

Solar pump stations

series 255 & 256

CALEFFI
SOLAR



Function

Solar pump stations are used on the primary circuit of solar heating systems to control the temperature of the hot water storage. The pump inside the unit is activated by the signal from a differential temperature controller. The unit contains the functional and safety devices for an optimal circuit control, and is available with both flow and return connection or with return connection only.

General

The solar pump station is a pre-installed and leak-tested unit with fittings for transferring heat from the collector to the storage tank. It contains important fittings and safety devices for the operation of the solar thermal system:

- Ball valves in flow and return in combination with check valves to prevent gravity and thermo circulation.
- Ports for flushing, filling and emptying the system.
- Air vent for manual bleeding of the solar thermal system.
- Flow meter for displaying and setting the flow rate.
- Thermometer in flow and return for displaying both temperatures.
- Pressure gauge for displaying the system pressure.
- Safety relief valve to prevent overpressure.
- Three-speed solar pump for wide range of flow rates.

Product range

Code 255050A	Dual line pump station, 3 speed, flow and return connection, flow meter scale: 1/2–5 gpm	3/4" female
Code 255056A	Dual line pump station, without pump, flow and return connection, flow meter scale: 1/2–5 gpm	3/4" female
Code 256050A	Single line pump station, 3 speed, return connection, flow meter scale: 1/2–5 gpm	3/4" female
Code 256056A	Single line pump station, without pump, return connection, flow meter scale: 1/2–5 gpm	3/4" female

Technical specifications

Body:	brass
Temperature gauge:	steel / aluminium
Seals:	PTFE / EPDM
O-Rings:	EPDM / Viton
Union gaskets:	AFM 34, asbestos free
Insulating shell:	EPP, thermal conductivity value = R4

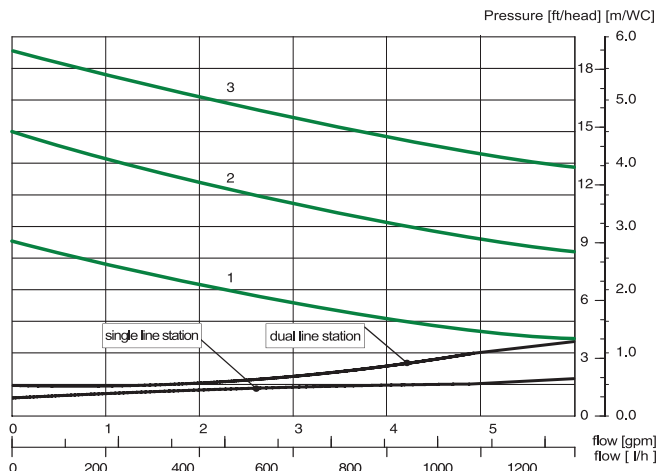
Pump

Wilo solar model:	Star S-16 U15
Body:	cast iron
Power supply:	115 V - 60 Hz
Max. pressure:	150 psi (10 bar)
Max. temperature:	230°F (110°C)
Agency approval:	cULus

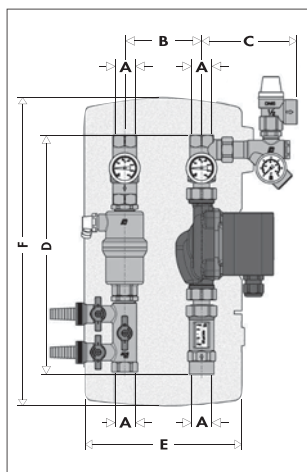
Performance

Medium:	water, glycol solutions
Max. percentage of glycol:	50%
Max. working temperature:	360°F (180°C)
Max. working pressure:	150 psi (10 bar)
Safety relief valve temperature range:	-20 to 360°F (-30 to 180°C)
Safety relief valve factory setting:	90 psi (6 bar)
Min. opening pressure for check valve:	Δp : 1/4 psi (2 kPa)
Adjustment range of flow meter:	1/2 to 5 gpm (1 to 20 l/min)
Max return flow meter temperature:	265°F (130°C)
Pressure gauge scale:	0–90 psi (0–6 bar)
Temperature gauge scale:	32–320°F (0–160°C)
Connections:	3/4" female straight thread
Filling/drain hose connections:	3/4" male hose thread
Expansion tank connection:	1/2" male straight thread

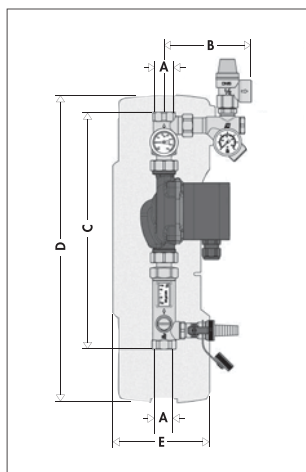
Wilo Star S-16 U15 hydraulic characteristics



Dimensions

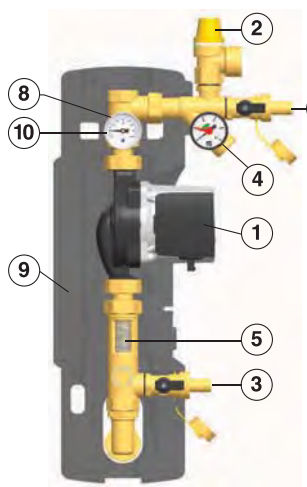
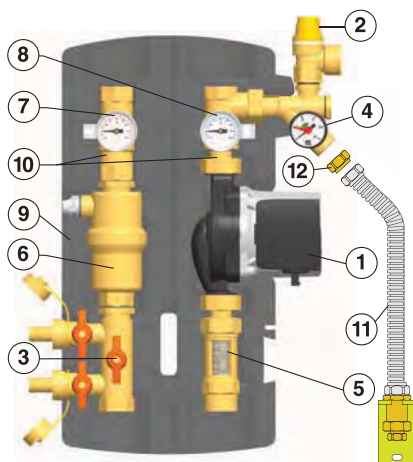


Code	A	B	C	D	E	F	Weight (lb)
255050A	3/4"	4"	4 7/8"	15"	8"	16"	15
255056A	3/4"	4"	4 7/8"	15"	8"	16"	10



Code	A	B	C	D	E	Weight (lb)
256050A	3/4"	7"	16 1/4"	17"	5"	12
256056A	3/4"	7"	16 1/4"	17"	5"	8

Characteristic components



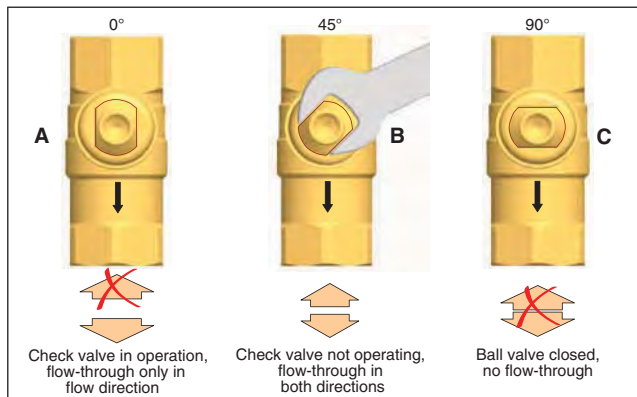
- 1 Wilo-Solar circulation pump
- 2 Safety relief valve 253 series
- 3 Filling/drain valve
- 4 Pressure gauge
- 5 Flow meter
- 6 Air trap and vent
- 7 Flow temperature gauge
- 8 Return temperature gauge
- 9 Pre-formed insulation shell
- 10 Shut-off and check valve
- 11 Expansion Tank connection kit
- 12 3/4" cap (used if no expansion tank is installed)

Construction details

Shut-off and check valve

The shut-off and check valves are built into the ball valves of the temperature gauge connectors.

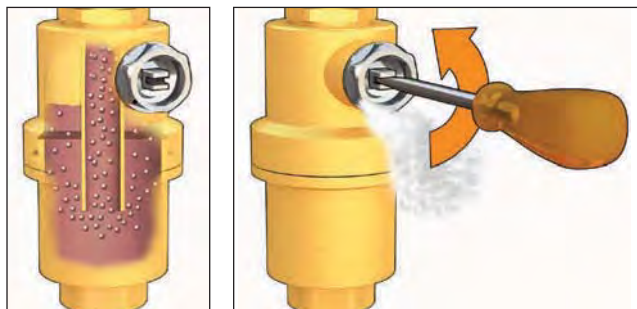
- A. In normal system operation, the ball valves must be fully open.
- B. To allow the fluid to flow in both directions, it is necessary to rotate the respective ball valve to 45°.
- C. To close ball valve, rotate 90°.



Air vent

The solar pump unit version with flow and return connection is equipped with an air vent on the flow line. The air, separated from the fluid, is collected at the top of the vent.

The collected air must be released from time to time—every day after the initial installation; however, it can eventually be done weekly or monthly, depending on the quantity of the air. The collected air is released using the manual air vent with a screwdriver.



Flow meter

The Flow meter is for measurement and display of the flow rate of 1/2 to 5 gpm (1-20 l/min). For accurate function of the measuring device the system must be flushed and free from foreign substances.

