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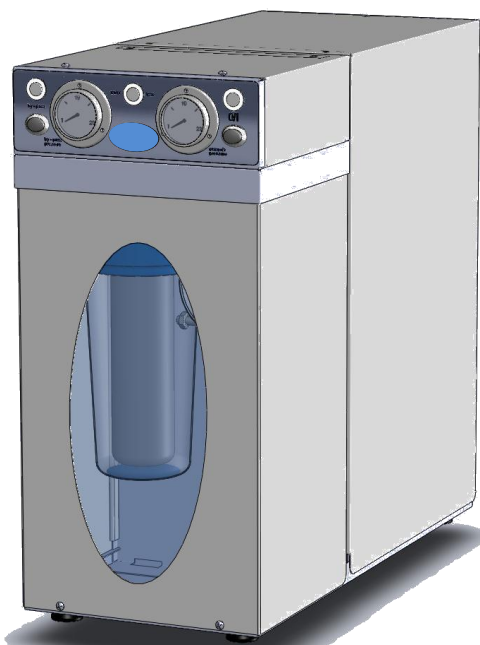
Production code: B8020142 (C150P)



Diamond
catering equipment

EN

REVERSE OSMOSIS mod. COLIBRI' 150 P
INSTALLATION, USER AND MAINTENANCE MANUAL



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1 Scope of this manual

Thank you for choosing to install this system.

This manual has been devised to provide the purchaser all the information necessary for the installation, use and maintenance of the COLIBRI' 150 P system as thoroughly and clearly as possible in order to render operation as safe and effective as possible for those who use it. It also lists all the procedures to help you deal with any reasonably foreseeable emergency situations that might arise from use in the manner prescribed by the manufacturer. It is therefore of utmost importance to strictly comply with the requirements in this manual, a should be considered a necessary condition for safe and satisfactory operation of the unit.

2 Before using the unit:

It's very important that this instruction book is retained with the appliance for future reference. Should the appliance be sold or transferred to another party, ensure that the booklet is also included so that new users can be aware of how to operate the machine and the relevant warnings.

Before using the machine read the whole manual carefully.

Knowing the information and instructions contained in this manual is essential for correct installation and proper use of the equipment.

After unpacking the unit, check that it is not damaged. Any damage must be reported to the transporter within 24 hours. The installation and electrical connection must be carried out by a qualified technician according to the manufacturer's instructions and local regulations. The electrical system must be equipped with an effective earth connection as per the legislation (Ministerial Decree 37/2008). Before doing any cleaning or maintenance, disconnect the plug from the wall socket. Do not pull the power cord when disconnecting the plug from the socket.

After installation, ensure that the unit is not resting on the power cord.

The data and specifications listed in this manual are not binding on the manufacturer, which reserves the right to make any changes deemed appropriate without obligation to provide prior notice or replacement.



3 General information

This manual is intended for personnel specifically assigned to the installation and/or management and/or repair the system.

Any handling, maintenance, repair and sanitising of equipment must be carried out by properly trained authorized technicians.

The location housing the system, accessories and consumables must adhere to the storage, use, and safety regulations currently in force.

The water produced by each unit should be used for the specific use to which it was intended. DIAMOND is not responsible for the consequences of improper use of the water produced by his equipment. Any abnormal operation of the system must be immediately reported to the DIAMOND Service Centre. The manufacturer is not responsible for the consequences of continued use of a system with malfunctions.

Where necessary, the selection, dosage, and handling of chemicals must be performed by qualified personnel in accordance with the instructions and safety data sheets.

Any maintenance or repairs should be carried out while the system is both electrically and hydraulically isolated. Disposal of waste material or consumables must be in accordance with local regulations. The packaging materials (plastic bags, polystyrene foam, etc.,) must not be left within reach of children as they are potential sources of danger. The system must not be removed from its original location by a non-specialist. To clean the system, do not use corrosive acids, steel wool or steel brushes. Do not wash the appliance by directly pouring water or with high-pressure jets.

The manufacturer declines any liability for damage to persons or property caused by non-observance of the instructions in this manual.

The manufacturer declines any liability for any damage caused to persons or property for repairs not performed by qualified personnel, this shall void the warranty, as shall the lack of necessary care and maintenance of the system and the replacement of parts with non-original components. Under current legislation, the device must be connected to a socket with an effective ground.

The unit operates at 230V -50Hz; voltage variations greater than 10% of the nominal value can damage the electrical components.

The equipment is free of electromagnetic interference as per EEC directive 87/308 of the 14/04/1989.

To perform any kind of operation on the system, please adhere to the following precautions for the safety of persons and things.

In particular, observe the following points:

1. Carefully read all the instructions in the manual.
2. Prior to installing the system, take special care to verify compliance with the following conditions: Read the relevant regulations;
3. If there are suspended solids, install a water filter directly before the system, a lack of water filtration and removal of suspended particles may limit the system's effectiveness;



4. DIAMOND declines any liability regarding use of the system in the event of non-compliance with the requirements in the manual provided as an integral part of the package.
5. The system must always be installed after the water meter or the autoclave and after all the filtration and water treatment equipment.
6. When the system is first commissioned, the output for the first 5 minutes must be discarded in the drain in order to purge any manufacturing residues from all the components through which water flows.
7. The COLIBRI' 150 P system must only be used by adults. Ensure that children do not touch the controls or play with the appliance.
8. The packaging materials (plastic bags, polystyrene foam, etc.,) must not be left within reach of children as they are potential sources of danger.
9. During the warranty period, no intervention may be performed without prior authorisation from the Service Centre. If this is not heeded, the warranty is automatically voided.

4 Correct usage

The DIAMOND system is suitable for the treatment of non-ferrous and bacteriologically pure water. Any other use that is not approved in writing by our technical service is assumed non-compliant. For special applications with water having different characteristics, you should contact our technical service, which can indicate the optimal calibration of the system or any necessary additions on the basis of a thorough chemical and bacteriological analysis.

The water to be treated must be consistent with that identified in Leg. Decree 31/01 and subsequent amendments. It is critical that the installer knows and understands Ministerial Decree 37/08 and the manufacturer declines any responsibility in case of components that are not fitted during installation. These components are not part of the supply package.

**WATER PRODUCED FROM THE SYSTEM IS DESIGNED
EXCLUSIVELY FOR PROCESSING USE**



The operating limits of the inlet water are:

- free chlorine 0.02mg/lit
- manganese max 0.05pp
- turbidity 1 NTU MAX
- absence of surfactants
- absence of oils
- Absence of coli bacteria
- non-ferruginous
- Maximum temperature of inlet water: 40°C
- Test conditions: TDS max 1500 ppm SDI=5max

WARNING - IMPORTANT

DIAMOND declines any liability regarding the installation of the system, therefore any damages to property and/or people because of this is

NOT IN ANY WAY ATTRIBUTABLE TO DIAMOND

IT IS THE RESPONSIBILITY OF THE INSTALLER TO SUPPLY PLUMBING FITTINGS NECESSARY FOR THE INSTALLATION OF THE SYSTEM

The device is not intended for use by persons (including children) with reduced physical or mental capacities, nor by persons lacking experience or knowledge, unless they have been given, through the intermediation of a person responsible for their safety, supervision or instruction concerning use of the appliance



5 The COLIBRI' 150 P SYSTEM

The system is packaged and supplied in cardboard packaging. *Please note:* It is possible to the supply the unit packed according to customer specifications.

Instructions for removing the standard packaging

There are no special precautions for unpacking the COLIBRI' 150 P system, except for for normal care and caution when handling fragile equipment. Before disposing of the cardboard packaging, check to make sure that unit components, instruction manuals or other documentation are not still amongst the packaging.

Transport/receiving

It is important to remember that, although carefully packed and well-protected, the system must be considered and handled as fragile equipment. Open the packaging to check the integrity of the unit upon receipt. In case of damage, accept the unit with reservation in order to be able to initiate a claim.

Storage

The packaged unit must be stored in a dry environment (free from condensation), under shelter. The permissible temperature is 0 °C to +50 °C.

Supply specifications

Supply consists of one COLIBRI' 150 P unit with:

- N. 1 electric motor 180 W
- N. 1 rotary pump 400 lt/h
- N. 1 activated carbon pre-filter
- N. 1 two-way solenoid: one feeds the unit and the other acts as an automatic bypass (external switch)
- N. 1 RO membrane
- N. 1 Flood detector
- N. 1 gauge for the pump operating pressure
- N. 1 gauge for the output water pressure
- N. 1 differential pressure switch
- N. 1 electronic circuit board for machine management
- N. 1 tap for the extraction of treated water

5.1 The treatment of the water

The COLIBRI' 150 P unit is designed for the treatment of technical waters; it represents a technological solution for the treatment of municipal water and adds value to the local resource as the filters applied at the extraction point enhance the water and make for a more satisfying



consumption of the water resources. It is known that potable water analysed at the tap, while respecting the chemical and physical parameters within the limits provided by law, may have unpleasant odours and traces of unwanted substances and biological contaminants.

The issues relating to the health aspects of municipal water are essentially two:

1. The condition of the conduits: at least 30% of water is lost between the source and the tap; older pipes may release materials that are carried by the water or inorganic and organic trace substances may be accidentally introduced during maintenance work;
2. Chlorine: most purification systems employ chlorination processes. Substances such as sodium hypochlorite or chlorine dioxide, which by their unstable nature dismutate into chlorine (used to kill bacteria) and chloride, are added in such quantities as to ensure the bactericidal action up to the point of extraction. The chlorine ensures the safety of the water because it runs with water right up to the tap. It is therefore essential for the protection of public health in order to ensure bacteriological control. Unfortunately it releases an unpleasant odour that combines with other organic gases to alter the organoleptic properties of water.

The purpose of DIAMOND in designing the COLIBRI' 150 P is to present the consumer with a solution that allows a finishing system, (refinement) of municipal water at the end of its journey through the pipes in order to enhance the organoleptic properties without altering the saline content. It is therefore suitable for all aqueduct waters for technical use, and at the same time represents a solution to any real or suspected problem, foreseeable or unforeseeable.

The treatment carried out on the water can be summarised as follows:

1. Elimination of all suspended impurities;
2. Elimination of chlorine taste and odour

The COLIBRI' 150 P system is therefore able to be used in order to deprive water of chlorine smells and any substances in suspension. A refinement process, therefore, at the end of the passage through the tubes in order to enhance the organoleptic properties of potable water, without altering the saline content.

The COLIBRI' 150 P system can only accept input water as defined in Directive 98/83/EC of 03/11/98, or Leg. Decree 31/2001.

The filter traps suspended matter down to 0.005 microns, and according to tests conducted at Serchem Laboratory, showed total effectiveness against chemicals such as chlorine, derivatives of microorganisms and large organic molecules that may be present in very low concentrations in potable water distributed through urban networks.

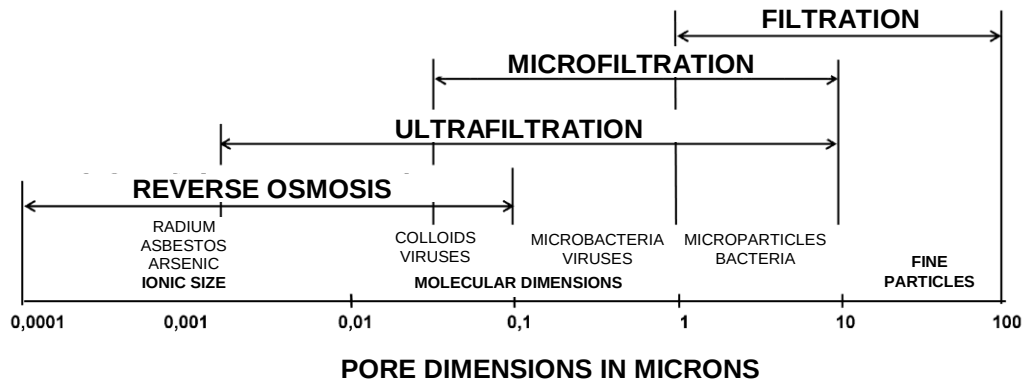


fig. 5.1

5.1.1 Pre-filtration

This is the first stage. The incoming water is passed through a carbon filter (polypropylene on request). Microfiltration is crucial before introducing the water into the RO unit as particles larger than 5 microns may damage the membranes. The filtration elements combine the proven depth filter technology with a design concept that eliminates the entire core for a solution which is affordable, convenient, efficient and environmentally friendly in applications with high flow rates. Adsorption with activated carbon is a process where a solid is used for the removal of a soluble substance from the water.

In this process, activated carbon is the solid. It is specifically produced to have a very large internal surface area (500–1500 m²/g). This high internal area surface makes activated carbon ideal for adsorption. The activated carbon used is Granular Activated Carbon (GAC). This version GAC is the most widely used in water treatment and according to documentary evidence and scientific data, it adsorbs the following:

- mineral oils
- Poly aromatic hydrocarbons (PACs)
- Phenyl chlorides

This filter allows the correct and complete removal of chlorine.

For polypropylene filters, the filtration element is a septum in polypropylene with low pressure loss so that a smaller number of filtration elements is required for the same flow rate. The filtration elements are produced according to highest standards of quality and cleanliness.

5.1.2 Reverse Osmosis

This is the second stage. The water emanating from the pre-filtration stage is sent to the two reverse osmosis membranes made of vegetable fibres (polyamide) and conserved in a natural manner. The

membranes have also passed the usage admissibility tests by the Food and Drug Administration (FDA). Reverse osmosis is a process of separation of foreign bodies from the water through the use of semipermeable membranes. These structures allow water to pass through them while removing dissolved mineral elements, pollutants, viruses and bacteria. Consider a container divided into two compartments by a semipermeable membrane, we see that the pure water A from osmosis tends to pass into the saline solution B, increasing its level until reaching a hydrostatic pressure (referred to as the osmotic pressure of the solution) that balances the system and stops the passage of pure water.

If a pressure greater than the osmotic pressure is applied to the saline solution B, the pure water tends to return to A, resulting in the phenomenon of reverse osmosis (i.e., opposite to the natural phenomenon). (fig. 5.1.2).

The reverse osmosis treatment therefore involves forcing water through a semipermeable membrane to separate dissolved foreign bodies, both organic and inorganic in nature.

Despite having a minimal pore size, reverse osmosis does not operate like conventional filtration, but rather as "cross-flow filtration".

In conventional filtration, the entire aqueous solution to be filtered is forced through the filtration medium and any impurities too large to pass through the pores of the filter medium is retained or trapped inside the medium itself .

In cross-flow filtration, there are two output streams from the system: the "concentrate" or the stream that contains the impurities that are rejected or do not pass through the membrane, and the "permeate" or the stream that is pushed through the membrane.

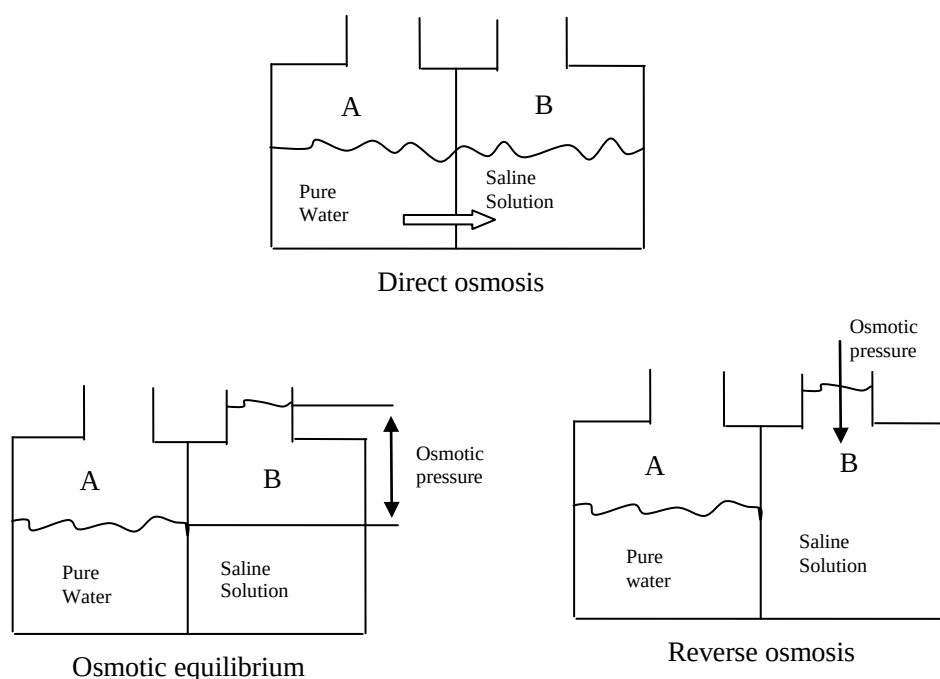
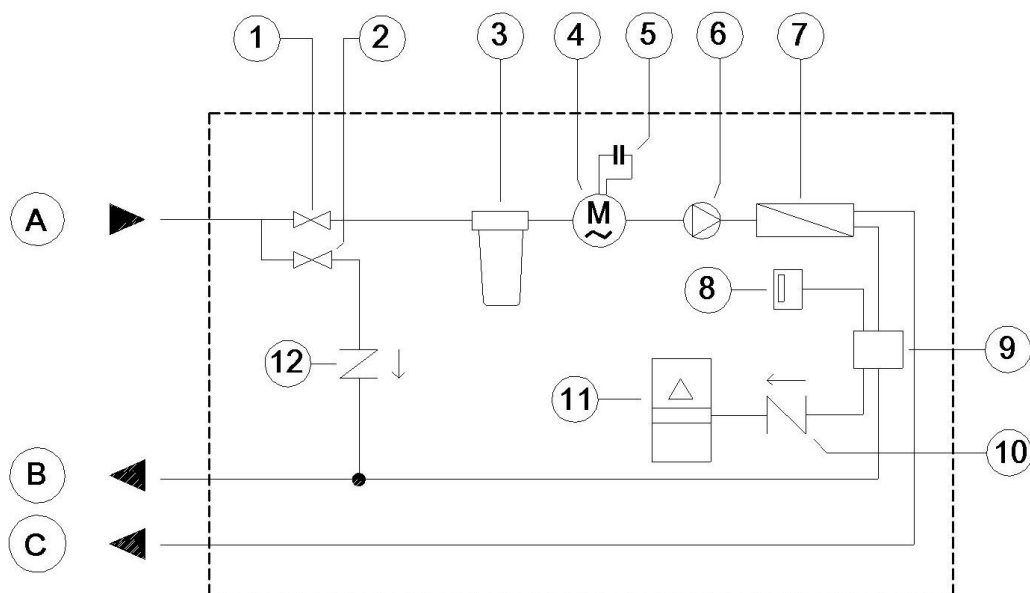


Fig.5.1.2

5.2. Technical characteristics



- 1) Solenoid valve, unit supply
- 2) Solenoid valve, bypass
- 3) Filter, sediments/carbons
- 4) Motor
- 5) Booster capacitor
- 6) Pump
- 7) Membrane
- 8) Differential pressure switch
- 9) Expansion vessel intake manifold
- 10) Check valve
- 11) Expansion vessel
- 12) Bypass check valve

A inlet ¾"

B permeate outlet ¾"

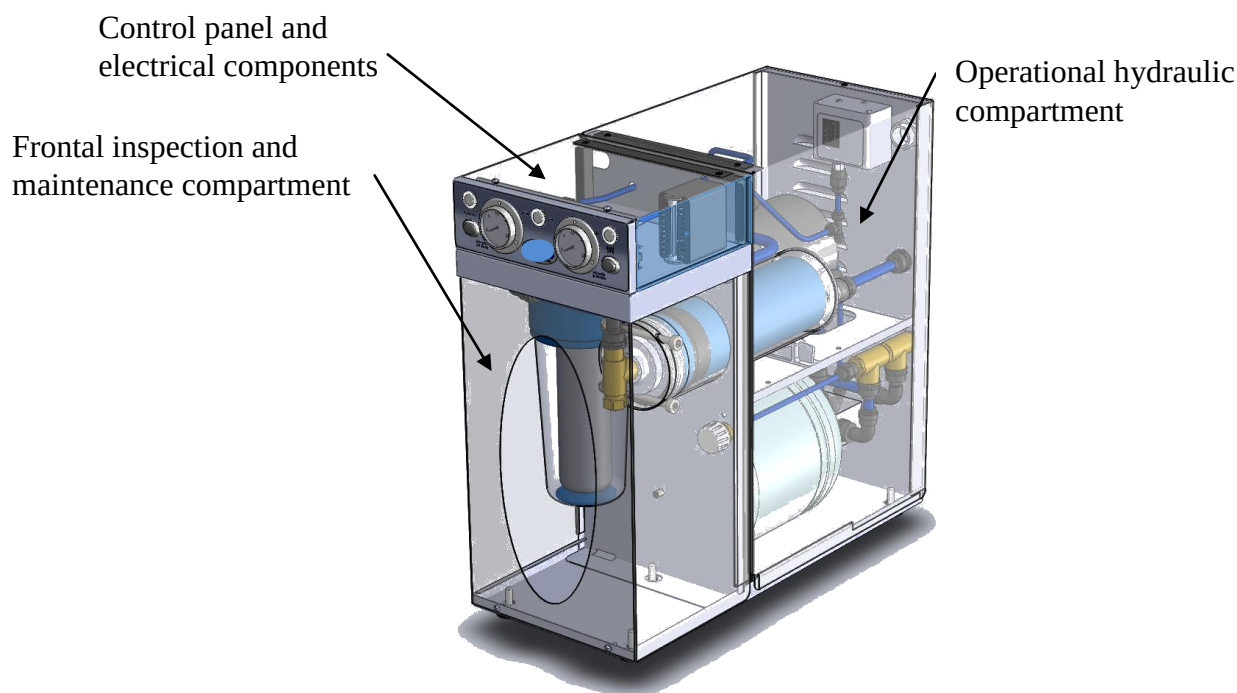
C concentrate outlet ¾"

5.2.1 Specifications table

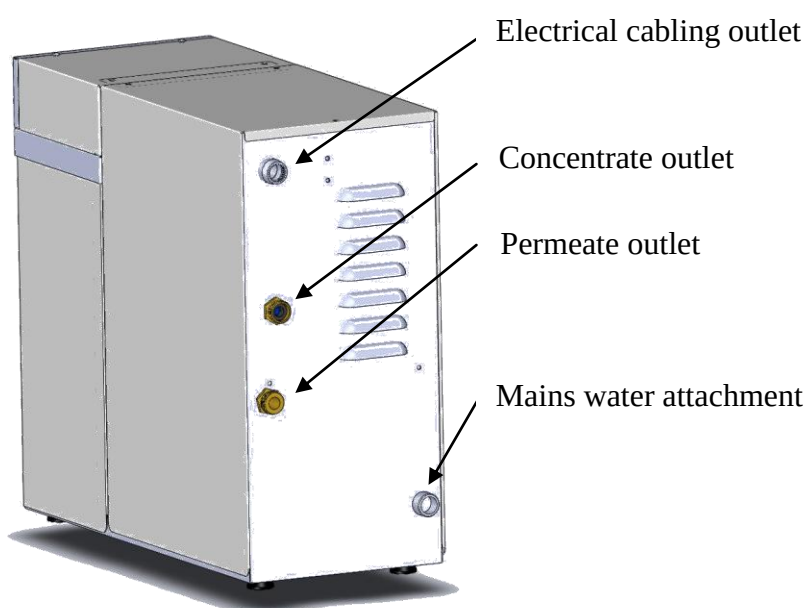
	COLIBRI 150 P	
TECHNICAL CHARACTERISTICS		
Width x depth x height	(mm)	250 x 560 x 525
Weight	(kg)	19
Sound level	(db (A))	< 70
membrane	(n°)	1
Activated carbon filter		
SUPPLY WATER CHARACTERISTICS		
Type of water		Drinkable
Minimum water temperature	(°C)	5
Maximum water temperature	(°C)	45
Minimum supply flow rate	lit/hr	350
Maximum supply pressure	(bar)	3.5
Minimum supply pressure	(bar)	1
OPERATING ENVIRONMENT		
Maximum relative humidity	(%)	90
Minimum air temperature	(°C)	3
Maximum air temperature	(°C)	40
ELECTRICAL CHARACTERISTICS		
Supply type		Single-phase + earth
Voltage rating	(V)	230
Frequency	(Hz)	50
Power	(W)	186
Circuit board protection fuse type		
PERMEATE CHARACTERISTICS		
Maximum flow at 15°C	lit/hr	approx. 150
Permate/concentrate production ratio		approx. 1:1.5
REPLACEMENT CONDITIONS		
Activated carbon filter	(l)	12,000
Reverse osmosis membrane		When blocked

5.2.2 Equipment description

The unit is divided into three distinct technical compartments (as shown in the figure below) to reduce and facilitate routine maintenance involving: replacement of membranes, filter replacement and inspection of electrical/electronics components.



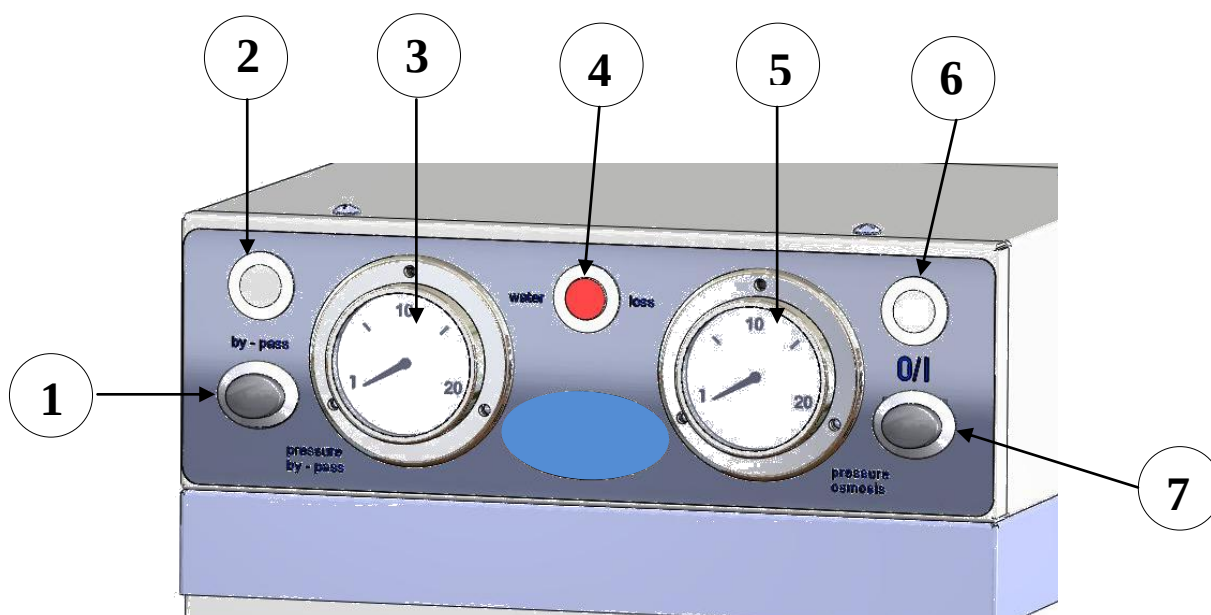
The hydraulic inlet and outlet connections of the permeate and concentrate including the electrical connections are present at the rear.



5.2.3 Control panel

The control panel has two command buttons and three warning lights:

- 1 a button for activating and deactivating the bypass
- 2 white light indicating bypass activated
- 3 pressure gauge for the output pressure of the permeate
- 4 Red warning light indicating flooding of compartment
- 5 pressure gauge for the pressure of the membranes
- 6 white light on indicating the machine is electrically live
- 7 button for powering the machine on and off



5.2.4 Technical Characteristics of the osmosis unit

Vessel

Particular attention has been devoted to the vessel made of stainless steel 304. It has an internal system that prevents the telescopic effect of the membrane due to the higher pressures generated as the membrane becomes more and more clogged. The frontal compartment allows easy inspection and replacement of the membrane without removing the unit from its housing.

Membrane

Produces a quantity of permeate equal to 150 litres/hour using only one selective wound spiral membrane in polyamide (PA), type 3512 650GDP.

- Membrane type: Thin-film composite
- Membrane material: Polyamide
- Configuration of the elements; wound spiral
- Maximum pressure 10 bar
- Maximum operating temperature: 45°C
- pH: 3-10
- Maximum turbidity; 1.0 NTU
- Maximum SDI: 5.0
- Maximum chlorine concentration: 0.1 mg/l

Flood detector

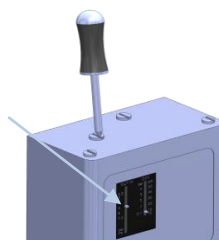
To render the working area safer and prevent damage to the system, the machine is equipped with a flood detector.

Differential pressure switch

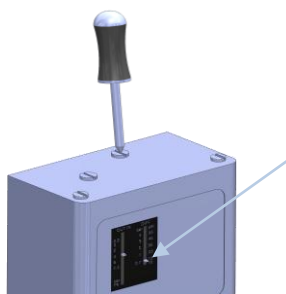
The differential pressure switch is used to activate and deactivate the pump motor that pressurises the membranes when a command signal is received.

The differential is divided into two signals:

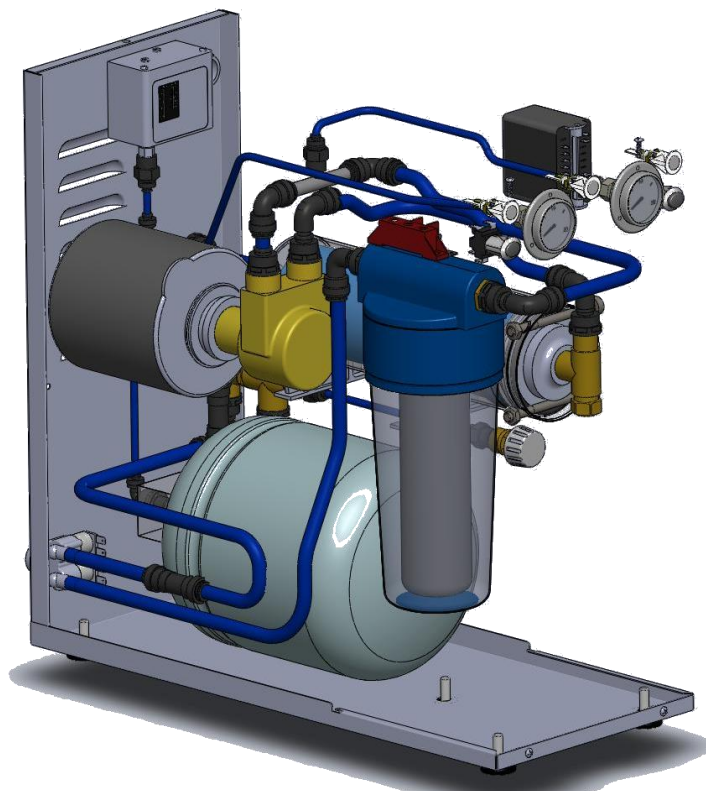
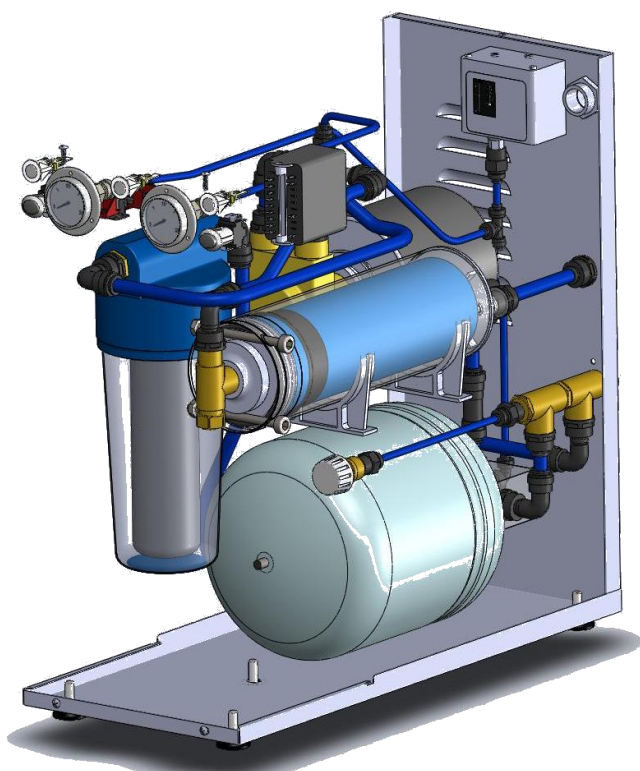
- stop signal, when the pressure of the circuit which includes the expansion vessel reaches the preset value (e.g., 3 bar), the machine stops. The value can be changed with a standard Phillips screwdriver.



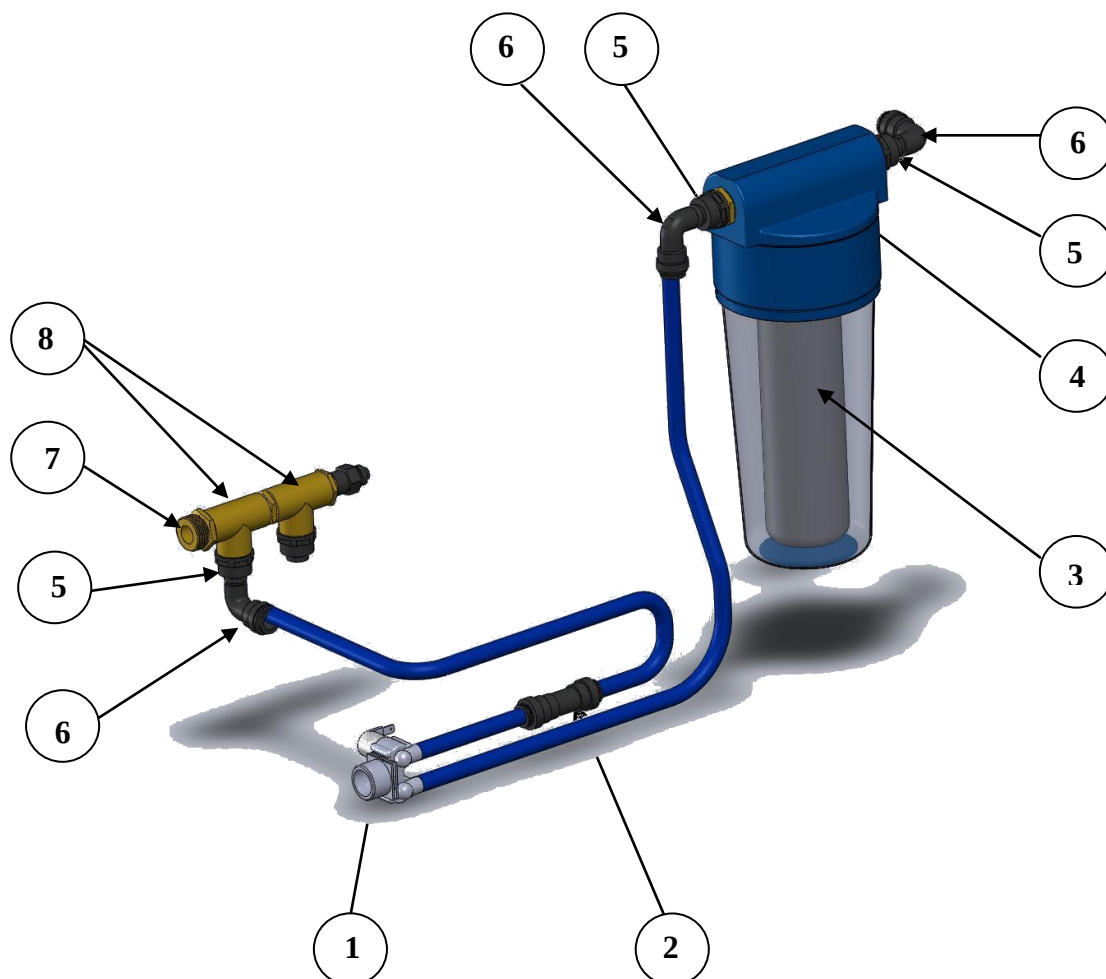
- on signal, occurs when the pressure falls within a range set by the manufacturer or changed by the installer if necessary.



5.3 Hydraulic system

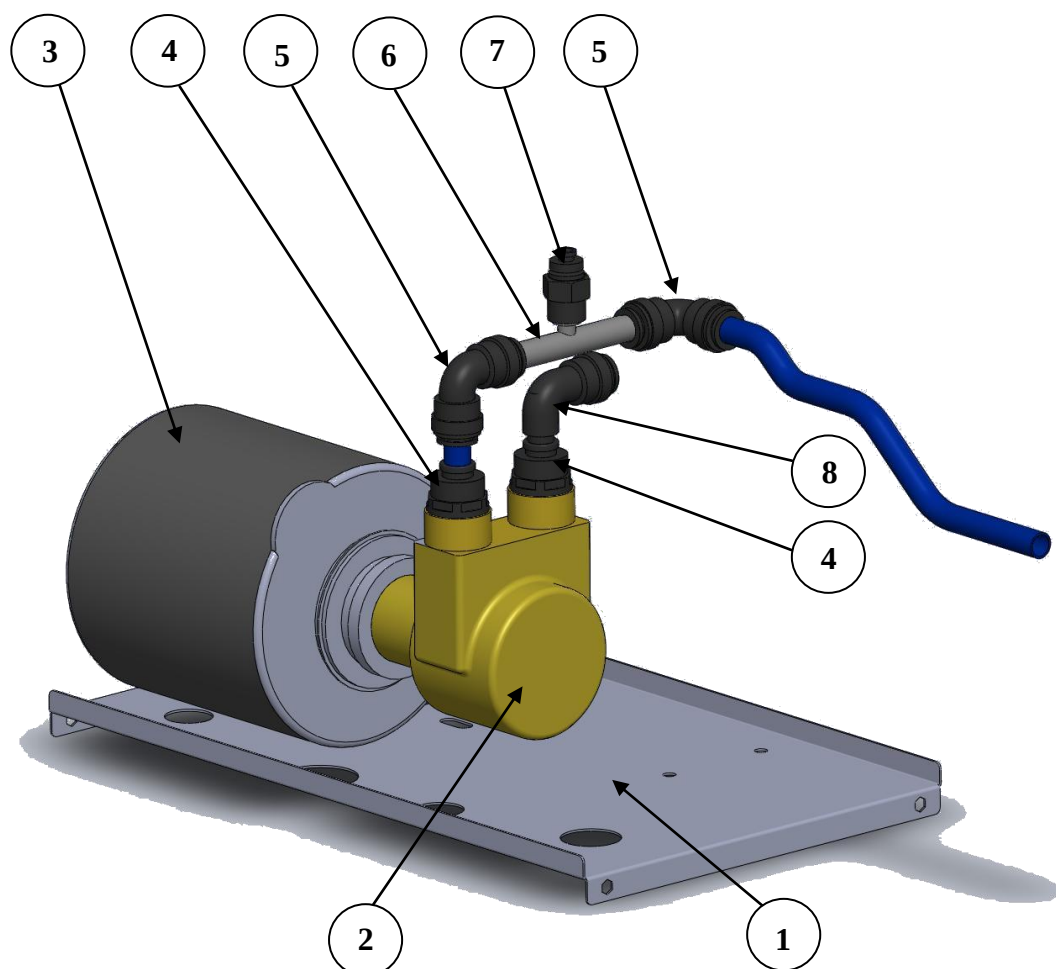


5.3.1 Inlet unit + bypass + filter



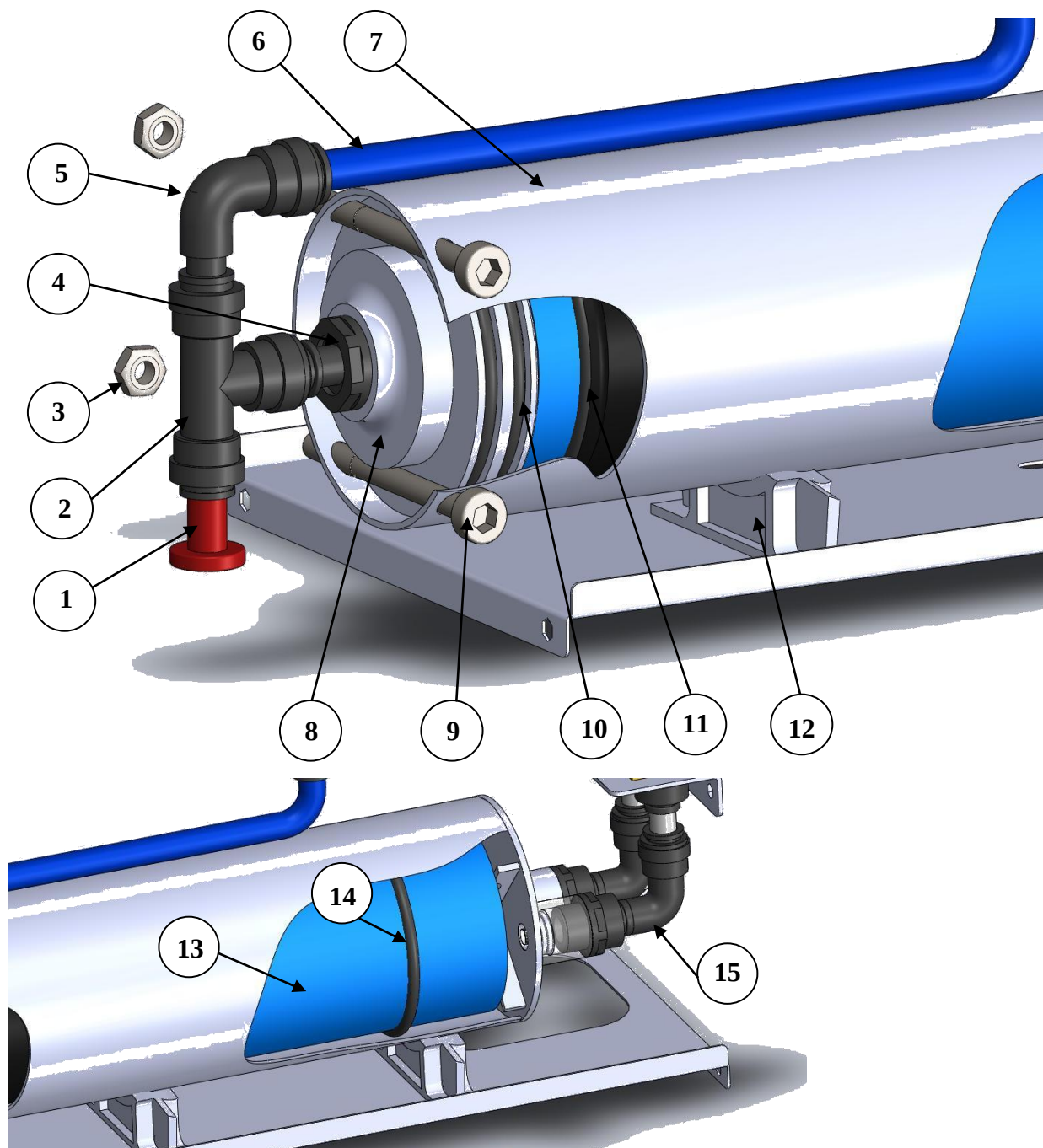
1	Two-way solenoid for supply and bypass at $\frac{3}{4}$ "
2	John Guest check valve, 12mm tube
3	Carbon or sediment filter
4	Filter housing
5	John Guest $\frac{1}{2}$ " threaded attachment, 12 mm tube
6	John Guest 90° curve with spigot, 12mm tube
7	Terminal $\frac{3}{4}$ " M – $\frac{1}{2}$ " F
8	T joint $\frac{1}{2}$ "

5.3.2 Pump unit

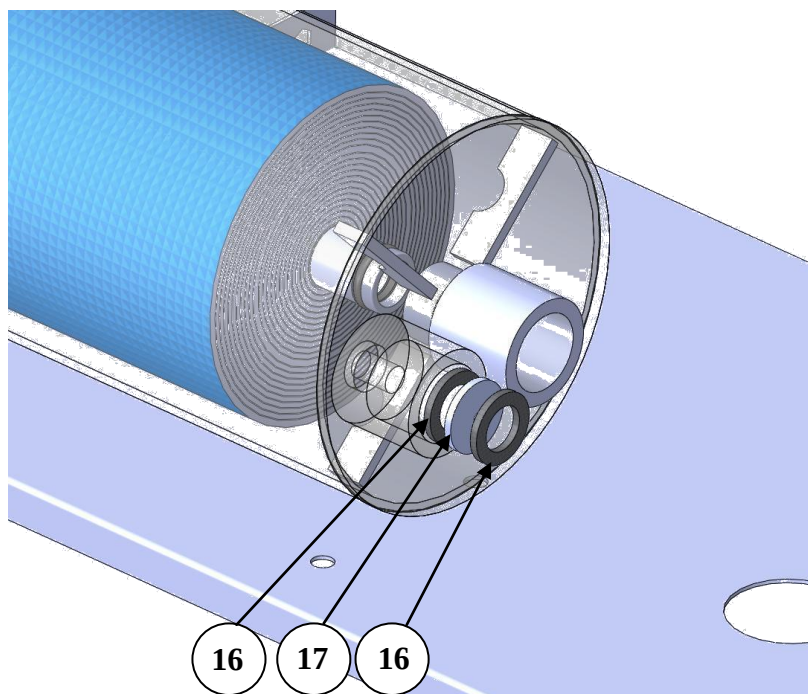


1	Pump support
2	Pump, 300 lt/h
3	Motor, 180 Watt
4	John Guest adapter 3/8" M, ø 12 tube
5	John Guest 90° curve, ø 12
6	Steel tube ø12, with 1/4" M attachment
7	John Guest adapter 1/4" F, ø 6 tube
8	John Guest Curve with spigot, ø 12

5.3.3 Osmosis unit

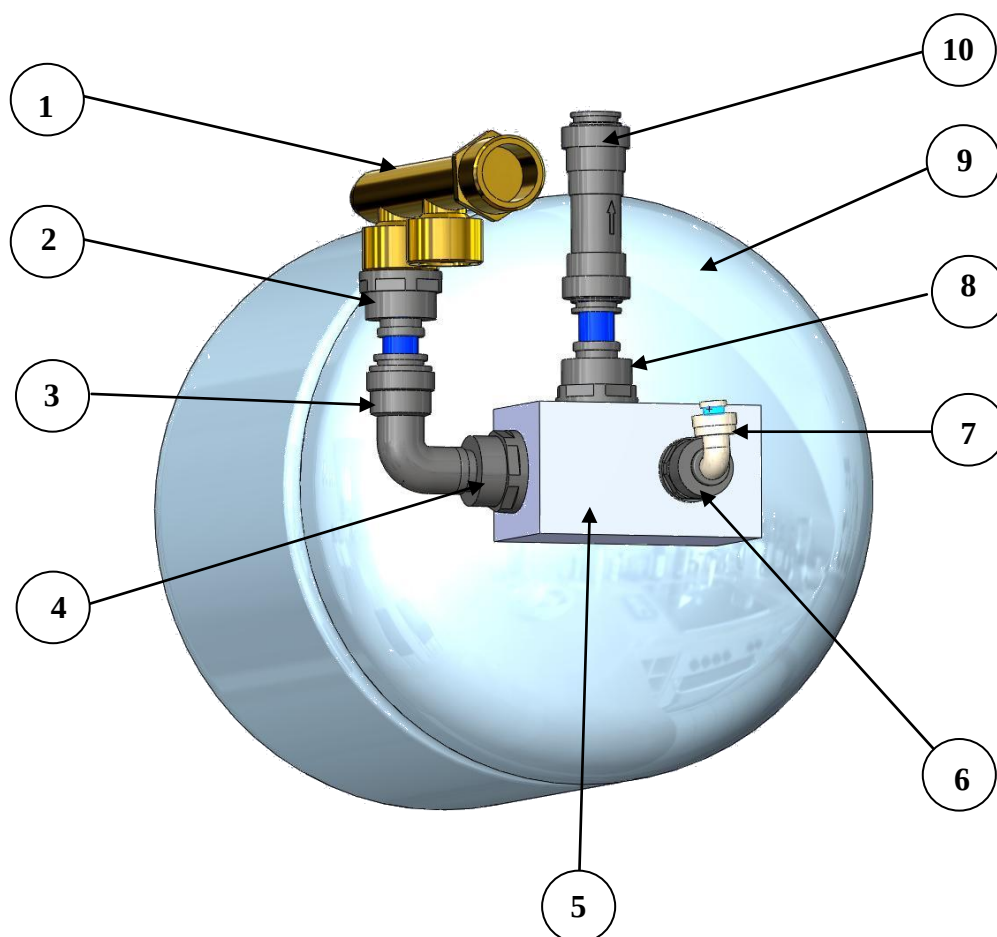


1	Cap, ø12	9	Bolt, M8x100
2	John Guest T joint, ø12 mm tube	10	Vessel cap o-ring
3	M8 Nut	11	o-ring circular membrane seal
4	John Guest 1/2" connector with spigot, ø 12 tube	12	Vessel support
5	John Guest 90° connector with spigot, 12mm tube	13	Membrane
6	Tube, ø 12	14	membrane guide o-ring
7	Vessel	15	John Guest 1/2" connector, ø12 mm tube
8	Vessel cap		



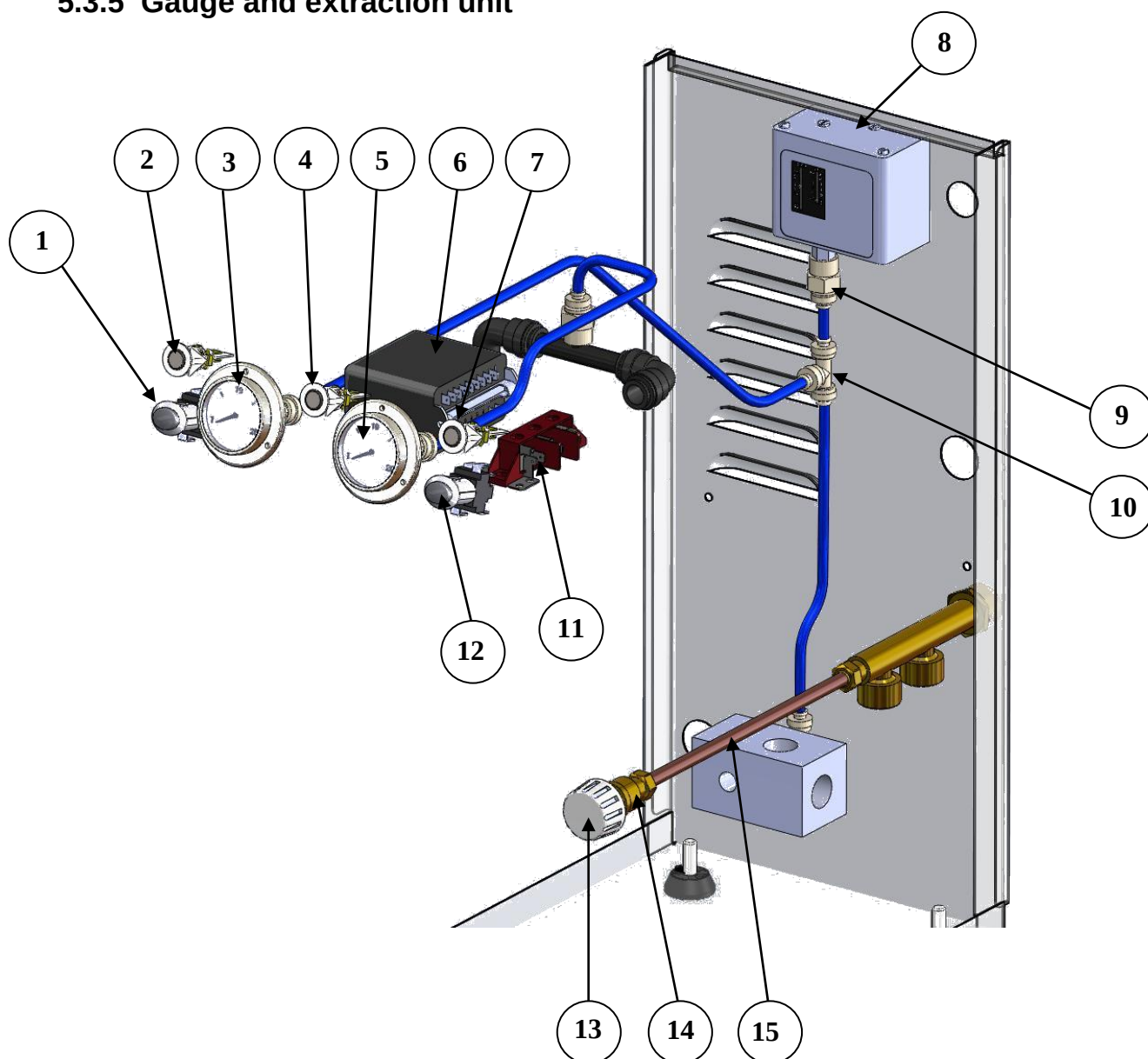
16	Gasket, $\varnothing$ 19 x 2
17	Diaphragm, $\varnothing$ 1.6mm

5.3.4 Expansion vessels



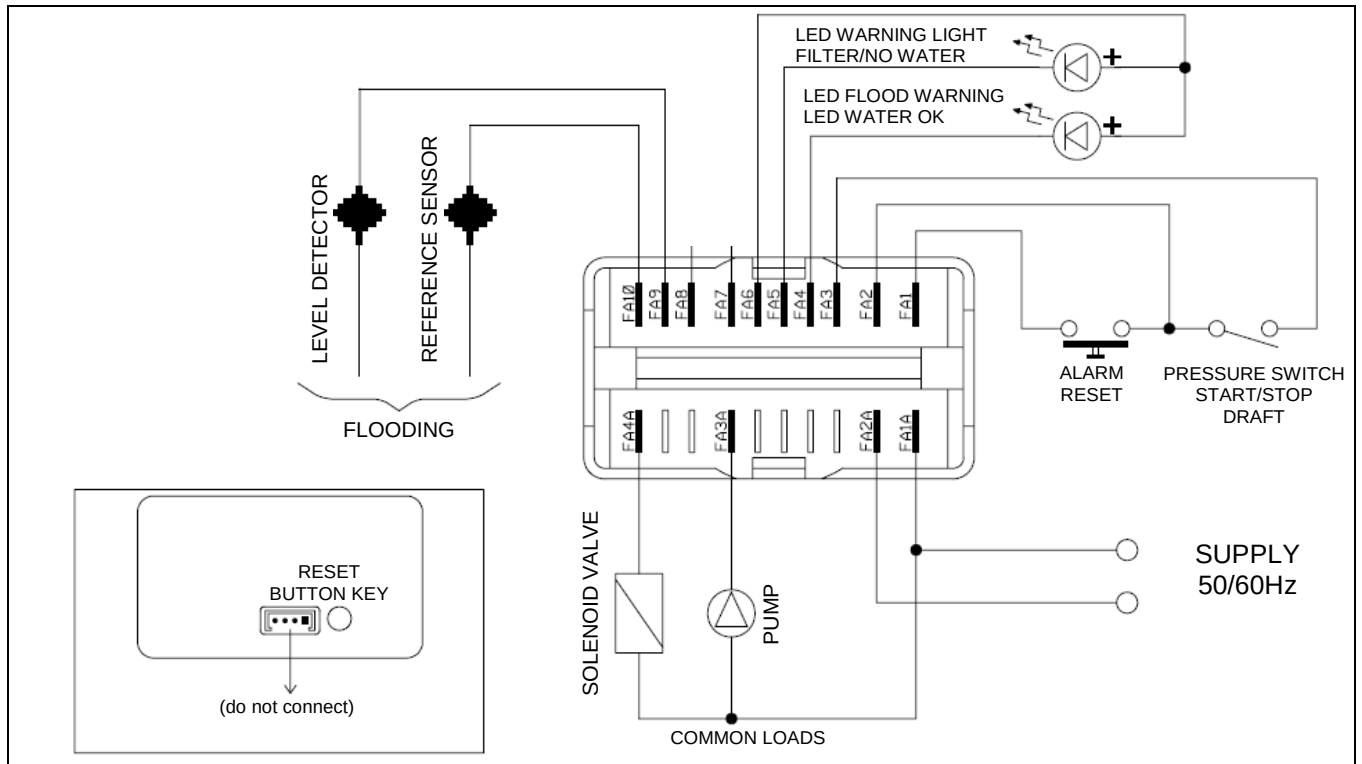
1	Permeate outlet manifold
2	John Guest 1/2" in-line connector, ø 12 tube
3	John Guest 90° connector, ø 12 tube
4	John Guest 1/2" in-line connector, ø 12 tube
5	Expansion vessel manifold
6	Curve with spigot ø 6mm
7	John Guest 1/4" in-line connector, ø 6 tube
8	John Guest 1/2" in-line connector, ø 12 tube
9	Expansion vessel
10	John Guest check valve, ø 12 mm

5.3.5 Gauge and extraction unit



1	Bypass button	12	On/off button
2	Bypass light unit	13	Clean water extraction tap
3	Expansion vessel pressure gauge 1/8"	14	1/4" Adapter
4	Flood detection warning light	15	Extraction tap connection tubes
5	membrane pressure gauge, 1/8" attachment		
6	Electronic circuit board		
7	Machine power on light unit		
8	Differential pressure switch		
9	John Guest adapter 1/4", ø 6 tube		
10	John Guest T joint, ø6		
11	terminal block		

5.4 Electrical system



- Supply load at 230V AC
- flood detector (standard)
- water presence detector (optional)

OPERATING PROBLEMS

REDUCED PRODUCTION

CAUSES	SOLUTIONS
Low supply water temperature (min. 10 °C).	A reduction in the productivity of the osmosis membranes at low temperatures is normal.
Pump malfunction.	Check the pressure at the dedicated pump outlet pressure gauge. Start the system and check that the pressure does not exceed 10 bar. If in doing so, the pressure does not reach at least 8 bars, replace the pump. <i>(Note - The system is tested and designed for an optimal operating pressure of 9 bar. Pump wear decreases the pressure.)</i>
Solenoid inlet is partially blocked.	Clean the solenoid valve filter.
Inlet prefilter clogged.	Check that the amount of water leaving the filter does not fall below the pump capacity i.e., 300 l/h (over 5 l/min.). The filter may need to be replaced.
Reverse osmosis membrane clogged	The process of washing of the membranes depends, in most cases, on the input water. Wash the membranes during servicing, or replace them.

THE REVERSE OSMOSIS SYSTEM DOES NOT PRODUCE WATER

CAUSES	SOLUTIONS
No electricity	Make sure that there is a continuous supply of electricity to the unit.
Power switch faulty.	Check the output power supply. If there is no output power, replace the switch.
Pump malfunction.	Replace the pump or try to unblock it
Inlet solenoid valve faulty	Replace the solenoid valve



5.5 Installation

It is important to remember that, although carefully packed and well-protected, the system must be considered and handled as fragile equipment. Before installing the unit, make sure that there is enough space for easy removal of parts requiring replacement, for maintenance and for the introduction of the necessary tools for checking the unit.

Installation must be performed by an authorised technician according to the Ministerial Decree 37/08 and subsequent amendments currently in force. The system has been designed to be installed in a suitably hygienic location and sheltered from frost and direct jets of water.

Verify that there is an outlet in the immediate vicinity for the power plug. The unit must always be installed after the water meter or the autoclave and after all the filtration and water retention equipment.

Check that the inlet water is controlled. Changing or attempting to modify the characteristics of the COLIBRI' 150 P represents a safety hazard.

The manufacturer declines all responsibility for any damage caused to persons or property resulting from modifications, accessories or devices of any kind applied to this unit which is not expressly described in this manual.

Ensure good air circulation around the unit: make sure that the air vents provide good air circulation.

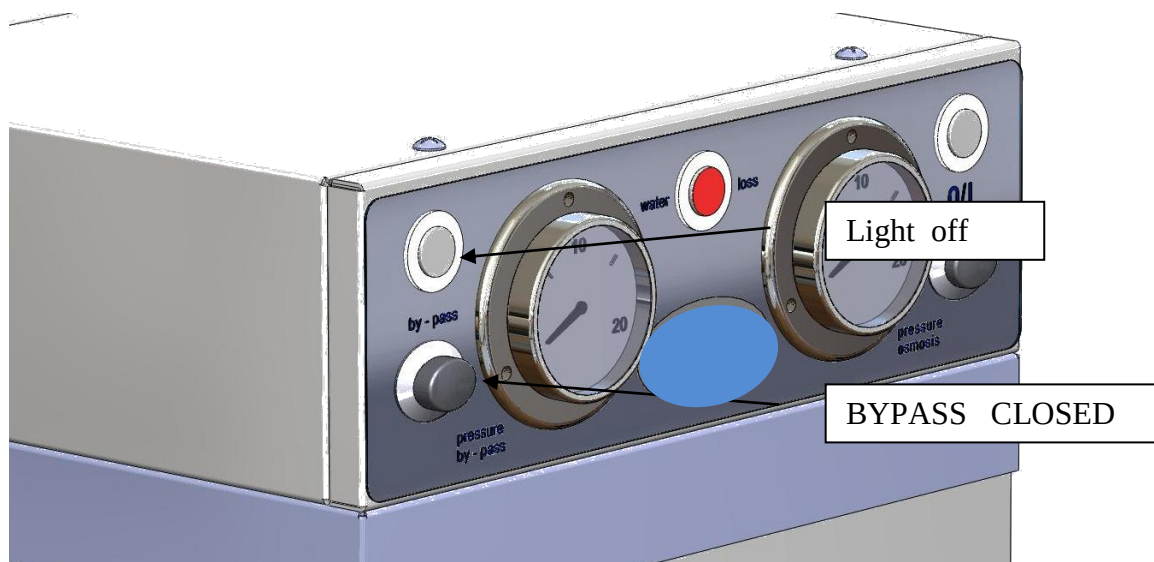
INSTALLATION INSTRUCTIONS

Connect the unit as per the instructions on the machine:

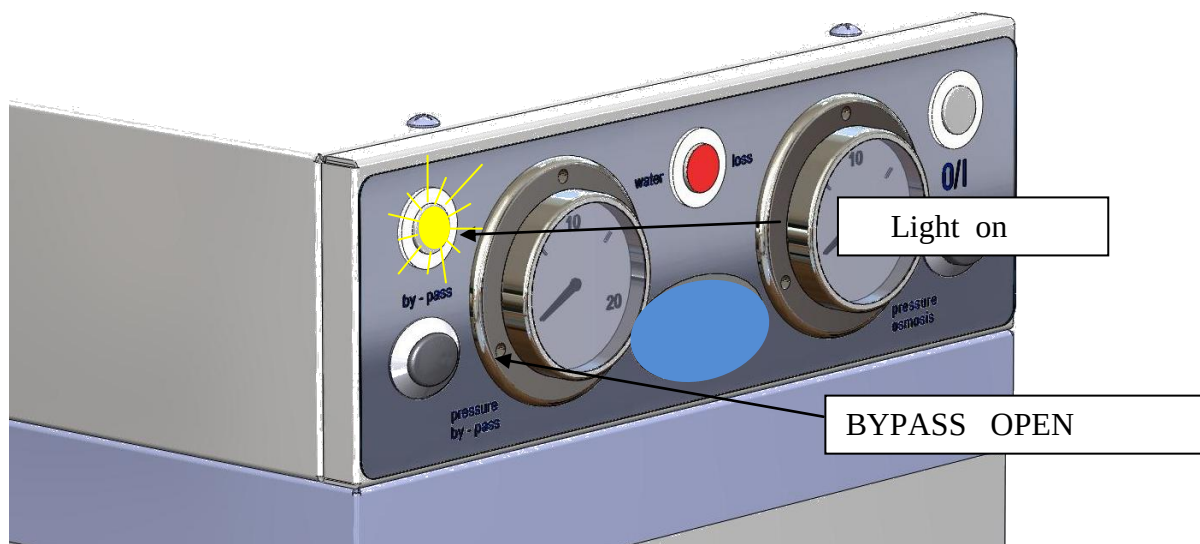
- INLET: indicates the connection of the supply water
- OUTLET: Indicates the treated water to connect to the tap
- DRAIN: indicates the output concentrate to be drained

The pressure of water supply must not be greater than 400 kPa (4 bar) and not less than 150 kPa (1.5 bar) and the minimum inlet flow must be ensured. When connecting to the electricity supply, ensure an appropriate cable is used with respect to the power of the machine. The power supply must conform to that shown on the label of the unit. Do not open or modify either the circuit board or the electrical system unless in the presence of the BORES company technicians.

N.B. WHEN THE SYSTEM IS OPERATING THE BYPASS VALVE SHOULD BE KEPT IN THE CLOSED POSITION AS SHOWN IN THE PICTURE BELOW



Press the BYPASS BUTTON only in case of poor production or inefficiency of the osmosis unit. It is advisable to call a service technician.





5.6 Maintenance

- Before performing any maintenance, ensure that the plant COLIBRI' 150 P unit is disconnected from the power supply.
- In case of failure, never try to repair the system yourself. Repairs carried out by inexperienced persons may cause injury or accidents. Refer to the contents of this booklet. If you do not find the information that need, contact the service centre nearest you. Assistance for the purifier must be carried out by an authorised service centre. Do not allow non-specialized personnel to attempt to repair it.
- Insist on the use of original spare parts. Only with original spare parts is the functional reliability and optimal performance of the equipment guaranteed. Remember that water produced is intended for process use!

IMPORTANT

- During the warranty period, no intervention may be performed without prior authorisation from our Technical Assistance office. If this is not heeded, the warranty is automatically voided.
- Routine and extraordinary maintenance must be done at regular intervals by an authorized technician, who will also fill in the relevant section after any operation.
- If routine and extraordinary maintenance are not performed regularly, the manufacturer accepts no responsibility for the quality of the water supplied. Also, if the unit is not serviced and the maintenance reports are not completed, then the warranty is voided.
- The system uses components subject to periodic replacement and it is not possible to predetermine the actual duration: a crucial factor is in fact the quality of the inlet water (the higher the quality of incoming water, the greater the average life of the component).
- The operation of the unit is fully automatic and maintenance is very low. The only operation necessary is the periodic replacement of the filter cartridge. The average duration of osmosis membranes can vary greatly depending on the characteristics of water, amount of use, and several other factors.
- If the power cord is damaged, it must be replaced by the manufacturer, an authorised service centre, or a qualified technician in order to avoid all risks.
- **Installing the hydraulics requires the use of a new set of movable joints and the old ones should not be used again.**

PREFILTER REPLACEMENT

- For normal use of the system, it must be replaced within and no later than 3 months (even if the use is minimal).
- The timing of replacement is in any case variable as it is influenced by the characteristics of the local water supply. Substitution in any case must take place before 11,000 litres

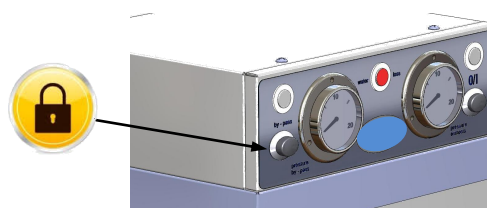
CARTRIDGE REPLACEMENT PROCEDURE

- Always perform the initial operation of **CLEANING THE FILTER**, to prevent deposits of carbon forming new obstructions in the machine. **WARNING!** Never use mains pressure above 5 bar. The procedures described below may only be performed by a qualified technician authorised by the **DIAMOND** company. Proceed as follows:

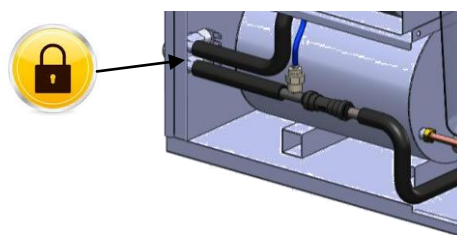
Switch off the power supply



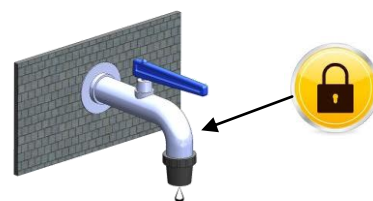
Make sure that the bypass button is in the closed position.



By turning off the power supply, the inlet solenoid valve of the unit will already be closed.

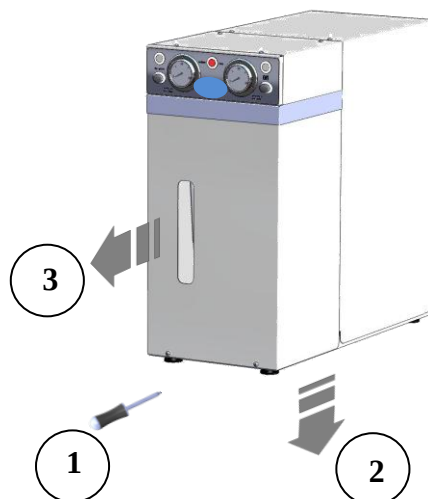


Shut off the main water supply to the system (external water supply tap).



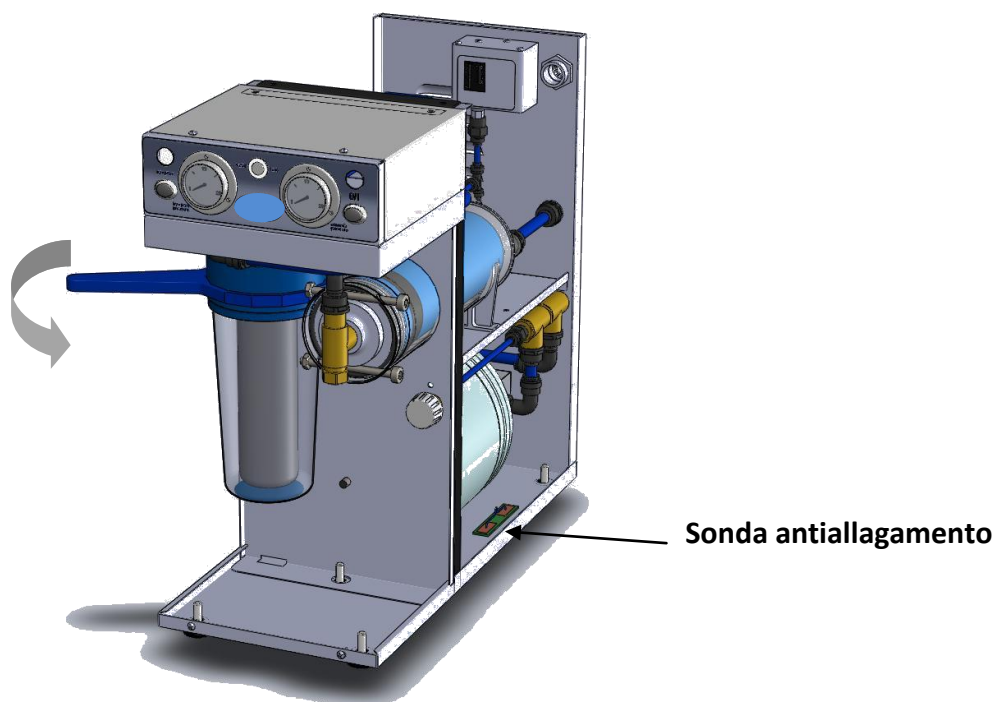
Have a container ready for the collection of water remaining in circulation. **WARNING!** The water initially be expelled at a pressure of 3-4 bar.

Remove the protective front cover by unscrewing the 2 screws at the bottom.



Place the above mentioned container in the vicinity of the outlet connector.

Unscrew the filter cartridge from the filter housing with the special supplied tool. This operation involves the inevitable release of the water contained in the tube fitting.



Insert the new filter and check there are no leaks after it is fitted.

Check carefully that there are no water leaks and that any water spilt during the process does not reach the flood sensor.

Connect the water supply to the machine, and open the supply valve

REPLACEMENT OF MEMBRANES

Osmosis membranes installed in the vessel must be replaced whenever the production of water is less than 50 % of the nominal outup.

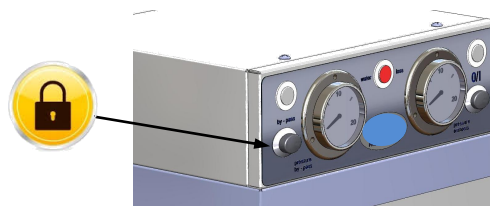
The timing of replacement is variable as it is influenced by the characteristics of the local water supply and the amount of use.

MEMBRANE REPLACEMENT PROCEDURE

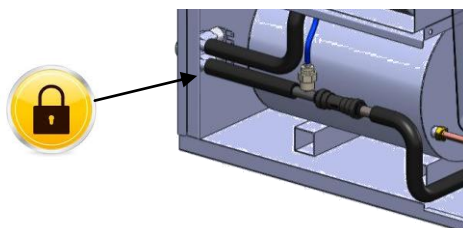
Switch off the power supply



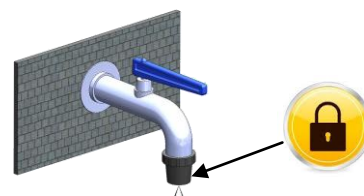
Make sure that the bypass button is in the closed position.



By turning off the power supply, the inlet solenoid valve of the unit will already be closed.

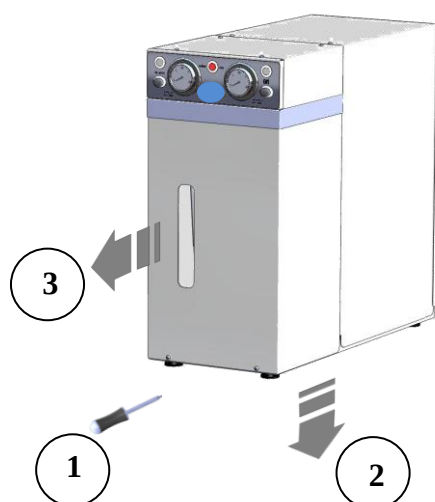


Shut off the main water supply to the system (external water supply tap).



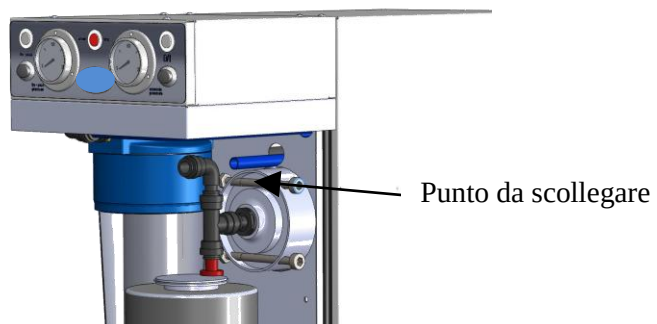
Have a container ready for the collection of water remaining in circulation. **WARNING!** The water initially be expelled at a pressure of 3-4 bar.

Remove the protective front cover by unscrewing the 2 screws at the bottom.

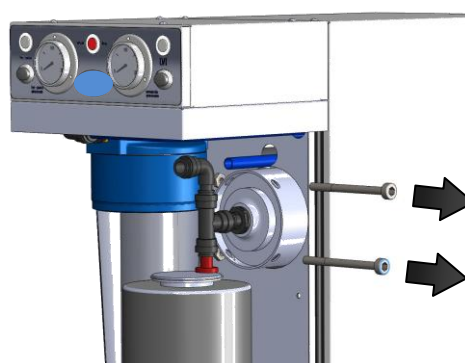


Place the above mentioned container in the vicinity of the outlet connector.

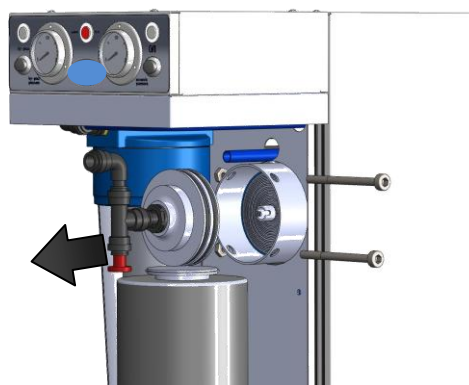
Disconnect and remove the inlet pipe of the water supply located on the cap of the membrane containing vessel. This operation involves the inevitable release of the water contained in the tubing.



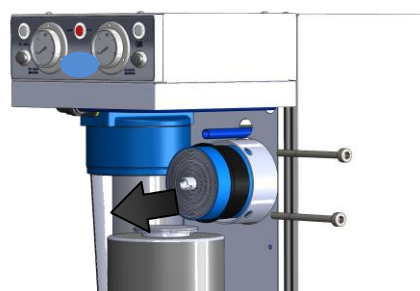
Remove the 2 mounting bolts



Exert force on the vessel cap and pull it off



Remove the used membrane from the vessel;
it is best to pull it towards you with a pair of pliers.

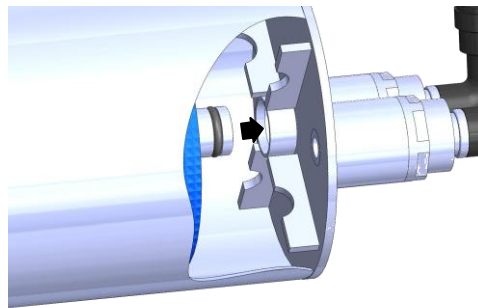


Warning! remove the o-ring seal located under the lip seal of the used membrane and place in the same position on the new membrane as shown in the figure below.

Position the O-ring correctly



Place the membrane carefully in the recess, taking care not to damage the O-ring placed on the appendix of the membrane.



Replace the O-ring seal, apply grease and carefully insert the plug at the bottom of the vessel.



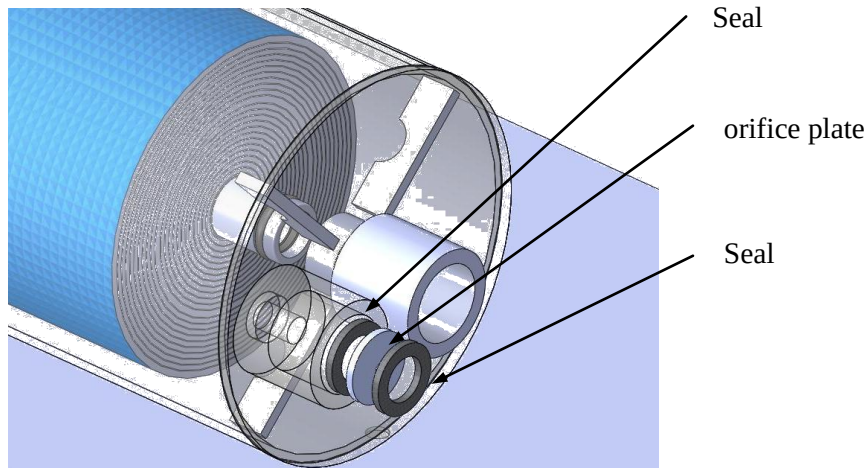
It is advisable to also replace the tube fittings, available for purchase as a separate kit, during this operation. Check carefully that there are no water leaks and that any water spilt during the process does not reach the flood sensor.

NOTE – If the flood sensor is wet by water, the machine will not start. Ensure the sensor is dry.

DIAPHRAGM

The outlet of the concentrate section houses an orifice plate placed between two seals.

Warning!! It is essential after cleaning to reposition the orifice in the correct sequence shown in the figure as it is a critical element in the successful operation of the machine.



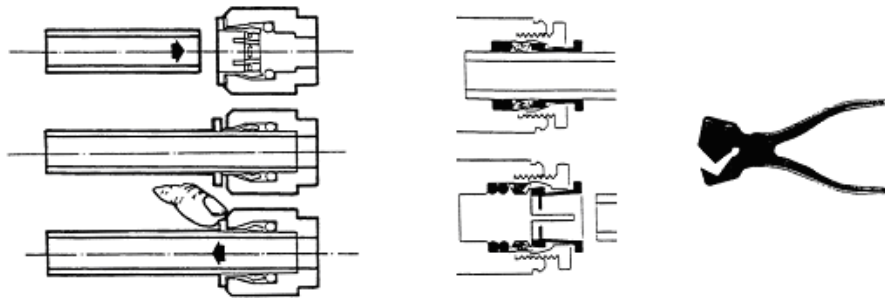
CLEANING

Be careful when using spray cleaners: always avoid directing the spray at the air vents.

N.B. - Close the treated water outlet tap before disconnecting the hydraulic system or water will spill out of the unit until the tubing empties, even if no water is entering the unit via the inlet.

5.8 Use of snap fittings

Due to their ease of use and versatility as well as their reliability, this system has connectors with snap fittings. You should therefore examine the following instructions for the proper use of this accessory.



The figure illustrates connection and disconnection operations together with the relevant technical information. The tubes must have the appropriate diameters and must be cut with an appropriate tube cutter as a clean cut allows for a perfect fit with the internal workings of the snap fittings.

Below are the technical characteristics of the fittings used:

Operating pressure: 0 – 100 Mpa ($\approx$ 0 – 10 bar)

Operating temperature: -25° C to +75° C

Tubes installed: plastic

Material components: body in acetal copolymer, O-ring in nitrile rubber, collar in acetal copolymer and stainless steel.

Compatible fluids: compressed air, water, some inert gases, liquid food products

Tolerance for the external diameter of the tube:

6 mm (+0,05 / -0,1 mm)

8 mm (+0,05 / -0,1 mm)

9.5 mm (+0,05 / -0,1 mm)

12.7 mm (+0,05 / -0,1 mm)

Every time a maintenance or repair operation is performed, we recommend replacing tubes with new ones

6 Unit health status (Service and commissioning form)

Action type:

- *Initial installation*
- *Commissioning*
- *Periodic replacement of the composite filter*
- *Malfunction repair (specify the problem)*
- *Subsequent installation*
- *Subsequent commissioning*

DATE	ACTION TYPE:	LOCATION	NAME OF TECHNICIAN	SIGNATURE AND STAMP OF TECHNICIAN

**THIS EQUIPMENT MUST BE SUBJECT TO PERIODIC
MAINTENANCE FOR THE OSMOTIZED WATER IT
PRODUCES TO MAINTAIN ITS CHARACTERISTICS**

6.1 Manufacturer hygiene control information (*implementation of Council Regulation EC 852/2004*)

The unit denominated COLIBRI' 150 P is a machine designed for the reverse osmosis treatment of potable water. Refer to the appropriate manual for information regarding its operation.

It is hereby also affirmed that:

- a) The materials used and the elements and components that come in contact with water are: *Fittings* (SK Approved) - *Plastic tubes* (SK and/or Local Health Authority approved), the water flowing into the machine during the course of treatment is never in contact with materials or objects that are not compliant with food applications;
- b) Microbiological tests have been performed on the output water from models installed for residential users and the results have always been negative, i.e., having microbiological characteristics that conform to the characteristics of the Presidential Decree 236/88;

The manufacturer affirms: The COLIBRI' 150 P machine are suitable for contact with water intended for human consumption and their use, if conducted according to the procedures and manners specified by the manufacturer, does not constitute any hazard to the health of the end users. Given the above, the manufacturer affirms that the machines denominated COLIBRI' 150 P, as well as meeting all the requirements for food processing equipment, represents a real innovation with respect to similar equipment and this should be kept in mind when evaluating the merits of this system. For HACCP hygiene control purposes, as per *EC Regulation 852/2004*, the COLIBRI' 150 P is considered a *Critical Point (C.P)* as well as a *Critical Control Point (C.C.P)*. For correct function, it must of course be properly serviced and maintained in the manner prescribed and indicated in the manual.

In accordance with the procedures laid down in the implementation of the HACCP plan in force for the commercial administration of food, all maintenance procedures must be carried out with precise regularity, and duly recorded.

Attached is an example of log sheet in compliance with the HACCP plan

Please note that :

- 1) the activated carbon prefilter should be replaced every 3 months or 11,000 litres of inlet water;
- 2) carry out a thorough analytical check at least every 4 months;
- 3) If there are frequent interruptions to the municipal water supply (especially in summer), perform the analytical checks more frequently.

For further information or advice, contact our service centre

