



Reference report: ES Maria Wörth Electric solar ferry on Lake Woerth in Austria.

The first electric solar ship, the “ES Maria Wörth” has been travelling from Villa Lido to Lendhafen in Klagenfurt on Lake Wörth in Austria since summer 2012.

The project

The “Maria Wörth” from Lake Wörth shipping is the first electric solar ship in regular service on the Lend canal. The new passenger ship is licensed for 60 passengers and despite the short journey has two passenger toilets, a helm stand in the bow and even a bar behind the helm stand. The ferry is exceptionally quiet and offers extensive passenger comfort.

In deep water the solar ship reaches a maximum speed of 18 km/h and 8.5 km/h in shallow water such as in the Lend canal. The ES Maria Wörth is 18.90 m long and 5.10 m wide. The carrying capacity is 5.00 t.

The project was in collaboration with Wurmitzer GmbH.

The drive

The propulsion is via 2 electric motors with 35 kW each directly mounted on two fixed propellers with 350 mm diameter and 227mm pitch. The motors are supplied by a total of 10 batteries that are charged from the banks (land current) via charging stations on board. The battery provides the pure battery electric operation. In order to enable this, small batteries (ZEBRA) are used in order to keep weight to a minimum.

All information and switching commands between the integrated systems run via a system bus, in this case this could be a RS-485-Bus or a CAN-Bus. Important systems are partially redundant and connected via RS-485 and CAN-BUS.

The technology

Charging takes approx. 8 hours if the batteries are completely flat and can be done at night. The required energy comes from a temporary storage that charges during the day with photo voltaic modules.

The ships screw is relatively small due to the small draught and this means high speeds in order to achieve the required drive power. This in turn requires a special-purpose design for the drive motors. So-called permanently excited synchronous motors are used in order to achieve maximum efficiency. Both motors and inverters are water-cooled.

The inverters are necessary in order to “convert” the direct current from the batteries into alternating current for the motors. What’s so special about the VECTOPOWER inverters? On one hand the efficiency, on the other special control software so that the motors can be operated without additional sensors. This means that the inverter knows the speed of the motor and how much drive power is required without an additional sensor. No additional sensor means less moving parts on the motor and this in turn makes the whole drive sturdier and more hard-wearing.

Highlights

- + quiet drive
- + Motor operation without sensors for maximum reliability
- + Maximum efficiency of the electric drive

„Extremely quiet and no more unpleasant diesel smell.“

Mark Oliver Utz
ARADEx AG



The “Maria Wörth” is the most modern electric solar ship in Europe.

Interested? Give us a call!

ARADEx AG
Ziegelwaldstr. 3
D-73547 Lorch
Tel.: +49 (0) 71 72 - 91 81 0



sales@aradex.com
www.aradex.com

