

# Solar pump stations

series NA255

**CALEFFI**  
**SOLAR**



PI 190



## 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 NA255160 Dual line pump station, 3 speed, flow and return connection, flow meter scale: 1–10 gpm \_\_\_\_\_ 1" male

## 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

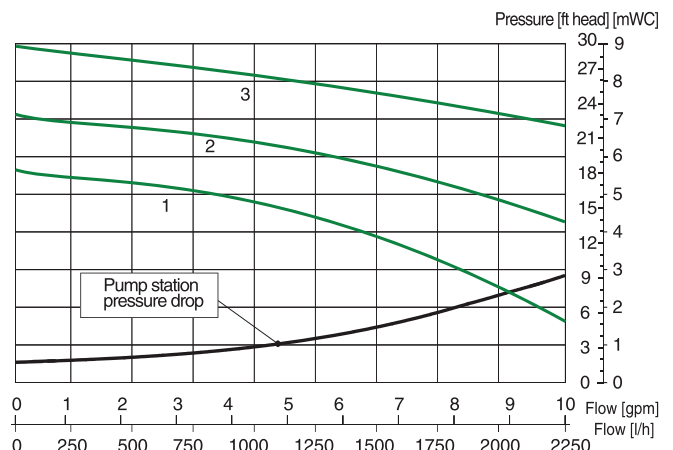
## Pump

Wilo solar model:	Star S-30 U25
Body:	cast iron
Power supply:	115 V - 60 Hz
Max. pressure:	150 psi (10 bar)
Max. temperature:	230°F (110°C)
Agency approval:	cULus

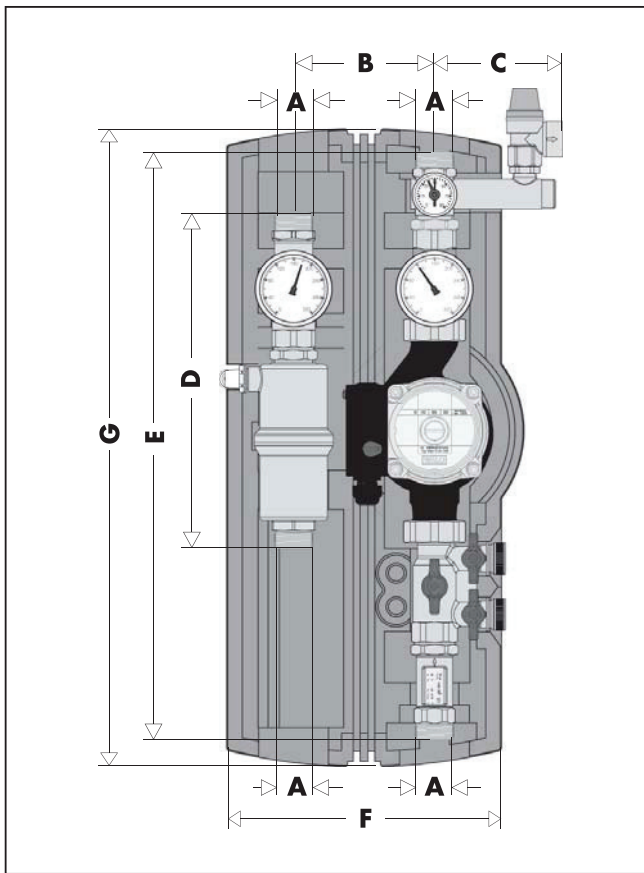
## Performance

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 factory setting:	90 psi (6 bar)
Min. opening pressure for check valve:	0.66 ft head (0.2 mWC)
Adjustment range of flow meter:	1 to 10 gpm (4 to 38 l/m)
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:	1" male thread
Filling/drain hose connections:	3/4" male

## Wilo Star S-30 U25 hydraulic characteristics

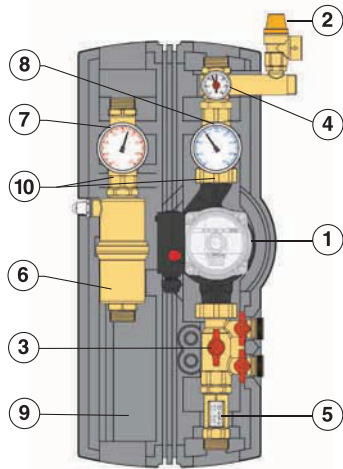


## Dimensions



Code	A	B	C	D	E	F	G	W (lb)
NA255160	1"	4 7/8"	4 1/2"	11 1/2"	20 1/2"	9 5/8"	22 1/2"	20

## Characteristic components



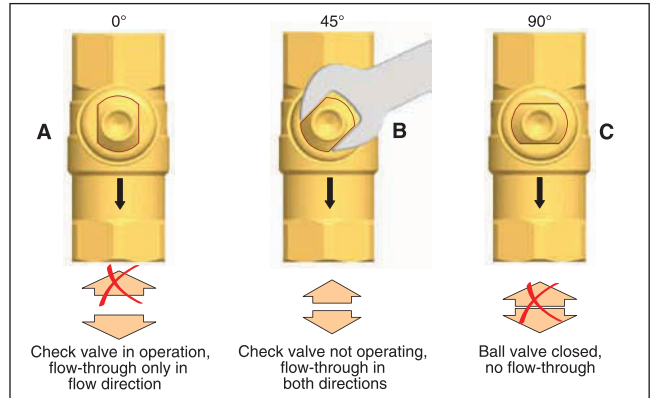
- |                                  |                               |
|----------------------------------|-------------------------------|
| 1 Wilo-Solar circulation pump    | 6 Air trap and vent           |
| 2 Safety relief valve 253 series | 7 Flow temperature gauge      |
| 3 Filling/drain valve            | 8 Return temperature gauge    |
| 4 Pressure gauge                 | 9 Pre-formed insulation shell |
| 5 Flow meter                     | 10 Shut-off and check valve   |

## Construction details

### Shut-off and check valve

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

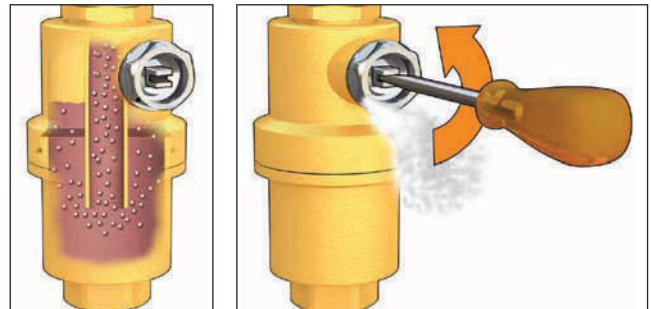
- A.** In normal system operation, the ball valves must be fully open.
- B.** To allow the fluid to flow in both directions, it is necessary to rotate the respective ball valve to 45°.
- C.** To close ball valve, rotate 90°.



### 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 to 10 gpm (4 to 38 l/m). For accurate function of the measuring device the system must be flushed and free from foreign substances.

