

User Manual

SDS 500



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Contents

Introduction.....	5
Preface.....	5
System Identification.....	5
At A Glance.....	7
System.....	10
Consumables.....	11
Accessories.....	12
Communication.....	13
Operation.....	14
Pumps Control.....	14
Tank Flush Schedule.....	15
Loop UV Schedule.....	15
ASM Schedule.....	15
How to Power On the SDS 500.....	15
How to Power Off the SDS 500.....	16
How to Empty the Tank Manually.....	17
How to Empty the Tank Automatically.....	19
SDS Stop.....	20
How to Reset the SDS Stop button.....	20
Maintenance.....	21
How to Replace Vent Filters.....	22
How to Replace (Install) Loop Filter.....	24
Self Help Guide.....	26
Pump Fault Red Light on SDS 500 Single.....	26
Pump Fault Red Light on SDS 500 Duplex.....	27
Messages on Water Purification System.....	28
DISTRIBUTION UV message.....	28
ASM UV message.....	28
PUMP FAILURE messages (SDS 500 Single).....	29
PUMP FAILURE messages (SDS 500 Duplex).....	30
OVERFLOW message.....	32
TANK EMPTY message.....	32
TANK LEVEL SENSOR FAILURE message.....	32
How to Dispense Water if the Water Purification System is Off.....	34
How to Check Power.....	35
How to Air Purge a new Loop Filter.....	36
What to do when there is No Flow.....	38
Requirements And Specifications.....	39
Environmental Requirements.....	39
Electrical Requirements.....	39
Feed Water Requirements.....	40
Dimensions And Weights.....	40
Loop Water Specifications.....	41
Health And Safety.....	42
Safety Information.....	42
Recycling.....	43
Legal information.....	44
Ordering Information.....	45

Accessories.....45
Consumables.....45
Spare Parts.....46

Introduction

Preface

Congratulations for purchasing our Water Storage and Distribution System (SDS 500). This User Manual will guide you during its normal operation and maintenance.

Installation of this product is meant to be performed by a qualified service representative who will refer to the installation documentation..

The term *Water Purification System* is used to refer to any device designed to control the SDS 500 and to feed it with purified water.

Please make sure you have read the Health & Safety chapter of this manual before starting.

For more information on your SDS 500, please call your local representative or visit our website www.sigmaaldrich.com

System Identification

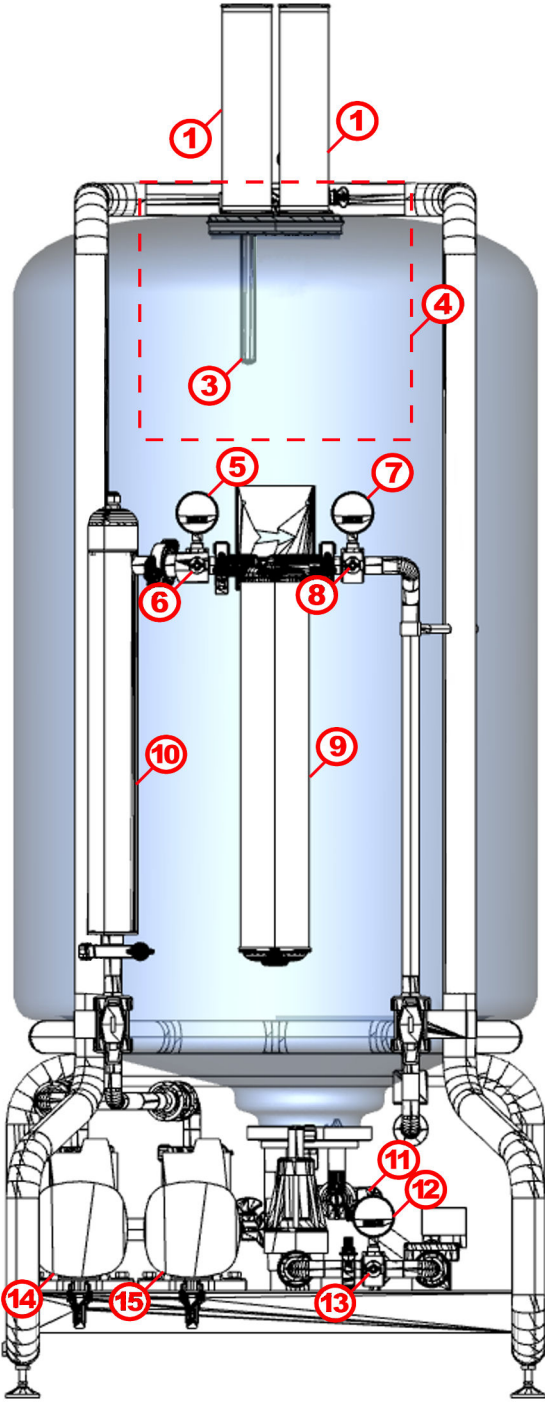
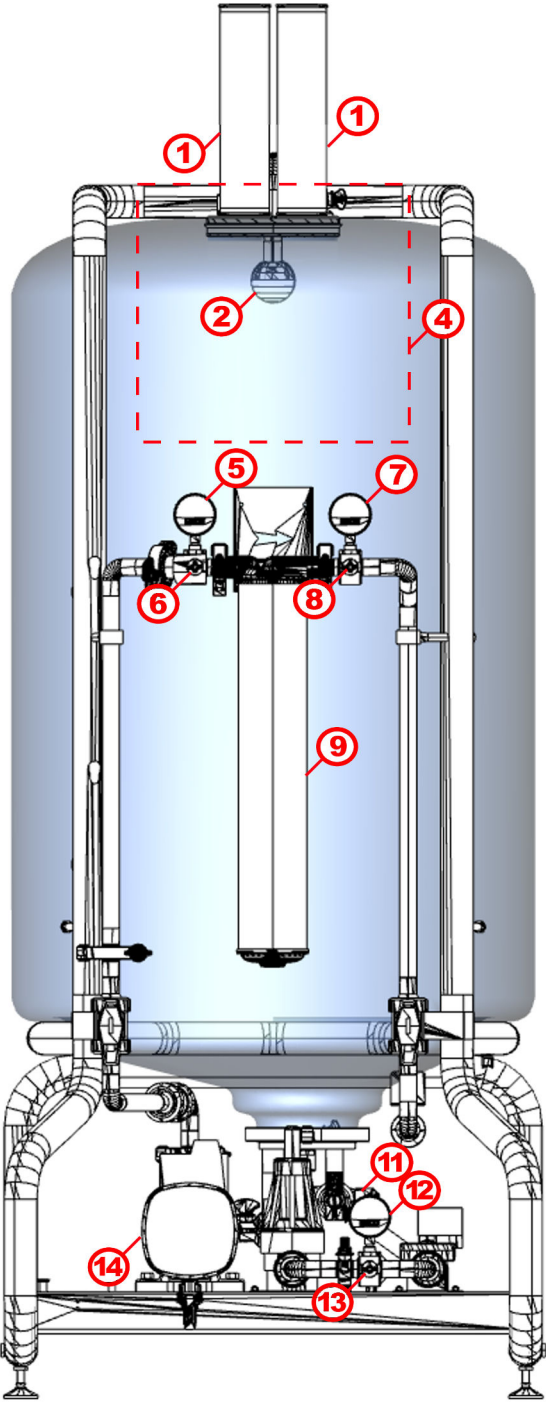
The SDS 500 comes in four configurations depending on the number of pumps and mains voltage.

Catalog n°	Pumps	Voltage	Frequency
TANK5SP500	Single	230-240 V (+/-10%)	50/60Hz (+/-2Hz)
TANK5DP500	Duplex	230-240 V (+/-10%)	50/60Hz (+/-2Hz)
TANK6SP500	Single	100-120 V (+/-10%)	50/60Hz (+/-2Hz)
TANK6DP500	Duplex	100-120 V (+/-10%)	50/60Hz (+/-2Hz)
TANK6SP500C	Single	100-120 V (+/-10%)	50/60Hz (+/-2Hz)
TANK6DP500C	Duplex	100-120 V (+/-10%)	50/60Hz (+/-2Hz)

Note

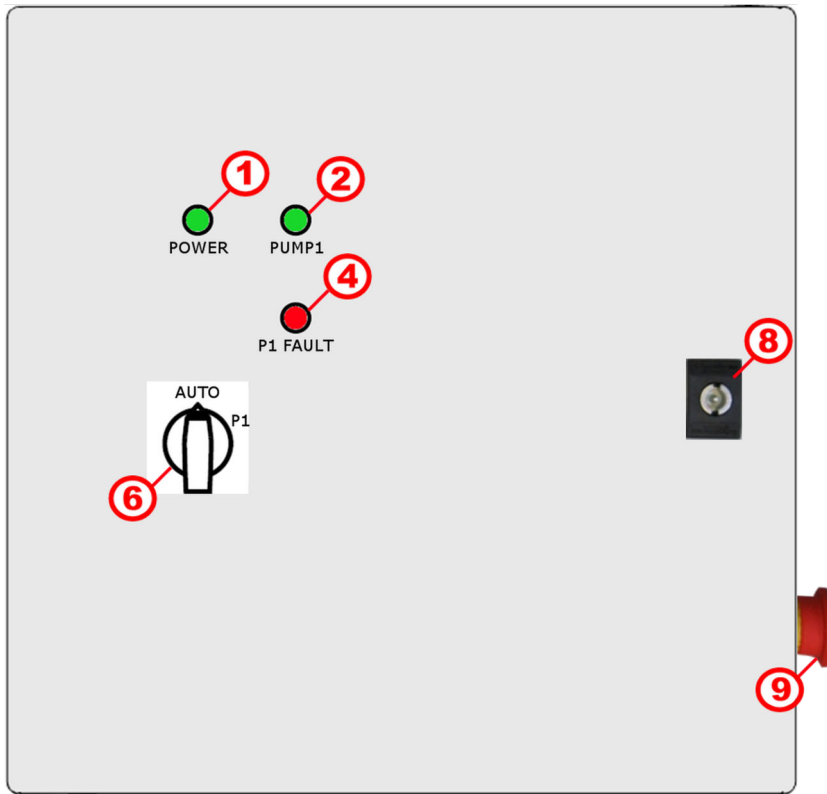
SDS500 Range of product are classified as Class A products according EMC standards. A Class A device is a product marketed for commercial or industrial use and is not intended to be used in a home. Applied EMC standards : IEC 61326-1 Ed.2 : 2012 Electrical equipment for measurement, control and laboratory use – EMC requirements.

At A Glance

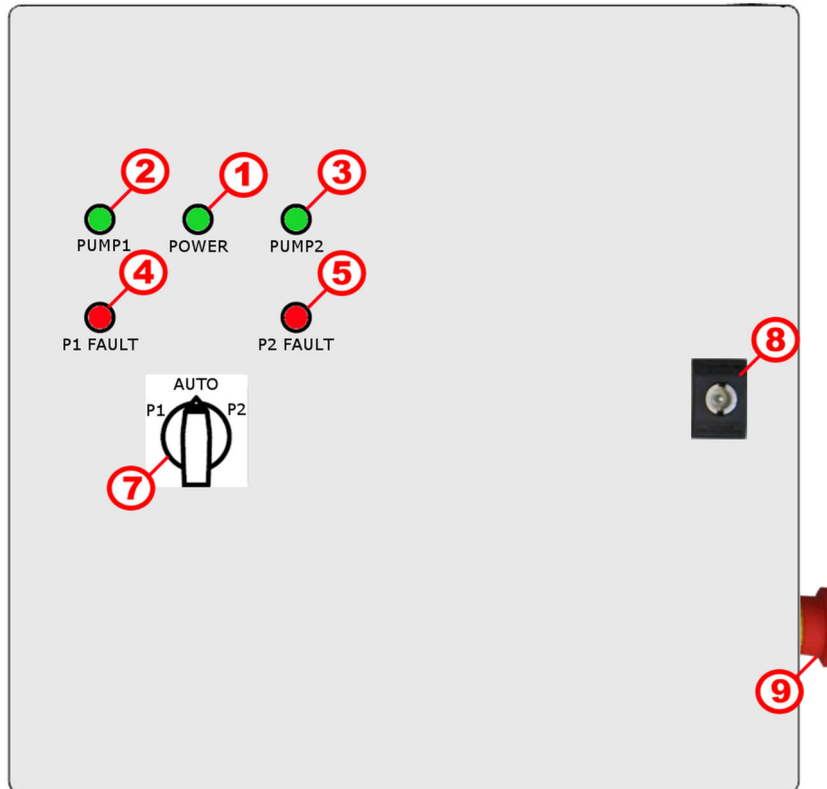


1	Vent filters	<i>Filter air entering the tank to protect the stored pure water from contaminants.</i>
2	Spray ball	<i>Water is sprayed to ensure tank walls are clean.</i>
3	ASM (accessory)	<i>UV light limits the development of bio-film inside the storage tank .</i>
4	Control panel	<i>Refer to control panel drawing.</i>
5	Pressure gauge	<i>Upstream gauge used to monitor pressure across optional loop filter.</i>
6	Sampling valve	<i>To collect a water sample upstream of the loop filter.</i>
7	Pressure gauge	<i>Downstream gauge used to monitor pressure across optional loop filter.</i>
8	Sampling valve	<i>To collect a water sample downstream of the loop filter.</i>
9	Loop filter	<i>Optional T-Shaped 0.22 um OPTICAP® absolute filter for bacteria and particulates retention.</i>
10	UV lamp (accessory)	<i>Optional, limits bacterial growth in the loop water.</i>
11	Manual drain valve	<i>To empty the tank.</i>
12	Pressure gauge	<i>Gauge used to monitor pressure in the loop.</i>
13	Sampling valve	<i>To collect a water sample from the loop (returning water).</i>
14	Pump 1	<i>Distribution pump in a Single SDS 500. Distribution "Pump 1" in a Duplex SDS 500.</i>
15	Pump 2	<i>Distribution "Pump 2" in a Duplex SDS 500.</i>


SDS 500 Single Control Panel



SDS 500 Duplex Control Panel



SDS 500 Control Panel

1	Power On/Off	<i>Green light when power is supplied.</i>
2	Pump 1 On/Off	<i>Green light when pump 1 is powered.</i>
3	Pump 2 On/Off	<i>Green light when pump 2 is powered.</i>
4	Pump 1 Fault	<i>Refer to Self Help Guide if Red Light.</i>
5	Pump 2 Fault	<i>Refer to Self Help Guide if Red Light.</i>
6	Selector switch (Single)	<i>AUTO = Automatic control, pump controlled by water purification system. P1 = Manual override, pump always on.</i>
7	Selector switch (Duplex)	<i>AUTO = Automatic control, pumps controlled by water purification system. P1 = Manual override, pump 1 always on. P2 = Manual override, pump 2 always on.</i>
8	Key	<i>Service Access.</i>
9	SDS Stop	<i>Stops all processes.</i>  Warning: <i>Pressing the SDS Stop button does not switch the power off.</i>

System

The SDS 500 stores purified water produced by a compatible Water Purification System and distributes it, under pressure, around a distribution loop.

The SDS 500 automatically adjusts the pump speed when water is dispensed in order to maintain a specific velocity in the loop.

The SDS 500 is controlled by the Water Purification System and all the adjustments including recirculation and flush schedules are managed using the Water Purification System interface.



Remember: The SDS 500 is designed to remain switched on and controlled by the Water Purification System.

Consumables

The SDS 500 consumables are dependent on the options installed. Consumable replacement is managed by the Water Purification System using alerts and wizards.

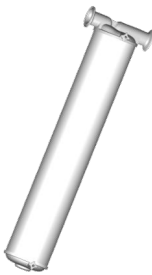
Vent filters



Vent filters should always be installed, they filter air entering the tank to protect the stored pure water from contaminants.

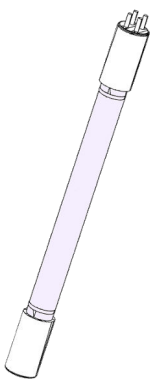
Vent filters protect from bacterial contamination and can also protect high purity water from CO₂ and volatile organic compounds (VOC).

Loop filter



The SDS 500 has a connection for a T-Shaped 0.22 um OPTICAP filter. 0.22 um OPTICAP filters are absolute filters designed for bacteria retention. The loop filter installation is optional and depends on the purified water requirements.

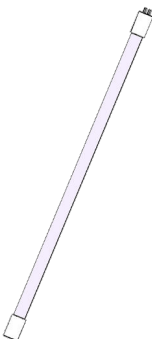
ASM lamp



UV light limits the development of bio-film in stored water, the SDS 500 uses this technology through the optional ASM lamp located in the storage tank.

The ASM lamp activation schedule is accessible through the Water Purification System interface.

Loop UV lamp



UV light limits bacterial growth in the water, the SDS 500 uses this technology through the optional loop UV lamp.

The loop UV is powered when the distribution pump is powered by the Water Purification System.

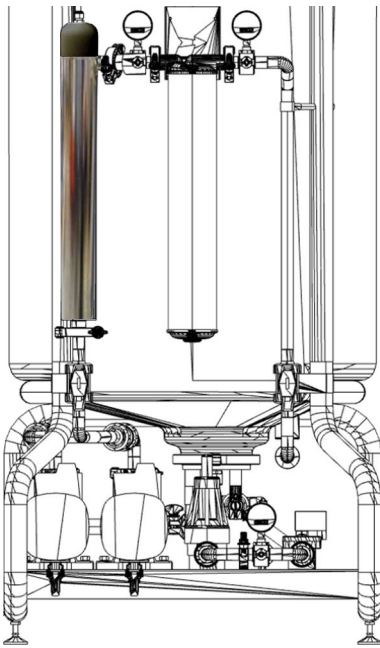


Tip: Consumable catalog numbers can be found in the Ordering Information chapter.

Accessories

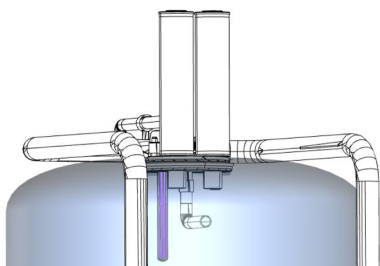
Accessories are available to customize the SDS 500 configuration.

Loop UV lamp



The loop UV lamp accessory includes a 254 nm bactericidal UV lamp to limit bacterial growth in the distributed water. The UV lamp housing is installed upstream of the loop filter. The loop UV is powered when the distribution pump is powered by the Water Purification System.

ASM



UV light limits the development of bio-film in stored water, the SDS 500 uses this technology through the optional ASM lamp located at the top of the storage tank.

The ASM accessory includes a 254 nm bactericidal UV lamp to limit the development of bio-film in the storage tank.

The ASM installation requires the removal of the spray ball as they are not compatible.

The ASM lamp activation schedule is accessible through the Water Purification System interface.

Sanitary Sampling Valve



Each SDS 500 factory installed Luer sampling valve can be replaced by a stainless steel ESP sanitary sampling valve.

The unique construction of the ESP sampling valve allows the user to sample mid-stream and prevents accumulation of bacteria or particles inside the sampling probe.

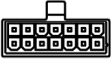


It can also be sanitized effectively and easily in place.



Tip: Accessory catalog numbers can be found in the Ordering Information chapter.

Communication

The SDS 500 communicates with the Water Purification System through 2 cables (Single) or 3 cables (Duplex).

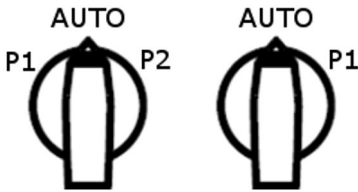
Cable	C1	CH In	C2 Out
Connects to...			
Use	UV lamp(s), dumping valve and pump 1	Leak detector, tank level and overflow detector	Pump 2
SDS 500 Single	Yes	Yes	No
SDS 500 Duplex	Yes	Yes	Yes

Operation

Pumps Control

The Water Purification System connected to the SDS 500 controls the operation of the SDS 500 distribution pumps.

Setting




The selector switch located on the SDS 500 should be set to automatic control (AUTO) in order to give control to the Water Purification System.

Pump speed

The pump(s) speed varies in order to maintain the flow rate set point in the loop.

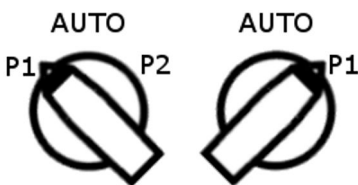
Pump activation

The pump(s) activation periods can be programmed in the Water Purification System distribution schedule.

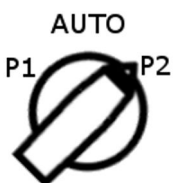
 **Note:** In Duplex mode, the two pumps are never powered together. Pump1 and Pump2 alternate and provide backup of each other if needed.

Manual override

If the Water Purification System is unable to manage the SDS 500, the SDS 500 control panel can be used to temporarily control a distribution pump. The selector switch is used to select the pump.



PUMP1 will run constantly 24 h a day and 7 days a week.



PUMP2 will run constantly 24 h a day and 7 days a week (Duplex Only).

Additionally,

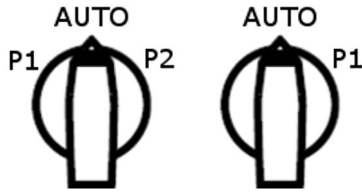
- The other pump (if installed) will stay off.
- The distribution UV lamp will stay off.
- The dumping valve will stay closed.
- PUMP FAILURE alarms will be triggered on the water system interface.

 **Note:** the manual override does not impact the ASM operation and the tank filling process of an operating Water Purification System.

Tank Flush Schedule

Regular tank flushes allow refresh of stored water when water requirement is low. The Water Purification System connected to the SDS 500 controls the frequency of tank flushes.

Setting



The selector switch located on the SDS 500 should be set to automatic control in order to give control to the Water Purification System.

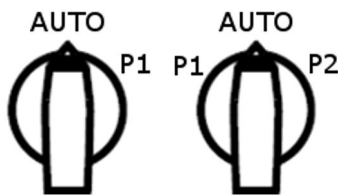
Schedule

The tank flush periods can be programmed through the Water Purification System interface.

Loop UV Schedule

The Water Purification System connected to the SDS 500 controls the optional loop UV operation.

Setting



The selector switch located on the SDS 500 should be set to automatic control in order to give control to the Water Purification System.

Schedule

The loop UV schedule follows exactly the distribution pump schedule.

ASM Schedule

The Water Purification System connected to the SDS 500 controls the operation of the optional ASM lamp inside the tank.

Schedule

The ASM schedule can be programmed through the Water Purification System interface.

How to Power On the SDS 500

Once installed, the SDS 500 should stay powered, there is no On/Off button. Refer to Self Help Guide to check that it is powered.

If the red SDS Stop button is pushed in, the SDS 500 is powered but processes are stopped. Refer to the SDS Stop chapter to know how to restart processes.

Several checks have to be performed before powering the SDS 500.

1. Verify that it is safe to power on the SDS 500 (no leak or electrical maintenance in progress).
2. Check that the SDS 500 three sampling valves are closed.
3. Check that the tank manual drain valve is closed.
4. Check that the other manual valves are open.
There is one manual valve before each pump and two after the pump(s).
5. Connect the SDS 500 electrical cable to a suitable electrical source to power it.

How to Power Off the SDS 500

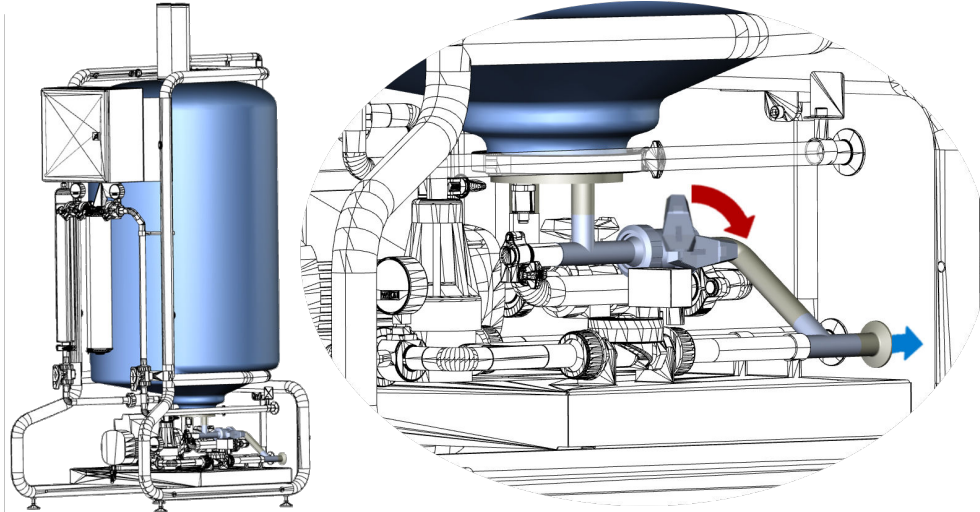
The SDS 500 does not have any On/Off button as it is designed to stay powered. If it has to be switched off, then all steps should be followed to avoid damaging the SDS 500.

1. Make sure the SDS 500 is set to automatic control.
2. Put the Water Purification System in STANDBY.
3. Locate the SDS 500 power cord.
4. Trace the power cord back to the supply.
5. If the power source has an isolator switch, turn it to the off position.
6. Disconnect the SDS 500 power cord from its power source.
 - Pump(s) turn off.
 - UV lamp switches off.
 - ASM lamp (if installed) switches off.
 - Dumping valve stays closed.
 - Electrical box stops being powered (10 seconds delay).
 - Water Purification System goes into alarm stop.

How to Empty the Tank Manually

Manually opening the valve underneath the tank is the only way to ensure 100% of the water is drained.

1. Make sure the SDS 500 is set to automatic control.
2. Put the Water Purification System in STANDBY.
3. Locate the manual drain valve underneath the tank.
4. Verify that the drain pipe is connected to a suitable drain.
5. Fully open the manual drain valve. The valve is fully open when the valve handle is parallel to the valve body.

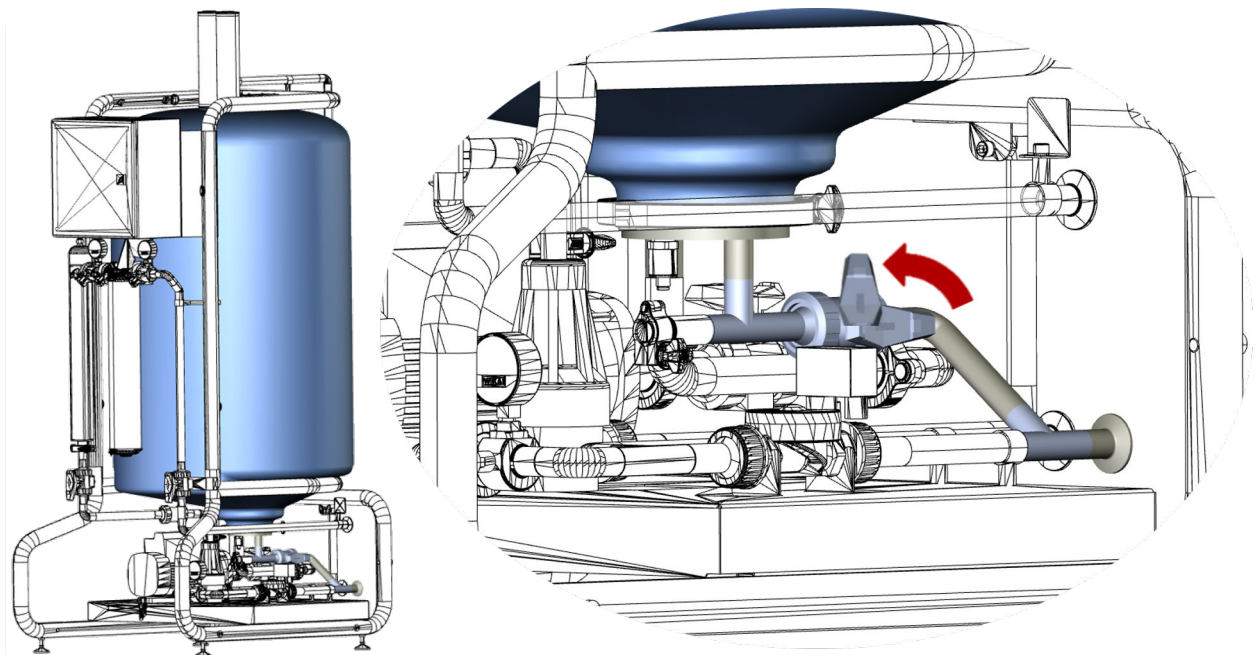


6. Keep the manual drain valve open until the tank is emptied to the desired amount. The tank level is displayed on the Water Purification System.



Tip: It typically takes a minimum of 23 minutes to empty a full tank.

7. Close the manual drain valve. The valve is fully closed when the valve handle is perpendicular to the valve body.



8. Make sure the pump inlet and the loop filter isolation valves are open.

Return to normal operation if needed (READY modes).

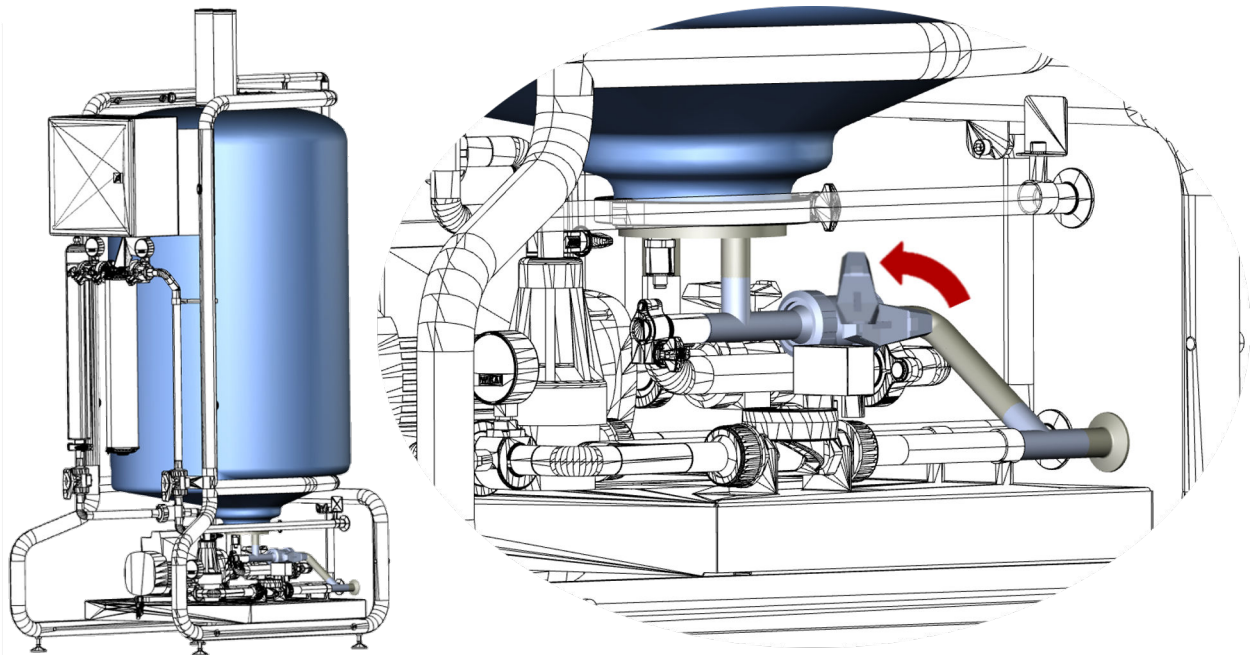


Note: The restart of the distribution process may be delayed as the Water Purification System must fill the tank to a minimum level before the distribution is restarted.

How to Empty the Tank Automatically

The SDS 500 can be emptied automatically at high speed through the SDS 500 dumping valve using the TANK EMPTYING feature on the Water Purification System.

1. Make sure the SDS 500 is set to automatic control.
2. Put the Water Purification System into STANDBY.
3. Verify that the drain pipe is connected to a suitable drain.
4. Make sure the manual drain valve is closed. The valve is fully closed when the valve handle is perpendicular to the valve body.



5. Activate the TANK EMPTYING feature on the Water Purification System interface. The SDS 500 will empty using the distribution pumps.



Note: 60 liters of water will remain in the tank to avoid the pumps to run dry.

Return to normal operation (READY modes) or follow the manual drain procedure if you require less water in the tank.



Tip: It typically takes a minimum of 4 minutes to empty the residual water manually.

SDS Stop



The SDS Stop button located on the right side of the SDS 500 control panel stops the filling and distribution processes immediately when pressed.

The SDS Stop button DOES NOT switch off the electric power in the SDS 500 electrical box.

1. Normal Operation



The SDS Stop button is pulled out for normal operation of the SDS 500.

2. Stopped Process



When pushed, the SDS 500 pump(s) stop(s).

In addition,

- The loop UV lamp switches off.
- The ASM lamp (if installed) switches off.
- Pump Alarm Signal(s) are displayed on the SDS 500 front panel.
- The Water Purification System goes into alarm stop mode (pump failure and tank level sensor).

How to Reset the SDS Stop button

Reset of the SDS Stop button restores the SDS 500 into normal operation.

1. Verify that the emergency situation has been solved (ex. repaired pipe).
2. Check that the three sampling valves are closed.
3. Check that the tank manual drain valve is closed.
4. Check that the other manual valves are open.

There is one manual valve before each pump and two after the pump(s).

5. Twist clockwise the SDS Stop Button.



Tip: Follow the arrow on the button

6. Clear alarms on the Water Purification System Interface.

The SDS 500 returns to normal operation.

Maintenance

The SDS 500 consumables need replacement when prompted by the Water Purification System Interface.



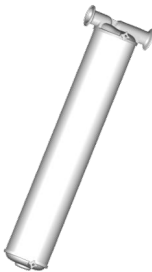
Remember: Make sure isolation valves are not left closed before restart of distribution process.

Vent filters



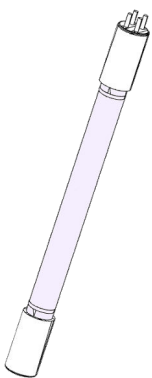
Vent filters can be replaced by the user with the provided instructions.

Loop filter



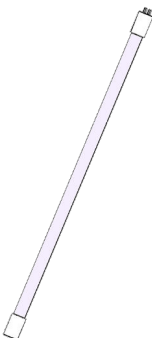
The loop filter can be replaced by the user with the provided instructions.

ASM lamp



ASM lamp replacement is meant to be performed by a qualified service representative. Instructions are not provided.

Loop UV lamp




Loop UV lamp replacement is meant to be performed by a qualified service representative. Instructions are not provided.

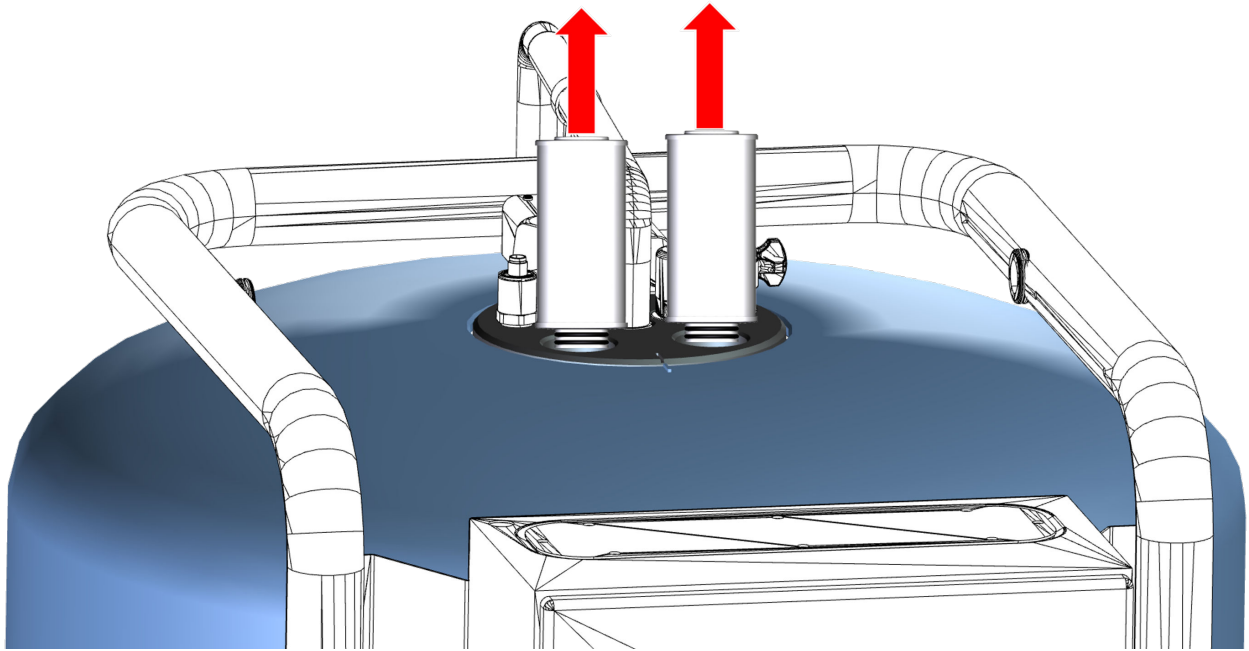
How to Replace Vent Filters

Two vent filters prevent contamination of the stored pure water by filtering air entering the tank. Vent filters should always be installed with their protection on top of the SDS.

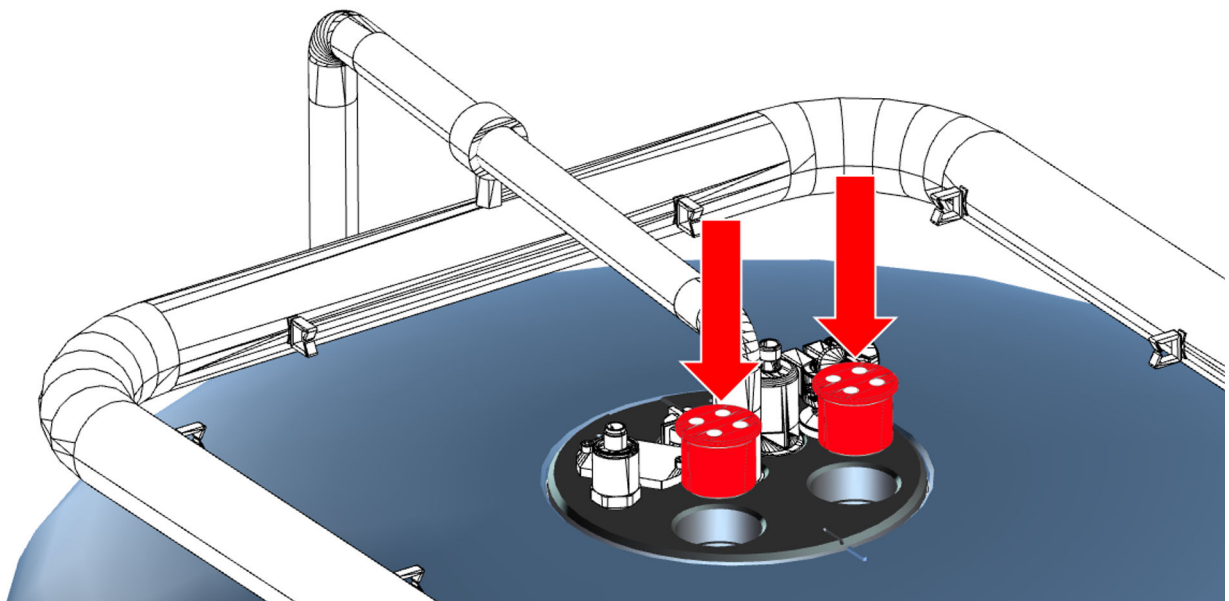
Initiate the vent filters replacement wizard on the Water Purification System.

 **Warning:** Exposure to UV light is possible if an ASM lamp is installed and is activated. Avoid eye and skin exposure.

1. Locate the two new vent filters.
2. Remove the 2 vent filters from their packaging.
3. Remove the two old vent filters by pulling them upwards.

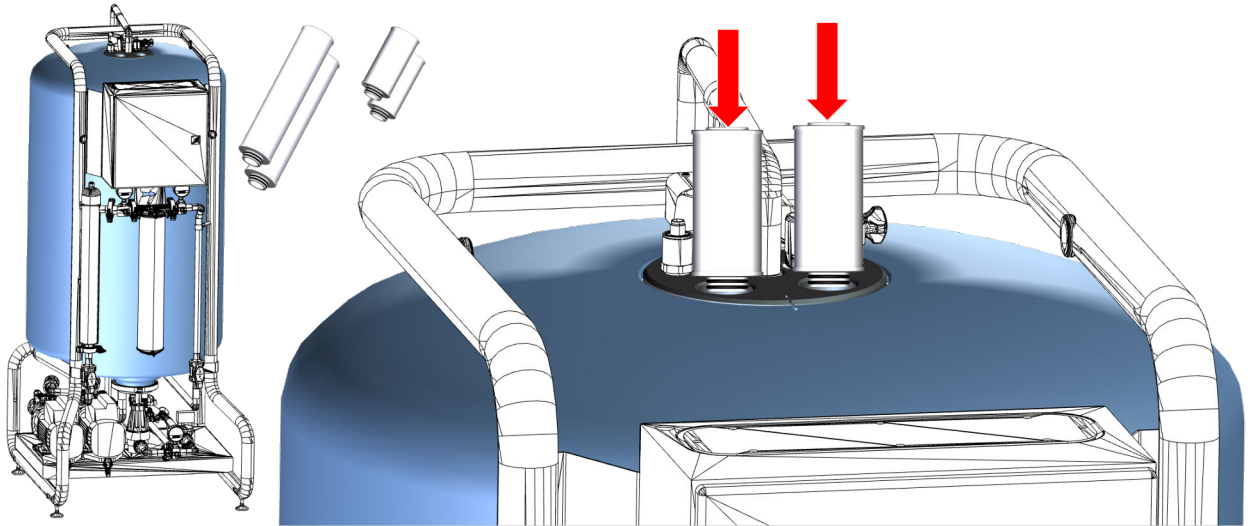


4. Make sure the protections against sprayed water are still in the two SDS 500 vent filter connections (shown in red).



5. Align the filter connection port with the SDS vent filter port.

6. Push firmly down until filters are fully secured.



Finalize the vent filters replacement wizard on the Water Purification System in order to reset the replacement timer.

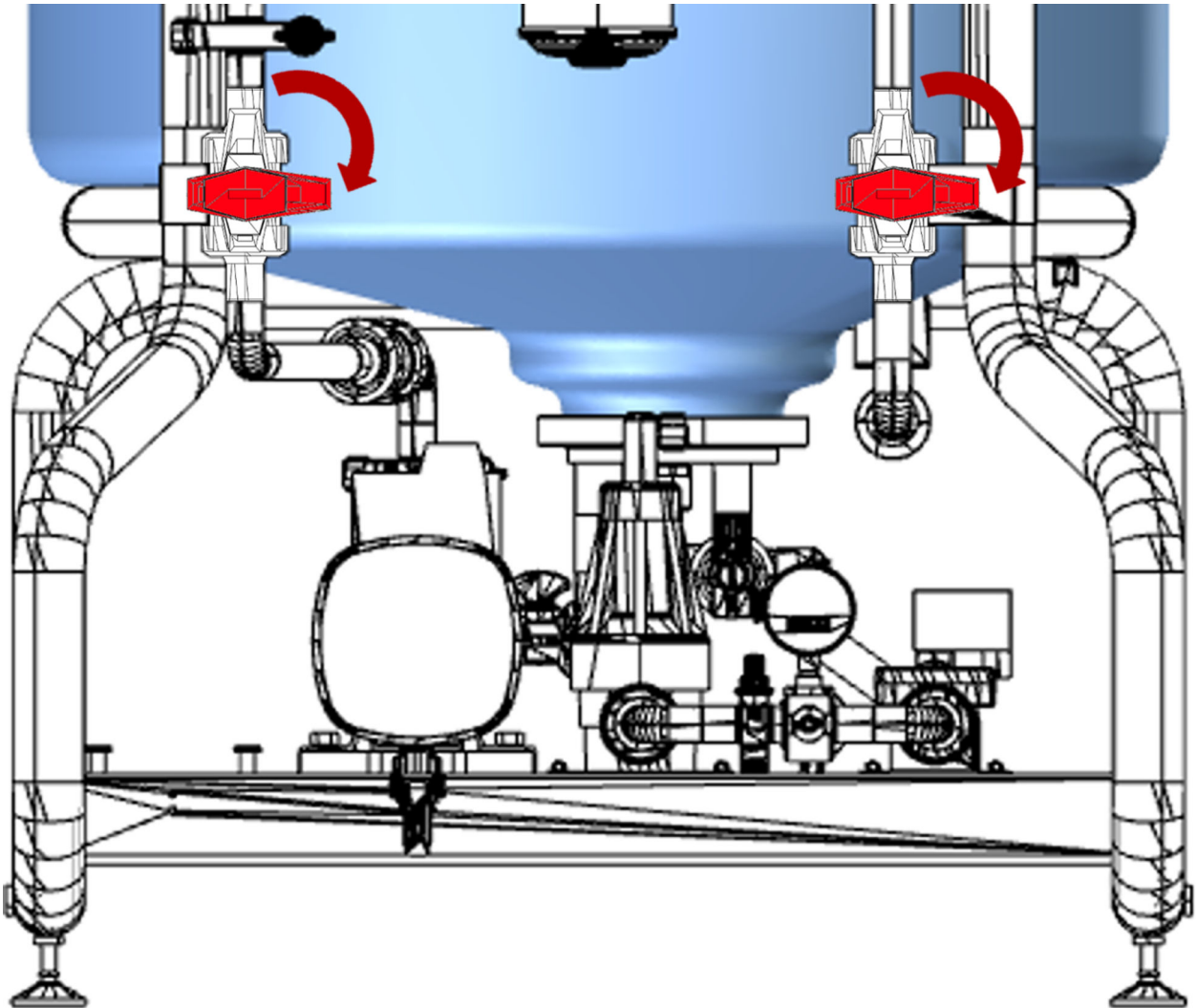
How to Replace (Install) Loop Filter

The loop filter is connected using two tri-clamps.

The loop filter should be replaced when prompted on the Water Purification System interface or when the pressure drop reaches a preset value (typically 1 bar).

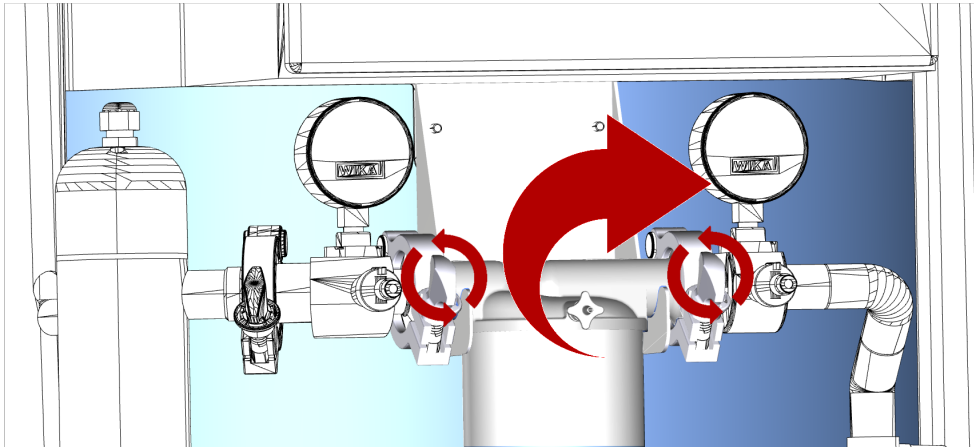
If the loop filter is not installed yet, then the by-pass pipe should be replaced by the loop filter (keep the pipe for later use).

1. Make sure the SDS 500 is set to automatic control (AUTO).
2. Remove the packaging from the new filter.
3. Record consumable information (catalog number and lot number).
4. Put distribution to STANDBY on Water Purification System interface.
5. Close the two isolation valves.



6. Locate the 2 connection clamps.
7. Make sure you have a container ready to collect spillage.
8. Empty the loop filter (does not apply if the by-pass pipe is installed)
 - a) Place the container under the loop filter bottom purge valve.
 - b) Open the bottom purge valve and then the top purge valve.
 - c) Collect the water.
9. Undo the clamps by turning the handles anti-clockwise.

10. Remove the used filter, or the by-pass pipe, and keep the clamps and gaskets.



11. Position the new filter between the 2 connection clamps.

12. Make sure the seals are correctly seated.


13. Close the clamps on the filter connections and make sure the clamps are well positioned.

14. Tighten the clamps by turning clockwise.

15. Perform an air purge of the loop filter.

16. Enter loop filter information in the Water Purification System consumable replacement menu.

Switch distribution back on and make sure there are no leaks.

 **Remember:** isolation valves should be open when the distribution is restarted.

Self Help Guide

The Self Help Guide covers situations which could occur with your SDS 500 and provides guidance to resolve them yourself.

Should you need additional information or support, note the serial number of your water purification system, the serial number of your SDS 500 located on the left side of the control panel and contact your local Service Representative.

Pump Fault Red Light on SDS 500 Single

A Pump Fault red light on the Single SDS 500 Control Panel can have multiple causes.

Issue Pump Fault Red light illuminated on Control Panel.

Causes

1. The control panel selector switch is on the manual override position.
2. The SDS Stop button is pushed in.
3. There is a problem with the distribution pump.

Effect

1. In manual override, the SDS 500 management is deactivated on the Water Purification System.
2. Both Makeup and Distribution processes are stopped if the SDS Stop button is pushed in.
3. The Distribution process is stopped if there is an issue with the pump.

Solution

1. Make sure the selector switch is on automatic control.
2. Make sure the SDS Stop button is not pushed.
3. Power OFF the SDS, wait 10 seconds, power back ON the SDS and then acknowledge message on Water Purification System. Contact your Local Service Representative if the alarm persists.

Pump Fault Red Light on SDS 500 Duplex

A Pump Fault red light on the Duplex SDS 500 Control Panel can have multiple causes.

a) One Pump Fault red light illuminated

Issue One Pump Fault Red light illuminated on Control Panel.

Causes There is a problem with one of the distribution pump.

Effect The other pump is used to maintain normal operation.

Solution Power OFF the SDS, wait 10 seconds, power back ON the SDS and then acknowledge message on Water Purification System. Contact your Local Service Representative if the alarm persists.

b) Both Pump Fault red lights illuminated

Issue Both Pump Fault Red lights illuminated on Control Panel.

Causes

1. The control panel selector switch is set to one of the manual override position.
2. The SDS Stop button is pushed in.
3. There is a problem with both distribution pumps.

Effect

1. In manual override, the SDS 500 management is deactivated on the Water Purification System.
2. Both Makeup and Distribution processes are stopped if the SDS Stop button is pushed in.
3. The Distribution process is stopped if there is an issue with both pumps.

Solution

1. Make sure the selector switch is on automatic control.
2. Make sure the SDS Stop button is not pushed.
3. Power OFF the SDS, wait 10 seconds, power back ON the SDS and then acknowledge message on Water Purification System. Contact your Local Service Representative if the alarm persists.

Messages on Water Purification System

The SDS 500 is controlled by the Water Purification System. Alarms and alerts relating to the SDS 500 are displayed on the Water Purification System interface.

DISTRIBUTION UV message

- Issue** A Distribution UV message is displayed on the Water Purification System Interface.
- Causes**
1. The distribution UV lamp needs replacement.
 2. There is a problem with the distribution UV lamp or the associated electronics.
- Effect**
1. The bactericidal UV may no longer efficiently limit bacteria in the distributed water.
 2. The bactericidal UV may no longer limit bacteria in the distributed water.
- Solution**
1. Contact your Local Service Representative to perform the replacement.
 2. Contact your Local Service Representative to organize the repair.

ASM UV message

- Issue** An ASM UV message is displayed on the Water Purification System Interface.
- Causes**
1. The ASM lamp needs replacement.
 2. There is a problem with the ASM lamp or the associated electronics.
- Effect**
1. The bactericidal UV may no longer efficiently limit bacterial growth and the formation of bio-film inside the storage tank.
 2. The bactericidal UV may no longer limit bacterial growth and the formation of bio-film inside the storage tank.
- Solution**
1. Contact your Local Service Representative to perform the replacement.
 2. Contact your Local Service Representative to organize the repair.

PUMP FAILURE messages (SDS 500 Single)

a) PUMP FAILURE message only

- Issue** A PUMP FAILURE message is displayed on the Water Purification System interface.
- Causes**
1. The control panel selector switch is on the manual override position.
 2. There is a problem with the distribution pump.
- Effect**
1. In manual override, the SDS 500 management is deactivated on the Water Purification System.
 2. The Distribution process is stopped if there is an issue with the pump.
- Solution**
1. Make sure the selector switch is on automatic control.
 2. Power OFF the SDS, wait 10 seconds, power back ON the SDS and then acknowledge message on Water Purification System. Contact your Local Service Representative if the alarm persists.

b) PUMP FAILURE and TANK LEVEL SENSOR FAILURE messages

- Issue** Both PUMP FAILURE and TANK LEVEL SENSOR FAILURE messages are displayed on the Water Purification System interface.
- Causes**
1. The SDS Stop button is pushed in.
 2. The SDS 500 internal circuit breaker tripped.
 3. There is a problem with the distribution pump and the tank level sensor.
 4. The control panel selector switch is on the manual override position and there is a problem with the tank level sensor.
- Effect**
1. Both Makeup and Distribution processes are stopped.
 2. The SDS 500 is off.
 3. Both Makeup and Distribution processes are stopped.
 4. Both Makeup and Distribution processes are stopped.
- Solution**
1. Make sure the SDS Stop button is not pushed.
 2. Contact your Local Service Representative.
 3. Power OFF the SDS, wait 10 seconds, power back ON the SDS and then acknowledge message on Water Purification System. Contact your Local Service Representative if the alarm persists.
 4. Make sure the selector switch is on automatic control and contact your Local Service Representative if the alarm persists.

PUMP FAILURE messages (SDS 500 Duplex)

a) PUMP1 FAILURE or PUMP2 FAILURE messages displayed

Issue PUMP1 FAILURE or PUMP2 FAILURE message is displayed on the Water Purification System interface without any TANK LEVEL SENSOR FAILURE message.

Cause There is a problem with one pump.

Effect The remaining pump is used to maintain normal operation.

Solution Power OFF the SDS, wait 10 seconds, power back ON the SDS and then acknowledge message on Water Purification System. Contact your Local Service Representative if the alarm persists.

b) PUMP1 FAILURE and PUMP2 FAILURE messages displayed

Issue PUMP1 FAILURE and PUMP2 FAILURE messages are displayed on the Water Purification System interface without any TANK LEVEL SENSOR FAILURE message.

Causes

1. The control panel selector switch is on the Manual Override position.
2. There is a problem with both distribution pumps.

Effect

1. In manual override, the SDS 500 management is deactivated on the water purification system.
2. The Distribution process is stopped if there is an issue with both pumps.

Solution

1. Make sure the selector switch is on automatic control.
2. Power OFF the SDS, wait 10 seconds, power back ON the SDS and then acknowledge message on Water Purification System. Contact your Local Service Representative if the alarm persists.

c) PUMP1 FAILURE and PUMP2 FAILURE and TANK LEVEL SENSOR FAILURE messages

Issue PUMP1 FAILURE, PUMP2 FAILURE and TANK LEVEL SENSOR FAILURE messages are displayed on the Water Purification System interface.

Causes

1. The SDS Stop button is pushed in.
2. The SDS 500 internal circuit breaker tripped.
3. There is a problem with both distribution pumps and the tank level sensor.
4. The control panel selector switch is on the manual override position and there is a problem with the tank level sensor.

Effect

1. Both Makeup and Distribution processes are stopped.
2. The SDS 500 is off.
3. Both Makeup and Distribution processes are stopped.
4. Both Makeup and Distribution processes are stopped.

Solution

1. Make sure the SDS Stop button is not pushed.
2. Contact your Local Service Representative.
3. Power OFF the SDS, wait 10 seconds, power back ON the SDS and then acknowledge message on Water Purification System. Contact your Local Service Representative if the alarm persists.
4. Make sure the selector switch is on automatic control and contact your Local Service Representative if the alarm persists.

OVERFLOW message

- Issue** An OVERFLOW message is displayed on the Water Purification System Interface.
- Cause** The level of water in the tank has been detected as too high.
- Effect** The Water Purification System stops filling the tank but does not stop the distribution process.
- Solution**
1. Check that there is no water dripping from the SDS 500.
 2. Verify that the CHin cable is well connected to the Water Purification System.
 3. Check if there are other messages on the Water Purification System interface.
 4. Acknowledge alarm.
 5. If problem persists, call your local service representative.

TANK EMPTY message

- Issue** A TANK EMPTY message is displayed on the Water Purification System Interface.
- Cause** The level of water in the tank is measured as empty.
- Effect** The Water Purification System stops the distribution process but not the TANK FILLING process.
- Solution**
1. Verify that the Water Purification System is in TANK FILLING.
 2. Verify there are no other alarms on the Water Purification System that has stopped the TANK FILLING process.
 3. Verify there is no open tap on the loop.
 4. Contact Your Local Service Representative if the alarm does not clear.

TANK LEVEL SENSOR FAILURE message

- Issue** A TANK LEVEL SENSOR FAILURE message is displayed on the Water Purification System Interface.
- Causes**
1. The level sensor cable is disconnected from the Water Purification System.
 2. The SDS Stop button is pushed in.
 3. The level sensor is faulty.
 4. The SDS 500 internal circuit breaker tripped.
- Effect**
1. Both Makeup and Distribution processes are stopped.
 2. Both Makeup and Distribution processes are stopped.
 3. Both Makeup and Distribution processes are stopped.
 4. The SDS 500 is off.
- Solution**
1. Locate the communication cable labeled "CH In" connected to the SDS 500 electrical box. Verify that the CH In Cable is properly connected to the SUB D9 male connection labeled CH In on the Water Purification System.



Figure 1: SUB D9 Male

2. Make sure the SDS Stop button is not pushed.
3. Contact your Local Service Representative.
4. Contact your Local Service Representative.

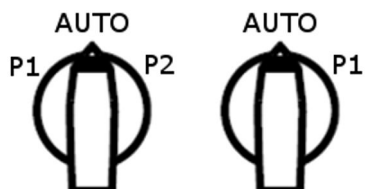
How to Dispense Water if the Water Purification System is Off

The SDS 500 Control Panel can be used to manually control the Distribution Pump(s) instead of automatic control by the Water Purification System.

Using the manual override of the pumps on the SDS 500 Control Panel will trigger several alarms on the Water Purification System Interface, it should therefore be used during a short period and only if the Water Purification System is unable to manage the SDS.

 **Remember: The selected pump will run constantly 24 h a day and 7 days a week**

1. Locate Pump Selector Switch on the Control Panel.



2. Turn Selector Switch to PUMP1 to activate PUMP1 or PUMP2 to activate PUMP2 (Duplex Only).

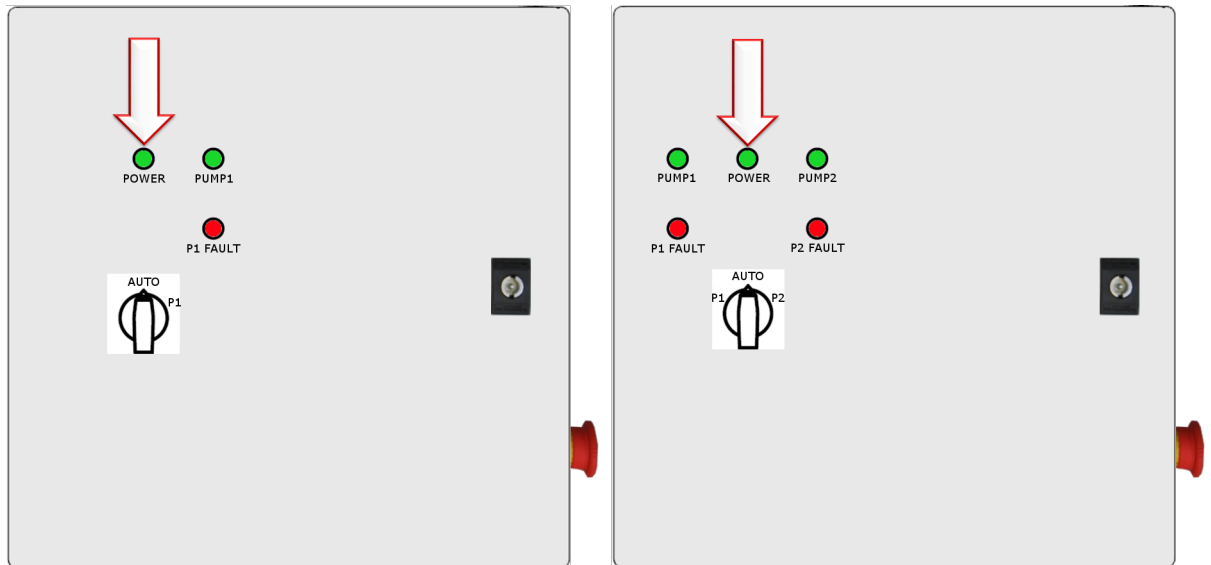
to return to normal operation,

- Make sure the Water Purification System is fully functional.
- Turn the Selector Switch back to AUTO in order to have the SDS 500 controlled by the Water Purification System..

How to Check Power

The SDS 500 control panel is equipped with a POWER light which indicates if the SDS 500 is powered or not.

1. Locate the POWER light on the SDS 500 control panel.
2. Make sure it is illuminated.



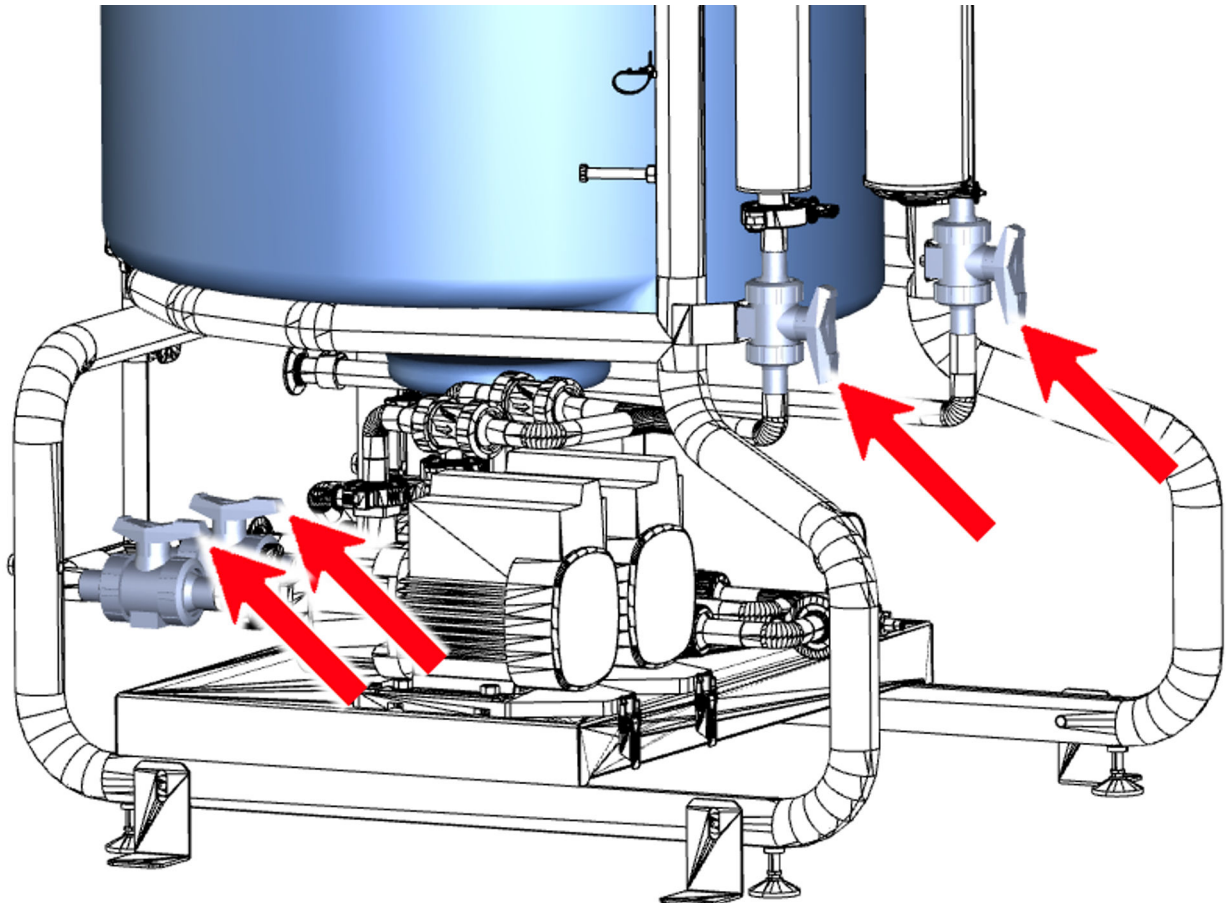
If POWER is not illuminated, verify the power supply (mains power and power cord) before contacting your local service support (internal circuit breaker may also have tripped).

How to Air Purge a new Loop Filter

The loop filter needs to be purged from trapped air once it has been installed on the SDS 500.

A new loop filter has just been installed and isolation valves are still closed.

1. Make sure the SDS 500 is set to automatic control.
2. Make sure distribution is off on the Water Purification System interface.
3. Make sure you have a container ready to collect spillage.
4. Open the two isolation valves.
5. Make sure the pump isolation valve(s) are open.

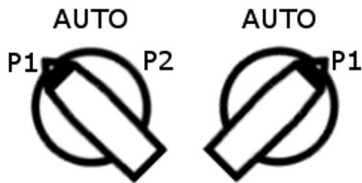


6. Hold the container to collect water from the loop filter top purge valve.

7. Gently open the loop filter top purge valve.

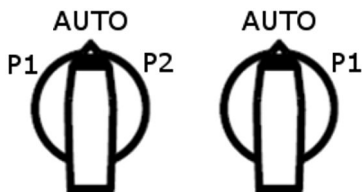


1. If the tank level is above 75%, the loop filter will fill up with water, close the loop filter purge valve when it appears all air has been vented out. This will complete the air purge procedure.
 2. If the tank level is not high enough to completely fill the loop filter, the pump has to be used.
8. Hold the container to collect water from the loop filter top purge valve.
9. Turn selector switch to PUMP1.



The loop filter fills with water.

10. Close the loop filter purge valve when it appears all air has been vented out.
11. Turn selector switch to AUTO.

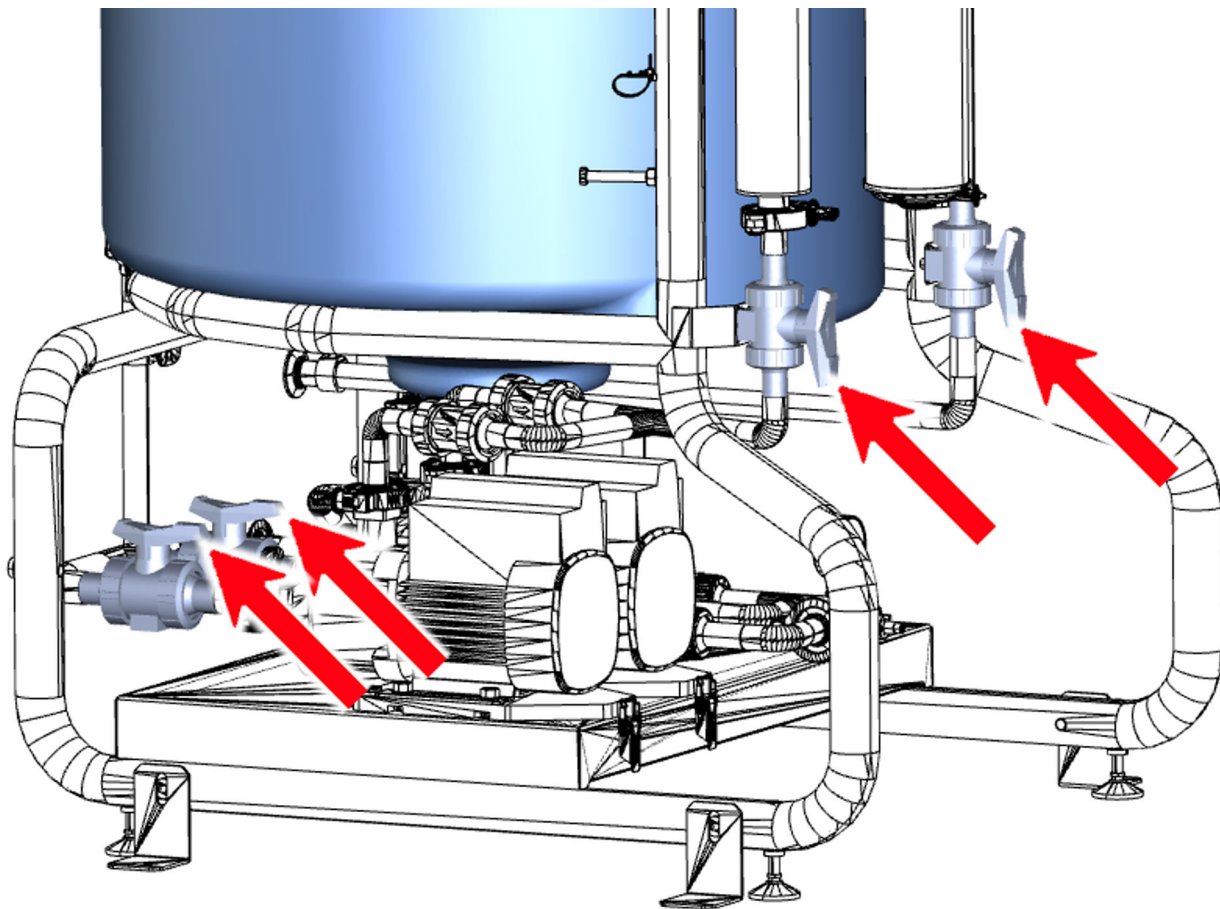


Switch distribution back on.

What to do when there is No Flow

Several checks can be performed if no water can be dispensed from the loop.

1. Verify the SDS 500 is powered.
2. Make sure the pump(s) isolation valves and loop filter isolation valves are open.



3. Check pressure reading on pressure gauge after the pump (typically 3 to 5 bar).
4. Verify that there is no closed valve or any obstruction between the SDS 500 and the point of use.
5. Make sure the SDS 500 is set to automatic control and that the distribution process is activated on the Water Purification System interface.
6. Make sure there is no alarm message on the Water Purification System.
7. Make sure there is no alarm on the SDS 500 control panel.

Requirements And Specifications

Environmental Requirements

Specific environmental conditions have to be respected to ensure normal operation of the SDS 500.

Location	Indoor use only
Ambient storage temperature	5°C < T < 40°C
Ambient operating temperature	10°C < T < 40°C
Relative humidity	< 80% without condensation
Altitude	≤ 2000 m
Installation Category	II
Pollution degree	2

Electrical Requirements

The 4 types of SDS 500 have different specifications for voltage, frequency and power.

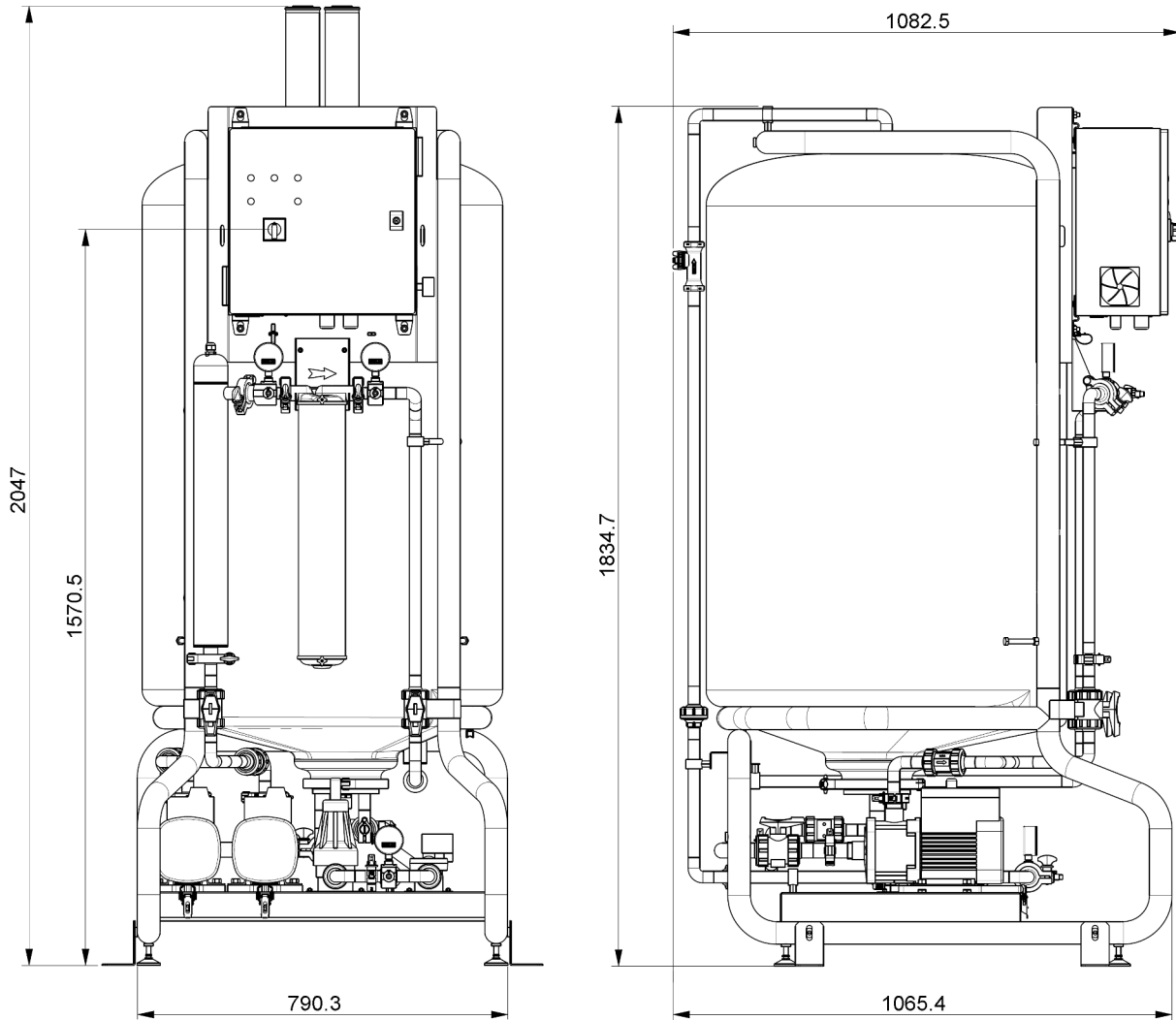
Catalog	Voltage	Frequency	Power Consumption
TANK5SP500 TANK5DP500	230-240 VAC (+/-10%)	50/60Hz (+/-2Hz)	2100 VA
TANK6SP500 TANK6DP500	100-120 VAC (+/-10%)	50/60Hz (+/-2Hz)	2000 VA

Feed Water Requirements

The SDS 500 Water Storage and Distribution System has been designed to be fed by a compatible Water Purification System producing ASTM type 2 or type 3 water.

Dimensions And Weights

Dimensions (mm)



Weights (kg)

	Single SDS 500	Duplex SDS 500
Shipping Weight	165	180
Dry Weight	121	136
Operating weight (100% full)	583	598

Loop Water Specifications

The SDS 500 is designed to deliver stored high purity water while maintaining a constant flow rate in the loop.

Flowrate

The SDS 500 flow rate value is set during the SDS 500 installation based on the required water velocity in the loop (typically > 1 m/s).






The SDS 500 is designed to automatically maintain this flow rate in the loop by increasing the pump speed when water is dispensed.

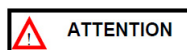
Pressure

The pressure in the loop can be set between 1 and 4 bar depending on the requirements.

Health And Safety

Safety Information

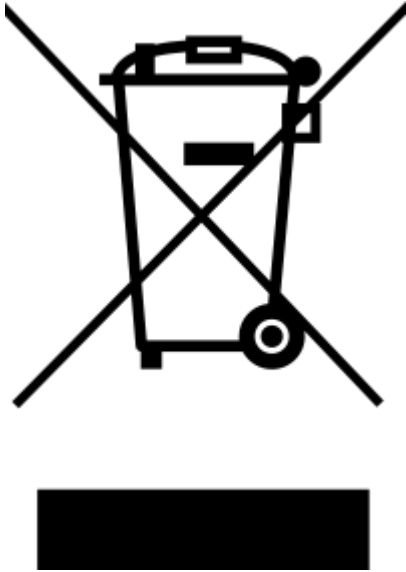
Symbol	What it means
	This <u>UV RADIATION</u> sticker is used to refer to a position on the system cabinet or inside of it where exposure to UV light is possible.
	This <u>HAZARD</u> sticker is used to refer to a position on the system cabinet or inside of it that could be hazardous.
	This <u>ELECTRICAL GROUND</u> sticker is used to refer to a position on the system cabinet or inside where an electrical ground connection is made.
	This <u>ELECTRICAL HAZARD</u> sticker is used to refer to a position on the system cabinet or inside where an electrical danger could exist.
	This <u>HOT SURFACE</u> sticker is used to refer to a position on the system cabinet or inside where a hot surface could exist.



- The System must be connected to a source of electrical power that is earth grounded.
- Only an authorized person following the local safety regulations can work on this equipment.
- Unplug the electrical power cord before plugging in or removing any components on the electronic board(s).

Recycling

Directive 2002/96 EC: For European users only.



The symbol "crossed bin" on a product or its packaging indicates that the product should not be treated like household waste when discarded. Instead the product should be disposed of at a location that handles discarded electric or electronic equipment.

Proper disposal of equipment containing electric or electronic components will help to reduce pollution effects to the environment or to human health. Proper recycling of these products helps in environmental preservation and helps to protect natural resources. For more information about recycling of products containing electric or electronic components, please contact your local recycling representative or organization.

Legal information

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We manufacture and sell Water Purification Systems designed to produce pure or ultra-pure water with specific characteristics ($\mu\text{S/cm}$, T, TOC, CFU/ml, Eu/ml) when it leaves the Water Purification System provided that it is fed with water quality within specifications, and is properly maintained as recommended by the supplier.

We do not warrant these systems for any specific applications. It is up to the end user to determine if the quality of the water produced by our systems matches his expectations, fits with norms/legal requirements and to bear responsibility resulting from the usage of the water.

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Manufacturing Site

Millipore SAS, 39 Route Industrielle de la Hardt, 67120 Molsheim France.

Ordering Information

Accessories

The installation of accessories should only be performed by a qualified service engineer.

TANKSDS2UV	SDS 500 LOOP UV LAMP ASSEMBLY <i>Includes UV housing, UV lamp and necessary connection parts.</i>
TANKSDS2ASM	SDS 500 ASM <i>Includes ASM, UV lamp, and necessary connection parts.</i>  Remember: ASM installation requires spray ball removal (not compatible).
MXPESP18N	SANITARY SAMPLING VALVE <i>Sanitary Sampling Valve 1/8" NPTM (316 Stainless Steel).</i>

Consumables

Genuine consumables are specially formulated to provide optimal quality and performance.

TANKVNT21	SDS TANK VENT FILTER 2/PACK <i>0.22 µm Air vent.</i>
TANKVNT22	SDS TANK VENT FILTER 2/PACK <i>0.22 µm Air vent, carbon and soda lime.</i>
KVGLA2TTT1	OPTICAP [®] XLT20 DURAPORE [®] 1/PACK <i>0.22 µm 20" loop filter with 1½" tri-clamp connections.</i>
ZLXLST012	STERILE TUBING 1/PACK <i>Sterile tubing to be connected to the SDS 500 sampling valve.</i>

Spare Parts

ZF000PLSV	SAMPLING VALVE <i>Factory installed plastic sampling valve 1/8" NPTM (Luer valve).</i>	(x1)
ZF000LCSV	SAMPLING VALVE SEPTUM <i>Septum to be installed on sampling valve to isolate it from air.</i>	(x5)
FTPF16819	TRI-CLAMP <i>1 ½ inch tri-clamp without gasket.</i>	(x1)
FTPF04083	TRI-CLAMP GASKET (DN20) <i>1 ½ inch tri-clamp clamp gasket for DN20 pipes.</i>	(x10)
FTPF03077	TRI-CLOVER CLAMP GASKET (DN25) <i>1 ½ inch tri-clamp gasket for DN25 pipes.</i>	(x10)
ZF3000767	LOOP FILTER BYPASS <i>Pipe used to bypass the loop filter. Does not include clamp or gasket.</i>	(x1)
ZF3000772	VENT FILTER PROTECTION <i>Protective cap installed under vent filter to protect from water.</i>	(x2)
ZF3000771	PRESSURE GAUGE <i>Pressure Gauge ¼" 0-6 bar.</i>	(x1)

ZF3000607
(OETICKER 2x)

SDS500 LOOP
CONNECTOR

(x1)

*Fitting to connect the SDS
500 1 ½ inch tri-clamp
connection to a 20mm ID
flexible pipe (hose barb
connection).*