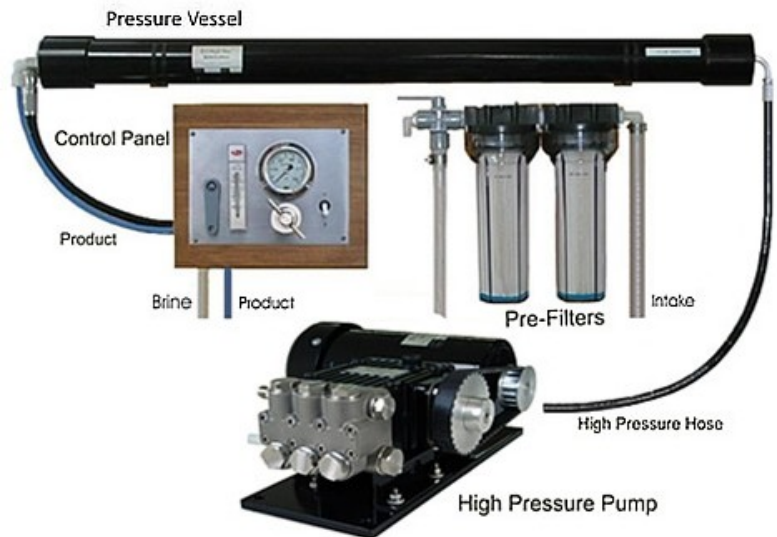


ECHOTecTM

The watermaker that works and works...

DC Watermakers for Yachts - 12V, 24V, 36V, 48V, 90/96V, 144V and 180V (Modular) from 8.5 GPH to 75 GPH/1800 GPD

With the release of the new 12 / 24 Volt Watermaker 200-DML-1, ECHOTec achieved a breakthrough in efficiency for watermakers, utilizing ultra-reliable triplex ceramic plunger pumps. The ECHOTec. pump is a low revolution (570 RPM) stainless steel version, driven by a highly efficient permanent magnet motor, designed for continuous duty under tropical conditions. No low reliable and service intensive energy recovery pumps or irreparable electronic circuits that can stall the entire system are used on any ECHOTec yacht watermaker. These desalination systems are made without "bells and whistles" for live aboard offshore cruising and racing with peace of mind.



FREE DUPLEX Package with any Yacht Watermaker

DUPLEX (2205 / S31803 / 1.4462) is more costly and more difficult to form and machine but achieves almost twice the corrosion resistance of 316 stainless steel.

DUPLEX has been successfully used for all high pressure fittings and pressure regulators of ECHOTec commercial desalination systems for the past 10 years. The custom fittings and regulator Duplex upgrade is now available as an option for yacht watermakers.

The Duplex package comes with a **lifetime warranty**. (If for any reason, a DUPLEX regulator or fitting ever fails, we replace it. Period.)

As for all other ECHOTec watermakers, only highest quality raw materials that have proven to withstand continuous duty in a harsh marine environment are selected for ultimate reliability and lifetime. Therefore, we fabricate all wetted components including the true regulating pressure valve and all high-pressure fittings from high-grade austenitic stainless steel. For most economical maintenance and global use, we do not fabricate components to proprietary dimensions. Standard filters, membrane elements and many spare parts can be obtained anywhere.

Key Features

- Three years warranty on all parts/components except consumables
- Lifetime warranty on Stainless steel high pressure pump head and R.O. pressure vessel
- Triplex plunger pump for low revolution and pulsation free raw water flow

- Spring loaded automatic pressure regulator for constant working pressure
- Extremely silent operation – no charge/discharge noise
- No energy recovery pumps - No electronic circuits
- High rejection R.O. membranes with a three-year pro-rated warranty
- Separate control panel for remote operation
- High pressure hoses with O-ring sealed stainless steel field attachable fittings
- Modular concept for space saving installation
- Post treatment pH buffer / hardener element saves up to 50% product water.

Product water from any RO watermaker is extremely pure, has little salt content, is very soft and acidic due to the removal of alkaline mineral constituents of the seawater. Therefore, similar to rainwater, using RO product requires significantly more freshwater to rinse off soap, shampoo and other detergents.

The newly developed post treatment system returns some hardness to the water to combat this problem. Rather than incorporating finicky and maintenance intensive energy recovery pumps to increase energy efficiency at the cost of reliability and increased purchase price, ECHOTec is the first watermaker manufacturer to offer a practical, low maintenance solution that saves up to 50% fresh water by improving the RO product quality.

The ECHOTec post treatment element also contains a mixture of minerals that returns bicarbonate alkalinity, correcting pH only enough to reach a neutral equilibrium. This dramatically reduces corrosion on metal tanks, boilers, washing machines and plumbing due to acidic product water.

As the water is slightly re-mineralized, this will also improve the taste of the product water.

- No proprietary equipment - Consumables may be obtained anywhere (except pH buffer element)
- 7 days a week top notch support and after sales care!

Specifications , System Features and Prices

Model	Rated Performance	Pressure vessels	Amps@ 12.5V/25 V
200 - DML - 1	8.5 gallons - 32 ltr./hour	one 40" vessel	19.8 / 9.5
240 - DML - 1	11 gallons - 42 ltr./hour	one 40" vessel	27.0 / 13.5
260 - DML - 1 *	13 gallons - 50 ltr./hour	one 40" vessel	38.0 / 18.0
780 - DML - 2 *	32 gallons - 120 ltr./hour	two 40" vessels	80.0 / 39.0

Reverse Osmosis performance varies with the feed water temperature and salinity. The rated performance is tested at 26°C / 80°F water temperature and a salinity of 35000 ppm TDS.

*Also available in 36 VDC, 48 VDC, 90-96 VDC and 180 VDC

**Prices shown do not include shipping, taxes and/or customs duties (if applicable)

144 Volt DC Watermakers for vessels powered with electrical hybrid propulsion systems from Lithium Batteries.

Operating window: 144 – 172 Volt at constant working pressure and output

Model	Rated Performance	Pressure vessels	Amps@ 144 V
450 - DLi - 1	18 gallons - 68 ltr./hour	one 40" vessel	4.0
790 - DLi - 2	32 gallons - 120 ltr./hour	two 40" vessels	5.9
1250 - DLi - 3	48 gallons - 180 ltr./hour	three 40" vessels	6.8

Reverse Osmosis performance varies with the feed water temperature and salinity. The rated performance is tested at 26°C / 80°F water temperature and a salinity of 35000 ppm TDS.

**Prices shown do not include shipping, taxes and/or customs duties (if applicable)

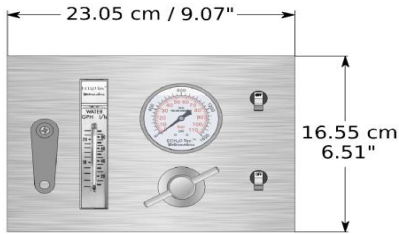
STANDARD SYSTEM FEATURES

1. 1 PVC sea strainer
2 3/4" NPT x 5/8" barbed hose connection
2. Pre-Filter complete with 20 micron cartridge (5 and 20 micron with optional boost pump)
1 Stainless steel bracket with 8 screws
1 Service valve with 1 Nylon nipple and 3 barbed hose connectors (with boost pump) or
1 flush/storage valve with 1 Nylon nipple and 1 NPT female tee (without boost pump)
1 Filter wrench
3. 1 High-pressure pump unit with vibration dampers
4. 1 Pressure vessel with reverse osmosis membrane
5. 1 Stainless steel control panel completely assembled with
1 Pressure control valve
1 High pressure gauge
1 Product flow meter
1 Diverter (3-way) valve
1 Breaker (without boost pump) or
1 Breakers (with boost pump)
6. 1 Hardener / pH neutralizer kit with mineral element and 2pcs 3/8" compression fittings
1 Stainless steel bracket with 8 screws
7. 15 feet / 4.5 meter high pressure hose with 2 x stainless steel high pressure fittings attached
2 x stainless steel field attachable high pressure fittings
8. 20 feet / 6 meter 3/8" blue product water tubing
10 feet / 3 meter 5/8" braided intake hose
10 feet / 3 meter 1/2" braided reject hose or 10 mm tubing
9. 17 Stainless steel hose clamps (with boost pump) or
12 Stainless steel hose clamps (without boost pump)

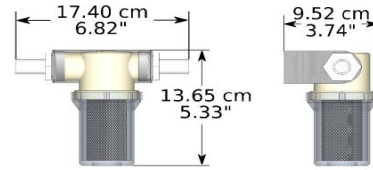
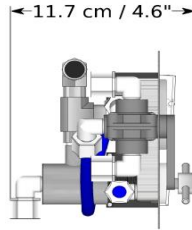
ECH₂O Tec.™ Watermakers

Dimensions

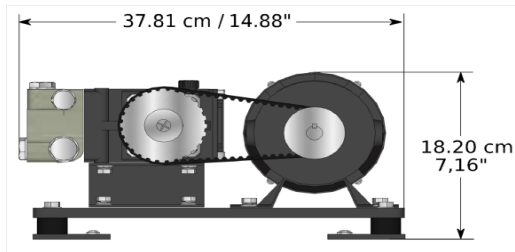
200-DML-1 / 240-DML-1 / 260-DML-1



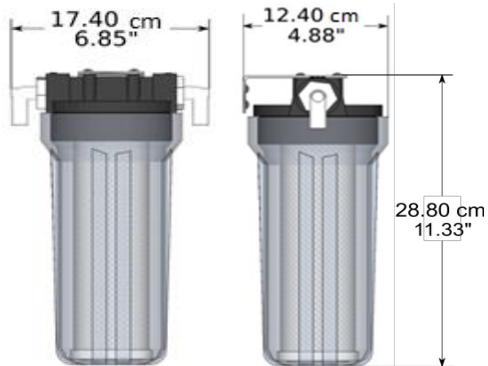
Control Panel



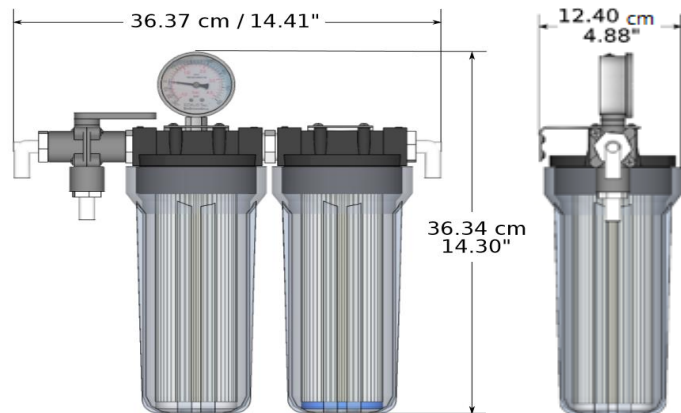
Sea Strainer



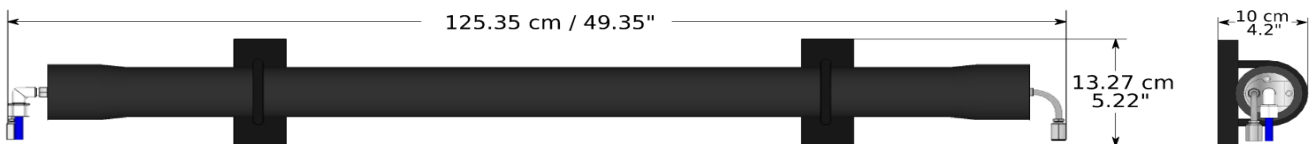
High Pressure Pump



pH Neutralizer



Pre-Filters



Pressure Vessel

Economy Watermakers for Yachts - 12V DC, 24V DC from 17 GPH to 28 GPH

Build your modular watermaker to your preferences.

ECHOTec Economy Watermakers come with everything you need to install onboard and produce freshwater from the sea. If the high-pressure pump will be installed less than 40cm below the waterline, an optional seawater feed pump will be required. Customize to your preferences with the options and upgrades in the below table.

The workhorse **DML Yacht Series** is entered for specification and cost comparison and as a benchmark for ultimate performance and reliability.



System Economy 17 with optional equipment

System Economy 17 Pressure vessel with standard gauges and regulator

System Standard Features Options and Upgrades	DML-260-1	DML-780-2	Economy 17	Economy 28	Option to Upgrade add US\$	
Price in US\$	\$ 5,990	\$ 7,990	\$ 3,895.00	\$ 5,095.00		
GPH / LPH	13/50	32/120	17/65	28/106		
Power – Ampere at 12 VDC	38	76	55	80		
Ampere per Gallon	2.9	2.3	3.2	2.8		
High-Pressure Pump Head, AISI 316	✓	✓	Plated	Plated		
High-Pressure Pump, Low Noise	✓	✓	Standard	Standard		
High-Pressure hoses, O-Ring Sealed	✓	✓	Compression	Compression		
Fittings and Regulator, Duplex	✓	✓	AISI 316	AISI 316		
Pump Motor Epoxy Sealed	✓	✓	Standard	Standard		
Pump Motor 24 VDC option	✓	✓	optional	optional		
Anti-Vibration Pump Unit Mount	✓	✓	Direct Mount	Direct Mount		
Membrane Vessel Assembly, Duplex	✓	✓	AISI 316	AISI 316		
Filter Brackets 3pcs. AISI 316	✓	✓	Aluminum	Aluminum		
Remote Control Panel, AISI 316	✓	✓	optional	optional		
1500 PSI Gauge, AISI 316L / Monel	✓	✓	303 / Plated	303 / Plated	Please inquire for current prices.	
40' Braided Hose / AISI 316 clamps	✓	✓	15' Tubing	15' Tubing		
Manual Product Diverter Valve	✓	✓	optional	optional		
Cleaning/Storage 3-Way Valve	✓	✓	optional	optional		
Hardener / pH neutralizer	✓	✓	optional	optional		
Feed Pump, Centrifugal	optional	optional	optional	optional		
Feed Pump, Diaphragm	n/a	n/a	optional	optional		
Filter Condition Gauge AISI 316L	optional	optional	optional	optional		
Filter Condition Gauge AISI 303	optional	optional	optional	optional		
TDS Meter, Real Time	optional	optional	optional	optional		
Flush Kit, w. valve, AISI316 bracket	optional	optional	optional	optional		
Flush Kit, basic, Alu bracket	optional	optional	optional	optional		
Flush Timer	optional	optional	optional	optional		
Warranty on HP Pump	lifelong	lifelong	2 years	2 years		
Warranty on Pressure Vessel/s	lifelong	lifelong	1 year	1 year		
Warranty on Fittings and Regulator	lifelong	lifelong	1 year	1 year		
Warranty on complete system	3 years	3 years	1 year	1 year		
Highly Recommended	Recommended	Useful / Practical	Low Budget			

Optional Equipment and Upgrades.

➤ **Fittings and Regulator**

DUPLEX 1.4462 (similar to 2205) is more costly and more difficult to form and machine but achieves almost twice the corrosion resistance of AISI 316 stainless steel.

DUPLEX has been successfully used for all high-pressure fittings and pressure regulators of ECHOTec commercial desalination systems for the past 10 years. The Duplex package comes now with all DML Series watermakers and is available as an option for the Economy Series.

The Duplex package comes with a lifetime warranty (If for any reason, a DUPLEX regulator or fitting ever fails, we replace it. Period).

➤ **High-Pressure Pump Head**

Corrosion resistant Stainless steel AISI 316 head, ceramic pistons, and stainless valves versus Nickel plated head, ceramic pistons, and stainless valves.

➤ **High-Pressure Pump (Low Noise Pump Upgrade)**

Extremely silent operation. Quietest pump on the market.

Only available in combination with the AISI 316 stainless steel pump head upgrade.

➤ **High-Pressure Hoses**

Upgrade from 2 pcs 5' / 1.5m fixed length hoses (can be ordered to your length requirement) with AISI 316 compression fittings to 15' / 4.5m high pressure hose with field attachable AISI 316 O-ring sealed fittings.

➤ **Pump Motor Epoxy Sealed**

Completely sealed and Epoxy plus Polyurethane coated wash-down motor versus standard motor.

➤ **Anti-Vibration Pump Mount**

Anti-vibration motor/pump unit mount with specially engineered soft vibration dampers.

This feature dramatically reduces noise transfer into the hull.

➤ **Membrane Vessel Assembly**

DUPLEX 1.4462 versus AISI 316 vessel components come with a lifelong warranty on the complete membrane vessel.

➤ **Filter Brackets 3pcs.**

Extremely rigid brackets from AISI 316 versus painted standard brackets from aluminum.

➤ **Remote Control Panel**

AISI 316 stainless steel control panel for remote operation (completely assembled).

➤ **1500 PSI Gauge**

All AISI 316 stainless steel with Monel bourdon tube versus plated Brass connection with AISI 304 dial and AISI 316 bourdon tube.

➤ **Braided Hose / AISI 316 hose clamps**

40' braided hose with 29 pcs AISI 316 hose clamps versus 15" Polypropylene tubing.

➤ **Feed Pump, Centrifugal / Feed Pump, Diaphragm**

While the magnetic drive, seal-less centrifugal pump is more costly, it does not wear as much as diaphragm pumps. Especially for DC systems, a centrifugal pump is recommended as it provides constant feed flow without building unnecessary pressure, resulting in unnecessary power consumption. A diaphragm pump is a positive displacement pump which will be feeding another positive displacement pump. Cheaper but not a good combination.

➤ **Manual Product Diverter Valve**

Switch from dumping the first high salinity product to filling the tank with potable product water. Complete with AISI 316 mounting bracket.

➤ **Cleaning/Storage 3-Way Valve**

Allows infusion of cleaning and storage solutions with the flick of a valve. Complete with AISI 316 mounting bracket.

➤ **Hardener / pH neutralizer**

Kit with mineral element and 2 pcs 3/8" compression fittings, stainless steel bracket with screws

➤ **Filter Condition Gauge AISI 316L / AISI 303**

The low-pressure gauge indicates when the pre-filters have to be changed or the through-hull becomes clogged (barnacles etc.).

Low pressure gauge (AISI 316 dial / Monel bourdon tube) -30 +60PSI, 1/4" NPT threads direct into the 20-micron filter housing, AISI 316 filter bracket with cutout for gauge.

or

Low pressure gauge (AISI 304 housing / AISI 316 bourdon tube) -30 +60PSI, 1/4" NPT threads direct into the 20-micron filter housing.

➤ **TDS Meter, Real Time**

Fixed installed, indicates the product quality in real time.

➤ **Freshwater Flush Kit**

The fresh water flush kit enables to store the watermaker for up to 10 days without the use of chemicals (biocide). The fresh water flush storage can be repeated every 10 days.

Flash Kit (Valve) contains: 1 Filter housing, 1 active carbon cartridge, Bracket (AISI 316SS), 8 screws, 1 shut off valve, 2 hose barb connectors, 1 Nylon nipple, 1 Nylon tee, 10 ft. braided hose, 5 hose clamps (AISI 316SS).

Flush Kit (Basic) contains: 1 Filter housing, Non-return valve, 1 active carbon cartridge, Aluminum bracket, 2 tube connectors.

➤ **Flush Timer**

Battery operated timer to time limit manual flash or automatically repeat flash at operator's selected interval and duration



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