

# Solar pump stations

## 255 & 256 series



01136/14 NA



### 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.

### Product range

Code 255050A	Dual line pump station, 3 speed, supply and return connection, flow meter scale: 1/2 to 5 gpm.....3/4" female
Code 255056A	Dual line pump station, without pump, supply and return connection, flow meter scale: 1/2 to 5 gpm.....3/4" female
Code 256050A	Single line pump station, 3-speed, return connection, flow meter scale: 1/2 to 5 gpm.....3/4" female
Code 256056A	Single line pump station, without pump, return connection, flow meter scale: 1/2 to 5 gpm.....3/4" female
Code 256059A	Single line pump station for drainback, 1-speed, return connection, flow meter scale: 1/2 to 5 gpm.....3/4" female

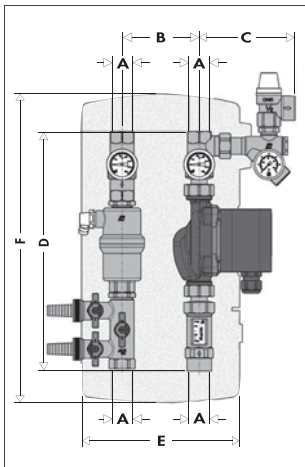
### Technical specifications:

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

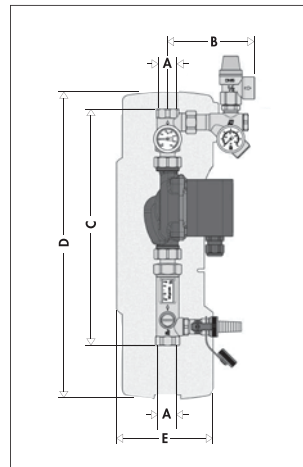
### Performance:

Medium:	water, glycol solutions
Max. percentage of glycol:	50%
Safety relief valve temperature range:	-20 to 360°F (-30 to 180°C)
Safety relief valve factory setting:	90 psi (6 bar)
Mjn. 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

### Dimensions



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

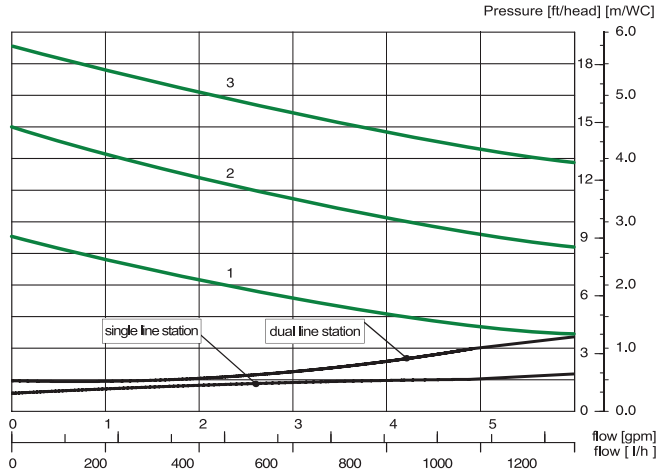


Code	256050A	256056A	256059A
A	3/4"	3/4"	3/4"
B	7"	7"	7"
C	16 1/4"	16 1/4"	16 1/4"
D	17"	17"	17"
E	5"	5"	5"
Wt (lb)	12	8	9

### Wilo Star S-16 pump

Performance: 13 to 15 ft head, 5 gpm  
 Body: Cast iron  
 Power supply: 115 V - 60 Hz  
 Power consumption: 90 W (max) 0.5 A  
 Max. pressure: 150 psi (10 bar)  
 Max. temperature: 230°F (110°C)  
 Agency approval: cULus

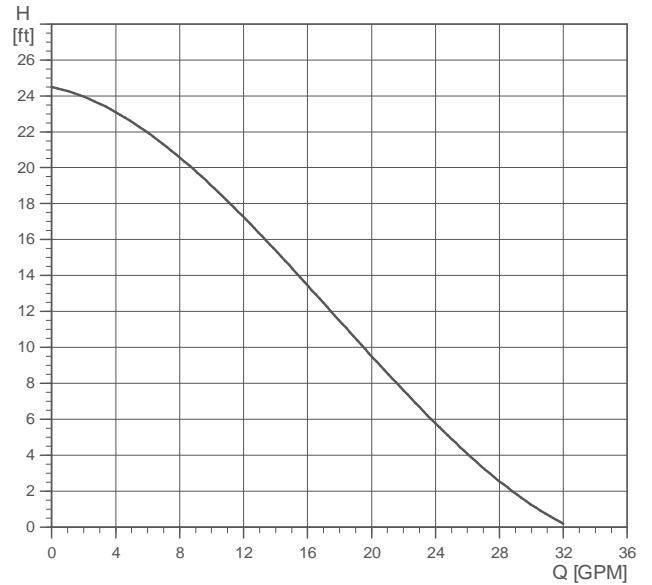
#### Wilo Star S-16 pump hydraulic characteristics



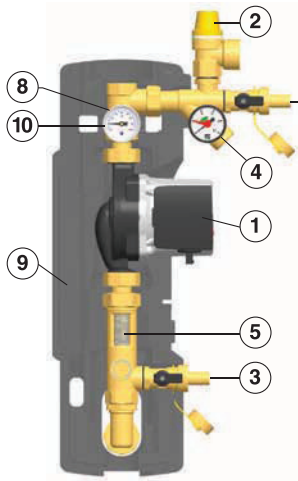
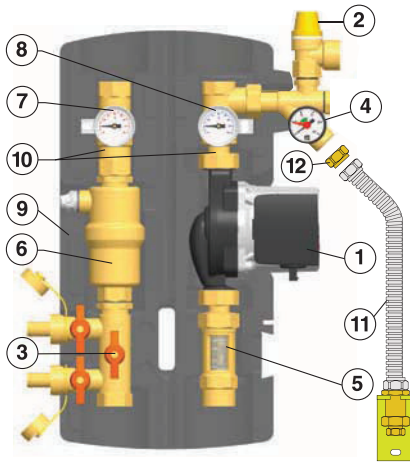
### Grundfos UP15-100 pump, Drainback station

Performance: 36 ft head, 8.4 gpm  
 Body: Cast iron  
 Power supply: 115 V - 60 Hz  
 Power consumption: 135 W, 1.1 A  
 Max. pressure: 145 psi (10 bar)  
 Max. temperature: 205°F (96°C)  
 Agency approval: cULus

#### Grundfos UP15-100 pump hydraulic characteristics



## Characteristic components



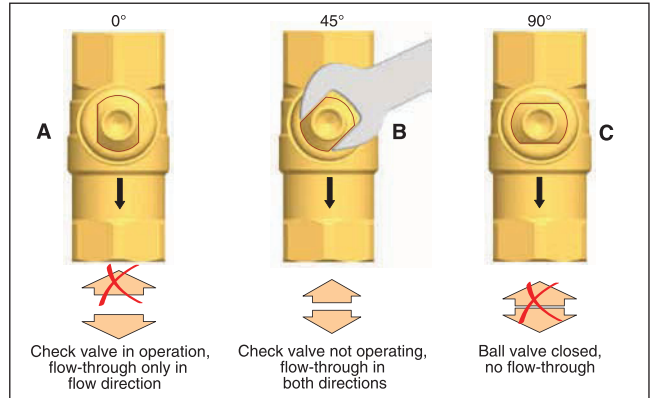
- 1 Circulation pump
- 2 Safety relief valve 253 series
- 3 Filling/drain valve
- 4 Pressure gauge
- 5 Flow meter
- 6 Air trap and vent
- 7 Flow temperature gauge
- 8 Return temperature gauge
- 9 Pre-formed insulation shell
- 10 Shut-off and check valve
- 11 Expansion Tank connection kit
- 12 3/4" cap (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.

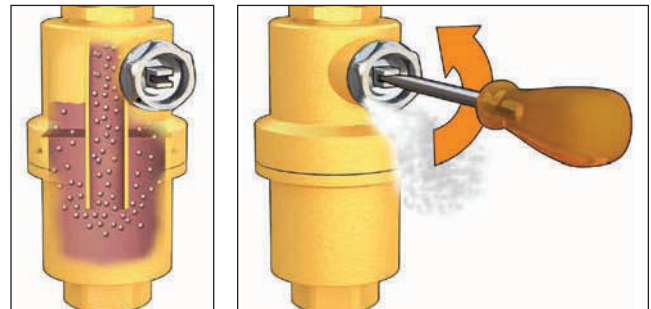
- A. In normal system operation, the ball valves must be fully open.
- B. To allow the fluid to flow in both directions, it is necessary to rotate the respective ball valve to 45°.
- C. To close ball valve, rotate 90°.



### 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.

