

African Cats presents the

“FastCat 435 Green Motion Hybrid”

The first production yacht that is not dependent on fossil fuels to get in and out of the harbours or motor around.

Within one month after introduction the first series of 12 yachts has been sold already.

To increase efficiency, speed, lower fuel and maintenance cost African Cats has developed electric motor/generators that retract from the water if no charging or propulsion takes place.

The numerous advantages in this installation are:

- 1: The resistance while sailing is lowered and the actual sailing speed increases because no sail drives, propellers, props shafts or shaft supports are in the flow of the water and the result is lower usage of motors.
- 2: The motors are located closer to the centre of gravity making the yacht safer and more comfortable.
- 3: Folding or feathering props are expensive and no longer needed because they are lifted from the water when not in use.
- 4: The grounding is very limited so prop anodes will wear very slowly if at all.
- 5: The propellers do not corrode or attract growth decreasing its efficiency.
- 6: The chance of lightning striking the yacht is less because the grounding of the yacht is minimized.(studies learned that yachts with sail drives have a higher chance of getting struck)
- 7: The silent electric motors are located in the water under the bridge deck so noise in both the bedrooms and saloon is minimal.
- 8: When under power from one motor or charging with one generator while sailing the other prop can be lifted to decrease resistance.
- 9: When the props are fouled with Kelp or other debris they can be cleaned very easy, just lift them from the water open the hatch on top and clean them.
- 10: We use brushless maintenance free electric motors that are built to IP 68 so they are waterproof up to 30 meters or 100 ft deep.
- 11: We do not have thru hull fittings or shaft drives under water so leakage is not possible.
- 12: Large 3 bladed light weight slow rotating propellers have a higher efficiency than the normally used folding or feathering props and this is possible because of them being retractable.
13. While motoring with the generator running the fuel consumption is less then with diesel propulsion.
- 13: the efficiency is better because the props are not mounted close to the hull but at 3 ft distance.
- 14: the weight is substantially lower compared to the normal electric drive or diesel propulsion.
- 15: The optional generator is installed on the centre of gravity with the lightweight lithium Iron batteries, enclosed, easy to reach in a sound capsule. (47

DB at 2m)

16: the propellers are counter rotating so there is no wheel effect and it increases efficiency because the rudders are now in line instead of counter steering the wheel effect.

17: the propellers are mounted away from the rudders so the rudders are more effective. (and no vibration)

18: The space under the beds normally occupied by the engine/sail drive combination are now empty and can be used for other purposes and a extra buoyancy chamber is installed

19. When using the electric motors there is no exhaust smell, smoke, noise, vibration and you do not have to fill your diesel tanks each time when you dock.

20. If you are sailing to fast you can lower the props to increase resistance and slow down and in mean time recharge your batteries.

21. When beaching the boat you can raise the legs and there is no chance of damage to motors or propellers.

22. The electronic controllers are seawater cooled to increase efficiency, keep the noise and heat to a minimum and the heated water is used to preheat the water in the water heater.

23. A water heater in 120 volts dc is included in the system to conserve more energy so it will not be necessary to first convert to 12 volt and then to 110 or 220 ac.

24. The complete system's weight is less then the normally used electric motor with shaft, bearings and propeller or diesel sail drives. 70 kilo's or 155 LBS for the 10 KW units all parts and rotary actuator included. (This compares to 40 HP diesel power).

25. It is possible to motor sail and presetting the motors to an rpm setting, when the speed of the boat picks up because of waves or increased wind force, charging starts automatically.

26. A range of 5 different electric motors from 4 up to 25 KW has been developed (20 up to 120 HP)

27. With a RS 232 connection it is possible to connect the system to your radar, GPS or computer to monitor temperatures of the motor and controllers, motor rpm, torque, electrical consumption.

28. The system has build in safety for overheating or stuck propellers, if overheating occurs first the motor output is lowered, if the situation continues it switches down until cooled.

The same is done with the controllers.

29. Maximum and minimum rpm settings can be preset in order to use the least energy or to charge most efficiently. Charging normally starts at 120 motor rpm and the max prop rpm is set to a little over max hull speed , for instance if hull speed is 9 knots and it takes 900 motor rpm to reach that speed max rpm setting is 950. It is a waste to set it any higher since 1100 rpm will only give you 0.2 knots extra speed but the consumption of watts is 30 % higher.

This system will also be offered to other yacht builders both for catamarans and monohull because a retractable system for monohull yachts is also developed.

It will be offered under the name "GREEN MOTION HYBRID"

We have applied for a patent on the system and it is pending.