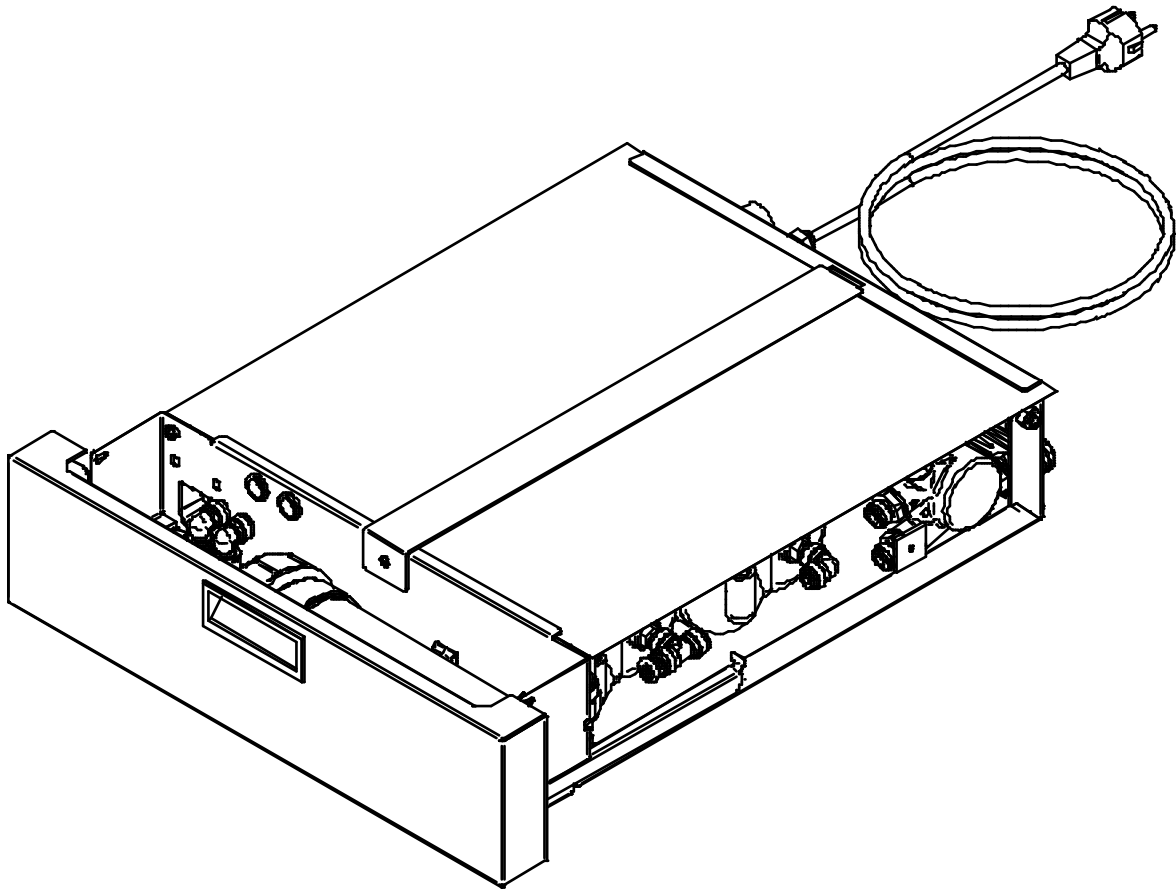




**RO-I**



**SERVICE MANUAL**

SERIAL NO.: \_\_\_\_\_

PART NUMBER:

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## 1. GENERAL INFORMATIONS

### 1.1. MANUFACTURER / ASSISTANCE

BUILDER	ASSISTENCE
HOBART GmbH Robert Bosch straÙe 17 77656 Offenburg	Personal Data of the Retail Seller

### 1.2. CERTIFICATION

RO-I was manufactured in compliance with the following EU Directives:

<i>Machines</i>	2006/42/EC
<i>Low Voltage</i>	2006/95/EC
<i>Electromagnetic Compliance</i>	2004/108/EC

Household and similar electrical appliances - Safety, Part 1: General requirements EC EN60335-1.  
The machine also comes equipped with a leakage system (all components coming in direct contact with the water have been certified in accordance with drinking standards).

RO-I was manufactured in compliance (all components coming in direct contact with the water have been certified in accordance with drinking water standards).

### 1.3. PURPOSE OF THE MANUAL AND ITS CONTENTS

This manual was written in order to supply the user with all the necessary information needed to facilitate the autonomous and safe operation of this device. The manual contains information that is critical to the operation and regular maintenance of the machine.

#### WARNING



This user's manual can be utilized by both technical and maintenance personnel. All users and technicians are required to thoroughly read this manual before installing or operating this device. In accordance with this manual, the user should never perform any unauthorized maintenance exclusively reserved for qualified technicians and maintenance personnel, otherwise the guarantee will be rendered null and void.

### 1.4 CARE AND STORAGE OF THE MANUAL

The instruction manual is an integral part of this device and must be kept nearby at all times, and stored inside the proper container so that it is protected from eventual damage or destruction.

### 1.5. IMPORTANT SYMBOLS TO REMEMBER

#### GENERAL WARNINGS



This symbol Indicates warnings or key information regarding the operation of this device. Please pay close attention whenever you see this symbol.



This symbol Indicates that specialized/portable equipment may be required to adjust or repair the components of the device.



This symbol Indicates that a visual or in-depth inspection, etc. of the device may be required.

#### INDICATIONS OF DANGER



This symbol Indicates General cautions; risk to the operator.



This symbol Indicates danger of electrical shock or electrocution.

#### RESTRICTIONS



This symbol indicates general restrictions.

## 2. CHARACTERISTICS OF THE DEVICE

### 2.1. RECOMMENDED USE

RO-I is an equipment designed for dish/glass wash machine water treatment. It is able to modify organoleptic and chemical characteristics of potable water, reducing saline content. RO-I is used to supply treated water to dishwasher and glasswasher machines.

#### ATTENTION



The device is not intended to be used by people (including children) whose physical, sensory or mental disabilities are reduced, or lack of experience or knowledge, unless they have been granted through the intermediary of a person responsible for their safety, supervision or instruction concerning the use of the device. Children should be supervised to ensure they do not play with the appliance.

#### ATTENTION



**If the dish/wash machine is not equipped with break tank, an external pressure tank of at least 16 liters must be installed. (not needed !!!!)**



All components of the dish/glass washmachine in contact with water must be compatible with osmosis treated water.



It is forbidden to use brass; use only plastic parts and stainless steel parts.



The company Hobart is not responsible of any damage or injury to things or people if these instructions are not respected.

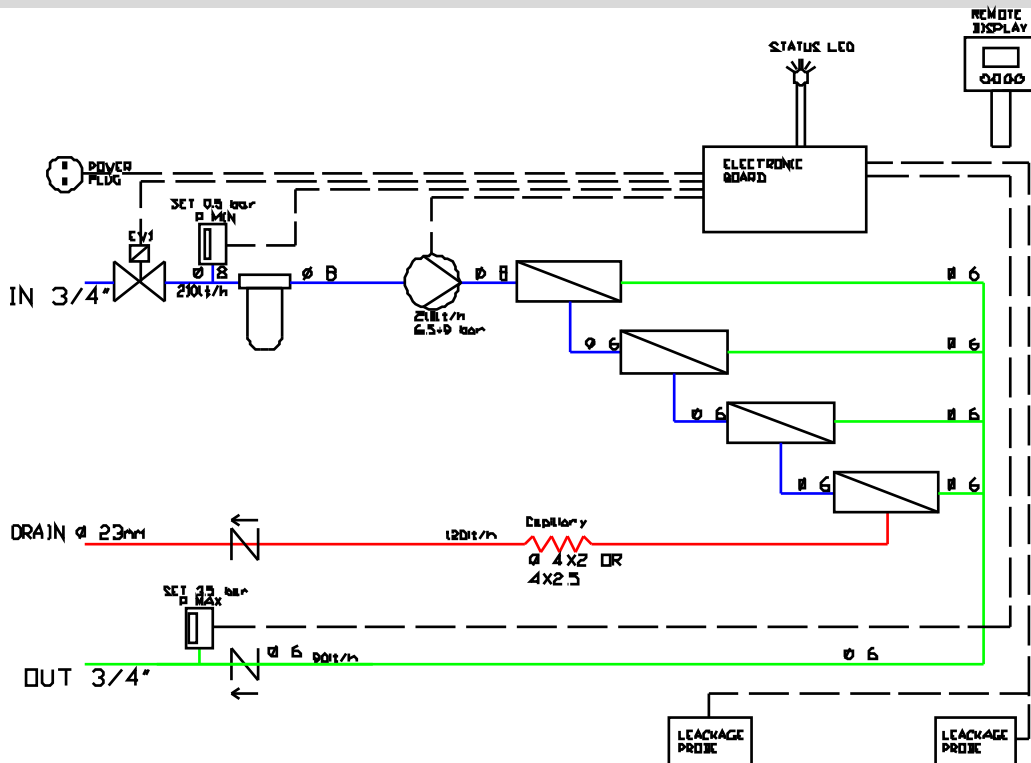
#### ATTENTION



**RO - I is not a water purifier. Using RO-I to condition water that is not drinkable is ABSOLUTELY PROHIBITED.**

### 2.2. SCHEMATIC REPRESENTATION

#### SCHEMATIC REPRESENTATION



#### ATTENTION



The drain capillary must be replaced inside the machine, considering water inlet parameters (see § 3.1.).

## 2.3 DESCRIPTION

The RO-1 osmosis machine can be installed in three different external housings for socket "GC" series, or socket "GX" series or for remote vertical installation.

There are three external hydraulic connections on the back of the device, respectively, for the inlet water  $\frac{3}{4}$ "G, the outlet water  $\frac{3}{4}$ "G to the dish/washmachine and the line used for drain off. On the rearside of the machine, there is also the power cord, and air vents.

From the connection to the main plumbing network, the water arrives to the inlet solenoid valve

The water flows then through the quick connection carbon filter. The carbon block filter facilitates the elimination of the unpleasant chlorine taste, without compromising the desirable mineral properties of the water. These activated carbon filters can also absorb potential trace organic micropollutants, various chemicals — organic and inorganic (i.e. chlorine composites), chlorine residue used to disinfect water, haloforms, pesticides, surface-active agents.

Before the filter, a min pressure switch is attached to check inlet pressure.

The min pressure switch prevents the pump to run dry. In case of low pressure, alarm is acoustic signalled and then the machine makes automatic restart after one minute.

When consecutive low pressure alarm occurs, the restart delay automatically increases.

Water is then pumped at high pressure by the brass vane pump connected to the liquid cooled motor. The water arrives at high pressure to the vessels contain the reverse osmosis membranes. The water permeates the layer flowing into the collection tubes, and then it is directed to the main tube of the membrane, wrapped in various layers. The permeate yield comes from the main tube of the membrane and is sent directly to the outlet.

The drain capillary is used to set the drain flow and recovery ratio.

For automatic start/stop of the machine, a check valve and a max pressure switch are installed in the permeate line.

On the bottom and on the right side of the machine, there are two leakage probes (for vertical and horizontal operating); if leakage occurs the machine stops automatically and makes acoustic alarm.

The signal led inform machine status: led on means machine functioning, led fast blinking means leakage alarm, led slow blinking means low pressure alarm, one blink two seconds off means stand-by status.

### WARNING



The overall water quality depends on a number of variables: the concentration of saline properties in the water, along with other retained elements, the temperature, water pressure, and the total solubility of salt. The water quality may also vary according to the kinds of salts or elements found in the local water source.



The treatment of water coming from a source that is particularly polluted with high concentrations of impurities can cause the blockage of the membranes of the filters and/or impede the overall water flow.



This device CANNOT be used as a substitute for a government approved desalinization and anti-bacteriological plant.



## 2.4 TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS		
Width x Depth x Height (GC housing)	460 x 547 x 120	mm
Width x Depth x Height (GX housing)	600 x 547 x 120	mm
Width x Depth x Height (Vertical housing)	166 x 547 x 473	mm
Approved level of safeguards and protections	IPX4	
Weight	20	kg
Approved Decibel Level under normal operating conditions	55	dB(A)

WATER SUPPLY SPECIFICATIONS		
Water type	POTABLE	
Maximum temperature	35	° C
Minimum inlet capacity	5	l/min
Minimum inlet pressure	1	bar
Maximum inlet pressure	6	bar
Maximum conductivity	1200	µS/cm
Maximum hardness	35	°dH
Maximum PH	9,5	

POWER SUPPLY SPECIFICATIONS		
Power supply type	SINGLEPHASE + GROUND	
Voltage	230	V
Frequency	50	Hz
Absorbed current	1.5	A
Fuse type (electronic board)	T3.15A	

PERMEATE WATER SPECIFICATIONS		
Minimum capacity at 15°C	90	l/h
Recovery Rate	Max. 55 +/-5	%

OPERATION UNDER NORMAL WORKING CONDITIONS	
Activated carbon filter	200h (max 6 months)
R/O Membrane	Max 3 years
Vane pump and solenoid valve	2.000 h

### 2.4.1 Approved GLASS-/DISHWASHERS and necessary parameter setting

ATTENTION				
	GC/GCP	FX/GX/GP	FP	AMX
<b>Serial</b>	<b>&gt; 86494001</b>	<b>&gt; 86545000</b>	<b>&gt; 86514000</b>	<b>&gt; 86596000</b>
<b>C33</b>	30 --> 100			
<b>C43</b>	300 --> 999	480 --> 999	480 --> 999	240/300 --> 999
<b>C55</b>	10 --> 15	13 --> 60 (only GXHK)		
<b>C67</b>		90 --> 210	90 --> 210	
<b>C68</b>		3 --> 1	3 --> 1	
<b>C79</b>	--> 0	--> 0	--> 0	--> 0
<b>C80</b>	--> 14	--> 14	--> 14	--> 14
<b>C90</b>				120/180 --> 330 200/260 --> 550
<b>C91</b>	3 --> 1			3 --> 1
<b>S05</b>	--> 0	--> 0	--> 0	--> 0
<b>S18</b>	--> 1	--> 1	--> 1	--> 1
<b>S34</b>		--> 1*		

\* electrical connection to GXHK and GP(S) possible, for other versions with the following program numbers it may be necessary to activate the interlock of the tank heater: 1, 2, 11-16, 18, 19, 21

## 2.4.2 DRAIN CAPILLARY COLOUR AND RECOVERY RATIO MATRIX

pH					
9.5	BLACK	WHITE	SOFTENER		
8.5	BLUE	BLACK	WHITE	SOFTENER	
7.5			BLACK	WHITE	
	6	15	20	25	Hardness (°dH)

### WARNING



**BLUE CAPILLARY = recovery 55-60% at 15 °C**  
**BLACK CAPILLARY = recovery 35-40% at 15 °C (softener recommended) (standard)**  
**WHITE CAPILLARY = recovery 25-30% at 15 °C (softener recommended)**  
**SOFTENER = softener or antiscalant dosing required**  
**Do not install the machine with hardness > 25 °dH or pH > 9.5 or conductivity > 1200 µS.**

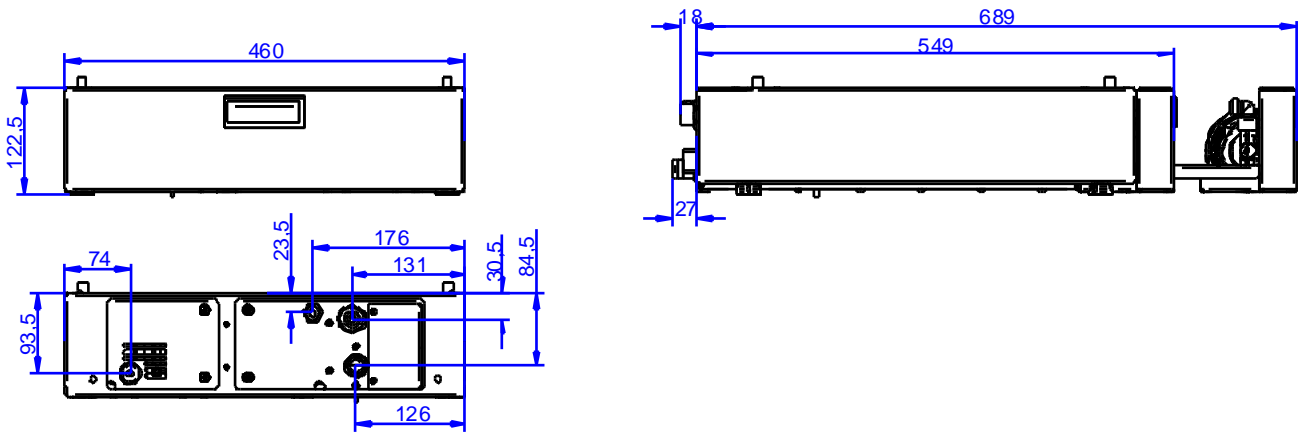
### WARNING



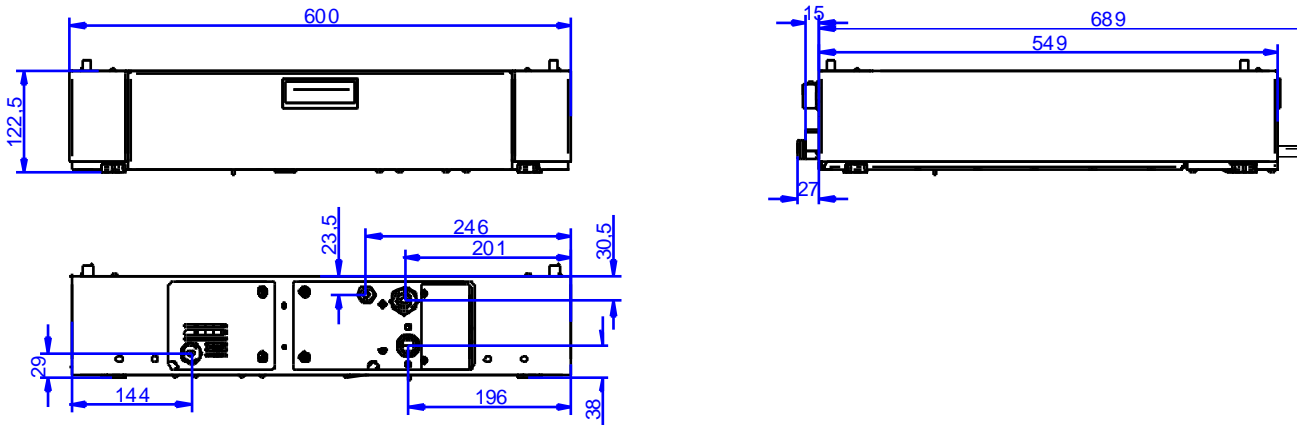
**Any use of this device, which has not been stipulated in this manual, will constitute IMPROPER USE, thereby rendering the guarantee null and void. The manufacture WILL NOT be liable for any damages caused by the IMPROPER USE of this device, due to negligence, failure to follow the manual, or permitting unauthorized maintenance personnel to tamper with machine.**



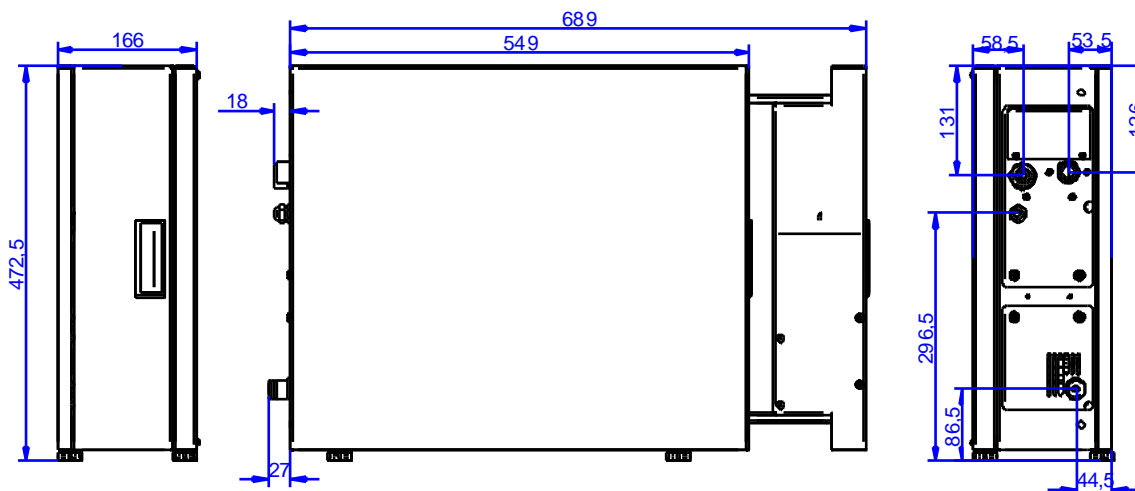
## 2.5 GENERAL DIMENSIONS "GC" HOUSING



## 2.6 GENERAL DIMENSIONS "GX" HOUSING



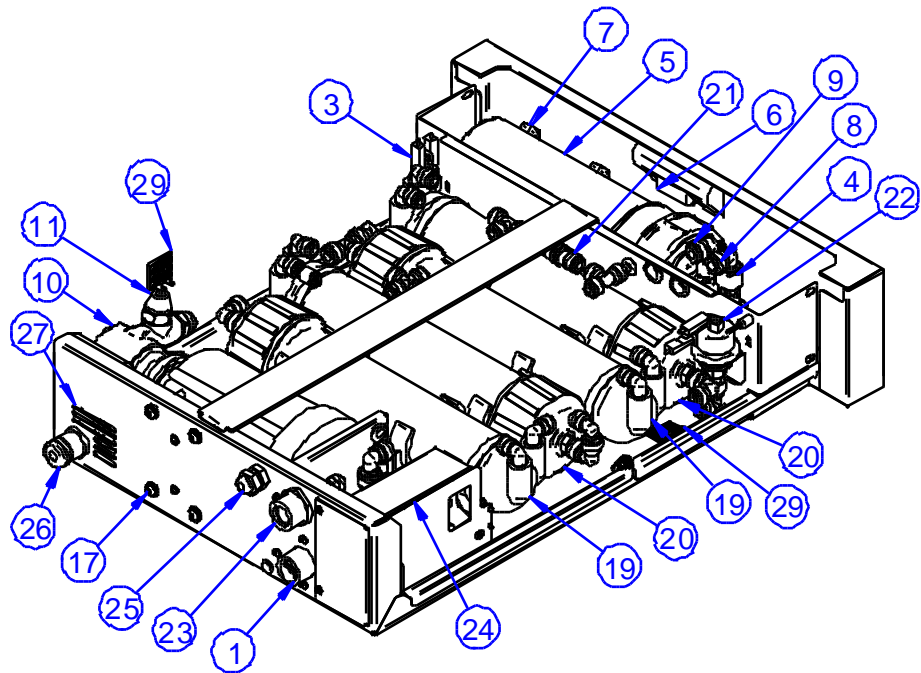
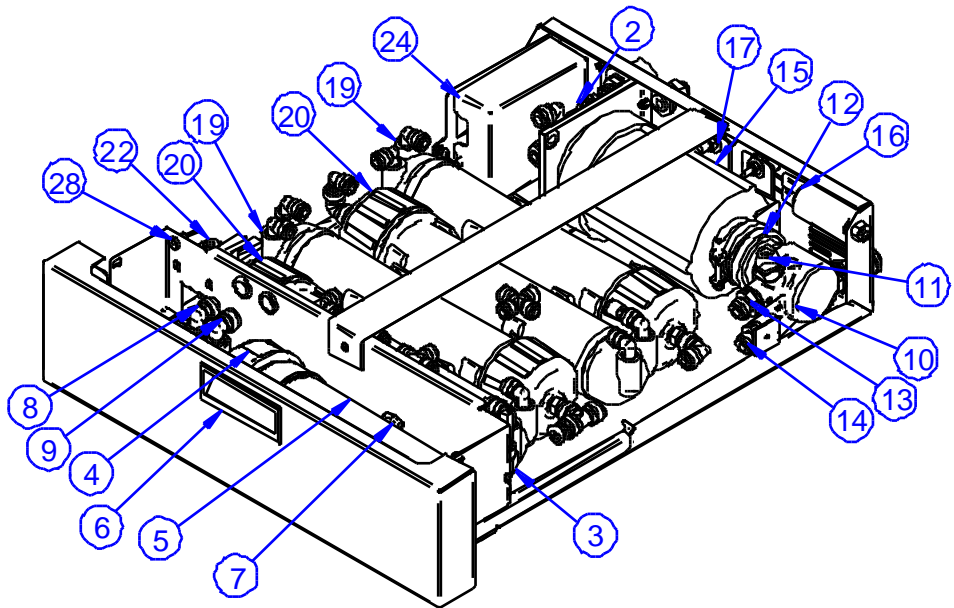
## 2.7 GENERAL DIMENSIONS "VERTICAL" HOUSING



## 2.8 INTERNAL LAYOUT

Item:

1. Inlet  $\frac{3}{4}$ "M
2. Solenoid valve
3. Min press.switch
4. Filter head
5. Cartridge
6. Handle
7. Clips
8. Filter inlet
9. Filter outlet
10. Pump
11. Pump bypass
12. Pump clamp
13. Pump inlet
14. Pump outlet
15. Motor
16. Condenser
17. Feet w/screws
18. Membrane vessel
19. Vessel
20. Vessel cap
21. Concentrate
22. Max press. Switch
23. Outlet  $\frac{3}{4}$ "M
24. Electronic board
25. Power cable holder
26. Drain fitting 10mm
27. Air vents
28. Signal led
29. Leakage probe



## 3. INSTALLATION

The installation of the RO-I must be performed by qualified personnel in accordance with applicable laws and standards. The machine has connections for inlet water, outlet water and drain. The drain capillary must be replaced inside the machine, considering water inlet parameters. Once done the hydraulic connection, connect the power cord.

### WARNING



Please avoid exposure to sudden changes in temperature, thereby causing internal condensation to form and damage electronic parts.



Please ensure that the grill panel is never obstructed, which could lead to the overheating of the motor of the device.

### INSTALLATION CHECK LIST



The EU approved ground cable of the power supply must be connected to the device. The power supply cable must be compatible with the device as indicated on the required tags and labels affixed to the rear of the machine. The electrical cable of the circuit must not be less than 1 mm in diameter. The voltage of the device must comply with the standards of the local area or country (power surges must be limited to no more than 10%)

### MACHINE POSITIONING



The machine can be installed in three different housings:

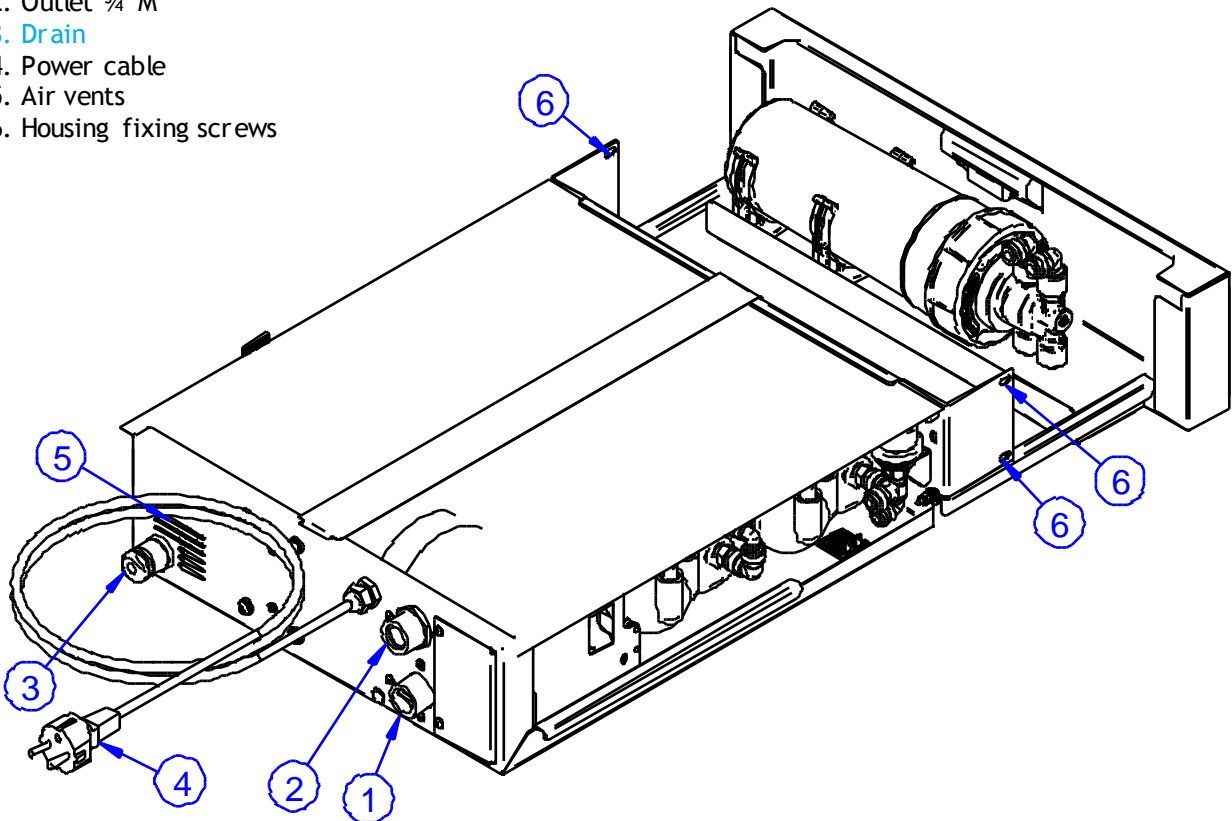
- GC version (housing 460mm large socket dishwasher)
- GX version (housing 600mm large socket dishwasher)
- Vertical version (housing for remote vertical installation)

For the housing assembly, see § 3.4, 3.5.

After assembly the housing, insert the machine and put the housing fixing screws.

Item:

1. Inlet  $\frac{3}{4}$ "M
2. Outlet  $\frac{3}{4}$ "M
3. Drain
4. Power cable
5. Air vents
6. Housing fixing screws



## 3.1 DRAIN CAPILLARY REPLACEMENT

### WARNING

The machine is supplied with the standard drain capillary installed; the softened water capillary and the hard water capillary are packed in the accessories bag:

**BLUE CAPILLARY = recovery 55-60% at 15 °C**

**BLACK CAPILLARY = recovery 35-40% at 15 °C (softener recommended)**

**WHITE CAPILLARY = recovery 25-30% at 15 °C (softener recommended)**

**SOFTENER = softener or antiscalant dosing required**

**Do not install the machine with hardness > 25 °dH or pH > 9.5 or conductivity > 1200 µS.**

The drain capillary must be selected considering water hardness and conductivity (see matrix below).



pH				
9.5	BLACK	WHITE	SOFTENER	
8.5	BLUE	BLACK	WHITE	SOFTENER
7.5			BLACK	WHITE
	6	15	20	25
	Hardness (°dH)			



Using a small screwdriver, remove the fixing o-ring from the 4mm fitting.

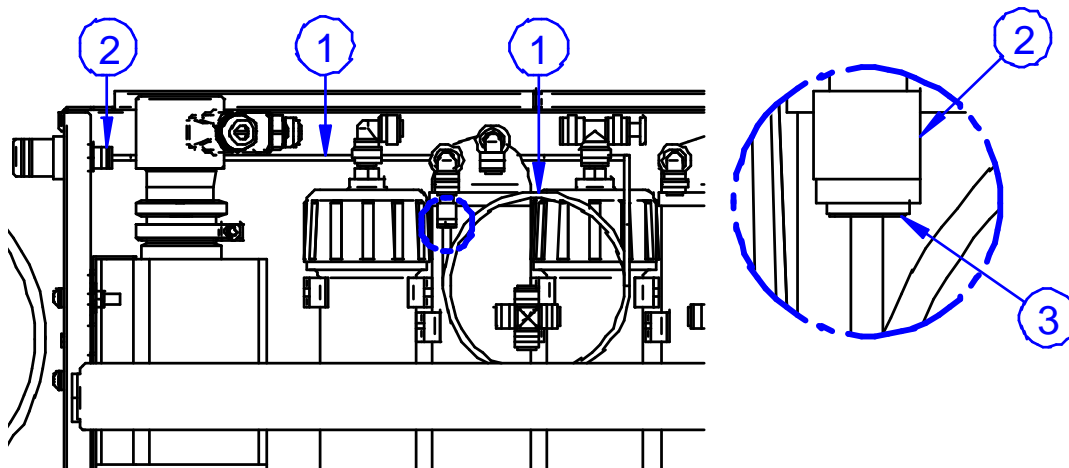
Push the fitting collet and remove the black capillary.

Put the o-rings on the 4mm pipe and push the tube inside the fittings.

Using a small screwdriver, put the fixing o-ring below the fitting collets.

Item:

1. Capillary pipe 4mm
2. Fitting 6-4mm
3. Fixing o-ring



## 3.2 INLET WATER SAFETY DEVICE INSTALLATION



At inlet water connection, a water safety device "BA" in accordance with EN 1717 must be installed. The water safety device is up to the installer.

### 3.3 DRAIN WATER SAFETY ADAPTER INSTALLATION



At drain water connection, a water safety device in accordance with EN 1717 must be installed. The water safety device is up to the installer.

### 3.4 "GC" AND "GX" HOUSING INSTALLATION



To assembly the dishwasher socket, follow these steps:  
With the dishwasher completely empty, turn on one side.  
Remove the feet

Install the housing socket with four M10 screws in the position of the dishwasher feet.  
Install the feet on the osmosis housing socket.

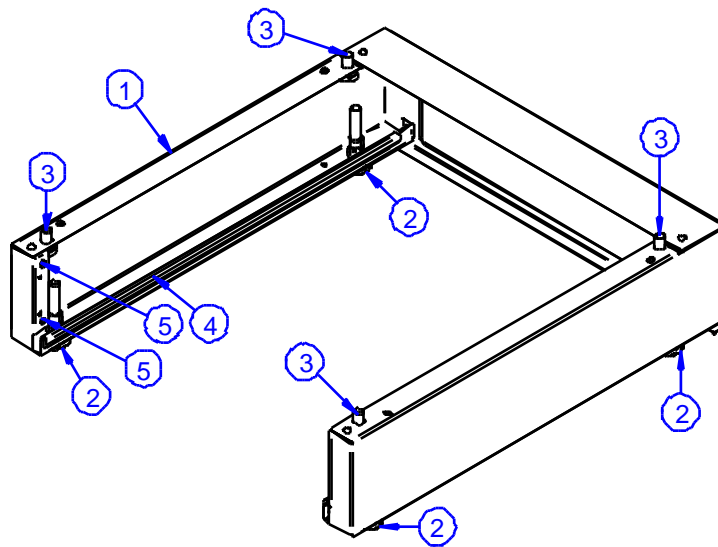
Turn the dishwasher in the vertical position.

Put inside the socket the RO-I machine and fix with four M4 screws to the housing.

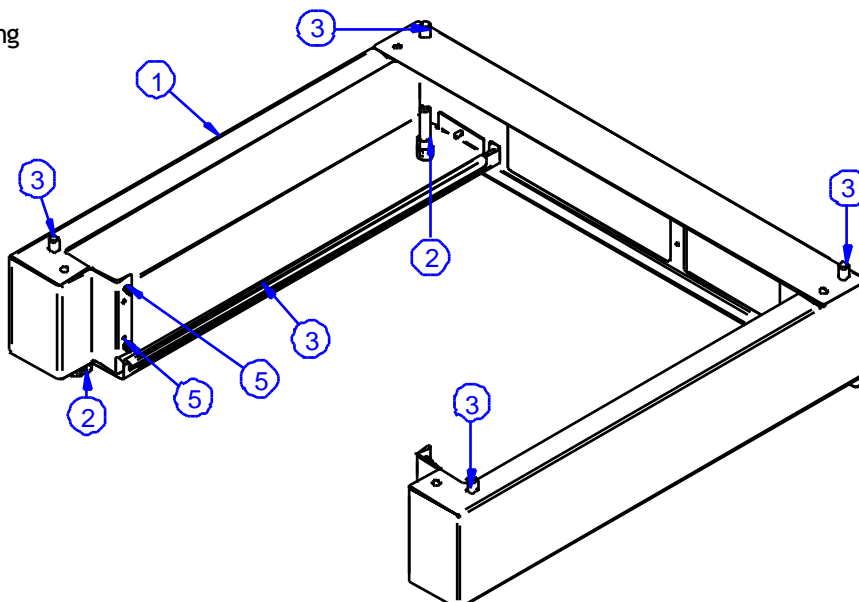
Item:

1. Housing
2. Feet
3. M10 screws
4. Plastic rail
5. RO-I fixing screws

"GC" Housing



"GX" Housing



## 3.5 "VERTICAL" HOUSING ASSEMBLY



To assembly the dishwasher with the vertical housing, follow these steps:

Assembly the lower housing the the four M4 screws.

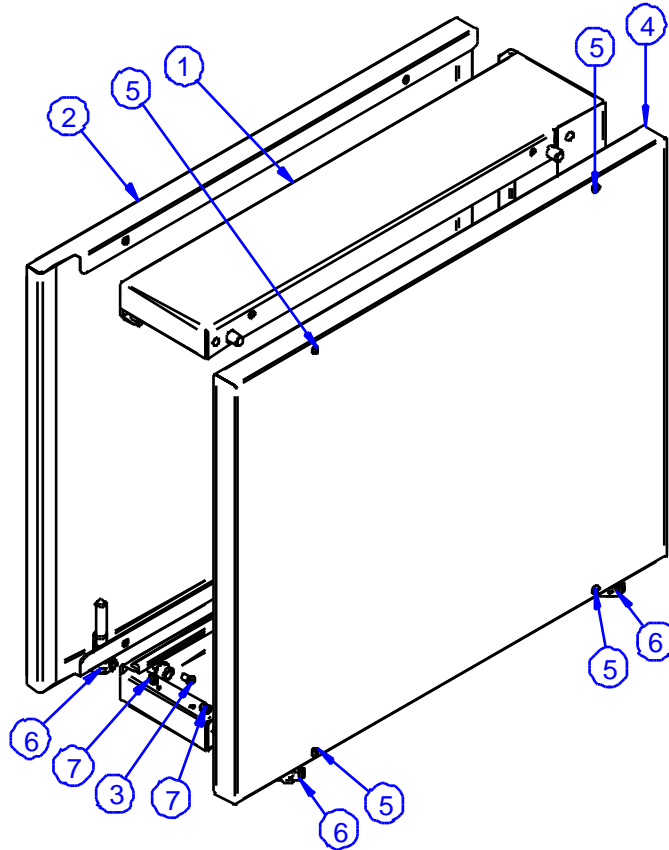
Put inside the housing the RO-I machine and fix with four screws.

Put the upper cover and fix with four screws.

Put the foots.

Item:

1. Housing body
2. Lower cover
3. Lower fixing screws
4. Upper cover
5. Upper cover fixing screws
6. Foots
7. Frontal screws



## 3.6 POWER PLUG CONNECTION / REPLACEMENT



The power plug must be connected to the internal dishwasher connector.



If necessary, the power connector can be cutten, the cable pass outside through the cable holder and a new plug must be installed.

### WARNING



The power plug must be replaced by the authorized technical personell in order to avoid a hazard.

## 4. FUNCTIONING

### 4.1 FIRST START-UP

#### WARNING



The first start-up of the machine must be done by the installer. The installer checks the correct functioning of the machine.



Insert the power plug in a grounded socket 230V 50Hz; the machine is ready to operate.



It is necessary to fill the dishwasher once with the new installed RO-I and drain the dishwasher one time completely.



Check any leakage in the hydraulic circuit.

### 4.2 NORMAL USE

The machine starts and stops automatically leaded by the internal max pressure switch when the dish/washmachine downstream requires water.

#### WARNING



Avoid dehydration of the membranes, as it will cause them to malfunction.

#### 4.2.1 Automatic flushing function

In order to avoid bacterial growth on the surface of the membrane, the device will automatically operate the “flushing” mode every 6 hour. This process consists of the substitution of stagnate water with fresh water (inside the membrane). During this operation the solenoid valve will open for 2 minute.

### 4.3 LOW PRESSURE ALARM

The machine has a low pressure switch inside. In chase of low pressure, the machine makes three BEEP and stop the machine. It restarts automatically. The delay between automatic restarts is increased if consecutive alarms repeat.

### 4.4 LEACKAGE ALARM

The machine has two leakage sensors inside. In chase of leakage, the machine makes a long BEEP and stop the machine. To restart the machine, disconnect and reconnect the power plug.

#### WARNING



If leakage alarm repeats, disconnect the power, open the machine and check for leakages.



Machine opening and leakage inspection can be done by qualified personell only.

### 4.5 STATUS LED

The machine has a status led behind the filter drawer, on top left corner. To watch the signal led, open the filter drawer. The machine status is indicated by the type of blinking.

LED OFF  
ONE SHORT BLINK EACH 2 SEC  
LED ON  
SLOW BLINKING (1 SEC)  
FAST BLINKING (0.5 SEC)

No power.  
Stand-by status (dishwasher don't require water).  
Machine is producing water.  
Low pressure alarm.  
Leackage alarm.

## 5. ENDUSER ORDINARY MAINTENANCE

The tasks of the enduser are:

- Filter replacement (every 200 hours of working)

### ATTENTION



Use only original parts Hobart.

### WARNING



The internal electrical system of the RO-I is powered by 230 Volts.  
Before replace the filter, disconnect the power plug.

### WARNING



The enduser **MUST NOT** disassembly machine drawer from the housing.

DO NOT use corrosive products, acids, steel wool or wire brushes to clean the device.  
DO NOT use low or high pressure jets of water when washing the device.

### 5.1 FILTER REPLACEMENT

### ATTENTION

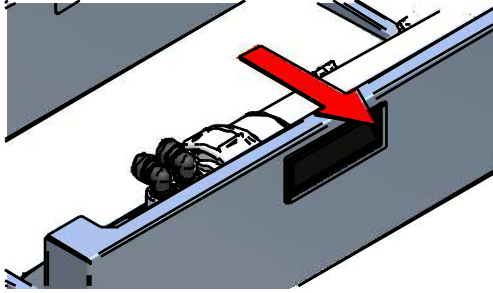


Turn off the dishwasher during filter replacement operation.

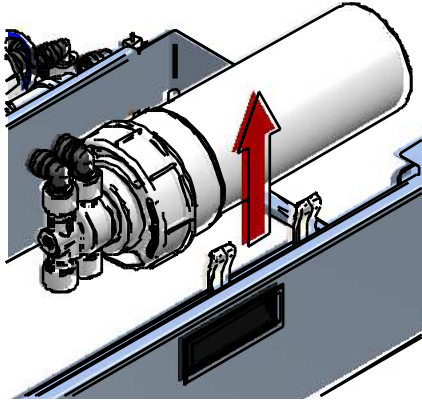
To replace the cartridge, follow these steps:

1. Remove the power plug.
2. Pull the filter drawer from the machine.
3. Pick up the filter with the filter head from the drawer.
4. Turn the cartridge 90° left.
5. Pull the cartridge from the head.
6. Remove the protection cap from the new cartridge.
7. Insert the new cartridge in the filter head.
8. Turn the cartridge 90° right.
9. Dry the filter drawer with a clean cloth and place the filter on the filter drawer clips.
10. Reconnect the power plug and start the machine.
11. Check filter cartridge and head for leakages and push the filter drawer in the closed position

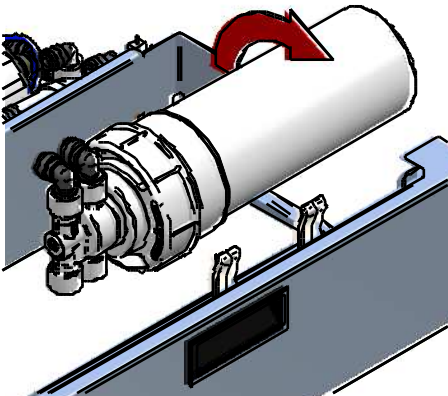




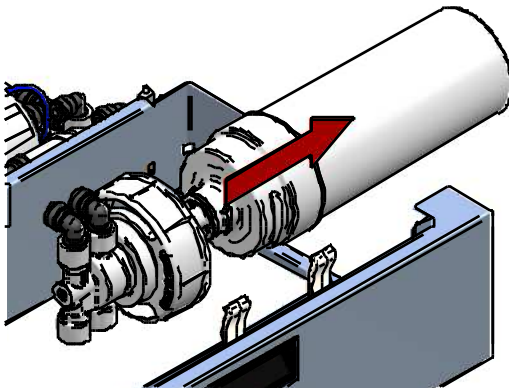
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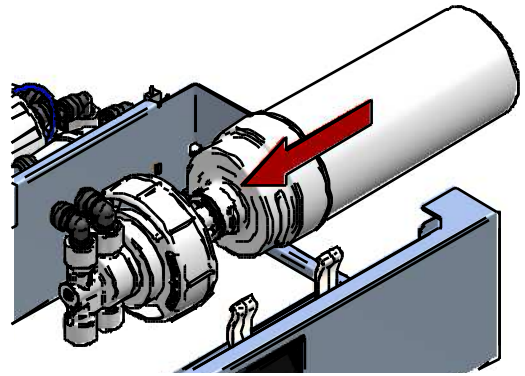
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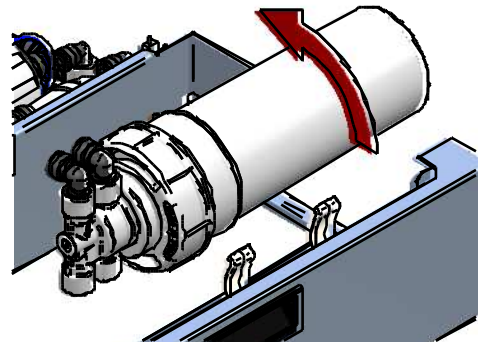
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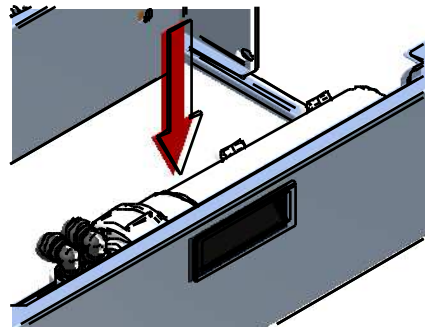
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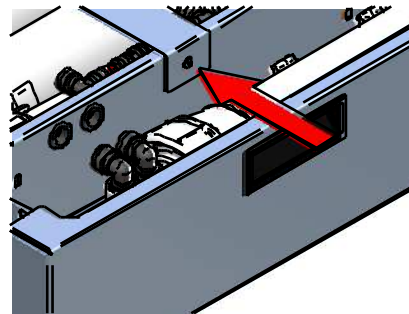
6



7



8



9

## 6. PROFESSIONAL EXTRAORDINARY MAINTENANCE

### ATTENTION



The internal RO-I electrical apparatus is fed by 230 Volts electrical current. Before opening the machine, make sure the machine is unplugged.

### 6.1. REQUIRED TRAINING FOR MAINTENANCE PERSONNEL

Maintenance personnel must possess the following qualifications as prescribed in this manual:

- An adequate knowledge of standard EU approved safety procedures
- The required technical knowledge to understand the concepts outlined in this manual.
- Knowledge of basic hygiene
- General familiarity with the device, in addition to a basic knowledge of troubleshooting electrical and hydraulic problems

### 6.2. RESPONSIBILITIES OF MAINTENANCE PERSONNEL

The overall maintenance plan, described in this chapter, must be rigidly adhered to as indicated in the above paragraph, in order to maintain the efficient operation of the device, thereby guaranteeing continued water quality.

The tasks listed in the box below must be performed by qualified technical personnel, strictly in accordance with the manual, exclusively using approved parts and materials. Otherwise the guarantee will be null and void. The maintenance performed must always be documented properly and signed by the technician in the space provided on the attached maintenance log.

OVERALL INSPECTIONS	TASK	FREQUENCY
Vane pump and solenoid valve	Substitution	2000 hours
Membranes	Substitution	Estimated 3 years.
Machinery	Visual Inspection to check the integrity of system controls General cleaning	In chase of functional damage
Machinery	Operation Verification Sanitization	In chase of permeate water bad smell

### WARNING



The internal electrical system of the RO-I is powered by 230 Volts. Before open the machine, disconnect the power plug.

### WARNING



DO NOT use corrosive products, acids, steel wool or wire brushes to clean the device. DO NOT use low or high pressure jets of water when washing the device.

### 6.3 POWER CORD / POWER PLUG REPLACEMENT

### WARNING



If the supply cord is damaged, it must be replaced by the manufacturer or by the authorized technical personnel in order to avoid a hazard.



The power plug must be replaced by the manufacturer or by the authorized technical personell in order to avoid a hazard.

## 6.4 CLEANING SOLENOID VALVE FILTER / SOLENOID VALVE REPLACEMENT



Close the inlet water valve.

Remove the pressure in the feed pipe, making the machine run for 10 seconds.

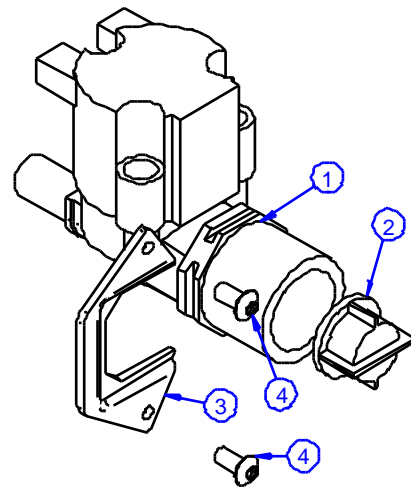
Turn off the machine and remove the 3/4" fitting from the solenoid valve.

Using pliers, gently pull the solenoid valve filter.

Clean the filter with tap water and/or compressed air.

Item:

1. Solenoid valve
2. Mesh filter
3. Solenoid valve bracket
4. Screws



If solenoid valve is damaged, and every 2000 hours of working time, replace them with a new one.

To remove the solenoid valve:

1. disconnect the internal fittings,
2. disconnect the power cables from the electric terminal board
3. unscrew the two fixing screws
4. remove the solenoid valve and the bracket
5. install the new solenoid valve with reverse procedure.



## 6.5 VERIFICATION/CALIBRATION OF THE PRESSURE SETTINGS

The verification/calibration of the settings must be done at extraordinary maintenance of the relative items and/or on troubleshooting operations.



All the calibrations must be performed by qualified personnel.

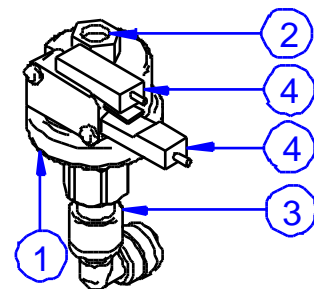
### 6.5.1 Max pressure switch setting



Install a preadjusted to 350 kPa sealed pressure switch in the permeate block.  
Check pressure with a manometer.

Item:

1. Max pressure switch
2. Adjustment screw
3. Fitting 1/4"
4. Faston connectors



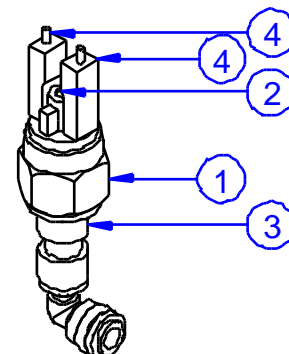
### 6.5.2 Min pressure switch setting



Install a preadjusted to 30 kPa sealed pressure switch on the filter outlet pipe.  
Check pressure with a manometer.

Item:

1. Min pressure switch
2. Adjustment screw
3. Fitting 1/8"
4. Faston connectors



## 6.5.3 Pump pressure verification



Remove the 8mm plug and connect a manometer on the pump outlet pipe. The pressure must be between 650 and 900 kPa (6.5 and 9 bar). Adjust maximum pump pressure turning the by-pass.

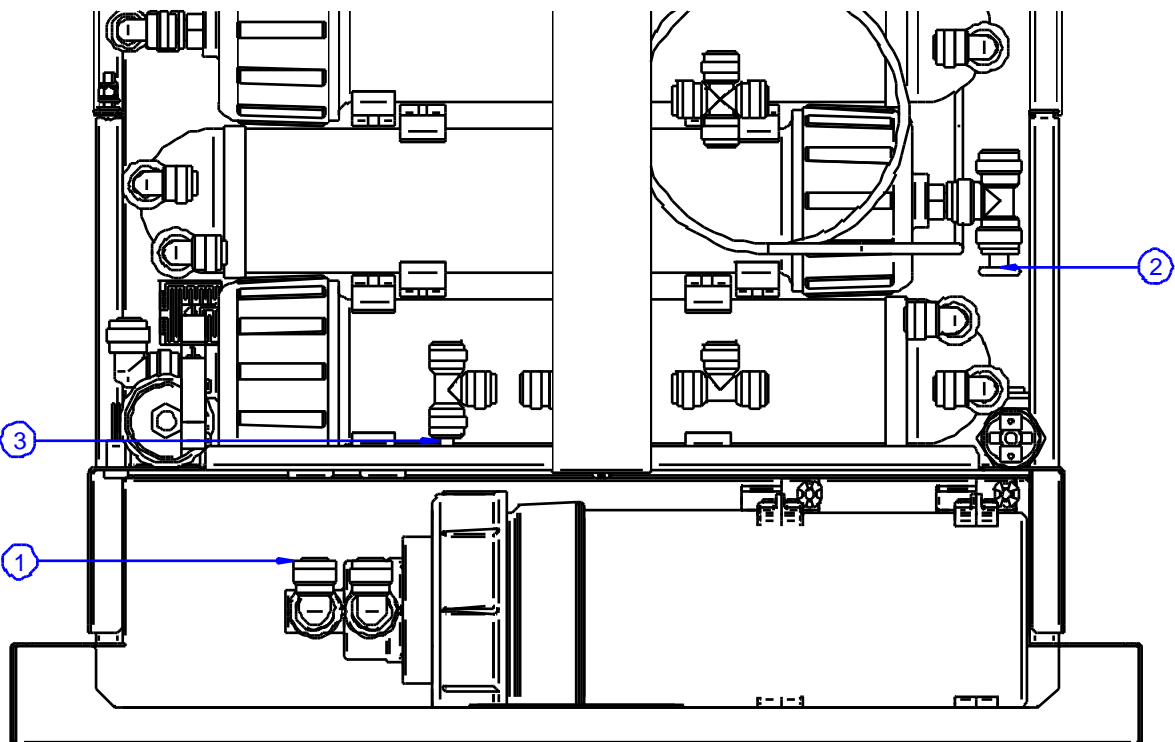
## 6.5.4 Manometers and sample point connections



The service qualified personell can connect manometers on the inlet, pump outlet and permeate outlet to measure operating pressure and take water samples to measure inlet quality and permeate water quality.

Recommended tools:

1. Manometer 0-6 bar with fittings and pipings 6mm
2. T 8mm with pipe 8mm
3. Reduction 8-6mm
3. Manometer 0-16 bar with fittings and pipings 6mm
4. Sample point ball valve with fittings and pipings 6mm
5. Conductivity meter
6. Ph meter (or colour ph measure kit)
7. Total hardness measure kit
8. DM-fit fittings keys
9. Tube cutter



ITEM:

1. Inlet pressure connection
2. Pump pressure connection
3. Permeate pressure and sample point connection

## 6.6 PUMP REPLACEMENT



Remove machine drawer.

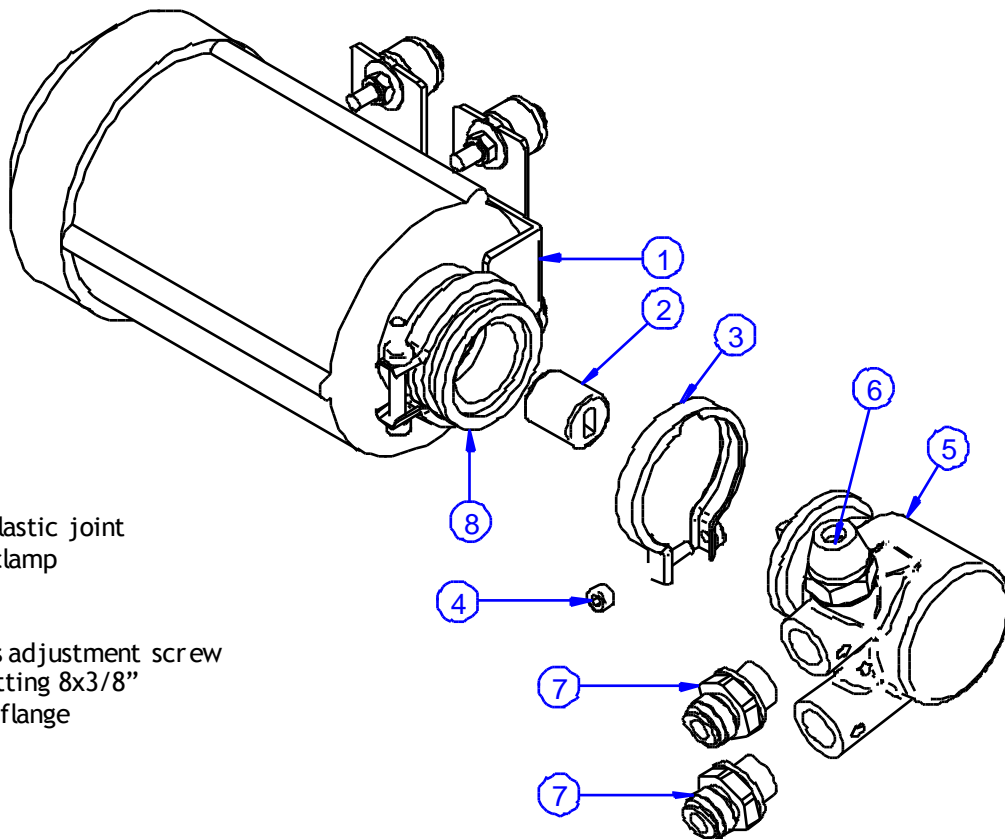
Disconnect the pipings from the pump.

Unscrew the screw of the clamp and disassemble the pump from the motor.

Install the new pump with fittings previously removed.  
If the plastic joint is worn, replace also them.

Mount the new pump with reverse procedure.

At start-up, check pump pressure with a manometer, see § 6.5.3.



ITEM:

1. Motor
2. Shaft plastic joint
3. Fixing clamp
4. Screw
5. Pump
6. By-pass adjustment screw
7. Male fitting 8x3/8"
8. Plastic flange

## 6.7 CHECK/REPLACEMENT OF OSMOTIC MEMBRANES



A decay of performance rating of 10% per year is considered normal wear for osmotic membranes. Special conditions of entry and/or high consumption may accelerate the clogging of the membranes.

Close the mixing valve completely.

Supply water and verify scope permeated and conductivity with a reference tool.

If the capacity is reduced more than 50% of the initial conditions and/or the conductivity is greater than  $80\mu\text{S}/\text{cm}^2$ , replace the osmotic membrane as follows.

Disconnect the tubes from the fittings of the vessel containing the membrane.

Dismantle the vessel from the machine and unscrew the caps.

Dismantle the membranes clogged and replace with new membranes of the same type.

Clean the vessel on the inside by removing all traces of dirt and scale.

The new membrane must be removed immediately prior to their installation and handling, using protective gloves sterile.

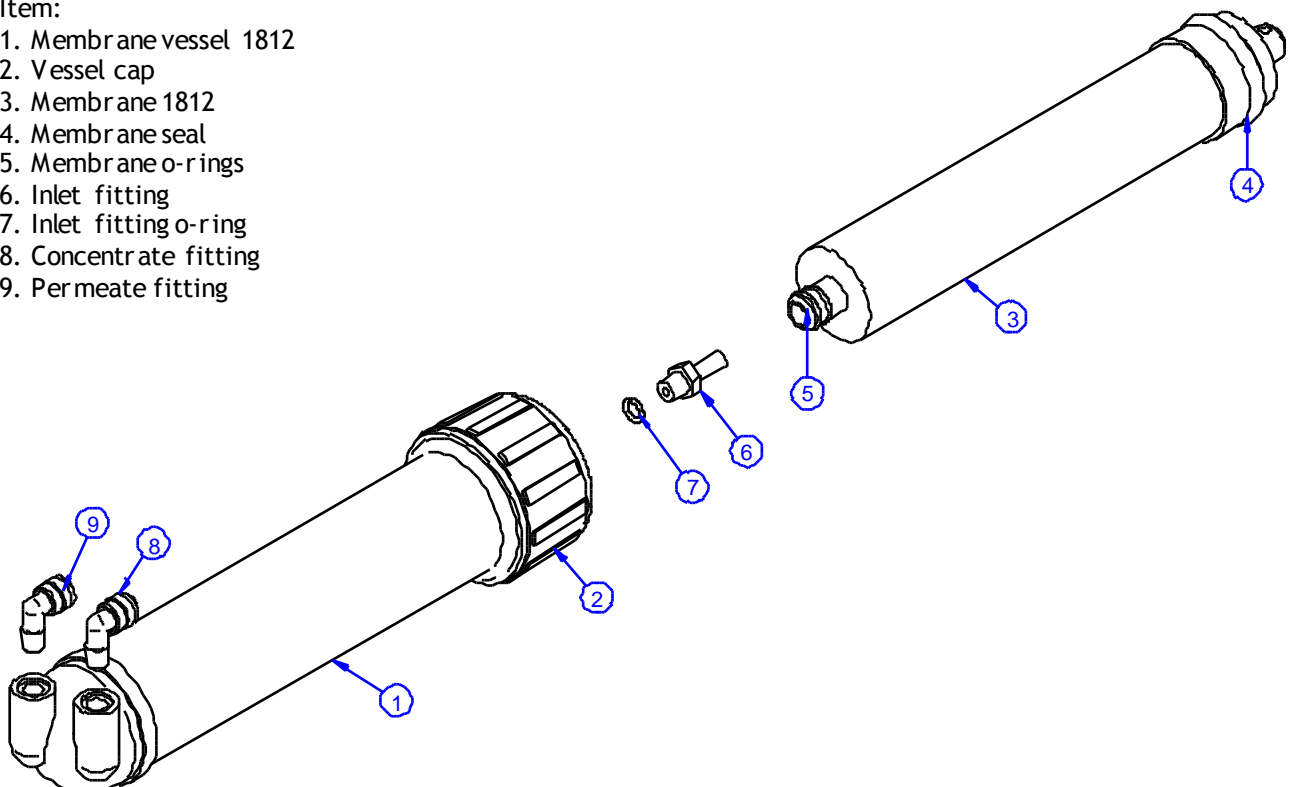
Before installing the membrane in the vessel, lubricate the o-ring and the upper seal.

Install the vessel with reverse procedure.

Supply water for at least 15 minutes, then check permeated flow and quality.

Item:

1. Membrane vessel 1812
2. Vessel cap
3. Membrane 1812
4. Membrane seal
5. Membrane o-rings
6. Inlet fitting
7. Inlet fitting o-ring
8. Concentrate fitting
9. Permeate fitting



## 6.8 MACHINE SANITATION



Perform the sanitation if permeate water has a bad smell.



All sanitation operations must be performed by qualified personell.



Use protective clothing to the skin, hands and eyes as shown in the safety data sheet of chemicals used.



Disconnect the permeate pipe and fill a tank with approx 3,5 liters of permeate water .



Add 250ml hydrogen peroxide 10 vol (3%) to achieve a concentration of 0.2% by weight.



Connect the water pipes of entry, drain and permeated by the machine, at the tank; make a bridge on the low pressure switch connectors. Turn on the machine and let the solution recirculate for 10 minutes.

Wait 10 minutes that the solution acts on the machine.

Reconnect the inlet, drain and permeated pipes.



Replace the filter and reconnect the cables of the minimum pressure switch.

Turn on the machine, fill and empty the dishwasher tank once, until the sanification solution resids are totally drained.

## 6.9 FREEZE PREVENTION TREATMENT



Perform the freeze prevention treatment if after the start up, the machine will be stocked below 0 °C.



The operation must be performed by qualified personell.



Disconnect the permeate pipe and fill a tank with 9 liters of permeate water .  
Add 1liter of propylenic atossic glycole.



Connect the water pipes of entry, drain and permeated by the machine, at the tank; make a bridge on the low pressure switch connectors. Turn on the machine and let the solution recirculate for 10 minutes.

Reconnect the inlet, drain and permeated pipes, and the cables of low pressure switch.



At the restart after inactivity period, fill and empty the dishwasher tank once, until the freeze prevention solution resids are totally drained.



## 6.10 FUSE REPLACEMENT / ELECTRONIC BOARD REPLACEMENT



Unscrew the electronic board fixing screws and pull the electronic board from the machine. Unscrew the screws that fix the electronic board box to the bracket.

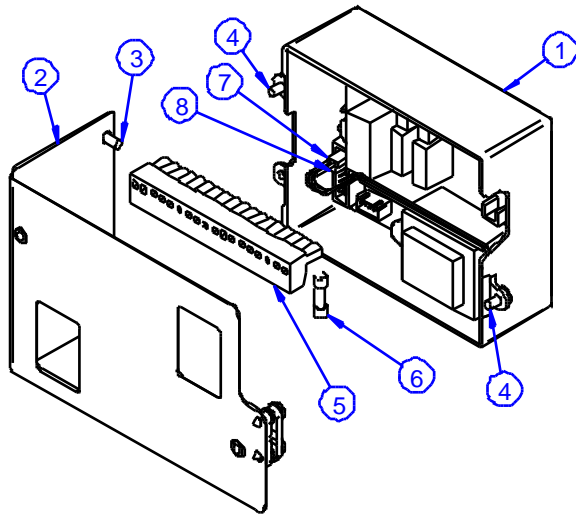
If the fuse is burned, replace with another one.

If electronic board is malfunctioning, check the tightness of main terminal connector.

Replace the electronic board with another one, following these steps:



- Disconnect the main terminal connector.
- Connect the terminal board to the new electronic board
- Mount the new electronic board with reverse procedure.

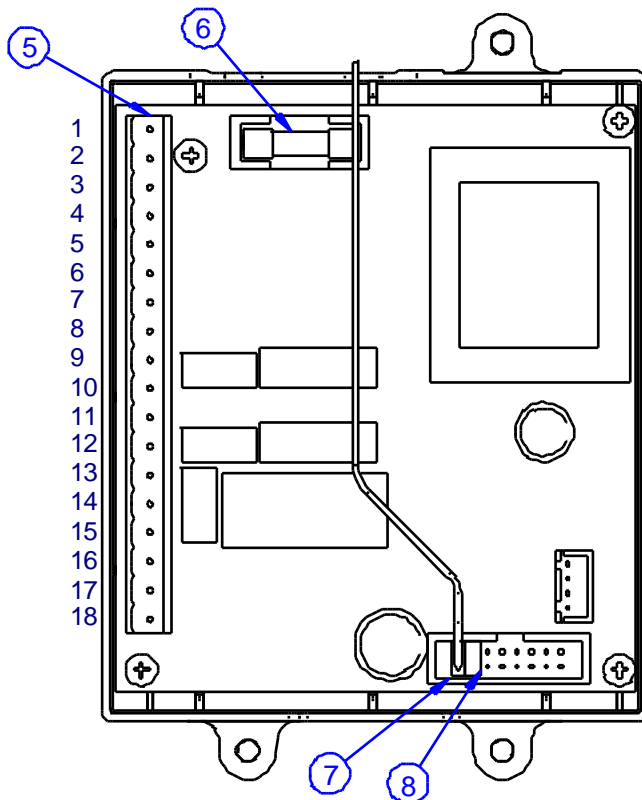


Item:

1. Electronic board box
2. Board support plate
3. Support plate screws
4. Board screws
5. 18 poles connector
6. Fuse
7. Status led connector
8. Jumper

POSITION:

- 1 - 230Vac
- 2 - 230Vac
- 3 - Not used
- 4 - Not used
- 5 - Not used
- 6 - Not used
- 7 - EV1
- 8 - EV1
- 9 - Pump
- 10 - Pump
- 11 - Not used
- 12 - Common inputs
- 13 - Min pressure
- 14 - Max pressure
- 15 - Leakage probe
- 16 - Not used
- 17 - Not used
- 18 - Common inputs





## 7 TROUBLESHOOTING

<b>Problem:</b>	The machine is off (status LED off).	
	<b>Cause</b>	<b>Solution</b>
	Electric supply failure.	Check power plug is connected.
	Burned fuse.	Check power socket fuse and electronic board fuse.
	Damaged board.	Replace the board.

<b>Problem:</b>	After twenty seconds from machine start, makes beep and stops. After one minute restarts and make beep again (status LED slow blinking).	
	<b>Cause</b>	<b>Solution</b>
	Water inlet pressure failure.	With a manometer, check that dynamic water inlet pressure is at least 1 kPa.
	Inlet solenoid valve failure.	Check water inlet solenoid valve functioning, if damaged or clogged, replace it.
	Low pressure switch failure.	Check pressure switch functioning, if damaged replace it.
	Damaged board.	Replace the board.
	Filter clogged.	Replace the filter.
	Electric connection failure.	Check electric connections and tight if necessary.

<b>Problem:</b>	The machine stops, make continuous beep and never restarts automatically (status LED fast blinking).	
	<b>Cause</b>	<b>Solution</b>
	Leakage	Open the machine and check carefully all hydraulic circuit for leakages.
	Leakage probe in short circuit.	Check water leakage position; if directly at contact with metal parts of the machine, place in a different position.
	Damaged board.	Replace the board.

<b>Problem:</b>	With the board on, at operating start, the motor never starts (status LED on).	
	<b>Cause</b>	<b>Solution</b>
	Blocked pump.	Replace the pump.
	Burned motor condenser.	Replace the motor condenser.
	Burned motor.	Replace the motor.
	Electric connection failure.	Check electric connections and tight if necessary.

<b>Problem:</b>	With the board on, at operating start, the inlet solenoid valve never opens (status LED slow blinking).	
	<b>Cause</b>	<b>Solution</b>
	Solenoid valve damaged.	Replace the solenoid valve.
	Coil burned.	Replace solenoid valve coil.
	Electric connection failure.	Check electric connections and tight if necessary.



<b>Problem:</b>	Low permeate water production. (status LED on)	
<b>Cause</b>	<b>Solution</b>	
Clogged solenoid valve.	Check solenoid valve functioning, if clogged, replace it.	
Clogged filter.	Replace the filter.	
Blocked vane pump	Replace the pump.	
Clogged membranes.	Replace the membranes.	



Install a manometer on the pump outlet to check operating pressure (§ 6.5.3)

<b>Problem:</b>	Treated water has a bad taste. (status LED on)	
<b>Cause</b>	<b>Solution</b>	
Exhausted filters.	Replace the filters.	
Biofouling.	Make machine disinfection.	

<b>Problem:</b>	With the dishwasher solenoid valve closed closed, the machine restarts for a few seconds periodically. (status LED ON for a few seconds)	
<b>Cause</b>	<b>Solution</b>	
Check valve damaged.	Replace the check valve installed on the permeate line before max. Pressure switch (install a manometer on permeate line and check water pressure on permeate line).	
Water leakage.	Check the permeate hydraulic circuit for leakages (install a manometer on permeate line and check water pressure on permeate line).	

<b>Problem:</b>	When dishwasher requires water, the machine doesn't start. (status LED stand-by).	
<b>Cause</b>	<b>Solution</b>	
Defective pressure switch.	Check pressure switch functioning, if damaged replace it.	
Electric connection failure.	Check electric connections and tight if necessary.	

<b>Problem:</b>	When dishwasher stops water requirement, the machine never stops (status LED on)	
<b>Cause</b>	<b>Solution</b>	
Defective pressure switch.	Check pressure switch functioning, if damaged replace it.	
Damaged board.	Replace the board.	

## ATTACHMENT I - CE LABEL



YEAR-MONTH  V

MODELL  Hz

SERIAL NO.  A

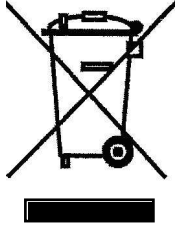
MADE IN EU

CODE: 01-294244-1

HOBART GmbH  
Robert Bosch straÙe 17  
77656 Offenburg



# HOBART



WASTE OF ELECTRICAL / ELECTRONIC EQUIPMENT

RACCOLTA RIFIUTI DI MATERIALE ELETTRICO / ELETTRONICO  
RECOLHA DE RESÍDUOS DE MATERIAIS ELÉCTRICO / ELECTRÓNICOS

ABFALLENTSORGUNG ELEKTRISCHES / ELEKTRONISCHES MATERIAL  
RECOGIDA DE RESIDUOS ELECTRICOS / ELECTRONICOS

COLLECTE DES DÉCHETS DE MATÉRIEL ELECTRIQUE / ELECTRONIQUE

VERZAMELING AFVAL ELEKTRISCH / ELEKTRONISCH MATERIAAL

**(UK) EU directive 2002/96/EC classifies this product as an electrical or electronic tool.**

**Do Not dispose of this tool as unsorted municipal waste.**

**Dispose of this tool at a collection or recycling centre according to local and national law.**

**The consumer has an important role in reducing the disposal of waste by returning waste electronic/electrical tool for recycling. Recycling avoids the dispersion of hazardous materials into the municipal waste stream.**

**The crossed-out bin symbol reminds the user not to dispose of this product as unsorted municipal waste.**

(I) Ai sensi dell'art. 13 del Decreto Legislativo 25 luglio 2005, n°151 "Attuazione delle Direttive 2002/95/CE, 2002/96/CE e 2003/108/CE, relative alla riduzione dell'uso di sostanze pericolose nelle apparecchiature elettriche ed elettroniche, nonché allo smaltimento dei rifiuti.

Il simbolo del cassonetto barrato riportato sull'apparecchiatura o sulla confezione indica che il prodotto alla fine della propria vita utile deve essere raccolto separatamente dagli altri rifiuti.

L'utente dovrà, pertanto, conferire l'apparecchiatura giunta a fine vita agli idonei centri di raccolta differenziata dei rifiuti elettronici ed elettrotecnici, oppure riconsegnarla al rivenditore al momento dell'acquisto di una nuova apparecchiatura di tipo equivalente, in ragione di uno a uno.

L'adeguata raccolta differenziata per l'avvio successivo dell'apparecchiatura dismessa al riciclaggio, al trattamento e allo smaltimento ambientale compatibile contribuisce ad evitare possibili effetti negativi sull'ambiente e sulla salute e favorisce il reimpiego e/o riciclo dei materiali di cui è composta l'apparecchiatura.

Lo smaltimento abusivo del prodotto da parte dell'utente comporta l'applicazione delle sanzioni amministrative previste dalla normativa vigente.

(P) A directiva 2002/96/EC classifica este producto como um instrumento eléctrico/electrónico.

Não deitar este instrumento com lixo municipal não classificado.

Deitar este aparelho em um centro de recolha ou de reciclagem segundo a lei local e nacional.

O consumidor tem uma importante responsabilidade na redução do lixo, preparando a reciclagem dos instrumentos eléctricos/electrónicos. A reciclagem previne a dispersão de materiais perigosos nos lixos municipais.

O símbolo da barra no barril lembra ao utilizador de não jogar este producto como um lixo municipal não classificado.

(D) Gemäß Richtlinie 2002/96/EC wird diese Produkt als elektrisches/elektronisches Gerät eingestuft.

Dieses Gerät nicht als nicht klassifizierten Stadtmüll beseitigen.

Diese Gerät an eine dafür vorgesehene Sammelstelle bringen, gemäß den vorortigen und auf nationalem Gebiet geltenden Gesetzesbestimmungen.

Der Verbraucher kann beträchtlich dazu beitragen den Abfall zu verringern, indem er ein Recycling der elektrischen/elektronischen Geräte vorsieht.

Ein Recycling verhindert, dass gefährliches Material im allgemeinen Stadtmüll beseitigt wird.

Das Symbol mit ausgestrichener Tonne soll bedeuten, dass das damit gekennzeichnete Produkt nicht als nicht klassifizierter Stadtmüll zu beseitigen ist.

(ES) La directiva 2002/96/EC clasifica este producto como un aparato eléctrico/electrónico.

No tire este aparato como si fuera un residuo municipal no clasificado.

Tire este aparato en un centro de recogida o de reciclaje según la ley local o nacional.

El consumidor cumple un papel importante en la reducción de la eliminación de residuos, predisponiendo el reciclaje de los aparatos eléctricos/electrónicos. El reciclaje previene la dispersión de materiales peligrosos en la gran cantidad de residuos municipales. El símbolo del bidón con una banda transversal recuerda al usuario que no debe tirar este producto como si fuera un residuo municipal no clasificado.

(F) La directiv e 2002/96/EC classifie ce produit comme appareil électrique/électronique.

Ne pas jeter cet appareil avec les déchets municipaux non classifiés.

Jeter cet appareil dans un centre de collecte ou de recyclage conformément à la loi locale et nationale.

Le consommateur joue un rôle important dans la réduction des déchets, en prévoyant le recyclage des appareils électriques/électroniques. Le recyclage permet d'éviter la dispersion de matériau dangereux dans la masse des déchets municipaux. Le symbole du bidon barré rappelle à l'utilisateur de ne pas jeter ce produit avec les déchets municipaux non classifiés.

(NL) De richtlijn 2002 / 96 / EC classificeert dit product als een elektrisch / elektronisch gereedschap.

Gooi dit gereedschap niet weg als een niet geclassificeerd gemeentelijk afval.

Breng dit gereedschap in een verzamel- of verwerkingscentrum volgens de plaatselijke en nationale wet.

De gebruiker speelt een belangrijke rol in het verminderen van het afval door de verwerking van de elektrische / elektronische gereedschappen voor te bereiden.

De verwerking voorkomt de verspreiding van gevaarlijk materiaal in de massa van het gemeentelijk afval.

Het symbool van de versperde vuilnisbak herinnert aan de gebruiker dit product niet weg te gooien als een niet geclassificeerd gemeentelijk afval.

## DECLARATION OF CONFORMITY

The undersigned, representative of the following manufacturer:



**Thinkwater srl**  
**Via delle Pezze, 35**  
**35013 Cittadella, PD**

**DECLARS THAT THE PRODUCT**

# RO I

**DISH/WASHMACHINE TREATMENT WATER DEVICE**

**Part no. O914142104I**

**Serial no. \_\_\_\_\_**

**IS IN ACCORDANCE WITH THE FOLLOWING DIRECTIVES:**

<b>2004/108 EC</b>	<b>Directive (EMC Directive) and subsequent amendments</b>
<b>2006/95 EC</b>	<b>Directive (Low Voltage Directive) and subsequent amendments</b>
<b>2006/42 EC</b>	<b>Directive (Machinery)</b>

And that all the following standards have been applied:

EN 55014-1:2006 + A1:2009  
EN 61000-3-2:2006 + A1:2009 + A2:2009  
EN 61000-3-3:2008  
EN 55014-2:1997 + A1:2001 + A2:2008  
EN 62233:2008  
EN 60335-1:2002 + A11:2004 + A1:2004 + A12:2006 + A2:2006 + A1/EC:2007 + A13:2008 +  
EC:2009 + EC:2010 + A14:2010

The manufacturer also declares that the technical construction file is kept by Battistella Roberto.

Last two figures of the year of the CE marking : 2011

The manufacturer also declares that the product is manufactured for:

**HOBART GmbH**  
**Robert Bosch straÙe 17**  
**77656 Offenburg**

**Thinkwater srl**

Cittadella 17/06/11

\_\_\_\_\_  
Carlotto Franco

## ATTACHMENT III - Spare parts RO-I

Spare parts page 1

Id.	Code	Description	Id.	Code	Description
1	8096087	Solenoid valve ¼" 10mm	11	5200112	Grommet d.8mm
2	1598043	Motor cover	12	1598039	Base drawer
3	1500237	Solenoid valve bracket	13	5200185	Grommet d.19mm
4	9300392	Stem elbow 10mm	14	5200111	Grommet d.13mm
5	9300404	T 10-6mm	15	1196120	Plastic cover
6	9300518	Stem elbow 10-8mm	16	1598052	Cover bracket
7	8096078	Outlet fittings ¼" 6mm	17	9300686	Washmachine hose ¼" FF
8	8096079	PG9 cable holder with nut	18	9300688	Drain hose
9	8096080	Drain fittings 4mm d.23	19	8096081	RO-I without filter drawer
10	1100134	Single clip d.60mm			

Spare parts page 2

Id.	Code	Description	Id.	Code	Description
1	9300518	Stem elbow 10-8mm	10	8096083	Min pressure switch kit
2	Y21305B	Filter head single side	11	8096084	Max pressure switch kit
3	Y21409BHB	RO-I carbon filter	12	5097001H	Electronic board
4	1598040	Filter drawer ass. With clips	13	5200191	Fuse 5x20 1.315A
5	1198004	Handle	14	2500123	18 poles connector
6	1100841	Single clip d.80mm	15	5097006	Jumper
7	8096082	Pump with joint	16	5097007	Signalled with cable
8	5200196	Condenser 6.3microf	17	1598041	Control board bracket
9	8097340	Motor kit with pump	18	8000112	Leakage sensor

Spare parts page 3

Id.	Code	Description	Id.	Code	Description
1	8096085	Membranes 4pcs kit	11A	9300668	Blue capillary 4x2mm 2m
2	8097009	Single membrane kit	11B	9300449	Black capillary 4x2.5mm 2m
3	1100108	Membrane housing	11C	9300677	White capillary 4x2.5mm 1m
4	1100109	Membrane 1812100gpd	12	9300310	Reduction 6-4mm
5	8096086	Membrane housing fittings	13	9300169	Elbow 8-6mm
6	9300400	T 6mm	14	9300388	Stem elbow 6mm
7	9300302	Male plug 6mm	15	9300146	Cross 6mm
8	9300138	Check valve 6mm	16	9300450	Pipe 6x4mm PE 3m
9	9300304	Male plug 8mm	17	9300453	Pipe 8x6mm PE 3m
10	9300403	T 8mm			

Spare parts page 4

Id.	Code	Description	Id.	Code	Description
1	1598042	GC Housing	7	2000159	Washer 4x9
2	2000184	Screw M10x20	8	1598044	GX Housing
3	2000155	Elastic washer M10	9	1598053	Left cover
4	1196121	Plastic rail U shape	10	1598054	Right cover
5	1196122	Foot M10 d.30mm	11	2000123	Screw M4x25
6	2000110	Screw M4x16			



**ATTACHMENT IV - Maintenance Log**

INSTALLATION		
TECHNICIAN	DATE	SIGNATURE
REGULAR MAINTENANCE		
TECHNICIAN	DATE	SIGNATURE

