

Wildau'er Championship for Solar Boats 2 023

Technical Regulations

1. General

The rules of the Wildauer Championship for solar boats are based on the suggestions of Prof. Alexander Köthe. All questions concerning the interpretation of the Technical Regulations must be submitted to the organization in writing. The rules will be published in the website, and they are binding for all participants.

2. Liability and Insurance

The Organizing Authority and any other party involved in the organization of the Solar Boat Regatta will accept no liability whatsoever for any personal or material damage (including but not limited to death, injury, consequential damages, etc.) sustained prior to, during or after the event. All participants must have valid third party liability insurance, effective for the duration of the event.

All participants are at all times responsible for the technical condition and safety of their boats for the entire duration of the event. Technical details have to be reported in the boat's passport. Approval of participation of the boat prior to the event and approval during the inspection will under no circumstances exempt the participant from due responsibility.

3. The Boat

All solar-powered boats must be fitted with solar modules serving as the sole source of energy. The use of wind energy and/or energy derived from manpower will not be permitted.

All boats must be fitted with a "dead man's switch". This switch must activate automatically and simultaneously during a crew evacuation without having any delaying effect on the evacuation.

All boats must be designed to ensure that all crew members will be able to evacuate without any form of outside assistance.

All boats must be fitted with a fastening point for a tow line. The fastening point must be capable of a load of at least the boat's weight.

All boats must be fitted with two types of signalling systems, namely an orange warning flag and an audible system, such as a ship's horn.

All boats must be fitted with a marker buoy connected to the boat by a rope of at least 5m of length.

All boats must be fitted with at least one paddle. The paddle may be used exclusively in an emergency situation.

All repairs to the boat's electrical systems must be reported to the organization in advance. Repairs to other parts of the boat may be reported after the fact. Replacement of batteries will result in the issuing of a time penalty.

The average speed of the boat must be at least 6 km/h. The latter characteristic will have to be reported in the Passport and will be subject for testing during the first day of the event.

4. Categories and specifications

	Young Solar (Wildau)	VCx (Wildau)	Open Class (Wildau)
Dimensions	length max. 6,5 m; width max. 2.4 m	length max. 6.5 m; width max. 2.4 m	length max. 8 m; width max. 2.4 m
Solar	max. 375 Wp	max. 1250 Wp	max. 2300 Wp
Storage	max. 2 kWh	max. 4 kWh	max. 6 kWh
Speed	max. 10 km/h	min. 8 km/h	min. 8 km/h

The technical specifications of the PV system must be reported in the boat's passport for the European Championship for Solar Boats.

The solar modules must be placed horizontally on the boat.

Each solar module must be mechanically secured to the boat, either in a frame or otherwise. The design of the fastening system must be such that it will resist strong wind from any direction.

The type and mass of the battery pack will be evaluated during the technical qualification.

The weights specified in the regulations are based on lead-gel batteries. Teams using advanced battery technology (e.g. as Lithium Polymer) will enjoy a performance advantage, though at a high cost.

The battery pack will hereafter be called the "main battery".

Participants found to have installed battery power in excess of the limits shall be issued a time penalty.

Participants must make sure that the batteries can be weighed separately.

The maximum allowed system voltage is 60 V DC or 75 V AC RMS.

The maximum allowed voltage of the (composed) main battery is 48 VDC.

The main battery may only be charged with the use of the installed solar panels.

All energy-conducting cables must be designed in suitable dimensions to cope with the anticipated voltage and power currents. Every team is responsible for its own batteries.

All the batteries used in the event must be commercially available. The batteries may under no circumstances be modified in any way. The participants must disclose all data related to the batteries in the boat's passport.

The batteries must be mounted safely.

In addition to the "dead man's switch", boats must be fitted with an emergency mains switch to cut the power supply to the system in an emergency situation. The switch must be capable of breaking the electrical power supply under full load. The switch must be clearly marked as an engine switch, and the 'On' and 'Off' positions must be clearly marked.

The electrical system must be equipped with a fuse in serial connection with the main battery. The fuse may under no circumstances carry more than 200% of the expected power.

5. Identification

All boats must be supplied with an identification number issued by the organizers. It shall be clearly visible on either side of the boat. The organization will provide all participants with two stickers.

Participants are allowed to finish their boat designs with aesthetic embellishments of their own choice. Participants are also allowed to display their sponsors, provided that such displays are not in conflict with sound moral standards and the interests of the organizations involved in the event (subject to the discretion of the organizing committee).

6. Inspections and Passport

The organizers are entitled to conduct technical inspections of the boats at any time during the event. Participants are required to cooperate. All participants will be notified of the time and location of the inspections in advance. The organization will invite the participants for an inspection.

Boats that fail to comply with the regulations will be disqualified from participation until they come into full compliance. Compliance has to be confirmed by means of a re-inspection. All modifications to the boat that are made after the inspection will be subject to re-inspection. Any boat may be subject to additional random inspections in the course of the event.

Participants are at all times responsible for the technical condition and safety of their boat during the course of the event. Approval during the inspections will under no circumstances exempt participants from their due responsibilities.

7. Competitions

Participants competing for the Wildau'er Championship for Solar Boats 2023 will have to comply with the following objectives:

- **Speed** - A straight distance of 200m must be covered from the start, followed by a turn and then another 200m to the finish line. The total distance should be covered in the shortest possible time.
- **Duel** - Two boats compete against each other in a duel and must complete a small course.
- **Endurance** - The goal is to cover the longest possible distance within two hours.

8. Scores

The final score of a solar boat race is made up the scores of the individual competitions, i.e. endurance race, speed, and duel.

The winner of the speed earns 9 points, the second 8 points, etc.

This rule also applies to the duel.

The winner of the long distance (endurance) race earns 12 points, the second gets 11 points, etc.

The scores of the endurance, the speed, and the duel runs are added for each boat. The boat with the highest final score wins the competition in its class. If there is a tie between two boats, the boat with the highest score in the endurance race wins within its class.