


Operator Manual

For

Water purifier



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2 SAFETY INFORMATIONS



Read the safety information before installing the water purifier



2.1 WARNING LABELS

Before reading the manual, please get familiarized with the following icons used in this manual.

	Electric Shock
	Warnings

2.2 SAFETY INSTRUCTIONS

To ensure the product SECURITY and RELIABILITY, all repairing must be realized with spare parts available with our after-sales service. If the power cable is damaged, it must be replaced.

	Unplug the water purifier power plug. Don't pull on the wire.
	Before all maintenance on the water purifier, turn off the power supply switch and unplug the power plug.
	Use exclusively tap water to supply the water purifier. - MAXIMUM NETWORK PRESSURE = 6 BARS - Maximum supply water temperature = 38 °C.
	This water purifier needs a main tension 230 volts ~ / 50 Hz. Don't connect too much instruments on the same plug in order to not risk fire or electric shock.

3 INTRODUCTION TO THE SYSTEM

3.1 INTRODUCTION

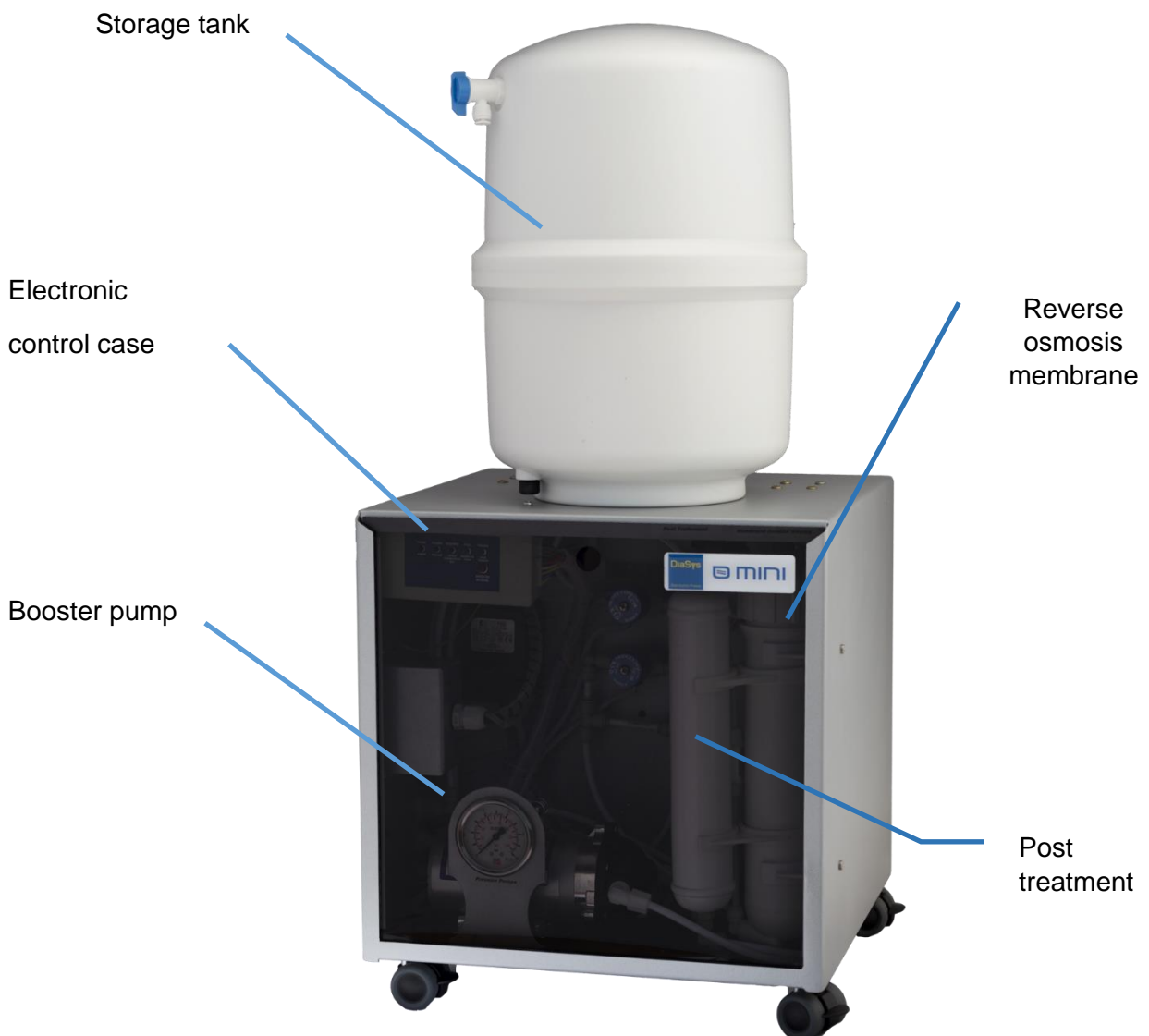
The **DiaSys water purifier « O MAXI »** is a purified water production system allowing two water treatment leading-edge technologies:

The BI-REVERSE OSMOSIS, which is currently the most effective and elaborated - membranous separation process,

The demineralization principle by IONS EXCHANGERS RESINS.

These two associated technologies allow getting water with excellent quality regarding physical composition, chemical composition (mineral and organic) and micro organic population.

3.2 OVERVIEW OF THE SYSTEM (FRONT VIEW)



3.3 OVERVIEW OF THE SYSTEM (BACK VIEW)



3.4 GENERAL DESCRIPTION

The "o mini" osmosis system is a water treatment system that includes a series of prefiltration cartridges for the network water: Sediment filter 5 µm + Block carbon filter.

Once this water is treated, it is then injected via a booster pump into the reverse osmosis membrane.

The water obtained is thus discharged of 90% of its organic and inorganic compounds.

In order to complete the complete treatment, this water is then injected into an ion exchange resin container and then filtered by a 5 µm post-treatment filter.

The electromechanical assembly is managed by an electronic control unit.

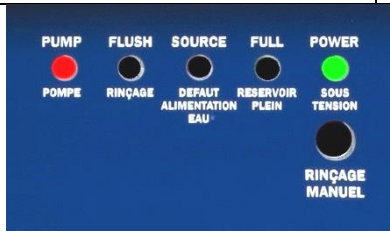
3.5 DESCRIPTION OF THE CONTROL UNIT



Terms meaning :

PUMP : PUMP
FLUSH : RINSING
SOURCE : WATER SUPPLY
FULL : FULL TANK
POWER : UNDER TENSION
MANUAL : MANUAL RINSING

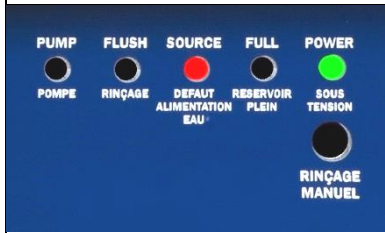
PUMP indicator turned on	Pump functioning: means the water purifier is either producing or rinsing.
FLUSH indicator turned on	The water purifier makes an automatic rinsing cycle of the reverse osmosis membrane; a rinsing (of around 2 min) happens: <ul style="list-style-type: none"> - following to the instrument starting, - following a frequency of around 6 hours, - following a pressure on the MANUAL button.
SOURCE indicator turned on	Lack of flow or pressure on water supply.
FULL indicator turned on	Full storage tank.
POWER indicator turned on	water purifier under tension; this indicator is switched on permanently, whatever the other indicators states are.
MANUAL push button	Press this button makes starting a forced rinsing of the membrane during 2 min.



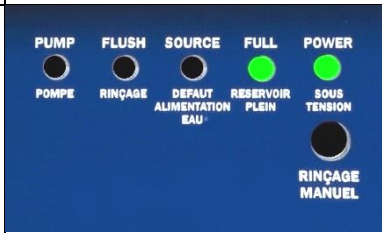
water purifier producing



Rinsing cycle



Water supply default



Water storage full

4 TECHNICAL SPECIFICATIONS



Power supply voltage	230 volts ~ / 50 Hz.
Production flow at 25 ° C	15 liters / hour
Production flow at 10 ° C	9 liters / hour
Resin type	Resin with mixed beds
Resins volume	0.75 liters
Maximum supply water temperature	38 °C
Maximum hardness without protection	40 °f of TH
Admissible pH	3 to 11
Mini / maxi supply pressure	2 / 6 bars
Dimensions (l × h × w)	42 X 39 X 43 cm
Indicative weight	13.5 kg

This system is recommended for daily consumption less than 30 liters.

5 INSTALLING THE WATER PURIFIER

5.1 INSTALLATIONS CONDITIONS

- ↪ Water inlet (2 to 5 bars) equipped with a turn hand valve or a male exit tap of 15/21 or 20/27.
- ↪ Protected electric input (230 V ~, 50 Hz + EARTH).
- ↪ Drain

5.2 CONNECTIONS

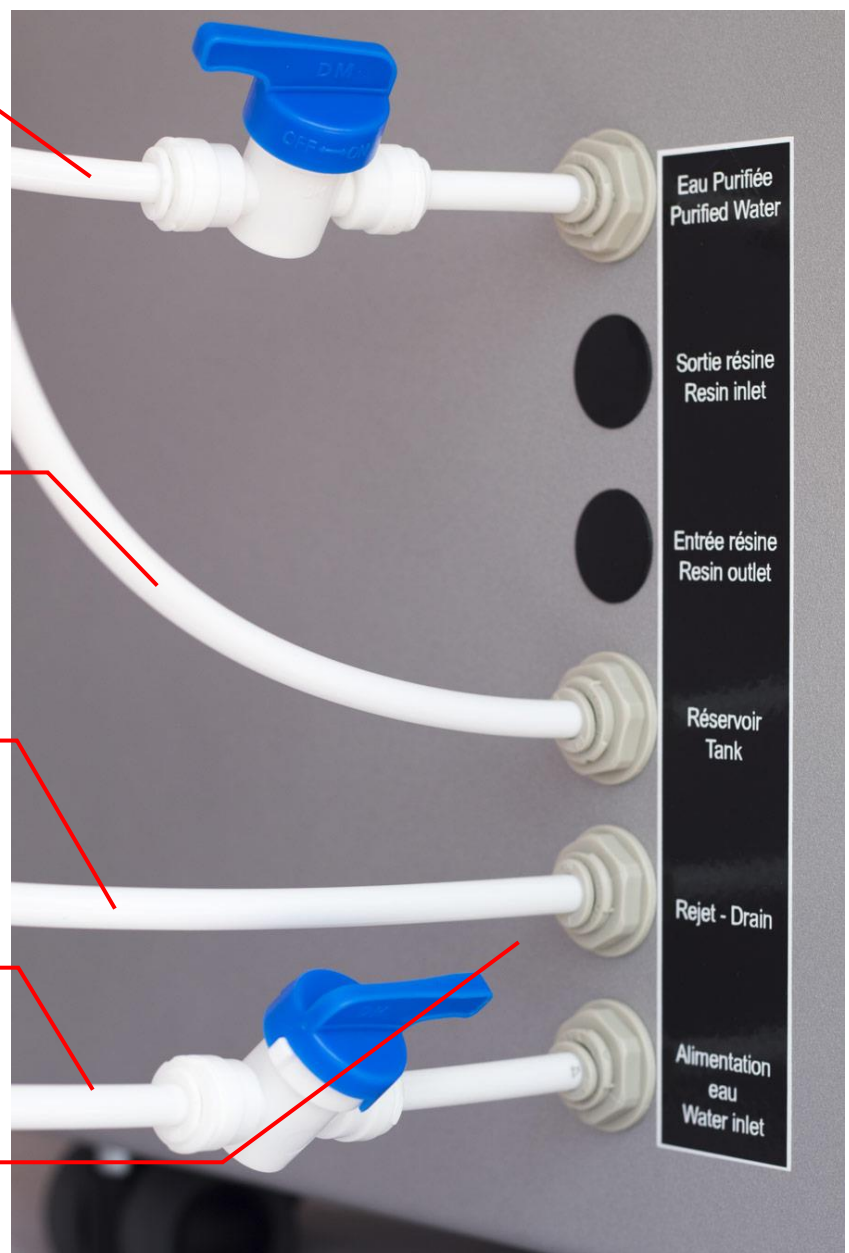
Purified water outlet to be connected via a tubing to an "isolation valve" allowing water to be drawn for the analyzer

To be connected to the storage tank

Drain of the osmosis unit to be connected directly to the sewer (to avoid to damage the system, must be always open ; do not connect a valve)

Connect to tap water inlet by using « male simple union » – Integrate an « isolation gate »

Connect to tap water inlet by using « male simple union » – Integrate an « isolation hand valve »



5.3 INSTALLATION OF THE WATER PURIFIER MEMBRANE

1. Remove the membrane holder out of its two plastic stirrups . (Figure 1)
2. Disconnect the water inlet pipe from the membrane holder by disconnecting the quick fit coupling. (Figure 2)
3. Unscrew (by turning to the right) the high streaked part ("big cap") of the membrane holder.
4. Once the membrane door is opened. Insert the new membrane (Figure 3), peripheral seal at the top, to the complete stop: the end of the collecting tube must be closed to the top of the membrane holder. (Figure 4)



Figure 1



Figure 2



Figure 3

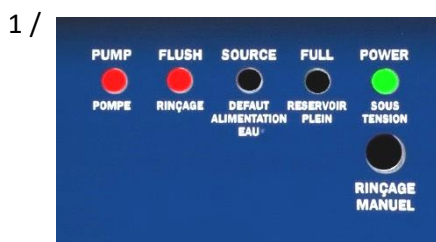


Figure 4

5. Check that the O-ring is well-positioned at the bottom of the retaining wall of the membrane holder (see the drawing).
6. Unscrew (by turning to the right) the high streaked part ("big cap") of the membrane holder.
7. Clip the membrane on its stirrups.

6 SYSTEM START UP

1. Connect the water purifier hydraulically then electrically.
2. Check all hydraulic connections.
3. Close the storage tank valve.
4. Open the water purifier exit hand valve.
5. Open the city water supply valve.
6. Electrically switch on the water purifier.
7. The control unit goes through the following phases:



The power indicator indicates that the osmosis unit is energized.

The pump indicator indicates that the pump is running.

The flush indicator indicates that the system is in the rinse phase of membrane.



When the flush light goes off the system enters its production phase.

8. Wait (a few minutes) for purified water to drain from the water purifier exit hand valve, then let about 20 liters flow.
9. Then carry out a conductivity. The value obtained must be 0 to 0.1 $\mu\text{S} / \text{cm}$. Then close the water purifier exit hand valve.

Open the storage tank valve and wait for its full refill: "Full" indicator lit in green

The control unit goes through the following phase:



The water purifier is then operational

7 MAINTENANCE AND SERVICE

7.1 MAINTENANCE CALENDAR

In order to insure an optimal functioning of the water purifier, it is necessary to realize a certain number of controls and maintenance of first level.

These actions must be realized by the customer. The following board gives the controls to make and the actions of maintenance to realize, their frequency and the operator.

Frequency	Operation
DAILY	Check before using purified water that the indicator « full » is switched on
WEEKLY	Check purified water conductivity
EVERY 3 MONTHES	Check the reverse osmosis membrane exit conductivity
AT LEAST EVERY 6 MONTHES depending of conductivity values	Replace the resin cartridge
AT LEAST EVERY 6 MONTHES depending of conductivity values	Replace the pretreatment filters and post-treatment filter
OCCASIONALLY	Replace the reverse osmosis membrane and the flow restrictor

7.2 TROUBLESHOOTING

PROBLEMS	POTENTIAL CAUSES	SUGGESTED ACTION
Power light OFF	No power supply	Verify the power supply wires ; switch power ON
	Power supply fuse is broken	Check and replace the fuse
<ul style="list-style-type: none"> • Power light ON • No production of purified water • indicator PUMP is off • indicator SOURCE is ON 	The inlet tap water supply is closed or has insufficient pressure	Improve water supply
	Water inlet tubing folded or obstructed	Check that the inlet pipe is not damaged.
<ul style="list-style-type: none"> • Power light ON • No production of purified water • all control light indicators OFF 	A fuse is broken : - pump fuse - fuse in the controller box	Check and replace the fuse
<ul style="list-style-type: none"> • Power light ON • No or low purified water production • indicator PUMP light ON • Pump running 	Pre-treatment clogged	Replace the pre-treatment filters before the RO membrane
	Weak flow of inlet water	Increase the flow of the inlet water
	Reverse osmosis membrane clogged	Change the membrane
<ul style="list-style-type: none"> • Power light ON • No or low purified water production • indicator PUMP light ON • Pump always OFF 	Pump fuse burned	Replace the pump fuse
<ul style="list-style-type: none"> • Light indicators FULL and PUMP alternate 	Defective high-pressure sensor or check valve	Change pressure sensor and check valve
<ul style="list-style-type: none"> • Power light ON • Lack of pressure and low flow output 	Watertank hand valve closed	Turn ON the watertank hand valve
	Requested pure water volume above the capacity of the water purifier	Wait the watertank is filled again
	Lack of pressure in the pressurised watertank	Re-adjust the air-pressure of the water tank
purified water conductivity too high	Resin saturated	Replace resin cartridge or bottle
<ul style="list-style-type: none"> • POWER light ON • FULL indicator ON • Pump OFF • Drain flowing continuously 	Inlet solenoid valve defective	Replace the inlet solenoid valve
Conductivity meter display OFF	Batteries out of order	Replace the batteries

7.3 CONSUMABLES

7.3.1 OMINI Filters kit (ref. 950039)

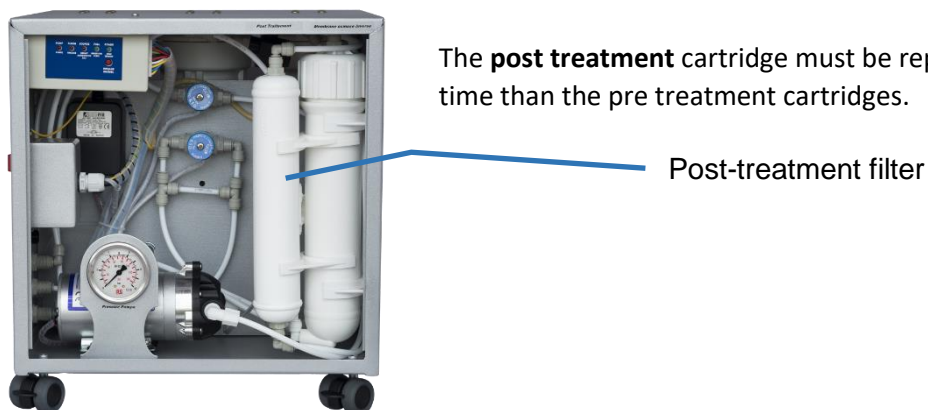
The OMini Filters kit contains the following consumables:

Pre-treatment	The 5 µm sediments cartridge (10")
	The active carbon block cartridge (10")
Post-treatment	The 1 micron post traitement cartridge (10")

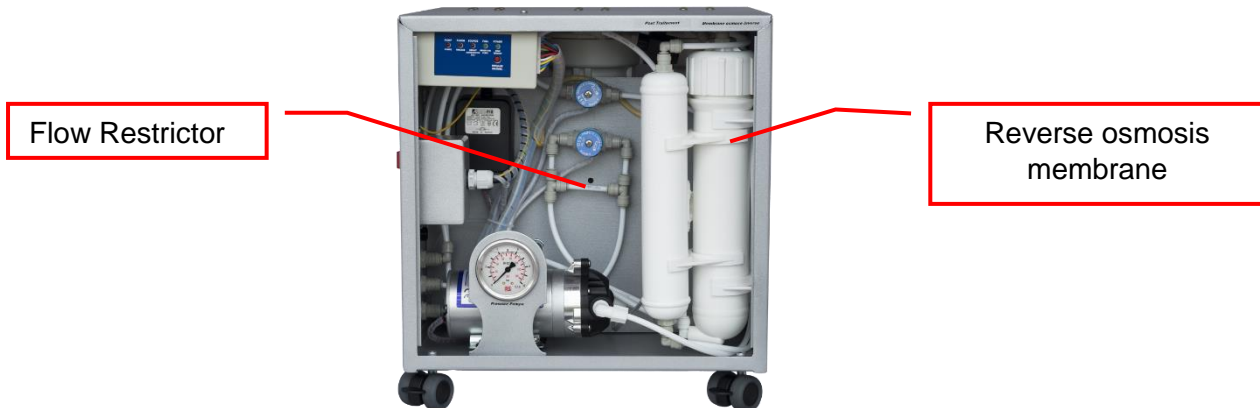


The 2 **pre treatment** filters must be replaced when a plugging, significant drop of the purified water production flow and/or sediments 5 µm filter seems dirty.

Note: the 23 pre treatment cartridges average life time is from 2 to 6 months following the tap water quality (Material Suspended rate measurable by the turbidity) and the water purifier running time.



7.3.2 OMini Membrane kit (ref. 950023)



The reverse osmosis membrane and the flow restrictor must be replaced when the flow of purified water outlet is significantly low despite of a recent replacement of pre-treatment filters or/and an important increase in the frequency of the ions exchangers resins bottle replacement .

Note : the average life time of a reverse osmosis membrane is from 1 to 3 years following the tap water quality, the water purifier running time and the preventive maintenance respect.

7.3.3 OPMini RESIN KIT (ref. 950020)

The **resin cartridge** must be changed when the purified water conductivity increases.

Note: the average life time of a resin cartridge is from 2 to 6 months following the mineralization (hardness = limestone rate) of the tap water and the water purifier running time.



7.4 MAINTENANCE PROCEDURES

7.4.1 Flow measurement procedure

7.4.1.1 General points

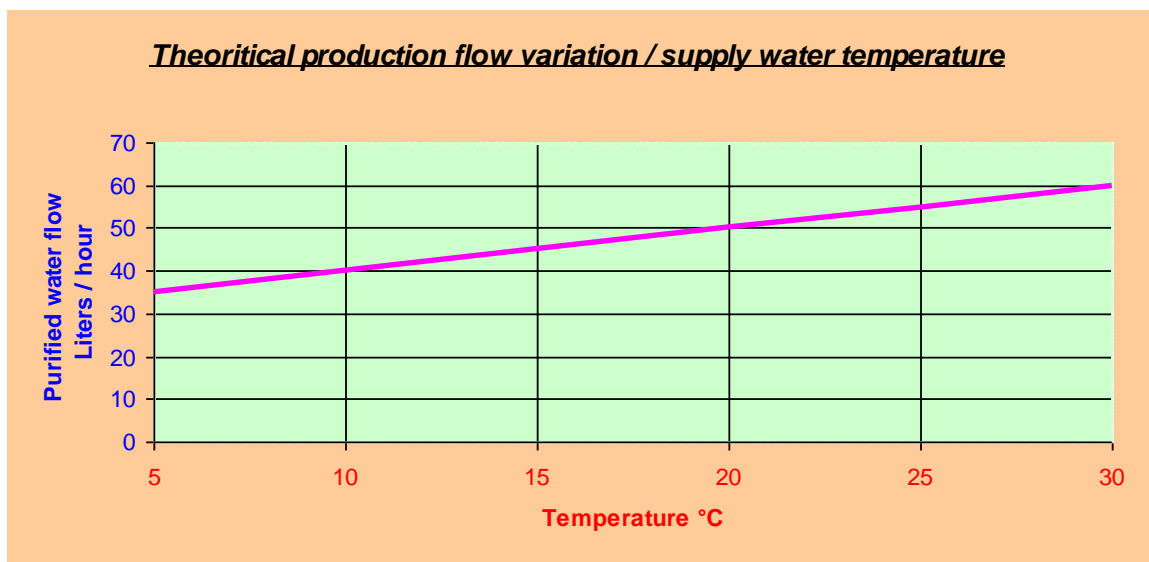
The flow measurement is interesting to check the filters and reverse osmosis membrane plugging state.

The osmosis membrane flow is function of the supply water temperature.

We generally allow a flow drop of 3 % per Celsius degree in a range from 10 to 25 °C.

This flow measurement must be compared to the water purifier theoretical nominal value with a fixed temperature, which is 25 °C:

Note: this theoretical flow rate represents the production at a "tank outlet" pressure of zero bar; it decreases according to the increase in the pressure "Outlet tank".



7.4.1.2 Equipment

1. A graduated test tube of 500 mL.
2. A chronometer.

7.4.1.3 Operating method

1. Close the storage water hand valve..
2. Open the water purifier exit hand valve and let flowing 30 seconds to get a stabilized flow.
3. Trigger the chronometer as soon as the test tube is filling. Make a measurement on 1 or 2 minutes.
4. Convert the result into liters/hour. Compare this measurement to the theoretical value.

7.4.2 Conductivity measurement procedure

7.4.2.1 General points

The global quantity of dissolved solids in water can be measured by the CONDUCTIVITY (expressed in microsiemens per centimeter ($\mu\text{S} / \text{cm}$)).

The conductivity measurement allows estimating the demineralization quality.

The relation between the TDS (total dissolved solids = total mineralization) and the conductivity is:
 $1 \mu\text{S} / \text{cm} \approx 0,4 \text{ mg} / \text{L}$ of NaCl (sodium chloride)

7.4.2.2 Conductivity measurement operating method

1. Let flowing the water to test 15 to 30 seconds.
2. Remove the conductivity meter protection cap.
3. Rinse the protection cap and the conductivity meter probe with the water to test.
4. Renew the operation 2 to 3 times.
5. Fill protection cap of the conductivity meter with the water to test then plunge the conductivity meter: read the measured value.
6. Renew the operation 2 to 3 times; the retained value will be the last measurement one.
7. Switch off the conductivity meter then put back the protection cap.

7.4.2.3 Purified water conductivity measurement « water purifier exit »

This conductivity measurement must be done weekly at the purified water outlet.

7.4.2.4 Conductivity measurement « membrane exit »

1. Close the storage tank hand valve.
2. Close the « ions exchange resins ENTRY » hand valve.
3. Remove the plug on the outlet « TEST reverse osmosis membrane exit ».
4. Open the « TEST reverse osmosis membrane exit » hand valve.
5. Do the measurement
6. Close the « TEST reverse osmosis membrane exit » hand valve.
7. Reconnect the plug on the outlet and open the « ions exchange resins ENTRY » hand valve.
8. Open the storage tank hand. The water purifier is again operational.

INTERPRETATION OF THE VALUE OF THE CONDUCTIVITY OF PURIFIED WATER	
Conductivity <1 $\mu\text{S}/\text{cm}$	Class 1 water (according to ISO 3696) Water of very good quality; no impact on the quality of the analyzes
1 $\mu\text{S}/\text{cm}$ <Conductivity <5 $\mu\text{S}/\text{cm}$	Class 2 water (according to ISO 3696) If the desired water class is class 1, then change the resin cartridge. In any case, the resin cartridge will have to be changed soon
Conductivity > 5 $\mu\text{S}/\text{cm}$	Change the resin cartridge immediately

7.4.3 Change of SEDIMENT FILTER 5 µm

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to depressurize the network; the indicator « SOURCE » of the electronic unit lights. Leave the water purifier exit hand valve open. Turn off the water purifier (switch in position « 0 »), then unplug the power plug.
4. Remove the two glass doors.
5. Using the **smaller key** (supplied with reverse osmosis) **carefully unscrew** (turn to the left) the **transparent filter holder** (the right in front); *WARNING: the filter is filled with water, a mop at hand is recommended!*
6. Once the filter holder out, remove the filtering cartridge used, then **rinse it. Place the new cartridge « Sediment Filter 5 µm »** (included in kit ref. 950039)
7. **Check that the O-ring is properly positioned in the filter holder groove**, then **re-screw** it. A « good tightening by hand » is enough.
8. Dry the floor at the bottom of the water purifier in order to detect a possible leak during the starting up.
9. Open the tap water hand valve.
10. Re-plug the power plug then start up the water purifier. The indicators « POWER », « PUMP » and « FLUSH » light: the water purifier starts 2 minutes of rinsing cycle of the osmosis membrane. The rinsing is ended when the indicator « FLUSH » switch off; then the water purifier is on production.
11. Open the storage tank hand valve. Let filling all filters holder. After some time, the water must flow at the water purifier exit: let flowing 10 to 20 liters of water so as the drain
12. Close the water purifier exit hand valve. Put back glasses doors. Then the water purifier is operational.



7.4.4 Change of ACTIVE CARBON BLOCK FILTER

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to depressurize the network; the indicator « SOURCE » of the electronic unit lights. Leave the water purifier exit hand valve. Turn off the water purifier (switch in position « 0 »), then unplug the power plug.
4. Remove the two glass doors.
5. Using the key (supplied with water purifier) carefully unscrew (turn to the left) the white filter holder (the middle one)
6. Remove the filter cartridge. Introduce the new cartridge ACTIVE CARBON BLOCK FILTER (*included in kit ref. 950039*)
7. Check that the O-ring is properly positioned in the filter holder groove, then re-screw this one. A « good tightening by hand » is enough.
8. Dry the floor at the bottom of the water purifier in order to detect a possible leak during the starting up.
9. Open the tap water hand valve.
10. Re-plug the power plug then start up the water purifier. The indicators « POWER », « PUMP » and « FLUSH » light: the water purifier starts 2 minutes of rinsing cycle of the osmosis membrane. The rinsing is ended when the indicator « FLUSH » switch off; then the water purifier is on production.
11. Open the storage tank hand valve. Let filling all filters holder. After some time, the water must flow at the water purifier exit: let flowing 10 to 20 liters of water so as the drain
12. Close the water purifier exit hand valve. Put back glasses doors. Then the water purifier is operational.



7.4.5 Change of RESIN CARTRIDGE

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to depressurize the network; the indicator « SOURCE » of the electronic unit lights. Leave the water purifier exit hand valve. Turn off the water purifier (switch in position « 0 »), then unplug the power plug.
4. Remove the two glass doors.
5. Using the key (supplied with water purifier) carefully unscrew (turn to the left) the transparent filter holder
6. Remove the filter cartridge. Rinse the filter holder. Introduce the new cartridge resin cartridge *included in kit ref. 950020*
7. **WARNING:** the filter is filled with water, a mop at hand is recommended!
8. Check that the O-ring is properly positioned in the filter holder groove, then re-screw it. A « good tightening by hand » is enough.
9. Dry the floor at the bottom of the water purifier in order to detect a possible leak during the starting up.
10. Open the tap water hand valve.
11. Re-plug the power plug then start up the water purifier. The indicators « POWER », « PUMP » and « FLUSH » light: the water purifier starts 2 minutes of rinsing cycle of the osmosis membrane. The rinsing is ended when the indicator « FLUSH » switch off; then the water purifier is on production.
12. Open the storage tank hand valve. Let filling all filters holder. After some time, the water must flow at the water purifier exit: let flowing 10 to 20 liters of water so as the drain
13. Close the water purifier exit hand valve. Put back glasses doors. Then the water purifier is operational.



7.4.6 Change of the POST TREATMENT CARTRIDGE: SEDIMENT 1 µm

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to depressurize the network; the indicator « SOURCE » of the electronic unit lights. Leave the water purifier exit hand valve. Turn off the water purifier (switch in position « 0 »), then unplug the power plug.
4. Remove the two glass doors.
5. Remove the POST TREATMENT filter out of its two plastic stirrups.
6. Disconnect both feed and exit pipes linked respectively to the high and low joins of the filter by disconnecting the fast joins.
7. Remove the worn filter. Introduce the new filter into its two plastic stirrups **by respecting the water flow sense.**
8. Re-connect both exit and feed pipes to the respective filter joins.
9. Dry the floor at the bottom of the water purifier in order to detect a possible leak during the starting up.
10. Open the tap water hand valve.
11. Re-plug the power plug then start up the water purifier. The indicators « power », « pump » and « flush » light: the water purifier starts 2 minutes of rinsing cycle of the osmosis membrane. The rinsing is ended when the indicator « FLUSH » switch off; then the water purifier is on production.
12. Open the storage tank hand valve. Let filling all filters holder. After some time, the water must flow at the water purifier exit: let flowing 10 to 20 liters of water so as the drain
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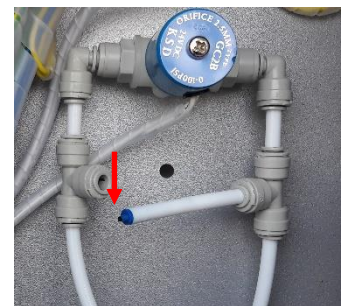
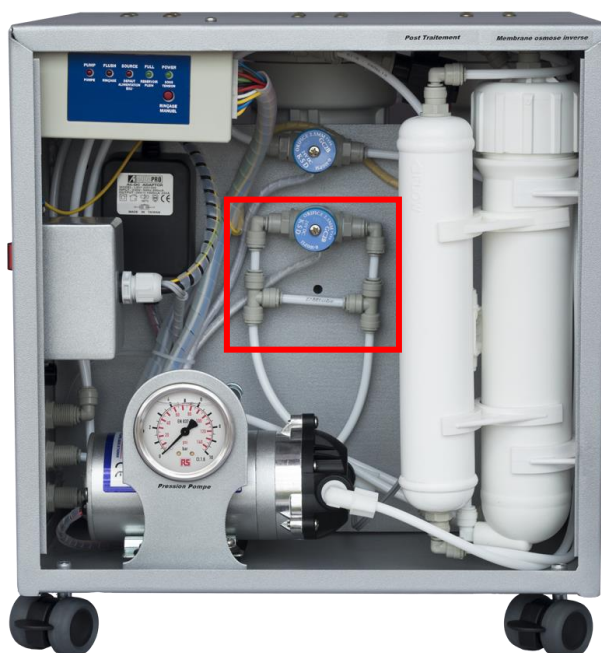


7.4.7 Change of the REVERSE OSMOSIS MEMBRANE

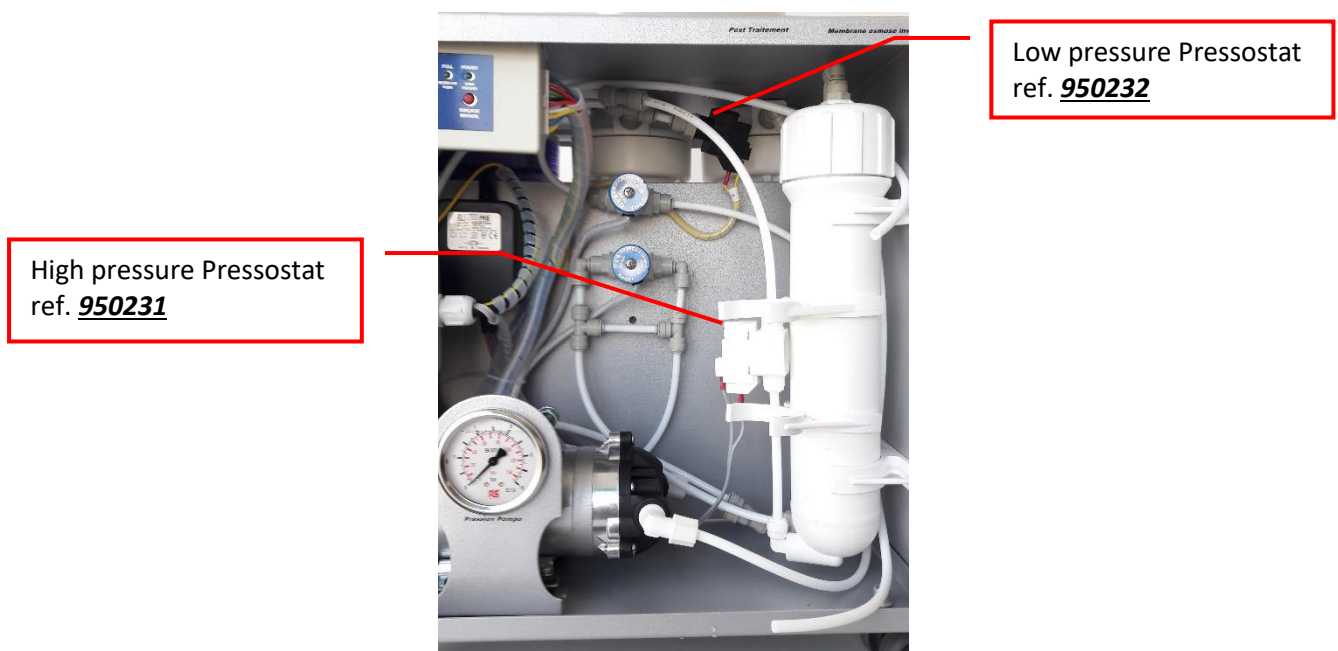
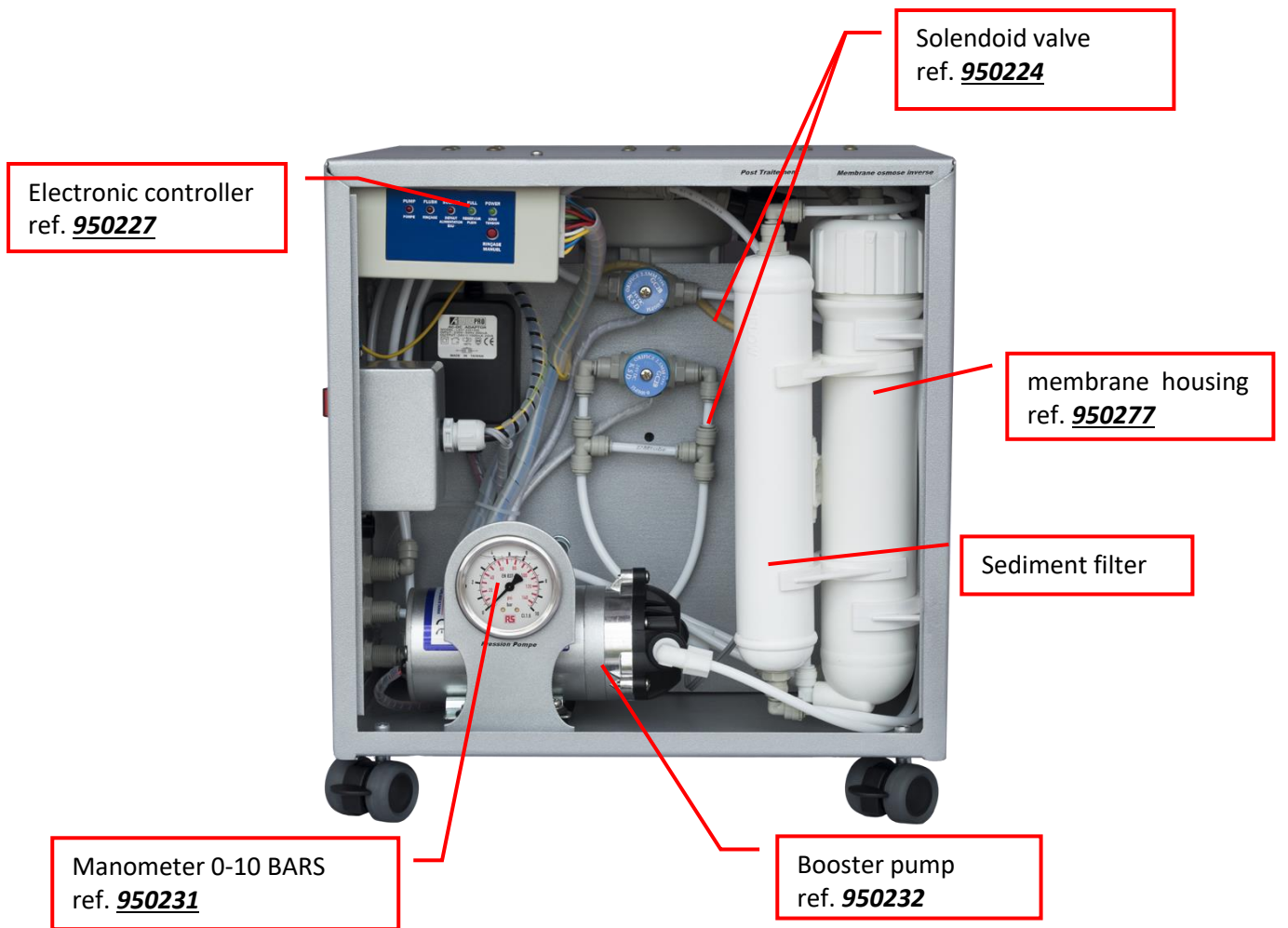
1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to depressurize the network; the indicator « SOURCE » of the electronic unit lights. Leave the water purifier exit hand valve open.
4. Turn off the water purifier (switch in position « 0 »), then unplug the power plug.
5. Remove the two glass doors.
6. Remove the membrane holder out of its two plastic stirrups.(see page 9).
7. Disconnect the water inlet pipe from the membrane holder by disconnecting the fast join.
8. Unscrew (by turning to the right) the high streaked part ("big cap") of the membrane holder.
9. Once the holder membrane open, remove with nippers, the worn reverse osmosis membrane. Introduce the new membrane, the peripheral joint at the top, up to complete block stop: the extremity of the collector tube must outcrop the membrane holder one.
10. Dry the floor at the bottom of the water purifier in order to detect a possible leak during the starting up.
11. Open the tap water hand valve.
12. Re-plug the power plug then start up the water purifier. The indicators « power », « pump » and « flush » light: the water purifier starts 2 minutes of rinsing cycle of the osmosis membrane. The rinsing is ended when the indicator « FLUSH » switch off; then the water purifier is on production.
13. Open the storage tank hand valve.Let filling all filters holder. After some time, the water must flow at the water purifier exit: let flowing 10 to 20 liters of water so as the drain
14. Close the water purifier exit hand valve. Put back glasses doors. Then the water purifier is operational.

7.4.8 Change of FLOW RESTRICTOR

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to depressurize the network; the indicator « SOURCE » of the electronic unit lights. Leave the water purifier exit hand valve open. Turn off the water purifier (switch in position « 0 »), then unplug the power plug.
4. Remove the two glass doors.
5. Disconnect the pipe carrying the flow restrictive.
6. Remove the flow restrictive out of the pipe and replace it by the new.
7. Re-connect the restrictive.
8. Replace it by the new.
9. Dry the floor at the bottom of the water purifier in order to detect a possible leak during the starting up.
10. Open the tap water hand valve.
11. Re-plug the power plug then start up the water purifier. The indicators « power », « pump » and « flush » light: the water purifier starts 2 minutes of rinsing cycle of the osmosis membrane. The rinsing is ended when the indicator « FLUSH » switch off; then the water purifier is on production.
12. Open the storage tank hand valve.
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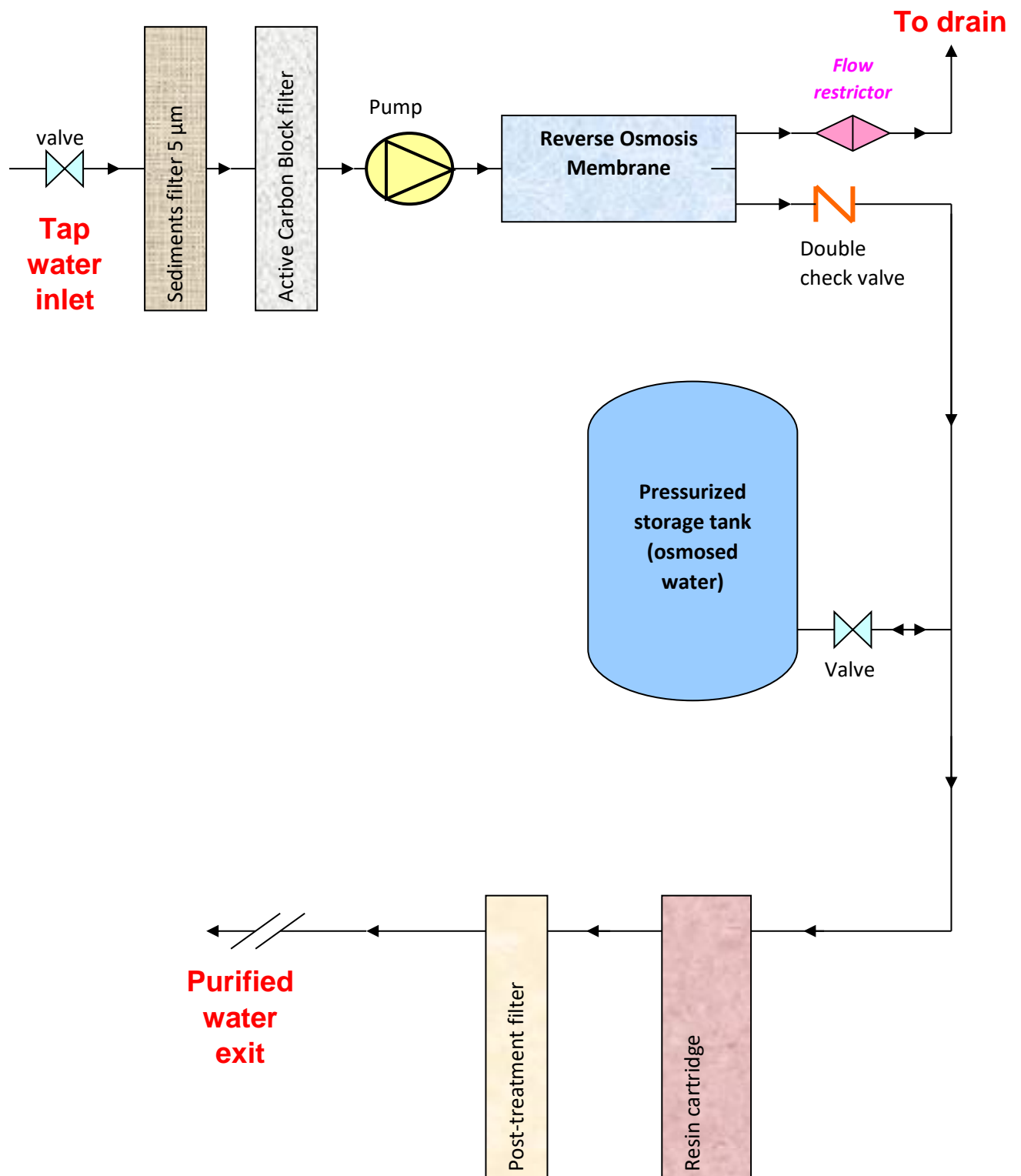


7.5 SPARE PARTS













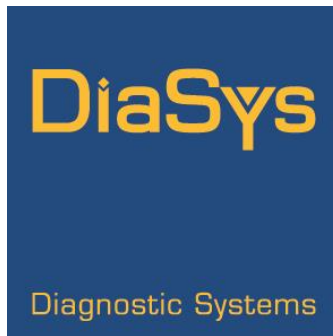


8 FLOW PATH DIAGRAM



9 PACKING LIST

Picture	Item	picture	Item
	water purifier OMINI reference 950006		12 LITERS PRESSURIZED TANK Reference 950228
	RO MEMBRANE 75 GPD		SPANER FOR 10" FILTER HOLDER
	PEN CONDUCTIVITY METER		HAND VALVE 1/4" Reference 950330
 quantity :2	TEE UNION 1/4" Reference 950091		TWO WAY DIVIDER 1/4" Reference 950094
 quantity :2	MALE CONNECTOR 1/4" / 1/2" NPTF Reference 950084	 quantity 4	TUBE ELBOW UNION 1/4" Reference 950089
	POLYETHYLENE TUBE 1/4"		



MANUFACTURER

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Fax : 33 (0)4 11 95 03 50
Internet : <http://www.diasys-diagnostics.com>
Email : info@diasys-technologies.com**