

Yannick Bestaven, offshore racer and co-founder of Watt&Sea hydrogenerators, the experience of a famous sailor.

Internationally awarded, Watt&Sea products are a benchmark for sailors



Watt&sea hydrogenerators

95% of the boats of the Vendée Globe 2012-2013 used our hydrogenerator. And you... Who will you be trusting to sustainably produce your energy on board ?

Watt&Sea is the inventor of the new generation of hydrogenerators : a key system to produce energy offshore. Respectful of the environment, our hydrogenerators offers the best solution for cruising or racing with freedom and safety.

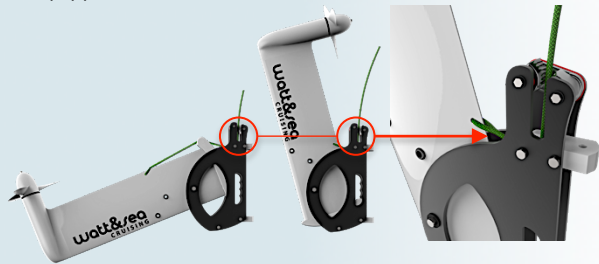
Result of the experience of a consortium of experienced sailors and large industrial groups such as Leroy Somer, they are designed and manufactured in France, with high quality materials.

Used by the best sailors, in the most extreme seas of the globe, the Watt&Sea hydrogenerators are recognized around the world as the most advanced and efficient !

Watt&sea strengths

Our hydrogenerators use the speed of the sailboat to turn an immersed propeller. Covered by a **2 years warranty**, they are the most powerful, reliable and lighter available.

- **120W** production (10A in 12 Vcc) from 5 knots
- **Large range** adapted to many sailboats and speeds
- **Ultra lights** thanks to the brushless alternator developed with Leroy Somer : **mounting and dismounting are simplified**
- **Propeller** is behind the leg, **protected from UFO**
- Hydrodynamic design : **unperceivable drag**, not affecting boat speed
- **Very silent** for everybody's comfort
- **Fast and easy** to use thanks to a system like on rudder equipped with a cam-cleat



Testimonials : they sail with a watt&sea

Offshore Racing

Jean Le Cam
5th of the Vendée Globe 2012-2013



«Hydrogenerators are fantastic ! It is a source of energy for the future! During 3 months on this non-stop round the world race, they were absolutely reliable. Thank you to the Watt&Sea team .»

Adventure

Maud Fontenay
Skipper of Tahia



«Generating electricity without using fossil fuels exactly match the values that are dear to me and I stand in the programs put in place by my foundation. My boat TAHIA is equipped with a Watt&Sea .»

Small Sailboats

Jean-Claude Montesinos
Transat on the Souriceau, a 4.75 meters sailboat



«On this transat no need to worry about anything : my boat was full of energy even at low speed (2,8 knots) without slowing the boat. That was great! »

Cruising

Anne et Alain Saniez
Skippers of Uhambo - Hanse 430e



«Since 2011, we sail in complete autonomy without starting the engine, safely, in comfort and silence.»

Racing-Transatlantic

Jean-Baptiste L'Ollivier
Skipper of A31 - Baleine Blanche



«Despite an engine failure, I could continue my transat with all the necessary power to feed at the same time, and 24 hours a day, the pilot, the electronics and the computer. Wonderful !»

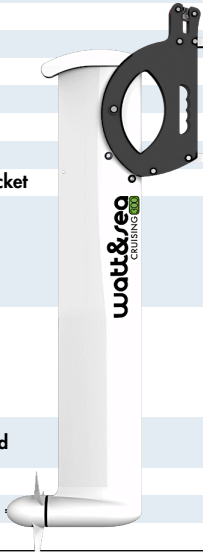


Maud Fontenay Fondation
Oceans Are Humanity's Future

For more informations:
www.maudfontenayfondation.com

Overpassing existing systems, Watt&Sea hydrogenerators are the ultimate solution to generate the needed power for energy independence when sailing. Quiet and ultra-performing, those miniaturized power stations make it possible to sail with positive energy.

comparing the hydrogenerator range	new CRUISING 300		new CRUISING 600		new RACING	
Nominal output	300 Watts - 24 Amperes in 12 Vcc		600 Watts - 48 Amperes in 12 Vcc		600 Watts - 48 Amperes in 12 Vcc	
Alternator technology	Brushless permanent magnet alternator from Leroy Somer : no wear, better output, light					
Load voltage	12 or 24 Vcc					
Navigation program	Cruising		Cruising, racing, long crossing		Offshore racing	
Speed range of use	2 -10 knots		2 -14 knots		5 - 30 knots	
Maximum speed of use	20 knots		20 knots		30 knots	
Leg length	610 mm	970 mm	610 mm	970 mm	610 mm	610 mm
Overall height with bracket	920mm	1280mm	920mm	1280mm	920mm	920mm
Weight						
- hydrogenerator	6,3 kg	7,1 kg	7,4 kg	8,2 kg	8,5 kg	6,5 kg
- controller converter	1,5 kg	1,5 kg	1,5 kg	1,5 kg	1,5 kg	1,5 kg
- Hydraulic pump	-	-	-	-	1 kg	1 kg
Materials						
- leg	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Carbone
- generator	Composite	Composite	Composite	Composite	Aluminium	Stainless Steel
- propeller/blade	Composite	Composite	Composite	Composite	Stainless Steel	Stainless Steel
Propeller/blade supplied	240 mm three blade propeller		240 mm three blade propeller		3 blades controlled pitch propeller, 200 mm	
Optional propeller	200 mm and 280 mm propeller		200 mm and 280 mm propeller		N/A	
Cable lenght	2 meters		2 meters		2 meters	
Warranty	Hydrogenerators and converters are warranted 2 years					

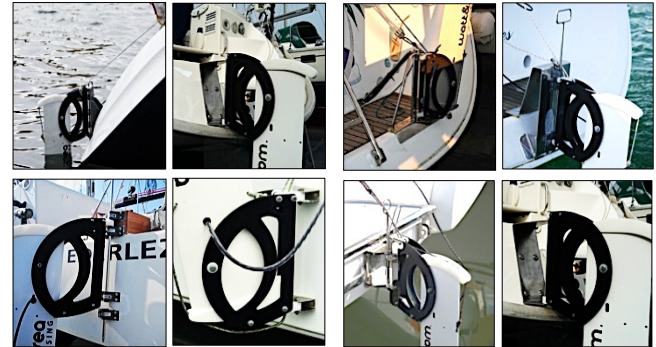


Patent n°FR0855813 - EEC Patented design n°001783523



Cruising Hydrogenerator installed on a Pogo, showing the importance of a 970 mm version to maintain the hydrogenerator immersed despite strong heeling.

Installation examples



Mounting on vertical or leaning transom

Mounting on platform

Many solutions of installations exist according to the type of stern or transom.



Removable mounting

Mounting on catamaran

Voltage Converter-Regulator

Specifications:
 With its advanced electronic architecture, this new generation of inverter converts 96% of the energy produced by our hydrogenerators at any speed: losses are reduced by half and the heat that need to be dissipated less important. Therefore the product is 60% lighter. An input for solar panel can produce additional energy at anchor. The energy is recovered at very low revs thanks to the boost mode. Management of energy by MPPT algorithm continuously optimize production (hydro and solar). Designed to charge two batteries (service battery and engine).

Max output power	600 W (48A @ 12 Vcc)
Architecture	Lift-Buck
Output voltage	12-24 Vcc automatically detected
Conversion efficiency	96%
Cooling system	Without fan
Intelligence	MPPT (Maximum Power Point Tracking) in hydrogenerator and solar mode. Protections against Short circuit and overheating
Compatible batteries	All including Lithium
Input	1 input for hydrogenerator 1 input for solar panel 10-50 Vcc
Output	2 independent output
Fitting	Vertical mounting is recommended
Protection	IP64 box
Dimensions	275 x 105 x 60 mm
Weight	1,5kg
Warranty	2 years

Electrical connection :
 Very simple, with two inputs (hydro and solar) and two outputs to charge two batteries simultaneously.

Even lighter, more manageable, more hydrodynamic and corrosion resistant ... Result of our experience, the new generation of Cruising hydrogenerators and its new features meet the requirements of users, boatbuilders and installers:

- Available in 2 outputs, 300 or 600 Watts, and 2 lengths, 610 or 970 mm, to meet the requirements of any sailor.
- « Brushless » technology and same material on any model.
- Converter 12-24 Vcc auto-detected with an advanced electronic architecture.
- New bracket with its cam positioned closer to the hydrogenerator to hold it firmly immersed or lifted. The locking and unlocking is possible with one hand.
- 2 kg lighter, lifting and removal are even easier.
- Redesigned with optimized hydrodynamic, the generator is in composite with enhanced corrosion resistance.



CRUISING 300 Hydrogenerator

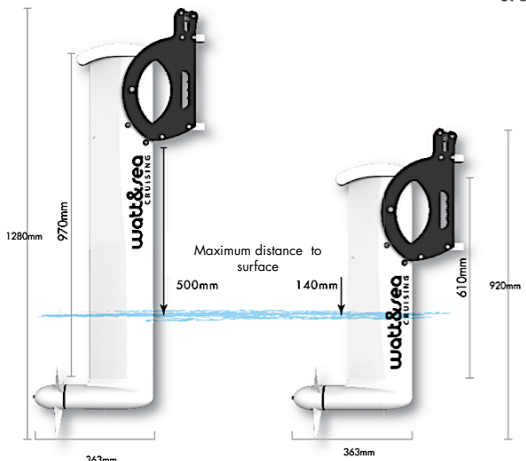
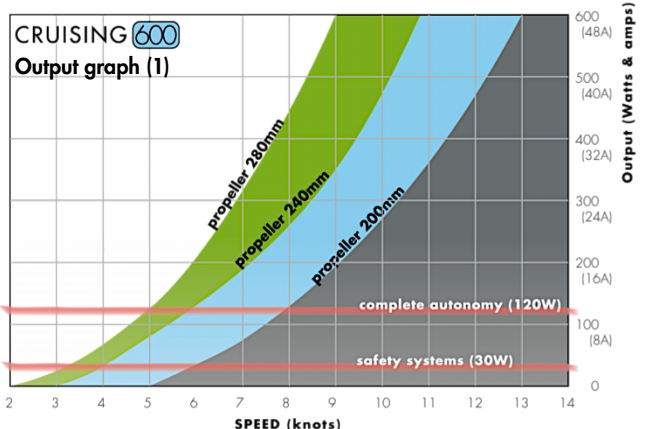
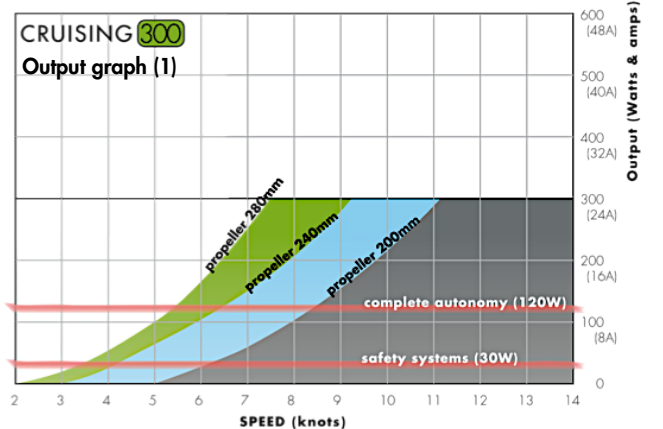
An energy input of up to 300W - 24A in 12 Vcc, for greater comfort while respecting the environment, when cruising.

- Strengths**
- Clean and quiet energy production system
 - Efficient on a speed range from 2 to 10 knots depending on the propeller diameter
 - Nominal output of 300W - 24A in 12 Vcc from 7 knots
 - Strong material and brushless technology as on other models
 - Flexibility and ease of use
 - Unperceivable drag thanks to a perfect hydrodynamic

CRUISING 600 Hydrogenerator

A considerable energy input of up to 600W - 48A en 12 Vcc, for a full energy independence when cruising, racing or during long crossing.

- Strengths**
- Efficient on a speed range from 2 to 14 knots depending on the propeller diameter
 - Nominal output of 600W - 48A in 12 Vcc from 9 knots largely covering all electrical needs on board and to re-charge your batteries for use at anchor, without using the engine
 - Flexibility and ease of use
 - Unperceivable drag thanks to a perfect hydrodynamic



(1) Output Graph : average production values given as an indication, subject to possible variation according to sea conditions while sailing and to the quality of the installation. The 240 mm propeller delivered in the packs is universal. 200 mm or 280 mm propellers are optional. They help optimizing the production according to the speed of the boat or to the weather conditions.

References, Packs 1 hydrogenerator 12-24 Vcc :
 Delivered with the last generation of 12-24 Vcc auto-detected converter, 240 mm propeller, bracket with cam-cleat and fastening kit.

- Cruising 300 short – 610 mm: Ref. PK-610-300
- Cruising 300 long – 970 mm: Ref. PK-970-300
- Cruising 600 short – 610 mm: Ref. PK-610-600
- Cruising 600 long – 970 mm: Ref. PK-970-600

EEC patented design N°001783523





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60' IMOCA Virbac-Paprec 3, 4th of Vendée Globe 2012-2013, equipped with Racing hydrogenators since 2011.



The choice of Vincent Riou, winner of Vendée Globe 2004-2005

« For my offshore races, I know that one of the keys of the victory will be the good management of energy on board. For the production, I have chosen the most reliable and the most efficient solution : the Watt&Sea Racing hydrogenator. ».



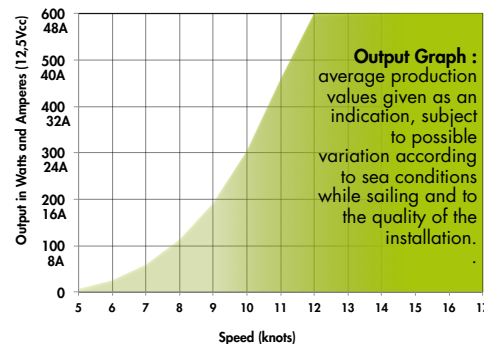
RACING hydrogenators :

Used by 95% of the boats on the Vendée Globe 2012-2013.

Essential equipment in races, it is specially designed for high-performance ocean racing sailboats. Equipped with a variable pitch propeller, functioning electronically with an independent miniaturized system, the drag is minimal and the energy output is optimal on a speed range from 5 to 30 knots.

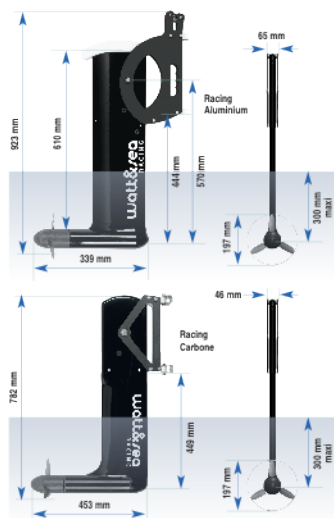
With a nominal output of 600W - 48A in 12 Vcc at 12 knots, all electrical needs on board are largely covered ensuring to skippers the comfort of a large autonomy.

- Strengths**
- Flexibility and ease of use
 - Efficiency on a speed range from 5 to 30 knots
 - Considerable energy input for a total independence of racing sailboats !
 - Unperceivable drag thanks to a perfect hydrodynamic and to the variable pitch propeller
 - Designed to support extreme conditions



François GABART - MACIF

60' IMOCA Macif skippered by François Gabart, Winner of Vendée Globe 2012-2013. Both carbon hydrogenators are mounted on the transom to be immersed and lifted upon request.



The variable pitch makes it possible to vary electronically the incidence of the blades in order to permanently adapt the power of the propeller to that absorbed by the batteries: when the hydrogenator is fully powered while the boat accelerates, the regulation slightly decreases the incidence of the blades so that the propeller preserves an identical power. In this way no energy is wasted, guaranteeing a minimal drag as well as a broad speed range of use (5 to 30 knots).

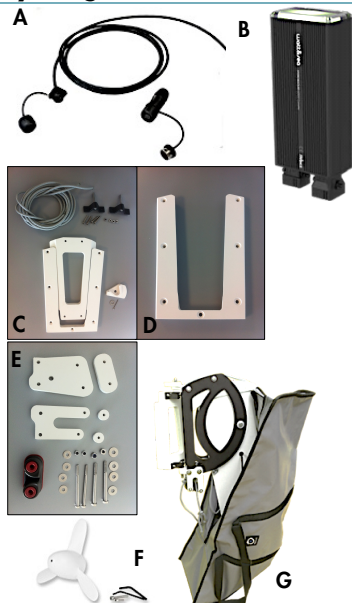
References, Packs 1 hydrogenator 12-24 Vcc :

Delivered with the last generation of 12-24 Vcc auto-detected converter, 3 blades, bracket with cam-cleat (Racing aluminium) and hydraulic pump.

- Aluminium Racing : Ref. PK-610-600-PV
- Carbon Racing : Ref. PK-610-600-PV/CAR

Patent N°FR0855813 – EEC patented design N°001783523

Hydrogenerators accessories



A IP68 waterproof connection kit :

It includes : 1 male connector + 1 female connector + 2 watertight stoppers + 10 m of 3 x 2,5 mm² thermo-assembled cable. Its high quality guarantee an optimum electrical connection. Easy mounting with only a screwdriver. **Ref WS-PL-C-001**

B Converter 12-24 Vcc automatically detected :

This last generation of converter transformer, it converts 96% of the energy produced by your hydrogenators. Equipped with an extra input for 10-50 Vcc solar panel with MPPT and 2 outputs to charge simultaneously 2 batteries. **Ref CV-03**

C Removable mounting kit for transom:

It includes 1 U support + 1 V support + 2 pintles + 1 locker and its pin + screws + 2 X 2 meters of Dyneema rope. This kit is suitable for many type of transoms. The mounting of the hydrogenator becomes simple and easy. The hydrogenator can be removed without any tool. It is the ideal mounting solution ! **Ref FA-03**

D Extra U support for "removable mounting kit ref FA-03" :

It allows a double position removable mounting (port - starboard). With this type of mounting, preferably choose a short hydrogenator. **Ref U-03**

E Support + cleat + screws for 1st generation of hydrogenator bracket :

The cleat installed very near the hydrogenator allows to maintain it tightly immersed or lifted. Locking and unlocking is done with only one hand. **Ref J-03**

F Propellers + extraction kit :

Different diameters of propellers are available, allowing to optimize the production depending on the boat speed and the weather conditions . We recommend to always carry a spare propeller.

Propeller 200 mm : Ref P-200-03 / Propeller 240 mm : Ref P-240-03 / Propeller 280 mm : Ref P-280-03

G Hydrogenerator bag:

Especially designed by Outils Océans (France) for the transportation, protection and storage of your hydrogenator. High strength material on the outside and anti-abrasion inside. Reinforced straps, drainage holes, storage pocket for spare propeller. Essential !

For hydrogenator 610 mm - Ref BAG-610-01/ For hydrogenator 970 mm - Ref BAG-970-01