

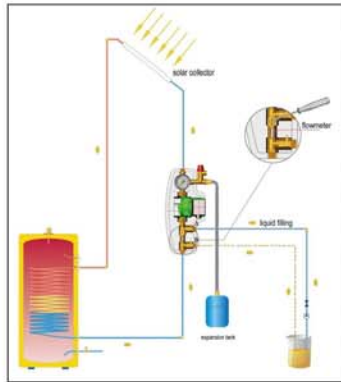
TYY/SS-III Split Pump Station Installation and Operation Instructions



1. Brief Overview

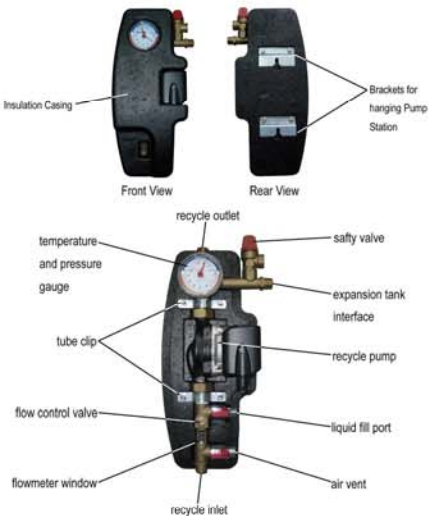
TYY/SS-III Split Pump Station is used mainly for a split pressurized solar system containing a heat exchanger in the tank and circulatory system. It can monitor the fluid temperature, pressure and flow rate in the circulatory system. The liquid fill component of the Pump Station and the fill procedure can make the filling process faster. The device has a simple and compact layout but has a generous size and shape, and it is easy to install and maintain.

Split Pressurized Solar System Schematic Diagram:



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2. TYY/SS-III Split Pump Station Showing Structure and Component Parts



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2.1 Main Technical Parameters

1. Exterior Size: 395*170*145
2. Full Power of Recycle Pump: AC220V, 93W
3. Temperature and Pressure Gauge: 10 bar, 120 °C
4. Pressure Safety Valve: 8 bar
5. Flowmeter: 2-8 L/min

2.2 Components and Functions of the TYY/SS-III

1. Safety Valve: It is used to limit the pressure in circulation line, to make sure reliable operation of the whole system.
2. Temperature and Pressure gauge displays the temperature and pressure in the circulation line. User can adjust the red pointer on the gauge (turn it using a flat blade screwdriver), for example to indicate normal operating conditions. This pointer does not affect the operation of the system.
3. Recycle Pump: is linked to the solar collector and heat exchanger in the split solar water tank by the pipeline and transfers solar heated water from the solar collector to the tank.
4. Flow-meter and Flow Control Valve: The flow-meter monitors the flow rate of the circulated fluid and the flow control valve can be adjusted according to requirements. The user can use a flat blade screwdriver to adjust the flow control valve by rotating the small slotted disc as shown in the pictures. The flow rate may be changed



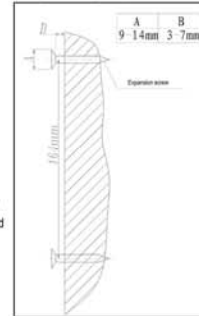
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while running. The maximum flow rate is obtained when the slot is parallel to the fluid flow direction (see Right hand picture- the slot is aligned with F). The circulation line is fully closed and the flow rate is zero when the slot is horizontal or perpendicular to the fluid flow direction (see Left hand picture). The flow is increased from low to a maximum value when the slot is turned from A to B to D to F.

5. Liquid Filling Valve is used to fill or empty the liquid in the pipeline. It contains the liquid fill valve, air vent valve and flow-meter and flow control valve.
6. Expansion Tank Interface allows connection of an expansion drum to accommodate changes in fluid volume as the fluid temperature changes during the day.

3. Installation and Debugging

3.1 Wall surface Mounting. The Pump Station should be installed in accordance with the fluid circulation loop, with fluid in at the bottom, fluid out at the top. The Pump Station should be hung from bolts set into a solid vertical wall in an appropriate location. Brackets fixed onto the back of the Pump Station facilitate the supporting of the Pump Station (See picture on Page 2). User should fix screws or similar mounting fixing into the wall, in positions as shown in the picture to the right.



Schematic diagram of layout of screws set into vertical wall

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3.2 Debugging: Before operation, users must remove the air vent screw on the surface of the pump and use a flat blade screwdriver to turn the motor shaft before commissioning. This is to ensure the motor shaft turns freely before operating. Please see additional instructions. (WILO water pump manual)

3.3 Connection: Users must use two spanners when attaching external pipelines to the Pump Station. One spanner should be used to support the pipe fittings of the Pump Station, and one to tighten nuts on the external pipeline which is being attached. This is to avoid damage to the internal pipelines and fittings in the Pump Station. Damage to the internal pipelines and fittings could destroy their leak-tightness and result in operational problems for the system

3.4 The steps for liquid filling

*Ensure the solar collector is covered and completely cool before starting the liquid fill.

1. Initial Settings. Set the flow control valve in the fully open position using a flat blade screwdriver. (Slot aligns with F), and set the two valves for the liquid fill port (upper port) and air vent (lower port) in the fully open position as shown in the picture.



2. Keeping the flow control valve open, connect the liquid filling pipe to the liquid filling port and connect a pipe to the air vent port to direct overflow fluid to a container.



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3. Close the flow control valve using a flat blade screwdriver (Slot horizontal- see picture)



4. Start filling the liquid, watching the exit of the pipe connected to the air vent. Initially this pipe should discharge air, but when liquid flows continuously out of the air vent pipe, without flow variation or air bubbles, close the air vent valve (lower valve- see picture)



5. Continue the liquid fill, watching the pressure increase on the pressure gauge in the Pump Station. When the pressure in the pipeline, as measured by the pressure meter, reaches 4 BAR, close the liquid fill port valve (upper valve- see picture).



6. Watch the pressure gauge of the pump station for 3 minutes (user can line up the red pointer with the initial pressure reading to help detect pressure changes). If the pressure remains stable, the liquid filling pipe and fill equipment can be disconnected. The liquid filling is now COMPLETE. If the pressure is observed to decrease, we need to do leak detection and maintenance for the circulation pipeline before filling again.



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*To ensure the exhaust of air in the pipeline when the system is running properly, we can screw the air exhausting bolt out from the pump surface to exhaust residual air, then screw in the exhausting bolt to return to normal operation. (Please refer to WILO water pump manual)

4. Precautions

Don't fill the Pump Station and circulation pipeline with liquid when the solar collector is exposed to sunlight. The collector should be covered and quite cool to avoid problems when liquid first enters the solar collector.

- 4.1 After the pump station has been filled with liquid, examine the pipeline carefully to ensure no leakage, then turn on the power supply. The solar collector panel may then be uncovered to commence water heating.
- 4.2 Don't install the Pump Station and associated equipment in a damp or flammable or explosive environment.
- 4.3 Refer to the manuals provided for the Recycle Pump, Flow-meter module, and operational protocol.
- 4.4 In stormy weather, the electric power should be turned off until the weather has cleared.
- 4.5 The user's electrical supply needs earth protection and earth leakage protection.

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