

Electric-Hybrid Yacht With 26 kW Of Solar Power Under Construction

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The SILENT 80, from SILENT-YACHTS, is a trans-ocean electric-hybrid catamaran with a 26 kW solar power system onboard. There are several options for propulsion, including a configuration with the very large solar power system, batteries, electric motors, and a generator that burns fuel to also charge the batteries. With this option, the vessel produces very little noise, especially relative to power yachts of the same size, which typically use diesel engines. Cruising under the power of electric motors is a much quieter experience, hence the name. Electric motors running on clean, renewable energy also don't produce toxic air pollution. Currently, two of the SILENT 80 vessels are under construction. If you're wondering why it's called the SILENT 80, the number refers to the vessel's length — it's about 80 feet long.



Image credit: Silent Yachts

Franz Bose, from **SILENT-YACHTS**, answered some questions for *CleanTechnica*. There are also two videos, one shows renderings of the SILENT 80, and the other shows footage of a finished Silent 55.

The SILENT 80 has a solar power system with a 26 kW capacity. How many panels is that, and what kind of panels are they?

That's right – there are 64 panels in total. We use SunPower X-Series panels.



The battery has a capacity of 240 kWh. What is the battery chemistry and how long can the vessel cruise at 5 knots using only the battery?

We use Lithium-Ion batteries from Victron Energy. Under normal sunny conditions, the boat can cruise day and night at a constant speed of 5 knots.

With adequate sunlight, how long does it take for the solar array to charge the battery?

If we assume a full charge from 0% to 100% (which in practical conditions does not represent a realistic scenario as we never fully discharge the batteries) it would roughly take around two days to fully recharge.

The vessel also has a 3,000 liter fuel capacity. Is that for gasoline to run the generator which charges the battery? And there are no gas-powered motors?

In the standard configuration the vessel has a fuel capacity of 3,000 liters. Another 2,000 liters of additional fuel capacity can be added as an option. When it comes to the “Cruiser” and the “E-power” versions, a diesel generator charges the batteries (serial hybrid). Alternatively, we also offer a parallel hybrid propulsion system – the “Hybrid Power” version. Hereby, the generator is replaced by two diesel engines for propulsion and for charging the batteries. Both diesel engines have an electric motor connected to the same shaft. This gives you the opportunity to run the boat with either the e-motors, the diesel motors, or by a combination of both.



How long does it take when using the generator to charge the battery?

If we again theoretically assume a full charge from 0% to 100%, it takes about 3 hours.

With both solar power and fuel to recharge the battery, what is the range of the vessel?

This very much depends on the speed, the range as such is not a problem. A SILENT 64 already crossed the Atlantic Ocean in January 2018.

For such a large vessel, having a draft of about 4 feet is quite an achievement. Is this vessel well-suited to being able to cruise among islands and anchor close to beaches?

Yes it is – this particular scenario is always funny because when anchoring with a SILENT yacht close to a beach, most people don't even notice it, as they never heard the yacht arriving in the first place.

It seems with such a shallow draft, it would also be good for water activities like scuba and snorkeling, is that true?

Absolutely! A diving compressor can be installed as well. There is also enough storage available for water toys or electric jetskis. Furthermore, it is also possible to add a hydraulic stern-platform which serves as a tender lift as well as a swimming platform.

Because the propulsion system uses electric motors, how much quieter is cruising with the SILENT 80? It must be a more comfortable and relaxing experience. Plus, there are no fumes coming off the back of the boat, is that also true?

The first experience with a SILENT yacht is very comparable to the experience with an electric car – you wouldn't expect it to be that silent and calm. By comparison, it is far quieter than a sailboat which needs a lot of wind to sail with speeds of 6 to 8 knots. You basically only hear the sound of the water. Another pleasant addition to the overall experience is the fact that there are no fumes and no vibrations whatsoever.

It seems that because your company is using solar power, a clean, renewable energy source on your vessels, that being environmentally aware is important. Is that the case, or is it using solar simply more practical from the perspective of greater comfort and having the ability to generate your own power?

Generally speaking, honoring nature and the environment is definitely one of the fundamental pillars of SILENT-YACHTS. Nevertheless, using solar is indeed more practical, safer, cheaper and more reliable than wind. The additional convenience of more comfort is of course another positive aspect.