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watt&sea®

RACING HYDROGENERATORS

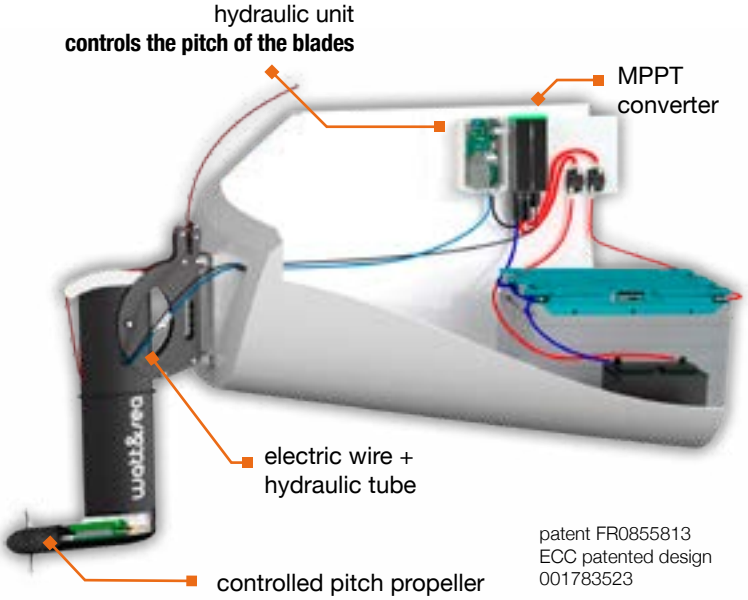
2019 / 2020

watt&sea RACING hydrogenerators have radically changed energy management on board and have become essential pieces of equipment in offshore races. They are equipped with a controlled pitch propeller, functioning electronically with an independent system. The drag is minimal and the energy output is optimal on a speed range from 5 to 30 knots.

Available in two versions : Aluminium Racing (PK-610-600-PV) and Carbon Racing (PK-610-600-PV/CAR)

PACK CHARACTERISTICS

Charging voltage	12 or 24 V autodetected	
Maximum using speed	30 knots	
Leg length	610 mm	
Overall length with bracket	920 mm	
3-phases wire length	4 m (13 ft)	
Compatible batteries	All incl. Lithium	
Pack contents	1 hydrogenerator 1 converter 1 hydraulic unit Mounting accessories	
Hydrogenerator weight	7,7 kg 8,2 kg	carbon aluminium
Converter weight	1,5 kg	
Hydraulic pump weight	1,0 kg	
Warranty	2 years	



patent FR0855813
ECC patented design
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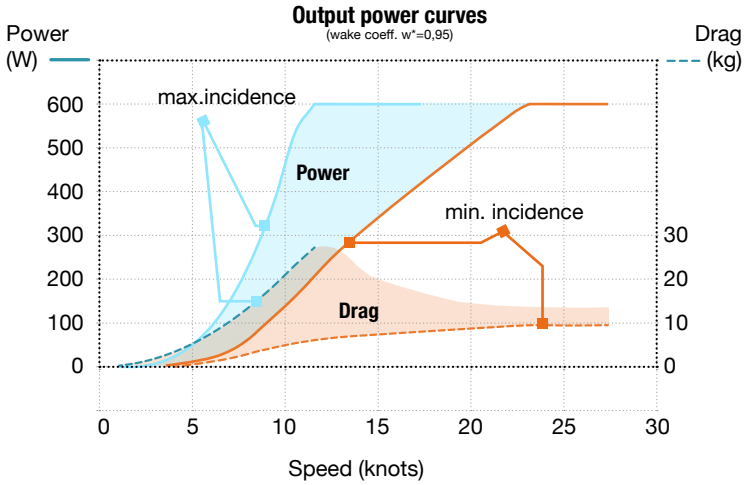

Theoretical drag of the blades calculated in CFD. For equal power, the drag is less at high speed than low speed.

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RACING WINDGENERATORS

2019 / 2020

©Jean-Marie LIOT / ALEA / MACIF

This new-design wind-generator is under testing since one year in collaboration with MACIF Design Team with the goal to achieve **full autonomy** on their giant trimaran.

We applied our knowledge from well-proven hydrogenerator technology to transpose its efficiency to wind generation. The result is a powerful and lightweight windgenerator. The prototype installed on MACIF trimaran showed great durability during *François Gabart's* solo-round-the-world record.

Compared to conventionnal wind-generators **this new design offers unique advantages for «racing» use :**

- **High stability in turbulences and waves**
- **Waterproof**
- **Ultra light thanks to brushless alternator technology**
- **Storm mode to operate in 30-50 knots range**
- **Aerodynamic design : unperceivable drag, not affecting boat speed**
- **120W production (10A in 12Vcc) at 20 knots**

+ high stability : due to downwind design (= propeller at the rear), the turbine is stable by construction and do not need a stabilyzer or a tail fin. It follows the stream just as our hydrogenerators follow the waterflow and produces a very stable output.

+ high performance : thanks to this stability, the «real life» net power is well in agreement with laboratory data.

+ waterproof : oil-lubricated alternator with hi-tech seals

+ high wind range : «storm mode» selectable on the converter to withstand winds up to 50 knots and have power in any conditions.

+ low drag : blades have been specially designed to achieve the lowest drag possible and ensure quiet working.

+ safer : on sailing multihulls the blades are always turned to the back so that the turbine is easy to handle from the leg.