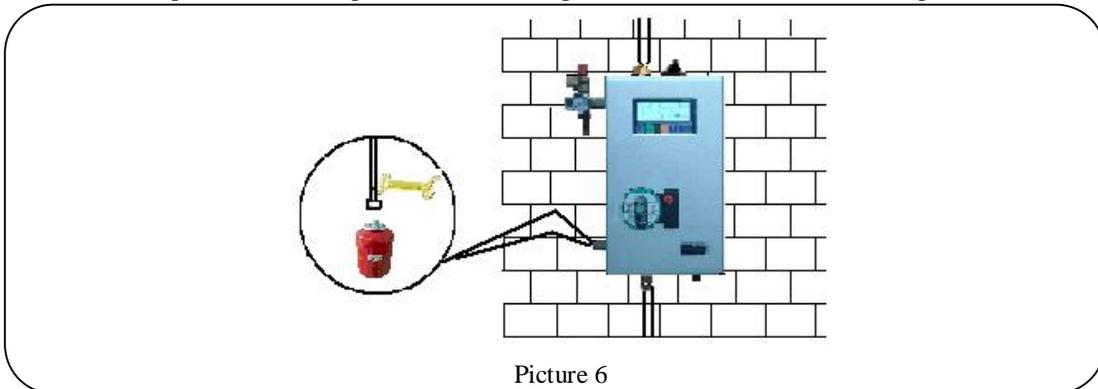
- ◆ Install an automatic exhaust valve next to the interface of solar collector. See picture 4.



- ◆ Connect filling connector (5) with a separate pump.
- ◆ Install a 3-way ball valve below the solar control system for draining (drain valve) and open ball valve. See picture 5. Until there has medium overflow from ball valve, please closed the ball valve. (There is already a non-return valve installed inside the solar control system between filling and drain valve.)



- ◆ After above steps, connect an expansion vessel to expansion vessel connector (7). See picture 6.



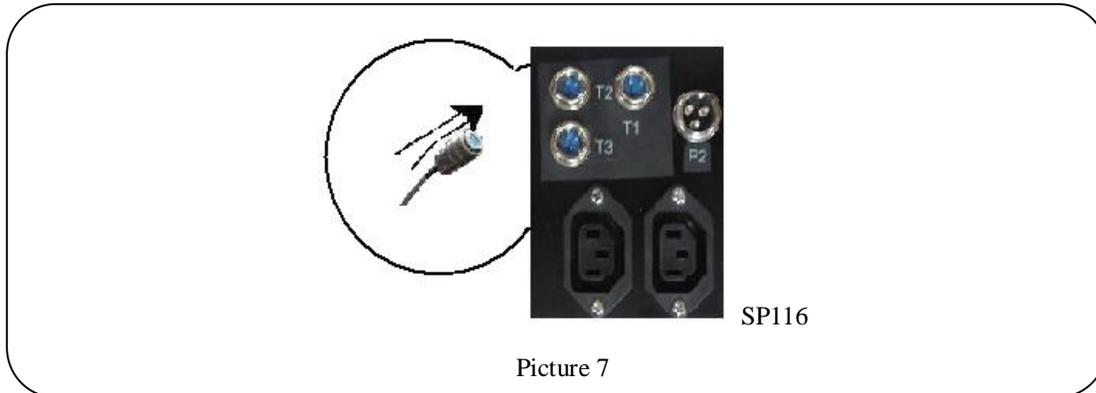
5.2 Filling the system

- ◆ Connect a separate pump to the fill valve with pressure hose.
- ◆ Open the filling and drain valve, fill the system with the separate pump. Heat medium liquid (usually use water-glycol mixture as heat medium, 50% glycol and 50% water) will be pumped into the system until it overflows through the drain valve (ball valve).

- ◆ Close the drain valve and continue to fill the system with medium liquid until the system pressure is not lower than 2 bar (the system pressure can be read from the manometer).
- ◆ Close the filling connector and switch off the pump.

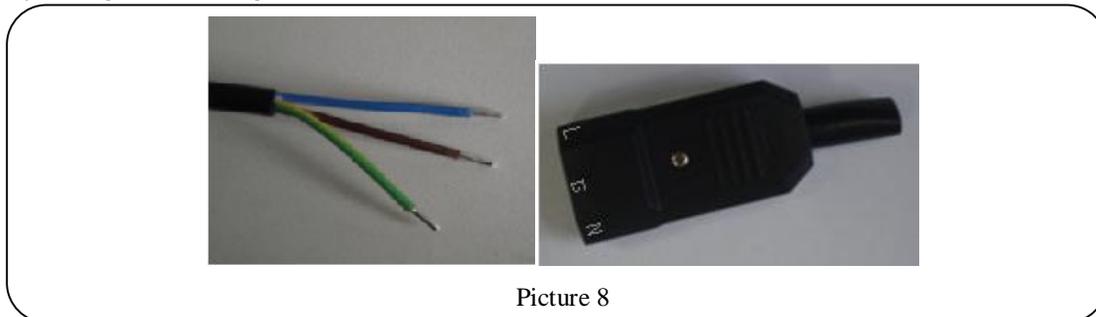
5.3 Electrical wiring

- ◆ Insert the temperature sensors into storage tank (T2, T3) and solar collector (T1). Connect these sensors to the solar control system SP116 correspondingly. See picture 7.



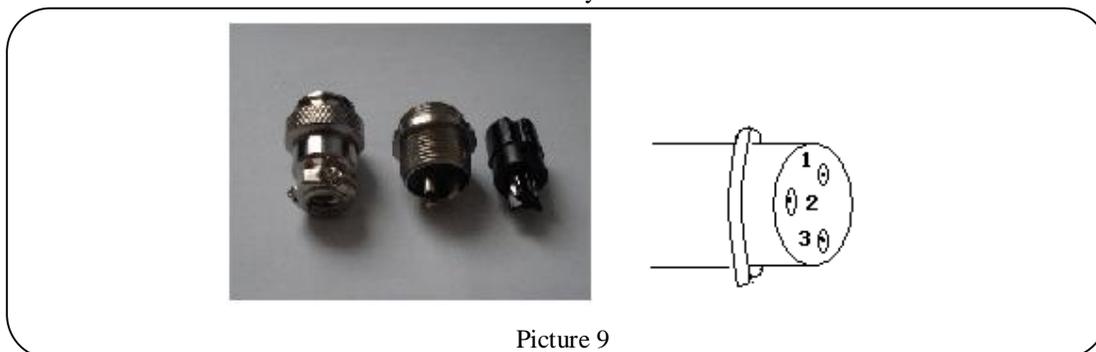
Picture 7

- ◆ Connect auxiliary heating wire if available. Cable (coffee) for the “L”, cable (blue) for “N” line, cable (yellow-green) for the ground wire.



Picture 8

- ◆ To connect external circulation pumps or any electromagnetic valves, firstly loose the aviation socket and dismount it as indicated below. Connect the wire to aviation socket, number 1 connects “N” wire (blue color), number 2 connects ground wire (yellow-green color), number 3 connects “L” wire (red color). Reassemble the aviation socket and connect it to the solar control system.

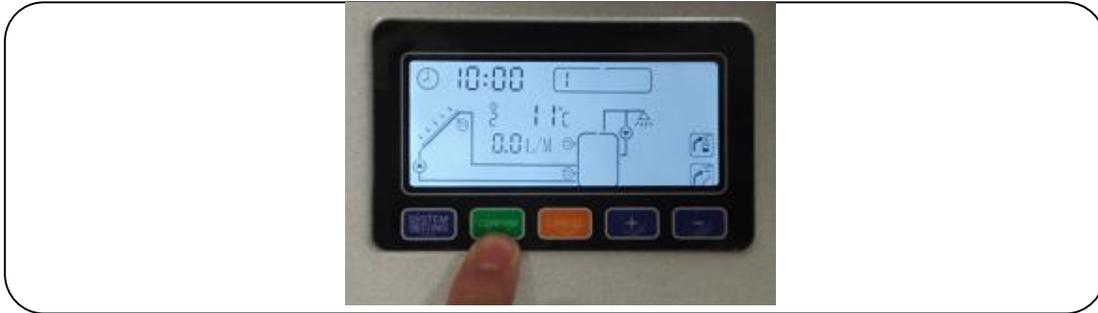


Picture 9

- ◆ Tighten all joints and screw connections. Then plug the power supply into a socket.

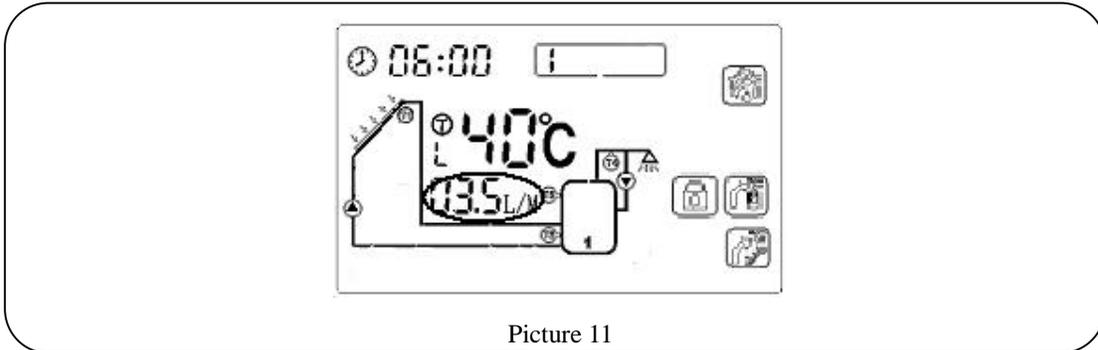
6 Commissioning

- ◆ Switch on the power of solar control system.
- ◆ Press “Confirm” button 2 seconds (in main operating menu) to activate the solar collector pump (P1) manually and let the system circulate for a moment. See picture 10



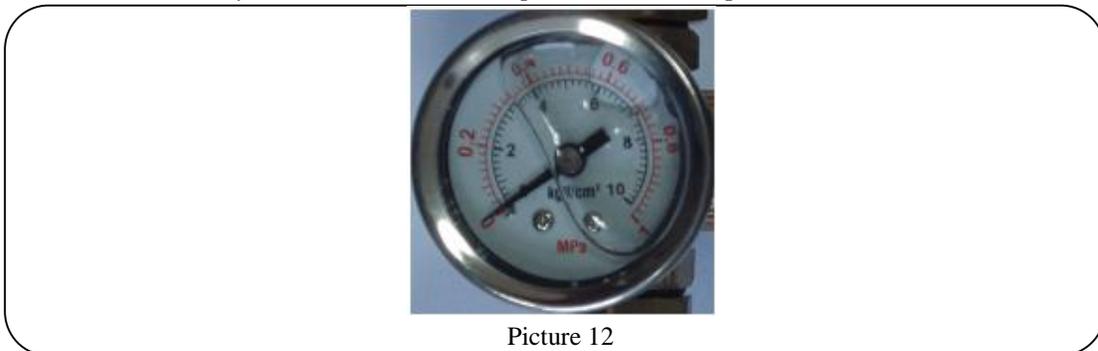
Picture 10

- ◆ Observe the flow rate of solar control system which displays on LCD screen. If the flow rate is not regular, it indicates that there must be air still in the system. Open the air vent valve several times to relief the air.



Picture 11

- ◆ When the flow rate becomes regular, observe the system pressure from manometer. If the pressure is lower than 2 bar, refill the system with heat medium liquid to increase the pressure.



Picture 12

- ◆ Carry out a pressure test of all system joints again for leaks. The solar system must be vented several times after some operating hours.
- ◆ Refill the system if necessary.
- ◆ Remove the separate pump for filling after commissioning.
- ◆ If there is auxiliary heating wire connected, press “Confirm” button until “” signal displays on screen. it means switch on auxiliary heating manually. Then customer can use auxiliary heating function.

7 Replacing the pump

The integrated solar collector pump could be replaced if it gets broken.

- ◆ Disconnect the power supply of solar control system. Loose the screw and open the metal cover.



Picture 13

- ◆ Remove the front half of the insulation material from system.



Picture 14

- ◆ Open the terminal box, disconnect the power supply connection.



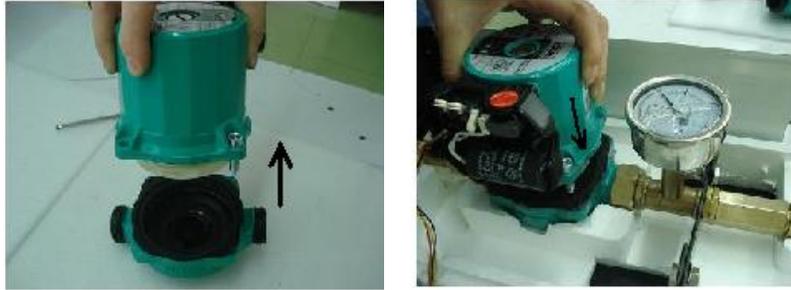
Picture 15

- ◆ Loose the screws and open the WILO pump.



Picture 16

- ◆ Replace the old one with new WILO pump.



Picture 17

- ◆ Fasten the WILO pump screws.



Picture 18

- ◆ Connect the power supply again and close the terminal box.



Picture 19

- ◆ Attach the front half the foam cover.



Picture 20

- ◆ Attach the meal cover and fasten the screws again.



Picture 21