

BLUE SHOCK RACE
ELECTRIC KARTING LEAGUE TECHNICAL REGULATIONS 2025

1. GENERAL REGULATIONS

- 1.1. These technical regulations are developed in accordance with the International Karting Commission (CIK-FIA) technical regulations, adapted to the World Karting Association (WKA) competitions.
- 1.2. Electric karts are defined as karts powered exclusively by an electric motor, with a battery as the only power source.
- 1.3. Chassis: Must comply with CIK-FIA Karting Technical Regulations for each class (see Section 4).
- 1.4. Age Restrictions: Defined for each class (see Section 4).
- 1.5. Minimum Kart Weight (with Driver): Defined for each class (see Section 4).
- 1.6. Forward motion only: Reverse driving using the motor is strictly prohibited.
- 1.7. Power Units Sealing: All power units must be sealed before the race. If a seal is broken, the team must report to the organizers for resealing before racing. Failure to comply may lead to disqualification.

2. ELECTRIC DRIVE SYSTEM

- 2.1. Power Limitation: Maximum power output at the battery must comply with class-specific limits (see Section 4).
- 2.2. Safety Switch: The electric power circuit must include a safety switch/contact capable of disconnecting power under maximum voltage and current load.
- 2.3. Component Certification: All electric components must have a CE marking or equivalent US certification. If unavailable, technical documentation must be provided for review by the Technical Commission.
- 2.4. Cooling System: Only natural airflow cooling is permitted during racing.
- 2.5. Temperature Requirements: The motor, controller, and battery temperature must be at least -10°C ambient temperature five minutes before the race. Temperature is measured using WKA-approved devices.
- 2.6. Motor Type: The racing kart must be equipped with an electric motor only.
- 2.7. Liquid-Cooled Motors: Allowed, but cooling channels must be sealed and not connected to any cooling system.
- 2.8. Motor Modifications: Any modification of the electric motor is strictly prohibited.
- 2.9. Battery Voltage & Discharge Limits: Defined per class (see Section 4). Discharge current must comply with controller settings according to the battery nominal voltage.
- 2.10. Torque Map Calculation: The discharge current must follow the formula: $P_{max} / V_{nom} = I_{max}$ (e.g., $6000W / 48V = 125A$).
- 2.11. Battery Type: Only Li-Ion batteries (any Li-Ion chemistry) are permitted. Other chemical compositions are strictly prohibited.
- 2.12. Battery Protection:
 - Each battery must include a Battery Management System (BMS) and at least one fuse at the battery output.
 - Only one battery pack per kart is allowed at any time.
 - Batteries must be housed in a mechanically durable, fire-resistant enclosure to protect against impact and moisture.
- 2.13. Component Attachment: All components must be securely mounted to the chassis to prevent detachment in a crash.

- 2.14. Ingress Protection: All electrical components must have a minimum rating of IP65.
- 2.15. Technical Inspection: Teams must grant the Technical Commission access to verify power restrictions at any time.
- 2.16. Software Compliance: If a kart's control software exceeds the allowed power limit, the competitor's race results will be nullified.

3. SAFETY REGULATIONS

- 3.1. Wire Insulation: All wiring must have intact insulation.
- 3.2. Exposed Contacts: All non-factory-insulated contacts (e.g., motor connections) must be covered with non-conductive protective material.
- 3.3. Insulating Protection: Rubber sleeves must be used for all uninsulated wire connections.
- 3.4. Accident Protocol: If an electric kart is damaged in a crash, it may only re-enter competition after Technical Commission inspection and approval.
- 3.5. Fire Safety Equipment:
- Each team must have at least one 5 lb CO2 fire extinguisher.
 - Each team must carry a fireproof blanket (min. 1x1 m).

4. CLASS REGULATIONS

BSR-X4 Class Divisions:

- Heavyweight Class: Minimum kart weight 400 lbs (181 kg).
- Lightweight Class: Maximum kart weight below 400 lbs (181 kg).
- No ballast weight adjustments are allowed; driver classification is based on natural body weight.

Age Requirements:

- Minimum Age: 10 years old.
- Drivers must maintain lap times within 10% of the class average. If below, additional training sessions may be required.

Battery & Power Limits:

- Battery Voltage: 96VDC nominal (classified as Low Voltage under IEC 61140 standards).
- Maximum Power Output: 27kW at the battery output.
- Maximum Discharge Current: Defined by torque map settings.

Chassis Regulations:

- CIK-FIA Karting Group 2 (OK) chassis.
- Front brakes are NOT allowed.

Software & Power Management:

- Power limits enforced via software.
- Torque map restrictions apply.

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