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DESCRIPTION

The Optiflow XL range of solar stations is designed for drainback solar thermal installations from 80m² to 650m² of collectors.

Advantages:

- «Plug and flow» unit. All the technical components are pre-assembled, the connection of the pipes is facilitated and valves are provided for the assembly of the flow/return pipes to the collectors as well as the flow/return pipes to the exchanger.
- All the components are pre-wired on a terminal block, which simplifies installation on site.
- Each unit consists of a hydraulic station and a drainback tank.
- Protective and finishing cover, perfect integration with the different elements of the boiler room.



Sizing and selection software is available to assist you in configuring your installation.



TECHNICAL FEATURES

Optiflow XL components

The Optiflow XL unit includes all the technical elements necessary for the operation of a drainback solar installation. The following table shows the main components of the station.

n°	Components
1 *	Electrovalve
2	Brass filter
3	Manometer
4	Filling valve
5	Vortex 2 in 1 flowmeter : flow + temperature
6	Direct reading flowmeter
7	Manual drainer
8	Solar pump (6 versions: Mu, Iota, Zeta, Lambda, Kappa, Thêta)

Tab. 1 Optiflow XL different components.

n°	Fittings
A	Dead water loop - Tank return (cold)
B *	Dead water loop - Tank return (half-warm)
C	Dead water loop - Tank outflow (hot)
D	Solar loop - Rturn (cold)
E	Solar loop - Outflow (hot)
F	Drainage piping

Tab. 2 Pipes to be connected

*Items marked with an asterisk are only present in the stratification version

Item code (dead water)	Item code (domestic water)	Name	Solar pump	Exchanger
105.326	105.618	Optiflow XL DN32 - Standard pump unit	Zeta	Optiplate 500
105.327	105.641	Optiflow XL DN40 - Standard pump unit	Iota	Optiplate 750
105.328	105.642	Optiflow XL DN50 - Standard pump unit	Mu	Optiplate 1780
105.460	105.646	Optiflow XL DN32 - Standard pump unit without stratification	Zeta	Optiplate 500
105.479	105.647	Optiflow XL DN40 - Standard pump unit without stratification	Iota	Optiplate 750
105.480	105.648	Optiflow XL DN50 - Standard pump unit without stratification	Mu	Optiplate 1780
105.414	105.643	Optiflow XL DN32 - High height pump unit	Thêta	Optiplate 500
105.415	105.644	Optiflow XL DN40 - High height pump unit	Kappa	Optiplate 750
105.416	105.645	Optiflow XL DN50 - High height pump unit	Lambda	Optiplate 1780
105.481	105.649	Optiflow XL DN32 - High height pump unit without stratification	Thêta	Optiplate 500
105.482	105.650	Optiflow XL DN40 - High height pump unit without stratification	Kappa	Optiplate 750
105.483	105.651	Optiflow XL DN50 - High height pump unit without stratification	Lambda	Optiplate 1780

Tab. 3 Different Optiflow XL units

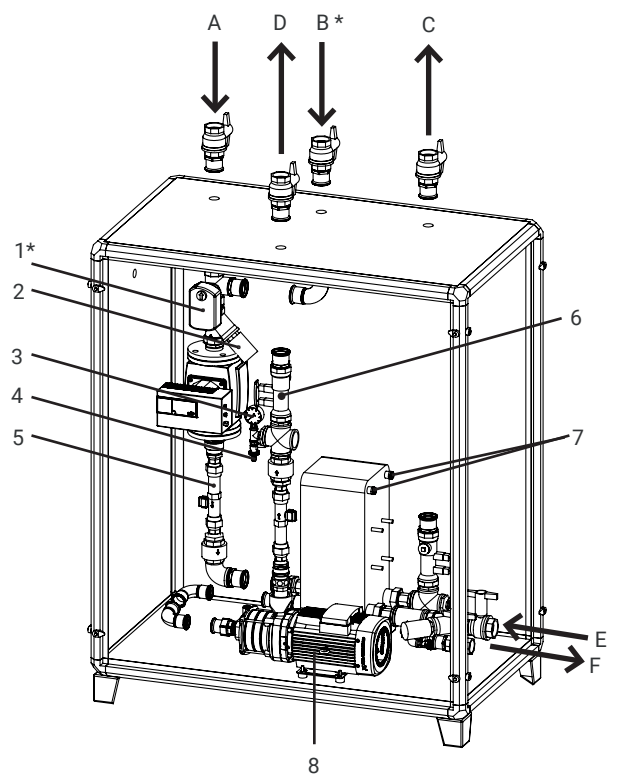


Fig.2 Optiflow XL with stratification

Pump performance

The pump determines the choice of Optiflow. In the priming phase, it must allow the fluid to replace the air in the collectors and overcome the height of the building. In the production phase, it must ensure a sufficient flow rate.



Sunoptimo has developed a sizing software to calculate the flow rates and pressure drops in the start-up and production phases and to select the appropriate station.

Please contact us to obtain a version.

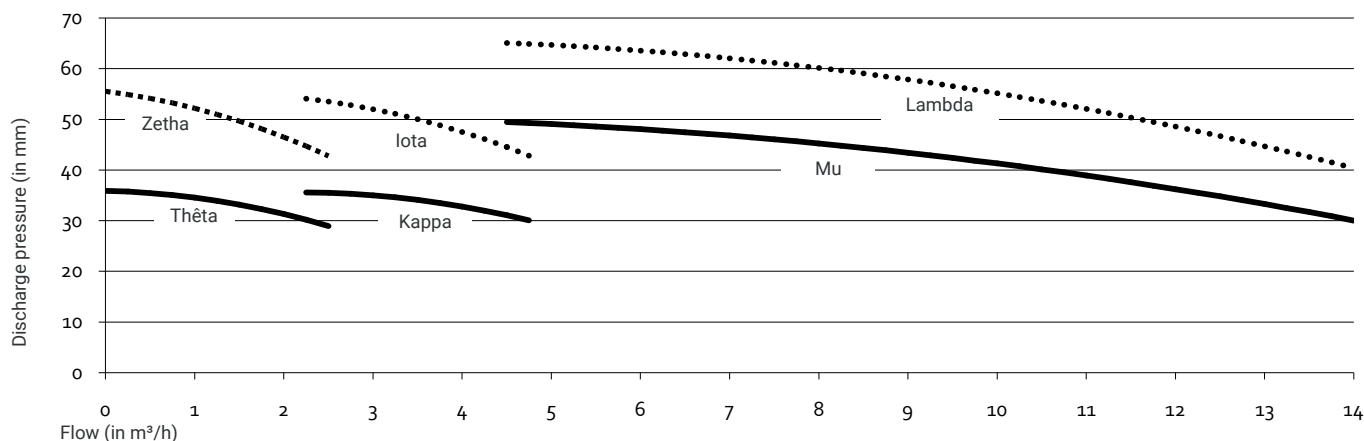


Fig.3 Characteristic curves of different pumps

Exchanger performance

The choice of heat exchanger is very important. An undersized heat exchanger will cause an energy bottleneck and a lack of efficiency of the solar system. The DTlog represents the efficiency of the heat exchange. The higher the value, the less efficient the exchange. It is expressed as a temperature difference between the primary and secondary loops.

The graphs on the right shows the performance of the various heat exchangers.

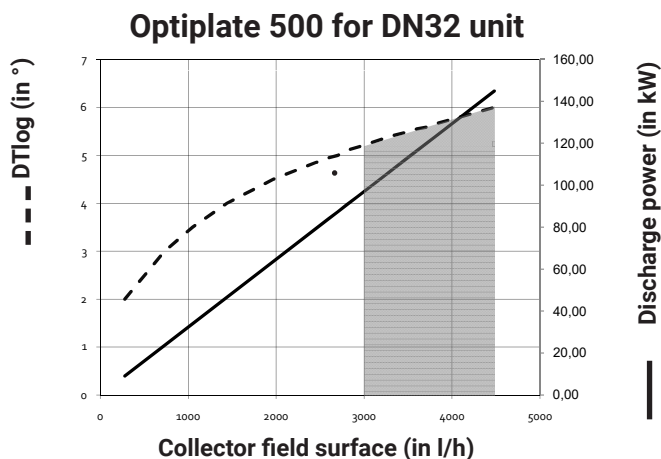


Fig.4 Optiplate 500 performance

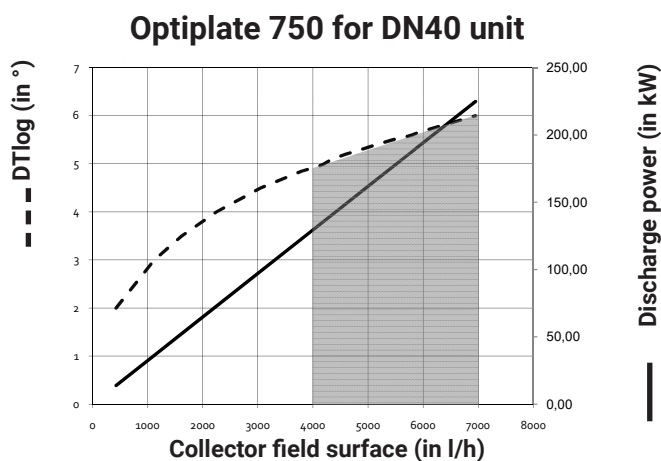


Fig.5 Optiplate 750 performance

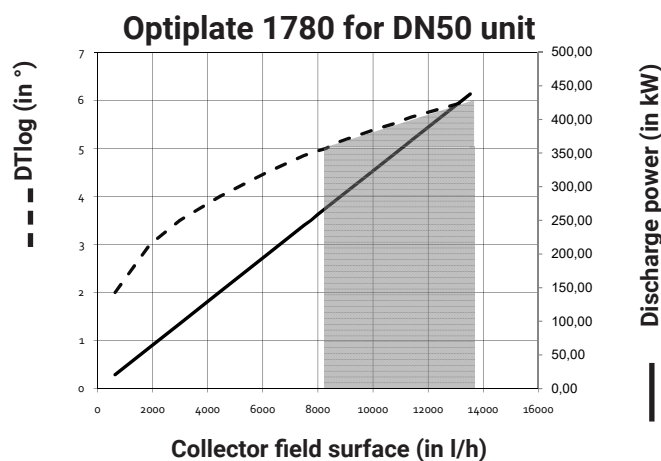


Fig.6 Optiplate 1780 performance

Drainback tank performance

The drainback tank is used to collect solar fluid when the system is switched off. The fluid leaves the collectors under the effect of gravity and flows back down into the drainback tank. When the pump starts up again, the fluid is sent to the collectors and the air that was contained in the pipes and the collectors replaces the fluid in the tank. Sunoptimo solar systems are closed-circuit systems, so there is no air exchange, which limits the risk of corrosion.

Depending on the number of collectors, the type and length of the pipes, there is more or less fluid to recover.



Our sizing software allows for the correct selection of the drainback tank and the amount of fluid to be used. Please contact us for a version.

n°	Components
1 & 3	Level indicator
2	Steel tank with 100mm insulation
4	Temperature sensor
5	6 bar safety valve (3/4" discharge) and filling valve

Tab. 4 Optiflow XL drainback tank components

n°	Fittings
E	To E station
F	To F station
G	Solar loop - outflow (hot)

Tab. 5 Pipes to be connect

Item code	Volume (in l)
105.216	150
105.217	200
105.218	300
105.219	400
105.220	500
105.221	500
105.222	600
105.223	700

Tab. 6 Optiflow XL drainback tank range

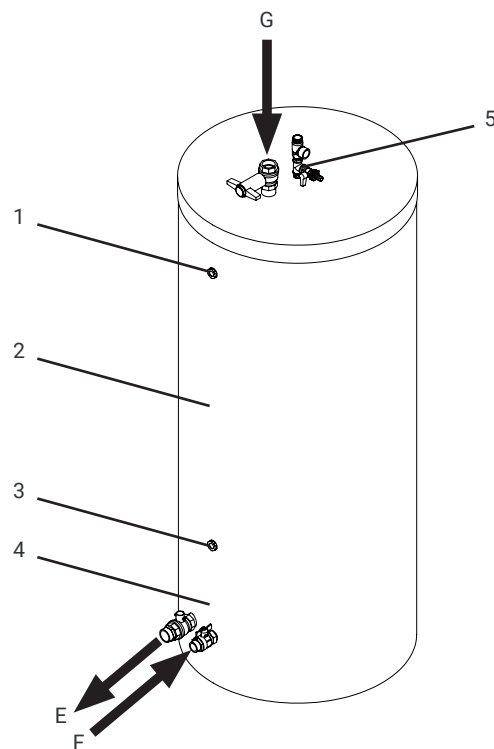


Fig.7 Optiflow XL drainback tank

MOUNTING AND CONNCETION

Space requirement

Before connecting the Optiflow XL station, it is necessary to ensure that the ground is flat. Sufficient space must also be provided for the installation of the station and the drainback tank.

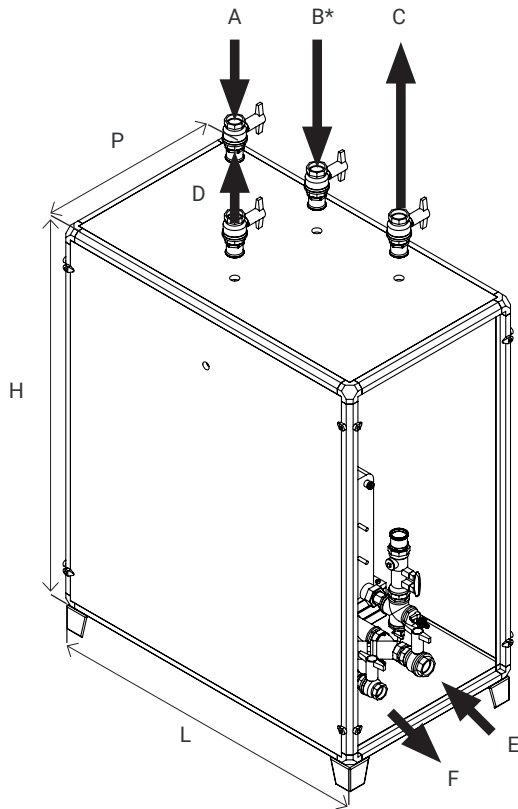


Fig.8 . Optiflow XL space requirements

Name	Fittings A-E	Fitting F	Length L (mm)	Depth P (mm)	Height H (mm)
Optiflow XL DN32 - Standard pump unit	5/4"F	1"F	1000	600	1300
Optiflow XL DN40 - Standard pump unit	6/4"F	5/4"F	1200	700	1400
Optiflow XL DN50 - Standard pump unit	2"F	6/4"F	1400	800	1700
Optiflow XL DN32 - Standard pump unit, without stratification	5/4"F	1"F	1000	600	1200
Optiflow XL DN40 - Standard pump unit, without stratification	6/4"F	5/4"F	1200	700	1300
Optiflow XL DN50 - Standard pump unit, without stratification	2"F	6/4"F	1400	800	1600
Optiflow XL DN32 - High height pump unit	5/4"F	1"F	1000	600	1300
Optiflow XL DN40 - High height pump unit	6/4"F	5/4"F	1200	700	1400
Optiflow XL DN50 - High height pump unit	2"F	6/4"F	1400	800	1700
Optiflow XL DN32 - High height pump unit, without stratification	5/4"F	1"F	1000	600	1200
Optiflow XL DN40 - High height pump unit, without stratification	6/4"F	5/4"F	1200	700	1300
Optiflow XL DN50 - High height pump unit, without stratification	2"F	6/4"F	1400	800	1400

Tab. 7 Optiflow XL dimensions

Item code	Volume (in l)	Fittings E & G	Fitting F	Diameter without insulation (in mm)	Diameter with insulation(en mm)	Height (in mm)
105.216	150	5/4"F	1"F	500	700	1680
105.217	200	5/4"F	1"F	500	700	1680
105.218	300	5/4"F	1"F	700	900	1680
105.219	400	5/4"F	1"F	700	900	1680
105.220	500	5/4"F	1"F	700	900	1680
105.221	500	6/4"F	5/4"F	850	1.050	1750
105.222	600	6/4"F	5/4"F	850	1.050	1750
105.223	700	6/4"F	5/4"F	850	1.050	1750

Tab. 6 Drainback tank dimensions

Hydraulic connection

For the pipe sections and their connections, please refer to the hydraulic diagram provided with the order confirmation. Regardless of the type of piping used, the connection to the station or tank must be made using removable three-piece fittings.

Never use piping with a galvanised coating on the inside of the tube.

Drainback tank connection :

The drainage bottle is connected to the station by the two lower tubes (marked here as E and F). These two fittings have different diameters and must be connected with the valves of the same diameter as shown on the drawing.

These two tubes must be routed horizontally and must not generate a high/low point effect.

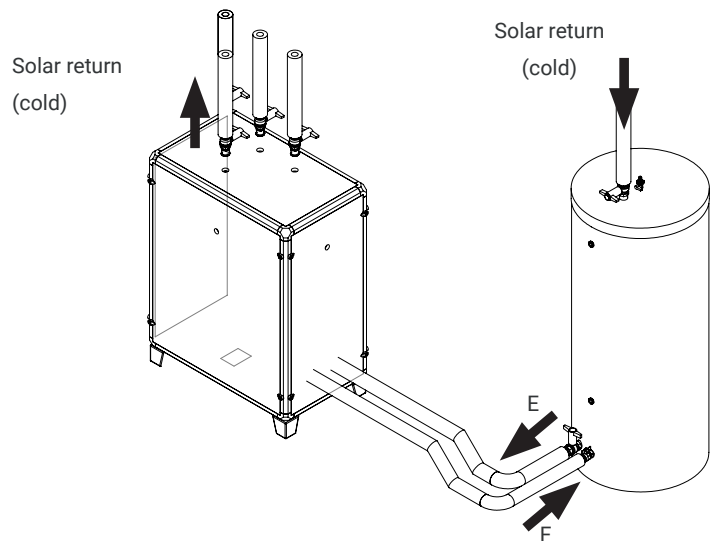


Fig.9 Connection between Optiflow unit and its drainback tank

Accessories

As an accessory, we offer a 240l retention tank to collect the fluid that would escape from the solar network valve.

This tank is equipped with a vapour condensation system to avoid any unexpected triggering of fire alarms.



Fig.10 Retention tank for solar valve connection

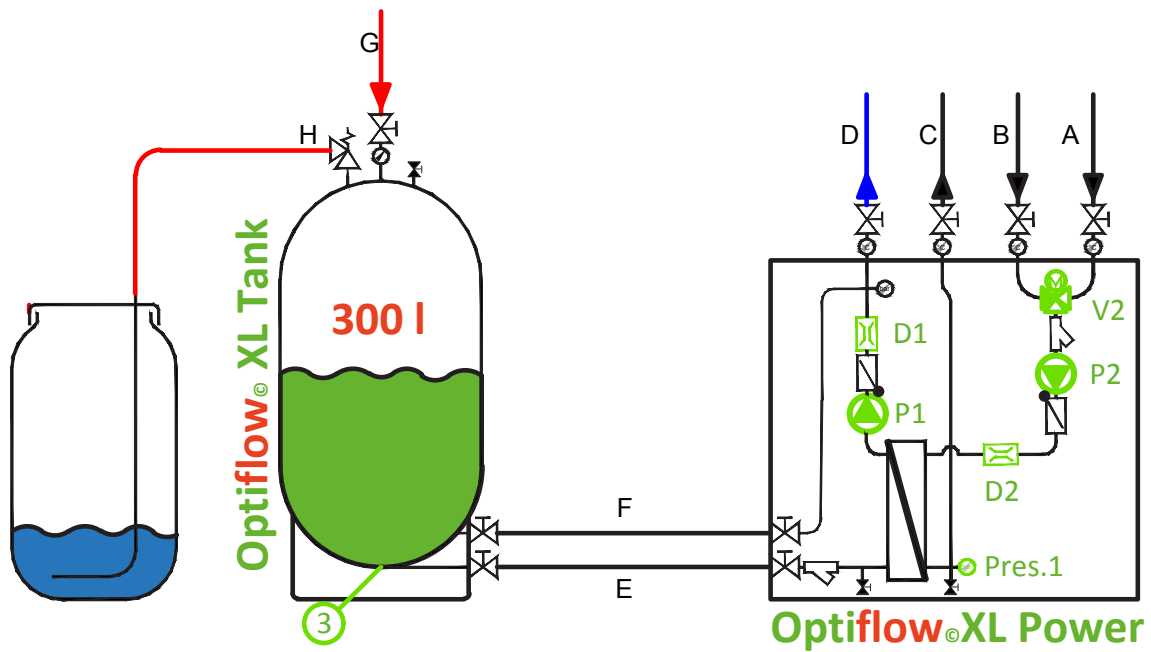


Fig.11 Connection of the Optiflow station with drainback tank and retention tank

Electric wiring

Each unit is delivered with all the active elements (pumps, valves, sensors, etc.) pre-wired on a terminal block. Pull the cables between the electrical control panel (regulation box) and the station, respecting the characteristics listed in the table below.

The sensor cables and the power cables must not be placed in the same duct. If they run in parallel, they must be spaced at least 20cm apart to avoid distorting the measurement values.



Caution: Never energise the pumps / circulators before commissioning is complete. When the control system is switched on, a control relay may switch on. No-load operation will result in damage not covered by the warranty. Wait until commissioning is complete before applying power to the pumps / circulators.

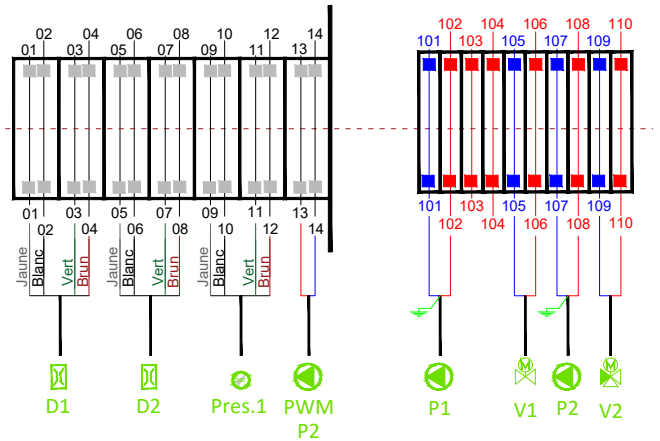


Fig.12 Electrical terminal block for Optiflow XL single-phase stations

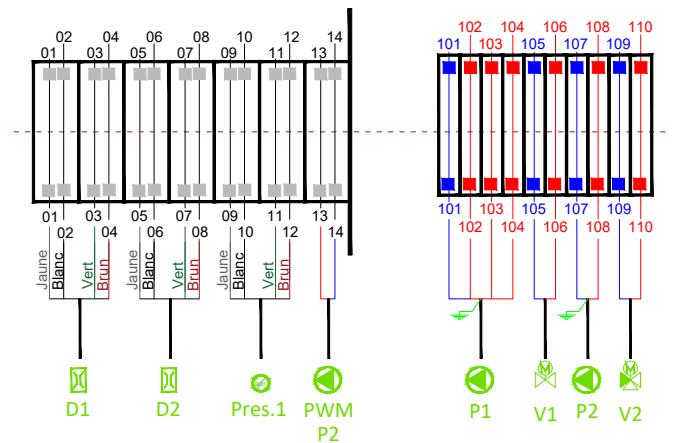


Fig.13 Electrical terminal block for Optiflow XL three-phase stations

Name	Sensors 0-10V (nb of conductors)	Pump P1	Voltage 240V (nb of conductors)
Drainback tank	2 x Ø 0.75mm ² faradized	Single-phase	-
Optiflow XL DN32 - Standard pump unit	14 x Ø 0.75 mm ² faradized	Single-phase	8 x Ø 1.5 mm ² + ground
Optiflow XL DN40 - Standard pump unit	14 x Ø 0.75mm ² faradized	Single-phase	8 x Ø 1.5 mm ² + ground
Optiflow XL DN50 - Standard pump unit	14 x Ø 0.75mm ² faradized	Single-phase	8 x Ø 2.5 mm ² + ground
Optiflow XL DN32 - Standard pump unit, without stratification	14 x Ø 0.75mm ² faradized	Single-phase	6 x Ø 1.5 mm ² + ground
Optiflow XL DN40 - Standard pump unit, without stratification	14 x Ø 0.75mm ² faradized	Single-phase	6 x Ø 1.5 mm ² + ground
Optiflow XL DN50 - Standard pump unit, without stratification	14 x Ø 0.75mm ² faradized	Single-phase	6 x Ø 2.5 mm ² + ground
Optiflow XL DN32 - High height pump unit	14 x Ø 0.75mm ² faradized	Single-phase	8 x Ø 1.5 mm ² + ground
Optiflow XL DN40 - High height pump unit	14 x Ø 0.75mm ² faradized	Single-phase	8 x Ø 1.5 mm ² + ground
Optiflow XL DN50 - High height pump unit	14 x Ø 0.75mm ² faradized	Three-phase	10 x Ø 2.5 mm ² + ground
Optiflow XL DN32 - High height pump unit, without stratification	14 x Ø 0.75mm ² faradized	Single-phase	6 x Ø 1.5 mm ² + ground
Optiflow XL DN40 - High height pump unit, without stratification	14 x Ø 0.75mm ² faradized	Single-phase	6 x Ø 1.5 mm ² + ground
Optiflow XL DN50 - High height pump unit, without stratification	14 x Ø 0.75mm ² faradized	Three-phase	8 x Ø 2.5 mm ² + ground

Tab. 8 Number of conductors required for the electrical connection

SAFETY INSTRUCTIONS

Transport and warehousing

Transport:

- Optiflow stations must remain in their original packaging during transport. Any modification of the packaging during transport will avoid the manufacturer's warranty.
- The stations must be transported in a vehicle that provides optimum protection against the weather and impact.
- No loads should be placed on the stations during transport or storage.

Handling and warehousing

- When receiving the products, please handle them with care.
- Avoid any shock when handling the Optiflow stations to avoid damaging the paint on the cover and the components (electronic regulation, vortex flowmeters, valve, pump, drainage tank...).
- The packaging should only be removed when the station is finally installed. Before this step, keep all products in their original packaging.
- No loads should be placed on the stations during storage.
- When storing or warehousing the products, choose a dry, dust-free, frost-free and weatherproof room.

Qualification of the installer

The installation and commissioning of an Optiflow station must be carried out by a qualified professional installer approved by Sunoptimo. Remember: the warranty is only valid from the moment a qualified installer has carried out the installation and regular maintenance of the system. Activation takes effect upon receipt of the commissioning report.

Local standards and guidelines

- The installation must comply in all respects with the European, national and local regulations in force at the time of commissioning.
- The manufacturer's instructions for the connection of the auxiliary system to the storage tank must be observed.
- The guidelines of the local water supplier as well as the European guidelines for the prevention of legionella risks must be observed

The following standards must also be observed:

- DIN 4753: Hot water tanks and systems for the preparation of DHW

- DIN 1988: Technical regulations for drinking water systems
- DVGW 551/552: Technical guidelines for the prevention of legionella risks in water heating and transport
- EN 12977-3: Solar thermal systems and components. Performance test of the DHW storage tank for solar systems.
- For France: Decrees of 23 June 1978 and 30 November 2005 concerning fixed installations for heating and domestic hot water supply in residential buildings, workplaces or premises open to the public.

Safety devices

Safety devices for the solar network are already pre-mounted in the Optiflow station. However, one should not forget the safety devices for the secondary network (dead water or sanitary water): valves, expansion tank, pressure reducer, thermostatic mixing valve...

MAINTENANCE

Regular maintenance of the solar system is essential. Check the following points regularly:

Installation fluid level:

During operation you should always see the fluid in the sight glass at the bottom of the tank.

Pressure in cold:

When the collectors are between 20-50°C and the fluid is between 20-30°C with the pump off, the pressure should be close to 1 bar.

Flow:

Turn on the solar pump and check the flow rate. After the priming phase (5 to 10 minutes), the flow rate should never be less than 20l/m² of collector per hour.

Compare the flow rate with the one noted during commissioning.

If the flow rate becomes too low, the filter must be cleaned and the heat exchanger checked for clogging. Plan a cleaning if necessary.

Fluid :

Check the frost resistance and PH of the solar fluid.

In case of defect, provide a replacement.

Nb of collectors	Solar surface (in m ²)	Min. flow (in l/h)	Min. flow (in l/min)
10	24	490	9
20	49	980	16
30	73	1.470	25
40	98	1.960	33
50	122	2.450	41
60	147	2.940	49
70	171	3.430	57
80	196	3.920	65
90	220	4.410	74
100	245	4.900	82
120	294	5.880	98
140	343	6.860	114
160	392	7.840	131
180	441	8.820	147
200	490	9.800	163
220	539	10.780	180
240	588	11.760	196
260	637	12.740	212
280	686	13.720	228
300	735	14.700	245

Tab.8 Minimum flow rates to be controlled in the production phase



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