

SCOPE OF SUPPLY



SAILOR SERIES

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SYSTEM DESCRIPTION

Sailor Compact is a fully automatic Reverse Osmosis Desalinator for sea water. It is mounted in a compact 316L stainless steel frame, can be easily fit in small on all sailing and motorboats when high quantity of fresh water is requested. Also available in modular configuration

Sailor series watermakers allows fresh water production from 35 to 300 litres/hour

Fresh water quality: 300 mg/l (based on feed water at 36000 mg/l and 20°C)

The desalinator is composed as follows:



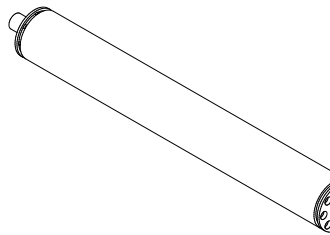
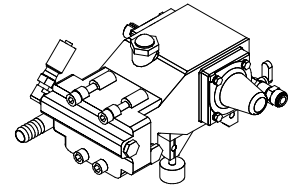
FEED AND PREFILTERING

- Low pressure pump, centrifugal type, in bronze with
- Three-way manual valve on suction line to deviate from a tank for manual unit flushing.
- Double prefilter with polyester reusable cartridge 30 and 5 µm, with **45 l/min flow rate** allowing a r



HIGH PRESSURE CIRCUIT

- High pressure plunger pump, CAT make, in nic ceramic pistons, direct coupling to the motor.;
- Tropicalized electric motor, IP 55, insulation class
- Reverse Osmosis membranes Filmtec, spiral composite, recovery factor 20.50%;
- **Pressure vessels in carbon fibre complying with plugs in duplex stainless steel;**
- High pressure regulation valve in 316L stainless st



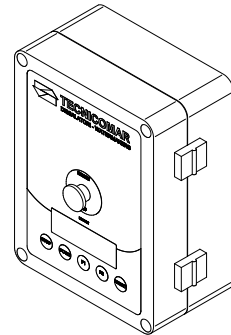
PRODUCED WATER

- Automatic three-way valve in PVC for the automatic deviation of the produced water out of board when quality of produced water does not reach the programmed values;
- Hoses in HTR polyester and fittings in non-toxic PE.

CONTROL PANEL

Electronic control panel with **microprocessor** “TINY 2”, protection c

- Touch-buttons with the following functions:
 - differential starting of booster pump and high pressure pump
 - starting on booster pump only for:
 - I. multimedia sand filter operation (if supplied)
 - II. unit priming
 - III. unit cleaning
 - starting the automatic membrane flushing system (if supplied)
 - *Reset* failure warnings
- Liquid crystal display with the following information:
 - quality of produced water: salinity [$\mu\text{S}/\text{cm}$], temperature [$^{\circ}\text{C}$]
 - electric power consumption in ampere,
 - total quantity of produced water since last starting,
 - currently produced water flow rate,
 - pressure (both high pressure and low pressure by transducers),
 - operating hours meter,
 - starting meter,
 - failures reading
 - Maintenance signals for: oil change, unsafe water and UV lamp change (*if supplied*).
 - mushroom-head button for emergency stop
 - The control box shuts down the desalinator automatically in case of high pressure, low pressure and high electric power consumption, with sound alarm.
 - Manual operation in “emergency” in case of electronic card failure with manual pressure regulation (switch S2 for low pressure pump, switch S1 for high pressure pump) and reading of high and low pressures by means of mechanical gauges.
 - Possibility for automatic start & stop by means of a floating level probe (*if supplied*)



INSTALLATION KIT

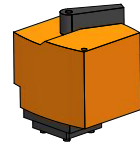
- 5 meters pipeline for connecting “seawater inlet-prefilters” and “prefilters-high pressure pump”.
- 5 meters pipeline in PVC for connecting “discharge”.
- 5 meters pipeline in PVC for connecting “produced water” and “brine”.
- 1 discharge out of board
- Fittings and clamps
- 1 wrench for filters
- 1 use, maintenance and installation manual.

The watermaker is complying with rules in force and it is provided with CE mark.

ACCESSORIES & OPTIONS (ask for quotation)

- **Automatic pressure regulation system**

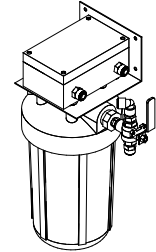
Skid mounted device for automatic gradual pressure regulation from 0 to 60 bar.



- **Automatic membrane flushing system**

This device is for the **automatic membranes flushing** with fresh water.

Complete with carbon filter RFC-BB to eliminate chlorine from t
The periodical use of this system assures a longer membranes life



Alternatives for activation (*to be chosen in case of purchase order*):

- Manual starting whenever required.
- Automatic starting with every stop of the watermaker.

- **Remote control panel with display**

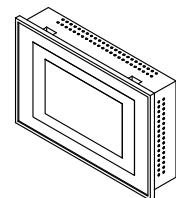
Control panel with touch buttons and back lighted liquid crystal display showing all operational values given by the PLC control and with the following functions:

- Start the watermaker (*if supplied with automatic pressure regulation system*);
- Switch-off the watermaker;
- Activation of the automatic membrane flushing system (*if supplied*);
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Note: Specify in case of purchase order the cable's length - for distance over 15 meters ask for quotation. The touch screen may also be integrated into the stainless steel frame as alternative control panel.

- **PC Interface**

Interface with Personal Computer via MODBUS protocol complete with software. **Specify cable length in case of purchase order** - for distance over 15 meters ask for quotation.

- **Remote control system "SMS"**

Allows modification of the systems functional parameters as well as complete monitoring of the unit and the transmission of read values to the manufacturer or to any authorised assistance centre all over the world via GSM.

- **Remote control system "SATELLITE"**

Allows modification of the systems functional parameters as well as complete monitoring of the unit and the transmission of read values to the manufacturer or to any authorised assistance centre all over the world via Ethernet.

- **Maintenance Kit**

- no. 8 Prefilter cartridges 30 µm (BB for Sailor C 2000)
- no. 8 Prefilter cartridges 5 µm (BB for Sailor C 2000)
- no. 1 Membrane preservative solution
- no. 1 Membrane Clean. Solution Kit A&B
- no. 2 Pump oil 0,5 lt.
- no. 2 Prefilter O-rings
- no. 1 High pressure hose

• Prefiltering SYSTEMS



Multimedia sand filter

Model: TFS/2

Tank in reinforced fiber glass PARK made, capacity: 76,5 lt.

Valves: manual

Filterbed material: multimedia

Capacity during operation: 2 m³/h

Capacity during backwash: 4 m³/h

Backwash time: 15 minutes

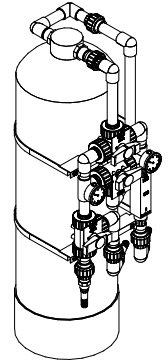
Backwash pressure: 1,5-2 bar

Fittings: 1"

Pressure drop: 0,8 bar

Filtering material composed by one stage of sand 0,315-0,8 and one stage of sand 0-0,075.

Dimensions: 330 x 450 x 1180 (L x W x H)



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TFD semi-automatic Sediment Filter

Semi-automatic selfcleaning prefilter based on a swirl effect obtained by means of a propeller at the filter inlet.

Preserves the prefilter elements on the R.O. system from marine debris.

The TFD filter needs less washing cycles compared to the standard sand filter and helps to save energy, water and time.

Characteristics:

- 18 m³/h at 50 µm filtration
- 8 m³/h at 20 µm filtration
- Made of reinforced nylon with glass fiber.
- Light and small coarse filtration solution.
- Modular, versatile and easy to maintain.
- High resistance to clogging.
- Easy and quick connection.
- In/Out 1" ¼
- Drain: ½"



TECHNICAL DATA: SAILOR COMPACT SAILOR C 200 – 400 -600

MODEL	SAILOR C 200			SAILOR C 400			SAILOR C 600		
	230 - 1	400 - 3	440 - 3	230 - 1	400 - 3	440 - 3	230 - 1	400 - 3	440 - 3
Voltage [V]- n° phase	230 - 1	400 - 3	440 - 3	230 - 1	400 - 3	440 - 3	230 - 1	400 - 3	440 - 3
Frequency[Hz]	50	50	60	50	50	60	50	50	60
Production [lph]	35	35	35	70	70	70	100	100	100
Total Power[kW]	2.05	2.05	2.05	2.05	2.05	2.05	2.35	2.35	2.35
Current drain[A]	9	4.5	4	9	4.5	4	12	6	5.5
N°-GPD of membranes	1-300	1-300	1-300	2-300	2-300	2-300	3-300	3-300	3-300
LP pump model	BCM 22	BC 22	BC 22-60	BCM 22	BC 22	BC 22-60	BCM 22	BC 22	BC 22-60
LP power [kW]	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
HP pump model	237	237	237	237	237	237	3CP1241	3CP1241	3CP1241
HP power [kW]	1.5	1.5	1.5	1.5	1.5	1.5	1.8	1.8	1.8
Control box	electronic	electronic	electronic	electronic	electronic	electronic	electronic	electronic	electronic
Weight [kg]	48	48	48	50	50	50	52	52	52
Sea water Hose dia. [mm]	20	20	20	20	20	20	20	20	20
Brine Hose dia. [mm]	8-10	8-10	8-10	8-10	8-10	8-10	8-10	8-10	8-10
Fresh water Hose dia. [mm]	8	8	8	8	8	8	8	8	8

Composed by:

1. Main unit: control box with control panel, high pressure pump, prefilters, vessel group (assembled on a 316L stainless steel frame);
2. Feed pump;

TECHNICAL DATA: SAILOR COMPACT SAILOR C 1000 – 1500 -2000

MODEL	SAILOR C 1000			SAILOR C 1500			SAILOR C 2000		
Voltage [V]- n° phase	230 - 1	400 - 3	440- 3	230 - 1	400 - 3	440 - 3	230 - 1	400 - 3	440 - 3
Frequency[Hz]	50	50	60	50	50	60	50	50	60
Production [lph]	160	160	160	220	220	220	300	300	300
Total Power[kW]	2.35	2.35	2.35	2.35	2.35	2.35	2.75	3.55	3.55
Current drain[A]	13	6.5	6	13	6.5	6	14	7	6.5
N°-GPD of membranes	2-700	2-700	2-700	3-700	3-700	3-700	4-700	4-700	4-700
LP pump model	BCM 22	BC 22	BC 22-60	BCM 22	BC 22	BC 22-60	BCM 22	BC 22	BC 22-60
LP power [kW]	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
HP pump model	3CP1221	3CP1221	3CP1221	3CP1221	3CP1221	3CP1221	5CP6251	5CP6251	3CP1221
HP power [kW]	1.8	2.2	2.2	1.8	2.2	2.2	2.2	3.0	3.0
Control box	electronic	electronic	electronic	electronic	electronic	electronic	electronic	electronic	electronic
Weight [kg]	62	62	62	66	66	66	70	70	70
Sea water Hose dia. [mm]	20	20	20	20	20	20	20	20	20
Brine Hose dia. [mm]	10	10	10	10	10	10	10	10	10
Fresh water Hose dia. [mm]	10	10	10	10	10	10	10	10	10

Composed by:

1. Main unit: control box with control panel, high pressure pump, prefilters, vessel group (assembled on a 316L stainless steel frame);
2. Feed pump;

TECHNICAL DATA: SAILOR SLIM

MODEL	SAILOR 200 SL			SAILOR 400 SL			SAILOR 600 SL		
	Voltage [V]- n° phase	230 - 1	400 - 3	440- 3	230 - 1	400 - 3	440- 3	230 - 1	400 - 3
Frequency[Hz]	50	50	60	50	50	60	50	50	60
See sailor compact configuration for other details									

MODEL	SAILOR 1000 SL			SAILOR 1500 SL			SAILOR 2000 SL		
	Voltage [V]- n° phase	230 - 1	400 - 3	440- 3	230 - 1	400 - 3	440- 3	230 - 1	400 - 3
Frequency[Hz]	50	50	60	50	50	60	50	50	60
See sailor compact configuration for other details									

Composed by:

1. Main unit: control box with control panel;
2. High pressure pump;
3. Feed pump;
4. Vessel group (assembled on a 316L stainless steel frame)
5. Prefilters