DATA SHEET

SUNOPTIMO your solar heat supplier

T005-EN-03-Optiflow XS et S

- 1. DESCRIPTION
- 2. TECHNICAL FEATURES
- 3. COMPONENTS AND FUNCTIONS
- 4. UNIT CHOICE
- 5. MOUNTING
- 6. COMMISSIONING
- 7. MAINTENANCE
- 8. LIMIT OF GUARANTEE





Optiflow XS 16

Optiflow XS 8





Optiflow S 8

Optiflow S 16

DESCRIPTION

Optiflow XS and S are solar pumping units with a built-in drain-back system. They can be installed with almost any type of storage tank. Drainage of the solar collectors prevents problems with overheating and freezing of the fluid. The Optiflow's main function is to pump the solar fluid from the collectors to the storage tank to transfer the collected energy.

Advantages :

Safety :

Avoid overheating and freezing problems.

Flexibility :

- Pumping unit for draining the collector field adaptable to many configurations.
- Applicable to installations from 1 to 6 collectors.
- · Can be installed with any of the Sunoptimo tanks.

Reduction of the components of the installation :

· The bleeder and expansion vessel are not required.

TECHNICAL FEATURES

- Fittings: brass according to EN12165.
- Separating tank material: AISI 304 stainless steel.
- Closing seals: EPDM.
- Connections: ½"M or 15 mm copper pipe.
- Maximum working temperature 110°C.
- Maximum working pressure: 3 bar.
- Safety valve setting 3 bar.
- Flow indication scale: 2-12l/min.
- Pressure gauge scale: 0-10 bar.
- Drain valve connection: 34"M or flexible hose.
- Density of expanded Polypropylene: 40gr/l.
- Drainage volume: 8 or 16 litres depending on the model.

COMPONENTS AND FUNCTIONS





	Name
1	Solar pump
2	Circuit drain/fill valve
3	Filling point of the installation where the primary circuit will be filled
4	Drainage tank: this element stores the solar circuit fluid when the system is off and the air from the collector field when the pump is running
5	Pressure indicating gauge
6	Safety valve set at 3 bar
7	Flow meter and level indicator: the fluid level can be checked on this element which also indicates the flow rate in the primary circuit
8	Insulating shell in Expanded Polypropylene (EPP)

UNIT CHOICE

The selection of the Optiflow unit depends on the height of the installation. It is necessary to take into account the difference in height between the upper part of the collector field and the lower part, where the Optiflow is placed (often in the boiler room).

Note: The pumping power required is lower if the Optiflow is installed at a reduced height difference from the collector field.

Three parameters need to be checked:

Drainback tank(s) volume:

V station> V collector x nbr collectors + V piping

V collector = 2,4 liters for Optisun 245 V

and 3,1 for Optisun 245 H

V piping : cf table. Only the pipes between the station and the collectors count, regardless of the volume of the pipes between the station and the tank.

• The power of the pump(s) at start-up

P station > P piping + P collector field + P height + 100 mbar

P piping : cf table.

P collector field ~ 150 mbar

P height = 100 mbar / m of height difference

between the top of the collectors and the pump.

• The power of the pump(s) in operation

P station > P piping + P collector field + 100 mbar

P piping : cf table

P collector ~150 mbar if < 6 collectors

otherwise ~ 180 mbar

	Drain- back volume	Pressure at start-up	Pressure in operation	ltem code
Optiflow XS 8	8	1.100	1.100	105.023
Optiflow S 8	8	1.700	1.100	105.025
Optiflow XS 16	16	1.100	1.100	105.024
Optiflow S 8 E	8	1.150	1.150	105.340

Tab. 1 Optiflow unit characteristics for selecting the right station for a particular job.

Extension volume 8 litres	
tem code	105.341

Piping volume			
Cuivre Ø10 x 1	0.05 l/m courant		
Cuivre Ø12 x 1	0.08 l/m courant		
Cuivre Ø15 x 1	0.14 l/m courant		
Cuivre Ø18 x 1	0.20 l/m courant		
Cuivre Ø22 x 1	0.32 l/m courant		

Tab. 2 Volume per running meter of pipe. Be careful to multiply the lengths by two: one for the outward loop, another for the return loop!

Nb of collectors	Ø10 x 1	Ø12 x 1	Ø15 x 1	Ø18 x 1	Ø22 x 1
1 Optisun		2,5	-	-	-
2 Optisun		3,5	-	-	-
3 Optisun		5,3	2	-	-
4 Optisun		7,1	2,4	-	-
5 Optisun	-	8,9	3,0	-	-
6 Optisun	-	10,6	4,0	1,6	-

Tab. 3 Pressure losses (in mbar / running m) in the main pipeline as a function of the number of collectors. Be careful to multiply the lengths by two: one for the outward loop, another for the return loop!

MOUNTING

Positioning

It is possible to install the Optiflow station at a variable height in relation to the solar collectors, within the limits established for the different models. The lower the height between the collectors and the Optiflow station, the lower the power required by the pump, which increases the efficiency of the system.

The Optiflow station must always be installed above the heat exchanger of the primary loop, both for installations with internal exchangers in the tanks and for those with a plate exchanger.

The Optiflow unit must be placed in a dry place, inside the building.

Wall fixing

Insert the fixing rods of the tank retaining plate.

Fix the fixing plate to the wall.

Place the base of the insulation shell by inserting the two screw rods through the holes in the insulation.

Insert the drainback tank into the left cavity by placing the screw rods through the fixing plates of the tank. Once inserted, use the nuts to secure this part.

For references with 16 litres separation, connect the two separators using the connecting pipes supplied, both on the top and bottom.

Place the return pipe (with the pump) in the right-hand side of the base shell.

Attach the return unit fixing plate by aligning the groove in the plate with the notch in the plate under the drain cock.

Fit the top insulating cover that covers the entire Optiflow.







Installation requirements

Together with the collector field and the heat exchanger, the Optiflow unit forms a drainback solar system. As this is a self-draining system, some requirements must be met:

1. Avoid siphons in both the flow and return pipes.

2. Install the pipes with a minimum slope of 3% so that the fluid can flow down the pipes when the circulation pump is off.





Piping to be used

The connecting pipes to be used are different according to the number of solar collectors.

To ensure a good draining, the main pipes should be made of smooth pipe and not corrugated hose.

Items not required :

- · Automatic drains.
- · Solar expansion vessel.

Nb of collectors	Section to be used
1 Optisun	Copper Ø10 x 1
2 Optisun	Copper Ø10 x 1
3 Optisun	Copper Ø10 x 1
4 Optisun	Copper Ø12 x 1
5 Optisun	Copper Ø12 x 1 or Copper Ø15 x 1
6 Optisun	Copper Ø12 x 1 or Copper Ø15 x 1

Tab. 4 Pipe cross-section to be used according to the number of collectors.

Roof connection principle





COMMISSIONING

Filling the system.

Before filling the system with the solar fluid, the circuit must be cleaned and a pressure test performed.

Make sure that the Optiflow unit is not powered up to prevent the pumps from running dry.

Once the flushing and pressure test have been carried out, proceed to fill the circuit through the filling connection (2). In order to ensure that the fluid reaches the drainbak tank and that the exchanger fills up, the ball valve of the flow meter should be closed.

Fill the circuit with a filling pump or similar system. Open the plug (3) to check that the fluid is reaching the drain bottle. Fill the system until the drain bottle is full. Once the level is overflowing, check that the fluid has reached the flow meter (7).

Once the operation has been completed, seal the filling connection (3) with the flat gasket and plug supplied and close the filling/drain cock (2).

Switching on and adjusting the pump speed

The pump must be switched on manually to adjust its speed:

Single pump systems

Once the pump is switched on, make sure it has sufficient power to fill the system. Use the flow meter (7) to ensure that the priming flow is at least $10l/m^2$ of collector per hour.

Nb of collec-	Minimum flow rate	Minimum operating	
lors	prinning	now rate	
1 Optisun	0,5 l/min	0,7 l/min	
2 Optisun	0,9 l/min	1,3 l/min	
3 Optisun	1,3 l/min	1,9 l/min	
4 Optisun	1,7 l/min	2,5 l/min	
5 Optisun	2,1 l/min	3,2 l/min	
6 Optisun	2,5 l/min	3,8 l/min	





Systems with two pumps

Connect the pumps to the single power supply for both units. The timing of the two pumps is done automatically without the addition of any other components. Make sure that the pumps have sufficient power to fill the system. Use the flow meter (7) to ensure that the flow rate never falls below the values indicated in the previous table. After the filling phase one of the two pumps will be deactivated and only the main pump will remain in operation. At this point it is necessary to check that the flow rate supplied by the pump is sufficient to ensure the operating flow rate is at least 15l/m²h.

MAINTENANCE

Open the cap on the top of the drainback tank when the system is off and recap it.

Ensure that there is sufficient flow to fill the collectors.

Check the fluid level in the system and make sure that there are no leaks that could cause the level to drop and therefore not enough fluid to fill the collector field (not enough fluid = not enough flow or no flow at all).

LIMIT OF GUARANTEE

The Optiflow solar unit is guaranteed against material defects for a period of 2 years from the date of invoice. This warranty does not apply if the unit has been tampered with, altered or damaged by use or installation not in accordance with the instructions provided.



You can find this data sheet and all our other documents on our website **www.sunoptimo.com**