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Certificate Quality System ISO 9001 - VISION 2000



HP HIGH PRESSURE RIVIERA

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HP HIGH PRESSURE SRL provides the following services:

Installation on board (ask us for a quotation)

General technical trainings for Dealers, Agent, and technicians (free of charge)

2nd level technical trainings - Machine functioning and trouble shooting (on customers' charge)

Technical telephonic assistance contract (including telephonic assistance and trouble shootings)

Technical on board assistance contract (only available for Italy, Slovenia, Croatia, and South of France, including telephonic assistance, on board assistance in 24 hours from the assistance request, 12 months a year)

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY



WARRANTIES

3 YEARS

ON ALL THE PARTS

The warranty is valid only if the HP INTERNATIONAL REGISTRY CARD, contained in the user manual booklet, has been sent back to HP factory, within 60 days from the date of the purchase. By returning the registration card, the sender will receive the SERVICE BOOKLET, to be used for the yearly maintenance.

In case the registration card will not be sent back within the specified terms, the warranty will not be considered valid.

*The warranty covers every defects of the materials or of manufacturing and it is limited to the repairing and/or the substitution of the defective part at the factory of ZIBIDO SAN GIACOMO, MILANO, ITALY.
The warranty only cover the parts and does not cover any labor, trip, lodge or any transport costs at the customers place. These costs will be on customer's charge. These expenses will be calculated by HP, approved and paid before the service intervention will take place.*

The warranty is subjected to the yearly intervention, effected by the authorized HP SERVICE POINTS. The maintenances MUST be effected yearly at the end of every season (filter change, membrane conservation etc.). The maintenances will be subjected to the INTERVENTION COST and to the consumable material cost (as oils, filters). These costs will have to be paid at the service point following its rates and payment conditions. The watermakers will be considered covered by warranty, after the first year, only showing the SERVICE stamp on the booklet.

Any bad intervention or manumission on the machine, by not authorized personnel will let the warranty automatically decay.

If one of the yearly maintenance has not been effected the warranty will not be considered valid.

In any case the warranty does not give the right for any kind of compensation.

HP HIGH PRESSURE SRL declines any responsibility for damages caused by its machines.

The warranty decays:

- if the machine has been repaired, dismantled, or manumitted by non authorized personnel.
- If the damage has been provoked by a wrong installation.
- If the machine has been used improperly.
- If the machine has been used in the harbors.
- If the machine has been used in polluted waters.
- If the machine has been used over its limit (see user manual).
- If the material are subjected to the normal wearing down.

The machine or the defected part will have to be sent back to the HP factory in ZIBIDO SAN GIACOMO.

HP can express the last judgment about the causes of the damage and, if it can be considered as a case of warranty.

After the reparation, the plant or the part will be sent back to the customer, that will be charged of the shipment costs.

HP High Pressure Srl has the right, to apply any modifications, to the warranty terms, at any time.

COMPETENT COURT - For any eventual dispute, Milan will be the competent court.



HP's PATENTS AND NEW FEATURES

AUTOMATIC WASHING SYSTEM (1997)

The first HP's patent. The invention of this hydraulic device finally gives the possibility to avoid a manual action on the exchange valves, for the flushing cycle. This is actually used on all the plants of the automatic series.

AUTOMATIC HYDRAULIC PRESSURE REGULATION (1999)

This device increases the system performance, thanks to the automatic opening of the pressure needle valve installed at the end of the hydraulic circuit, during the flushing phase. The action of this device allows the final user, to avoid the manual regulation on the valve during the production phase and during the flushing cycle. This was installed on all the plants of the AUTO series.

GENERATOR WATERMAKER (Camel Dual Power) (1999)

At the end of 1999 HP deposited one of its most important patents, the GENERATOR WATERMAKER, a unique double system that in a single machine included two different functions: ENERGY and FRESH WATER PRODUCTION. The realization of this system was possible by using the Automatic Washing System and the Automatic Hydraulic Pressure Regulation.

ENERGY RECOVERY SYSTEM ON THE ELECTRIC MOTOR (2002)

The energy recovery system on the electric motor represented a new and important evolution for the construction of reverse osmosis watermakers. This allows in fact the induced electric motor cooling, decreasing the current absorption, and in the meantime acting a sort of "PRE HEATING" of the seawater ingoing into the membranes, rendering it more fluid and the osmotic membrane more productive. Actually this system is used in the HP ULTRA COMPACT SERIES.

AUTOMATIC MOTORIZED PRESSURE REGULATION VALVE (RP TRONIC) (2002)

The main problem, talking about watermakers, is the use and the maintenance. Regarding its use, it is well known that if sea water conditions change, the watermaker pressure regulation has to be set and reset continuously. Usually these manoeuvres have to be made directly on the watermaker, always installed in uncomfortable and narrow places and not easily accessible (i.e. engine room). These procedures are not very clear for all the users, and the machine may be affected by wrong regulations.

In 2002 HP patented a new Automatic Pressure Regulation valve, called **HP RP TRONIC**, that automatically regulates the working pressure for any kind of water. The user just has to start and stop the system and nothing else. HP RP TRONIC is equipped of a pressure transducer that analyses the circuit pressure, gradually regulating it at the set up value, thanks to a micro motor, that turns clock and anti clock wises, for opening or closing the needle valve. This pressure regulation system, unique and innovative in watermakers, is combined to the PLC logic **HP PLC03**, which can be interfaced to any kind of yacht



monitoring on board through a modbus protocol, and will also allow the remote manual regulation of the pressure from the wheel house (FIRST WATERMAKER WITH REMOTE PRESSURE CONTROL). This valve can also be used manually, avoiding any watermaker stop.

NEW REVERSE OSMOSIS MEMBRANES GENERATION - SW 315 40 (2007)

The continuous research for better solutions, to be adopted on RO plants for boats, brought in 2007 HP on the way to study, in exclusive cooperation with a RO membrane world leader manufacturer, a customized filtering RO module, able to use at their best the capacity of the pumps of the HP SC KIT - HP SC HP V - HP SC DOUBLE models.

These new membranes have a non standard diameter 3,15" but a standard length of 40", and are able to use better all the flow of the medium pumping groups, optimizing the production rates. For example a single SW 315 40 produces a water quantity of 140 lt/h, as well as two standard membranes SW 2540, uses the same amount of water and so using the same pumps, consumes the same energy, without facing salt precipitation on the membrane film, so avoiding the immediate clog of the membranes; kind of problems, that can be faced using the standard membranes SW 4040, that at the beginning have good production rates but that with a small feeding flow, they have a fast and sure clog. For all these reasons, the introduction of a custom membrane, studied, starting from the real production exigencies of the water making on board, is a winning strategy, also from the production costs point of view, advantaging as final result the economic choice of the end users. In fact a plant the installs two SW 2540 membranes would costs more than a single membrane SW 315 40 machine, getting out the same amount of water at the end. The plants installing the new membranes will be available from January 2008.

NEW FIBERGLASS PRESSURE VESSEL SERIES (PV FG - EASY CHANGE) (2007)

It is well known that SS AISI 316 is massively used material on the pleasure boats. Also HP since its beginnings produces machines manufactured of SS AISI 316 components.

Unfortunately one of the disadvantages of the SS AISI 316, as the galvanic corrosion after some years, is the weight of the material. With the introduction of the new membranes series SW 315 40, HP designed and realised a fibreglass pressure vessel, without mechanical pressure seal parts in contact with the sea water. The "Easy Change" vessel caps opening system, adopted on our system since the beginning of the '90, has not been modified. In the specific case of the 3.15" X 40 a pressure vessel weight is 4 Kg against 16 Kg of two SS AISI 316, standard pressure vessel of 2,5" X 40 with a weight save of 12Kg, that is the 75% less. Availability from January 2008.



HP RP TRONIC STANDARD MODELS

The main problem, talking about watermakers, is the use and the maintenance. Regarding its use, it is well known that if sea water conditions change, the watermaker pressure regulation has to be set and reset continuously. Usually these manoeuvres have to be made directly on the watermaker, always installed in uncomfortable and narrow places and not easily accessible (i.e. engine room). These procedures are not very clear for all the users, and the machine may be affected by wrong regulations.

HP patented a new Automatic pressure Regulation valve, **HP RP TRONIC**, that automatically regulates the working pressure for any kind of water. The user just has to provide sea water to the machine, starting and stopping the system from a remote control and do nothing else. **HP RP TRONIC** is equipped of a pressure transducer that analyses the circuit pressure, gradually regulating it at the set up value, thanks to a micro motor, that turns clock and anti clock wises, for opening or closing the needle valve.



The pressure regulation system, unique and innovative in the watermaker, will be combined to the PLC logic HP PLC07 that also allows the remote hand operated regulation of the pressure from the weel house (FIRST WATERMAKER WITH REMOTE PRESSURECONTROL). This valve can also be used manually, avoiding any watermaker stop. All the plants of the series SUPER COMPACT, VERTICAL, SC DOUBLE, ELITE, can be equipped with RP TRONIC system.

ADVANTAGES OF RP TRONIC SERIES

- Control from the yacht monitoring system.
- Standard Modbus Protocol.
- Automatic working pressure regulation for any kind of water.
- Remote contro panel adjustable working pressure.
- Remote display of the working pressure, of sea water temperature, quantity and quality of the produced fresh water, and working hours.
- Remote controlled working parameters set.
- Acoustic alarm of minimum and maximum pressure.



- Micro metric motor.
- AISI 316 and anti-corodal aluminium valve.
- Possibility of HAND OPERATED valve regulation.
- Software HP PLC07.
- Integrated general diagnostic.



HP REMOTE CONTROL PANEL RCP



HP RCP 1000

- This remote control panel allows to control HP watermakers and to visualize all the parameters of the desalination process.
- The panel is made of AISI 316 Stainless Steel with a specific resistance to the marine corrosion.
- The mask is printed backside with marine resistant varnish.
- The RCP is supplied with a 9 poles cable (standard length 10mt) Please ask our technical office for longer cables.
- Automatic regulation of the working pressure for any kind of water.
- Working pressure adjustable from the remote control panel.
- Remote visualisation of the working pressure, of sea water temperature, quantity and quality of the produced fresh water, working hours and all the hidden setting menus.
- Remote controlled working parameters set.
- Acoustic alarm of minimum and maximum pressure, and of the not conforming water dump outboard
- Integrated general diagnostic
- Dimension for the hole to fit RCP 1000: Width 130 mm X Height 105 mm X Depth 50 mm
- Dimensions of the front panel : Width 140 mm X Height 118 mm



HP UC

Ultra Compact watermaker with TERS (Thermal Energy Recovery System). It can be supplied in 12V - 24V - 110V 60Hz - 230V 50Hz - 230V 60Hz.



SHURFLO PRE PUMP

Model	Lt/h	Membrane	
HP UC35 12V	35	1-2521	
HP UC35 24V	35	1-2521	
HP UC35 230V	35	1-2521	
HP KIT70 12V	70	2-2521	
HP UC70 24V	70	2-2521	
HP UC70 230V	70	2-2521	

OPTIONAL FOR ALL THE MODELS

RP TRONIC VERSION (Automatic Pressure Regulation System + Automatic Flush + Remote Control)	
SHURFLO PRE PUMP 12VDC - 24V DC	
SHURFLO PRE PUMP 230VAC	
Automatic membranes conserving system (AMCS)	

MODELS	UC 35 12V	UC 35 24V	UC35 230V	UC70 230V
Flow rate Lt/h	30 ÷ 35	30 ÷ 35	30 ÷ 35	60 ÷ 70
Nominal flow rate Lt/h	40 ÷ 45	40 ÷ 45	40 ÷ 45	70 ÷ 80
Daily flow rate Lt/day	840	840	840	1680
Nominal flow rate Lt/day	1080	1080	1080	1920
Installed Power W	500	500	750	750
Total Weigh Kg	35	35	40	45
Overall dimension mm	600 X 300	600 X 300	600 X 300	600 X 300
L x H x D	X 260	X 260	X 260	X 260

CONNECTIONS	UC 35 12V	UC 35 24V	UC35 230V	UC70 230V
Sea inlet	1/2" - 20mm	1/2" - 20mm	1/2" - 20mm	1/2" - 20mm
Tank inlet	1/2" - 20mm	1/2" - 20mm	1/2" - 20mm	1/2" - 20mm
Concentrate outlet	1/4" - 10mm	1/4" - 10mm	1/4" - 10mm	1/4" - 10mm
Production outlet	1/4" - 10mm	1/4" - 10mm	1/4" - 10mm	1/4" - 10mm

Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY



HP KIT ECO

The system is supplied in preassembled and tested separated parts tested. This watermaker is very simple and economic. It is recommended in the cases in which the users have no space on board and searching for an economic plant. This unit can be supplied 110VAC 60 Hz - 230VAC 50Hz - 230VAC 60Hz - 380VAC 50Hz - 440VAC 60Hz.

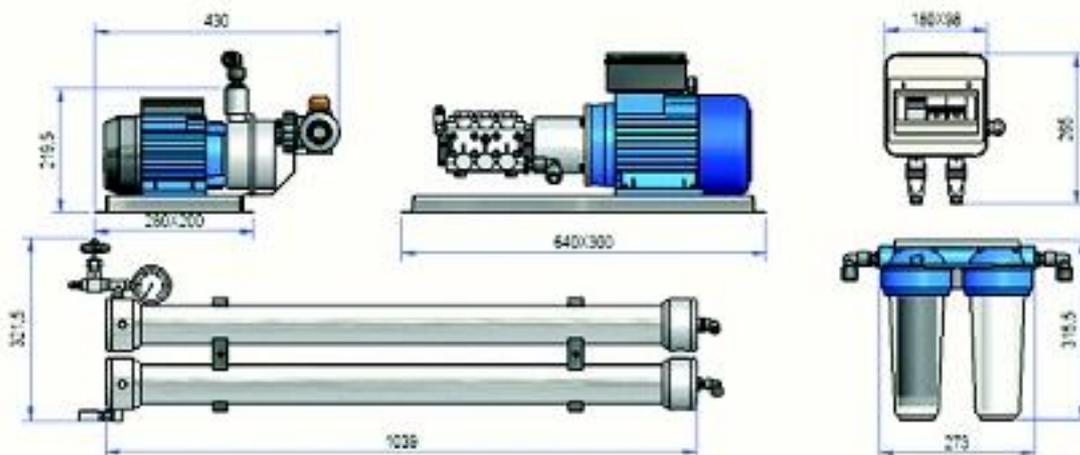
Model	Lt/h	Membrane	Frame	
HP KIT ECO 35	35	1 - 2521	AISI 316	
HP KIT ECO 70	70	1 - 2540	AISI 316	
HP KIT ECO 140	140	2 - 2540	AISI 316	
HP KIT ECO 200	200	3 - 2540	AISI 316	
HP KIT ECO 260	260	4 - 2540	AISI 316	

The kit includes the following items:

- AISI 316 PUMP BASE AND FILTER SUPPORTS
- BRASS HIGH PRESSURE PUMP
- SAFETY VALVE FOR HIGH PRESSURE PUMP
- OSMOTIC MEMBRANES 2540
- AISI 316 PRESSURE VESSEL 2540
- MANUAL PRESSURE REGULATION SYSTEM
- AISI 316 HIGH PRESSURE FITTINGS
- ELECTRIC SWITCHBOARD
- GAUGE METER
- MANUAL WASHING SYSTEM

SCHEMA COMPONENTI
COMPONENT'S SCHEME

KIT ECO
KIT ECO



Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY

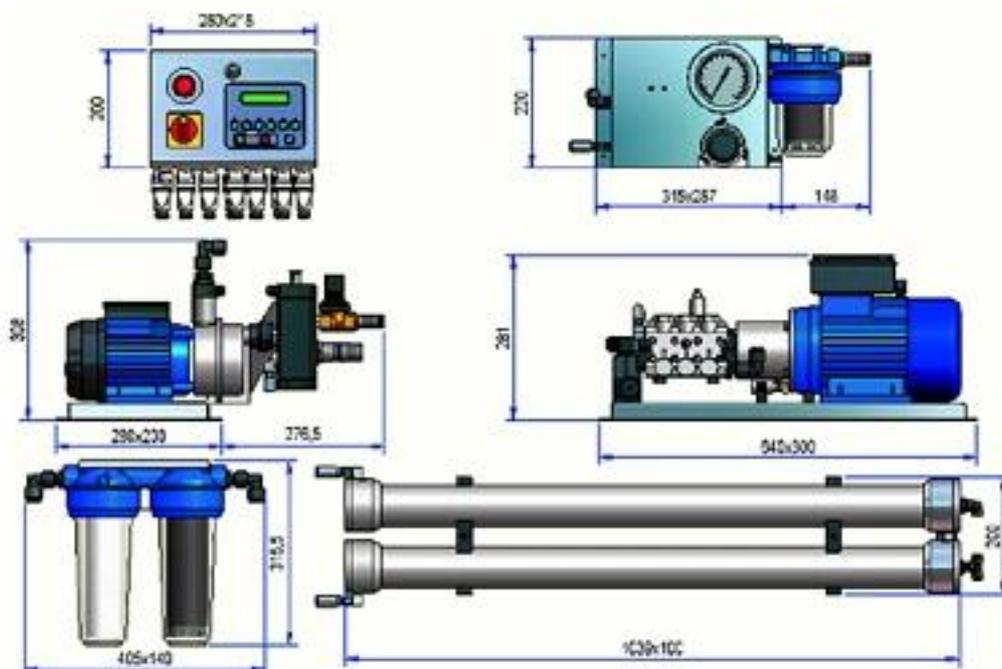


HP SC KIT

The system is supplied in preassembled and tested separated parts tested. This watermaker is very simple and is recommended only in the cases in which the users have no space on board. This unit can be supplied 110VAC 60Hz - 230VAC 50Hz - 230VAC 60Hz - 380VAC 50Hz - 440VAC 60Hz.

Model	Lt/h	Membrane	Frame	
HP SC KIT 70	70	1 - 2540	AISI 316	
HP SC KIT 140	140	2 - 2540	AISI 316	
HP SC KIT 200	200	3 - 2540	AISI 316	
HP SC KIT 260	260	4 - 2540	AISI 316	
HP SC KIT 140/1	140	1 - 31540	AISI 316	
HP SC KIT 260/2	260	2 - 31540	AISI 316	

Extra for AUTO (Automatic membranes and circuit flushing)	
Extra for RP TRONIC Version (Automatic Pressure Regulation)	
Extra for Automatic membranes conserving system (AMCS)	
Extra for MODBUS protocol	



Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY



HP SC

HP SC (Super Compact) is supplied on a single and compact frame. SC Series can be equipped of membranes 2521 (short) up to a production of 140 Lt/h and can produce up to 260 Lt/h with four membranes 2540.

HP SC AUTO series is equipped of the automatic membrane flushing and remote control. RP TRONIC version includes the automatic pressure regulation system, available only with AUTO series. This unit can be supplied 110VAC 60Hz - 230VAC 50Hz - 230VAC 60Hz - 380VAC 50Hz - 440VAC 60Hz.



Model	Lt/h	Membrane	
HP SC 70	70	1 - 2540	
HP SC 140	140	2 - 2540	
HP SC 200	200	3 - 2540	
HP SC 260	260	4 - 2540	
HP SC 140/1	140	1 - 31540	
HP SC 260/2	260	2 - 31540	

Extra for AUTO (Automatic membranes and circuit flushing)	
Extra for RP TRONIC Version (Automatic Pressure Regulation)	
Extra for Automatic membranes conserving system (AMCS)	
Extra for MODBUS protocol	

MODEL	SC 70	SC 140/1	SC 140	SC 200	SC 260/2	SC 260
Flow rate Lt/h	70	140	140	200	260	260
Nominal flow rate Lt/h	83	166	166	249	332	332
Daily flow rate Lt/day	1680	3360	3360	4800	6240	6240
Nominal flow rate Lt/day	1992	3984	3984	5976	7968	7968
Installed Power kW	2.2	2.2	2.2	2.2	2.2	2.2
Total Weight Kg	79	86	86	93	100	100
Overall dimension mm	1060x	1060x	1060x	1060x	1060x	1060x
L x H x D	435x430	435x430	435x430	435x430	540x430	540x430

CONNECTION	SC 70	SC 140/1	SC 140	SC 200	SC 260/2	SC 260
Sea water inlet	1" - 30mm					
Tank inlet (for washing)	1/2" - 20mm					
Concentrate drain	1/4" - 10mm					
Permeate outlet	1/2" - 20mm					
Not conforming water outlet	1/4" - 10mm					

REGULATION	SC 70	SC 140/1	SC 140	SC 200	SC 260/2	SC 260
Working pressure	60 bar	60 bar	60 bar	60 bar	60 bar	60 bar
Alarm for low pressure	20 bar	20 bar	20 bar	20 bar	20 bar	20 bar
Alarm for high pressure	68 bar	68 bar	68 bar	68 bar	68 bar	68 bar

Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY



HP V SERIES

The HP V series answers to the demands of spaces on board with regards to the single block construction. The vertical conception of the plant gives the possibility to fit the system in tight places. The frame base of the HP V is only 470 mm X 280 mm, and the height is 600 mm. These dimensions are referred to the body of the watermaker that in this case does not include the membranes that can be easily be installed vertically or horizontally everywhere. This unit can be supplied 110VAC 60Hz - 230VAC 50Hz - 230VAC 60Hz - 380VAC 50Hz - 440VAC 60Hz.



Model	Lt/h	Membrane	
HP V 70	70	1-2540 o 2-2521	
HP V 140	140	2-2540 o 4-2521	
HP V 200	200	3-2540 P	
HP V 260	260	4-2540 P	
HP V 140/1	140	1 - 31540 P	
HP V 260/2	260	2 - 31540 P	

P: to be installed on the wall

Extra for AUTO (Automatic membranes and circuit flushing)	
Extra for RP TRONIC Version (Automatic Pressure Regulation)	
Extra for Automatic membranes conserving system (AMCS)	
Extra for MODBUS protocol	

MODEL	V 70	V 140/1	V 140	V 200	V 260/2	V 260
Flow rate Lt/h	70	140	140	200	260	260
Nominal flow rate Lt/h	83	166	166	249	332	332
Daily flow rate Lt/day	1680	3360	3360	4800	6240	6240
Nominal flow rate Lt/day	1992	3984	3984	5976	7968	7968
Installed Power kW	2.2	2.2	2.2	2.2	2.2	2.2
Total Weight Kg	79	86	86	93	100	100
Overall dimension mm	550x	550x	550x	550x	550x	550x
L x H x D	600x350	600x350	600x350	600x280	600x280	600x280

CONNECTION	V 70	V 140/1	V 140	V 200	V 260/2	V 260
Sea water inlet	1"- 30mm					
Tank inlet (for washing)	1/2"- 20mm					
Concentrate drain	1/4"- 10mm					
Permeate outlet	1/2"- 20mm					
Not conforming water outlet	1/4"- 10mm					

REGULATION	V 70	V 140/1	V 140	V 200	V 260/2	V 260
Working pressure	60 bar	60 bar	60 bar	60 bar	60 bar	60 bar
Alarm for low pressure	20 bar	20 bar	20 bar	20 bar	20 bar	20 bar
Alarm for high pressure	68 bar	68 bar	68 bar	68 bar	68 bar	68 bar

Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY



HP SC DOUBLE

HP SC DOUBLE series is supplied in a unique frame containing two independent machines. These can be used in singular or twin mode by means of the water request and allows a continuous production even in case of the maintenance of one of the two machines (half of the total flow rate at least). Available in the MANUAL, AUTO, RP TRONIC, 110VAC 60Hz - 230VAC 50Hz - 230VAC 60Hz - 380VAC 50Hz - 440VAC 60Hz.



Model	Lt/h	Membrane	
HP SCD140	140	2-2540	
HP SCD260	260	4-2540	
HP SCD330	330	5-2540	
HP SCD400	400	6-2540	
HP SCD470	470	7-2540	
HP SCD540	540	8-2540	
HP SCD260/2	260	2 - 31540	
HP SCD540/4	540	4 - 31540	

Extra for AUTO (Automatic membranes and circuit flushing)	
Extra for RP TRONIC Version (Automatic Pressure Regulation)	
Extra for Automatic membranes conserving system (AMCS)	
Extra for MODBUS protocol	

MODEL	SCD 140	SCD 260/2	SCD 260	SCD 330	SCD 400	SCD 470	SCD 540/4	SCD 540
Flow rate Lt/h	140	260	260	330	400	470	540	540
Nominal flow rate Lt/h	166	332	332	415	498	581	664	664
Daily flow rate Lt/day	3360	6240	6240	7920	9600	11280	12960	12960
Nominal flow rate Lt/day	3984	7968	7968	9960	11952	13944	15936	15936
Installed Power kW	2x2.2	2x2.2	2x2.2	2x2.2	2x2.2	2x2.2	2x2.2	2x2.2
Total Weight Kg	89	115	100	128	141	154	167	167
Overall dimension mm	1100X	1100X	1100X	1100X	1100X	1100X	1100X	1100X
L x H x D	500X600	590X600	550X600	640X600	640X600	640X600	590X600	640X600

CONNECTION	SCD 140	SCD 260/2	SCD 260	SCD 330	SCD 400	SCD 470	SCD 540/4	SCD 540
Sea water inlet	2X 1"30mm							
Tank inlet (for washing)	2X1/2"-20mm							
Concentrate drain	2X1/4"-10mm							
Permeate outlet	2X1/4"-10mm							
Not conforming water outlet	2X1/2"-20mm							

REGULATION	SCD 140	SCD 260/2	SCD 260	SCD 330	SCD 400	SCD 470	SCD 540/4	SCD 540
Working pressure	60 bar	60 bar	60 bar	60 bar	60 bar	60 bar	60 bar	60 bar
Alarm for low pressure	20 bar	20 bar	20 bar	20 bar	20 bar	20 bar	20 bar	20 bar
Alarm for high pressure	68 bar	68 bar	68 bar	68 bar	68 bar	68 bar	68 bar	68 bar

Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY



HP SC DOUBLE X-CUBE

HP SC DOUBLE X-CUBE series is supplied in a unique frame containing two independent machines up to a total production flow rate of 1600 Lt/h. These can be used in singular or twin mode by means of the water request and allows a continuous production even in case of the maintenance of one of the two machines (half of the total flow rate at least). Available in the MANUAL, AUTO, RP TRONIC 110VAC 60Hz - 230VAC 50Hz - 230VAC 60Hz - 380VAC 50 Hz - 440VAC 60 Hz.



Model	Lt/h	Membrane	
HP SCD600	600	3-4040	
HP SCD800	800	4-4040	
HP SCD1000	1000	5-4040	
HP SCD1200	1200	6-4040	
HP SCD1400	1400	7-4040	
HP SCD1600	1600	8-4040	

Extra for AUTO (Automatic membranes and circuit flushing)	
Extra for RP TRONIC Version (Automatic Pressure Regulation)	
Extra for Automatic membranes conserving system (AMCS)	
Extra for MODBUS protocol	

MODEL	SCD600	SCD800	SCD1000	SCD1200	SCD1400	SCD1600
Flow rate Lt/h	600	800	1000	1200	1400	1600
Nominal flow rate Lt/h	924	1232	1540	1848	2156	2464
Daily flow rate Lt/day	14400	19200	24000	28800	33600	38400
Nominal flow rate Lt/day	22176	29568	36960	44352	51744	59136
Installed Power kW	2x4	2x4	2x4	2x4	2x4	2x4
Total Weight Kg	89	115	128	141	154	167
Overall dimension mm	1300X	1300X	1300X	1300X	1300X	1300X
L x H x D	650X650	800X650	800X650	800X650	950X650	950X650

CONNECTION	SCD600	SCD800	SCD1000	SCD1200	SCD1400	SCD1600
Sea water inlet	2X 1"- 30mm					
Tank inlet (for washing)	2X1/2"-20mm	2X1/2"-20mm	2X1/2"-20mm	2X1/2"-20mm	2X1/2"-20mm	2X1/2"-20mm
Concentrate drain	2X1/4"-10mm	2X1/4"-10mm	2X1/4"-10mm	2X1/4"-10mm	2X1/4"-10mm	2X1/4"-10mm
Permeate outlet	2X1/4"-10mm	2X1/4"-10mm	2X1/4"-10mm	2X1/4"-10mm	2X1/4"-10mm	2X1/4"-10mm
Not conforming water outlet	2X1/2"-20mm	2X1/2"-20mm	2X1/2"-20mm	2X1/2"-20mm	2X1/2"-20mm	2X1/2"-20mm

REGULATION	SCD600	SCD800	SCD1000	SCD1200	SCD1400	SCD1600
Working pressure	60 bar	60 bar	60 bar	60 bar	60 bar	60 bar
Alarm for low pressure	20 bar	20 bar	20 bar	20 bar	20 bar	20 bar
Alarm for high pressure	68 bar	68 bar	68 bar	68 bar	68 bar	68 bar

(*) please provide a single outlet outboard for the dump water. The two dumps are already connected in the machine

Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY



HP GROUND SERIES



HP High Pressure Srl designs and manufactures reverse osmosis plants of small, medium and large dimensions for the desalination of sea water and the treatment of brackish and tap waters.

OUR MODULAR SYSTEM

HP 3M
(modular unit)

The plant here described is able to produce by an unique treatment 3 cubic meter of drinking water per hour, using seawater at 35.000 mg/l TDS. The water produced will be characterized by a residual salinity less then 500 PPM TDS. Organic big molecular substances, as viruses, bacteria and pyrogen agents will not pass though membranes.

The choice of multiple plants is not casual. By this way we try to avoid every system stop that could happen if there was installed a single high pressure pumping group.

The advantages of this solution are indisputable. It will be possible, for example, the membrane substitution, their ordinary washing by fresh water, and their ordinary washing by chemicals; therefore it will be possible the ordinary pumps and motor maintenance and in case of eventual damages, there will be the possibility to stop just a single unit, avoiding to stop all the multiples. It will be also possible to save the energy needed for the start by a smaller total energetic absorption, in that the pumps could start one by one.

The sea water, taken by the low pressure boost pump, will be brought through a sand filter, that will get rid of all the biggest particles in suspension up to 50 micron; this group will be self washing. The following phase will bring the water into a multi cartridge filter group that will detain the particles in suspension up to 5 micron to avoid the obstruction of the R.O. membranes. In the further step, a dosing pump will inject an anti flocculent solution to avoid the precipitation on the membrane of the heaviest elements, dissolved in the water.

The high pressure pump will push the seawater at 55 - 60 bar into the osmotic membranes. By this pressure the desalination treatment will take place. Through the pressure effects just a pretty small portion of water will pass through the membranes (10%). This will be called permeated water and will be drinking water. The remaining portion, the concentrated water, will be dumped to the sea.

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PROJECT

TDS feed water	ppm	35.300
Permeated water	m3 /day	72
Recovery	%	10/25
Feed pressure	bar	64.5
Permeated TDS	ppm	408
Total installed power	kW	22

Note: The effective production of drinking water can be lower of about 40-50% in comparison with the nominal capacity, in function of a temperature of the seawater lower than 25°C, in function of the grade of the filth of the water in taken and other negative factors.

R.O. SYSTEM COMPONENTS

- N° 1 Low pressure boost pump
- N° 1 UV Sterilizer
- N° 1 Auto backwash sand filter
- N° 1 Multi cartridge 5 micron filter
- N° 1 DOS- SYSTEM Anti flocculent dosing system
- N° 1 Chemical washing system
- N° 1 AISI 316 High Pressure pump W15 ceramic pistons and 2 AISI 316 pump heads Flow rate 9 m³ /each.
- N° 1 R.O. system composed by N° 3 osmotic membranes e N° 1 fiber glass 8"X120" pressure vessels.
- N° 6 Low pressure gauge meter
- N° 1 Conductivity meter on the production line
- N° 2 Flow meter
- N° 1 Thermometer
- N° 1 Stainless steel AISI 316 frame for vessel
- N° 1 Stainless steel AISI 316 frame for high pressure pump
- N° 1 AISI 316 frame for pre treatment units
- N° 1 Electrical switchboard PLC controlled, assembled following CEI standards with IP 55 protection.



Model	Lt/h	Membrane	
HP 1 M	1000	SW30 1-8040	
HP 2 M	2000	SW30 2-8040	
HP 3 M	3000	SW30 3-8040	

Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

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HP GRIND CONTAINER



HP has designed a system composed by independent units producing 3.6 cubic meter per hour each. The single unit is designed to work independently for 24 hours a day, using seawater with 35.000 mg/l TDS at 25°C. The water produced will be characterised by a residual salinity between 500 and 1000 ppm TDS. Organic big molecular substances, as viruses, bacteria and pyrogen agents will be dumped off. The unit of 3.6 cubic meter is the modular base of the plant then just adding other machines, will be possible to increase the production as for a growing fresh water demand. The advantages of this solution are immediately clear. It will be possible, for example, the membranes' substitution, their ordinary washing by fresh water, and their ordinary washing by chemicals; It will be also possible to save the energy needed for the start by a smaller total energetic absorption, in that the pumps could start one after the other; It will be further possible an ordinary maintenance for pumps and motor and in case of eventual damages, and stopping just a single unit, avoiding the entire system production's stop.

The sea water, intaked by the low pressure boost pump, will be brought through a sand filter, which that will stop all the biggest particles in suspension up to 150 micron. A group of hand operated valves will be installed for the maintenance of the sand filter and for a fast the chemical washing of the membrane. After this passage the second boost pump will bring the water through the first cartridge filter of 60 micron and then into a second one of 5 micron.

In the further step, a dosing pump will inject an anti flocculent solution to avoid the precipitation of the heaviest elements, dissolved in the water, on the membranes.

When the water will arrive to the high pressure pump it will be pushed at 55 - 60 bar into the osmotic membranes modules. By this pressure the desalination treatment will take place. Through the pressure effects just a pretty small portion of water will pass through the membranes (18-20%). This will be called "permeated water" and will be drinking water. The remaining portion, "the concentrated water", will be flown to the sea. The fresh water produced will be tested by a conductivity control system which will check its salinity, and which will decide to send it to the tank if the quality level will be corresponding to the standard quality parameters, otherwise the water produced will be dumped back to the sea. The unit will be fitted into 20 ft or 40 ft air conditioned containers.

Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY



The modular 3.6 tons/h is composed by the following items:

- N° 2 Low pressure boost pump (one for the sand filter one for the R.O. system)
- N° 1 Hand operated backwash sand filter
- N° 1 Cartridge 60 micron 40" filter
- N° 1 Cartridge 5 micron 40" filter
- N° 1 DOS- SYSTEM - Anti flocculent dosing system
- N° 1 Chemical washing hand operated system
- N° 1 AISI 316 High Pressure pump W15 ceramic pistons and 2 AISI 316 pump heads - Flow rate 9 m³/h each.
- N° 1 R.O. system composed by N° 6 osmotic membranes e N° 2 fiber glass 8"X120" pressure vessels , each.
- N° 4 Low pressure gauge meter
- N° 1 Conductivity meter on the production line
- N° 1 Flow meter
- N° 1 Varnished stainless steel frame for vessel
- N° 1 Varnished stainless steel frame for high pressure pump
- N° 1 Varnished stainless steel frame for pre treatment units
- N° 1 Elettrical switchboard PLC controlled, assembled following CEI standards with IP 55 protection.

Total installed power Kw 22

MODEL	Container type	Production	
HP GC 3.6 M	A/C 20 feet	3.6 tons/hour	
HP GC 7.2 M	A/C 20 feet	7.2 tons/hour	
HP GC 10.8 M	A/C 40 feet	10.8 tons/hour	
HP GC 14.4 M	A/C 40 feet	14.4 tons/hour	

Flow rates are calculated for sea waters with the following characteristics: 35000 ppm a 25°C at 60 bar

SINCE 1995 AT THE SERVICE OF THE YACHTING INDUSTRY



Accessories and Spare Parts for HP WATERMAKERS

STANDARD KITS

WASHING KIT (COD.01) Includes: 1KG EB A1 - 1KG EB B2 - 1KG EB CONSERVE	
CONSERVING KIT (COD.02) Includes: 1KG EB CONSERVE	
FILTER KIT UC SERIES (COD.03) includes: 4 wounded 5 micron 5 inches mignon cartridge 1 charcoal 5 inches mignon cartridge 1 charcoal 5 inches cartridge	
FILTER KIT SC SERIES (COD.04) includes: 4 wounded 5 micron 10 inches cartridge 1 charcoal 10 inches cartridge 1 charcoal 5 inches cartridge	
JOHN GUEST SPARE KIT 6 MM (COD.05) includes: 5 pz straight adaptor 6mmX1/8" - 5 pz stem adaptor 6mmX1/8" 5 pz elbow 6mm - 5 pz equal tee 6mm - 5 mt pipe diameter 6mm	
JOHN GUEST SPARE KIT 8 MM (COD.06) includes: 5 pz straight adaptor 8mmX1/4" - 5 pz stem adaptor 8mmX1/4" 5 pz elbow 8mm - 5 pz equal tee 8mm - 5 mt pipe diameter 8mm	
JOHN GUEST SPARE KIT 10 MM (COD.07) includes: 5 pz straight adaptor 10mmX3/8" - 5 pz stem adaptor 10mmX3/8" 5 pz elbow 10mm - 5 pz equal tee 10mm - 5 mt pipe diameter 10mm	
JOHN GUEST SPARE KIT 15 MM (COD.08) includes: 5 pz straight adaptor 15mmX1/2" - 5 pz stem adaptor 15mmX1/2" 5 pz elbow 15mm - 5 pz equal tee 15mm - 5 mt pipe diameter 15mm	
HIGH PRESSURE FITTING TUBE KIT(COD.09) includes: A) R7 0,5 MT Pipe - 2 HP AISI 316 fittings - 2 Nipples 1/4 " AISI 316 B) R7 1 MT Pipe - 2 HP AISI 316 fittings - 2 Nipples 1/4" AISI 316 C) R7 1,5 MT Pipe - 2 HP AISI 316 fittings - 2 Nipples 1/4" AISI 316 D) R7 2 MT Pipe - 2 HP AI SI 316 fittings - 2 Nipples 1/4" AISI 316	
HP PUMP KIT WW90 BRASS (COD.10) (HP UC MANUAL) 3 pcs ceramic piston WW90 3 pz brass rings and gaskets WW90 1Kg multigrade OIL SAE20/30	
HP PUMP KIT WW90 STEEL (COD.11) (HP UC RP TRONIC) 3 pcs ceramic piston WW90 3 pz AISI 316 rings and gaskets WW90 1Kg multigrade OIL SAE20/30	
HP PUMP KIT W99 BRASS (COD.12) (HP SC MANUAL -KIT ECO - HPV) 3 pcs ceramic pistons W99 - 3 pz Brass rings and gaskets W99 - 1Kg multi grade OIL SAE20/30	
HP PUMP KIT W99 STEEL (COD.13) (HP SC RP TRONIC - HP V RP TRONIC) 3 pcs ceramic pistons W99 - 3 pcs AISI 316 rings and gaskets W99 - 1Kg multi grade OIL SAE20/30	



BOOST PUMPS

Shurflo pump for Acqua Pura 12VDC	
Shurflo pump for Acqua Pura 24VDC	
Shurflo boost pump for HP UC - 12VDC	
Shurflo boost pump for HP UC - 24VDC	
Shurflo boost pump for HP UC - 220VAC	
Tellarini AISI 316 boost pump for HP SC - HP V - HP KIT	
Lowara AISI 316 boost pump for HP SC DOUBLE - HP ELITE	

HIGH PRESSURE PUMPS AND MOTORS

Brass high pressure pump WW90 (HP UC)	
Brass high pressure pump WW99 (HP SC - HP V - KIT ECO)	
AISI 316 high pressure pump WW90 (HP UC)	
AISI 316 high pressure pump WW99 (HP SC - HP V)	
12VDC Water cooled motor for WW90 pump - (HP UC)	
24VDC Water cooled motor for WW90 pump - (HP UC)	
220VAC Water cooled motor for WW90 pump - (HP UC)	
220VAC - 1,5 KW motor for W99 pump	
380VAC - 1,5 KW motor for W99 pump	

PRE FILTRATION (compatible with all the watermaker brands)

Single filter housing 5 inches (HP UC - HP SC - HP V - KIT ECO)	
Double filter housing 5 inches mignon (HP UC)	
Single filter housing 10 inches (all uses)	
Double filter housing 10 inches (HP UC - HP SC - HP V - ECO)	
AISI 316 Support for single housing 5 and 10 inches	
AISI 316 Support for double MIGNON housing 5 inches	
AISI 316 Support for double Standard housing 10 inches	
Wounded spun cartridge 5µ - 10µ - 20µ - 5" (F A5) for HP SC	
Wounded spun cartridge 5µ - 10µ - 20µ - 10" (F A10) for HP SC	
Wounded spun cartridge 5µ (FA) - 5" mignon for HP UC	
5" inches mignon charcoal cartridge (CA5M) for HP UC	
5" inches charcoal cartridge (CA5) for HP SC	
10" inches charcoal cartridge (CA10) for HP SC	
10" inches Polyphosphate cartridge (PO10)	
Sand Filter HP SAND 12 X 48 (Including pump) (HP SC - V)	
Sand Filter HP SAND 21 X 60 (Including pump) (HP ELITE)	

MEMBRANES AND PRESSURE VESSELS (compatible with all the watermaker brands)

Pressure Vessel 2521 (2,5 inches x 21 inches) AISI 316	
Pressure Vessel 2540 (2,5 inches x 40 inches) AISI 316	
Pressure Vessel 31540 (3,15 inches x 40 inches) Fiberglass	
Pressure Vessel 4040 (4 inches x 40 inches) AISI 316	
Pressure Vessel 8040 (8 inches x 40 inches) AISI 316	
Nanofiltration Membrane for HP ACQUA PURA + pressure ves.	
Osmotic Membrane SW 30 2521 DOW CHEMICAL	
Osmotic Membrane SW 30 2540 DOW CHEMICAL	



Osmotic Membrane SW 31540 HP Custom	
Osmotic Membrane SW 30 4021 DOW CHEMICAL	
Osmotic Membrane SW 30 4040 DOW CHEMICAL	
Osmotic Membrane SW 30 8040 DOW CHEMICAL	
Pressure vessel supports 2.5" 2 seats	
Pressure vessel supports 4" 2 seats	
Pressure vessel supports 8" 1 seat	

SYSTEMS and VALVES

Manual flushing system (1/2" three way valve UC models)	
Manual flushing system (1" three way valve SC models)	
Automatic flushing system HP VAL for HP UC	
Automatic flushing system HP VAL per HP SC	
AISI 316 1/4" Manual pressure regulation needle valve for HP UC	
AISI 316 3/8" Manual pressure regulation needle valve for HP SC	
AISI 316 3/8" Semi automatic pressure regulation needle valve (SC - V - ELITE models produced until December 2002)	
1/4" RP TRONIC Valve - 0,5 for HP UC 12V - 24V	
1/4" RP TRONIC Valve - for HP UC 220V - HP SC - HP V	
1/2" RP TRONIC Valve - for HP ELITE	
Non conforming water automatic dump system	
Solenoid Valve EV1 (excluding cable)	
Solenoid Valve EV2 (excluding cable)	
Automatic membrane conserving biocide dosing system	
Automatic membrane anti scalant dosing system	
Automatic chlorine dosing system (for tanks)	

ELECTRIC AND ELECTRONIC SYSTEM

Pressure sensor WIKA 0-100 bar	
Temperature sensor 0-100 °C	
Flow sensor 0-1000 lt/h	
Conductivity sensor 0-2000 µS	
Motherboard 12VDC for HP UC	
Motherboard 24VDC for HP UC	
Motherboard 220VAC for HP UC	
Motherboard 220VAC for HP SC	
Motherboard 380VAC for HP SC	
HP REMOTE CONTROL PANEL (HP RCP)	
CABLE 15 MT for RCP	
CABLE 30 MT for RCP	
PLC HP03	
DISPLAY PLC HP03	
Chip Eeprom SOFTWARE RP TRONIC for PLC HP03	
HP UC RP TRONIC complete electric switch board	
HP SC - HP V RP TRONIC complete electric switch board	
Door lock 0-1 general switch	
12V DC Albright contactor for HP UC - HP ACQUA PURA	



LP pump contactor & thermal overload relay for HP SC	
HP pump contactor & thermal overload relay for HP SC	
Millennium Crouzet PLC controller (HP SC - H P V - HP KIT ECO, until December 2002)	
Chip Eeprom SOFTWARE for PLC Millennium Crouzet (HP SC - HPV - HP KIT ECO, until December 2002)	
Electric switchboard key (all the models)	
Emitter for switchboard (humidity salts)	
Closing lock + electrical switchboard key (all the models)	

UV STERILIZER

UV Sterilizer 2500 Lt/h	
UV Sterilizer 5000 Lt/h	
UV Sterilizer 8000 Lt/h	
UV Sterilizer 13000 Lt/h	
UV Sterilizer 18000 Lt/h	
UV Sterilizer 26000 Lt/h	

SODA MACHINES

Manual CO ₂ FIZZY WATER MACHINE include: 1 C - 1 P.E.T. 1 Lt bottle - 1 P.E.T. 0,5 Lt bottle - 250gr CO ₂	
rechargeable container	
250 gr CO ₂ rechargeable container	

PACKAGES

Package (mod. UC)	
Package (mod. SC - SC KIT - CDP)	
Package (mod. V)	
Package (mod. ELITE - DOUBLE)	



Washing Kit



Filter Kit UC



Filter Kit SC



Pump Kit W99



UV Steriliser



SCHEDA DIMENSIONAMENTO IMPIANTO AD OSMOSI INVERSA REVERSE OSMOSIS PLANT DETAILS

DITTA - COMPANY
MITTENTE - SENDER

ALIMENTO - FEED
PERMEATO - PERMEATE
RECUPERO - RECOVERY

ANALISI ACQUA - WATER ANALYSIS

CALCIO - CALCIUM
MAGNESIO - MAGNESIUM
SODIO - SODIUM
POTASSIO - POTASSIUM
SILICE - SILICA
SOLFATI - SULPHATE
CLORURI - CHLORIDE
BICARBONATI - HYDROCARBONATE
CARBONATI - CARBONATE
TDS
pH
BARIO - BARIUM
STRONZIO - STRONTIUM
FERRO - IRON
FLORURI - FLOURIDE

PRETRATTAMENTO - PRETREATMENT

ADDOLCITORE - SOFTENER	c YES	c NO
FILTRO A SABBIA - SAND FILTER	c YES	c NO
FILTRO A CARTUCCIA - CARTRIDGE FILTER	c YES	c NO
CLORAZIONE - CHLORINATION	c YES	c NO
FILTRO A CARBONE - CARBON FILTER	c YES	c NO
DEBATTERIZZATORE UV - UV SYSTEM	c YES	c NO



TRATTAMENTO CHIMICO - *CHEMICAL TREATMENT*

FLOCCULANTE - <i>FLOCCULANT</i>	c YES	c NO
CONTROLLO pH - <i>pH CONTROL</i>	c YES	c NO
CLORAZIONE - <i>CHLORINATION</i>	c YES	c NO
RIMOZIONE CLORO - <i>CHLORINE REMOVAL</i>	c YES	c NO
ANTIPRECIPITANTE - <i>ANTISCALANT</i>	c YES	c NO

TRATTAMENTO PERMEATO - *PERMEATE TREATMENT*

CONTROLLO pH - <i>pH CONTROL</i>	c YES	c NO
DEBATTERIZZATORE UV - <i>UV SYSTEM</i>	c YES	c NO
CLORAZIONE - <i>CHLORINE</i>	c YES	c NO
CONTROLLO CORROSIONE - <i>CORROSION CONTROL</i>	c YES	c NO

UTILIZZO - *APPLICATION*

ACQUA POTABILE - <i>DRINKING WATER</i>	c YES	c NO
ACQUE INDUSTRIALI - <i>INDUSTRIAL WATER</i>	c YES	c NO

ALIMENTO - *FEED*

ACQUA DI ACQUEDOTTO - <i>TAP WATER</i>	c YES	c NO
ACQUA SALMASTRA - <i>BRACKISH WATER</i>	c YES	c NO
ACQUA MARE - <i>SEA WATER</i>	c YES	c NO

Il suddetto questionario è richiesto per la costruzione di impianti ad osmosi inversa per acque diverse da quelle di mare, come ad esempio possono essere quelle di pozzo.

I dati richiesti sono fondamentali per l'esatto dimensionamento dell'impianto ad osmosi inversa, si raccomanda pertanto di compilare il questionario in tutte le sue parti.

The above form is requested for the construction of Reverse Osmosis plants for the treatment of brackish and tap waters.

The requested data are fundamental for the perfect dimensioning of the RO system, then HP HIGH PRESSURE Srl suggest to fill the form in all its parts.

