BLUESHOCKRACE | BSR 2.5 ELECTRIC POWER

RENTAL TECHNOLOGY

R3

BSR-R3 | GENERATION 2.5

PROFESSIONAL EQUIPMENT FOR COMMERCIAL KARTING CENTERS

BSR_13022026

PRODUCT OVERVIEW

BSR-R3 Generation 2.5 is a professional electric rental kart platform designed for daily commercial operation.

Developed through nearly a decade of real-world karting experience, it combines lightweight construction, high performance, impact-optimized safety, and modular architecture in a service-optimized system.

The platform is built to support reliable operation, high utilization, and scalable karting business models.

BSR-R3 is engineered to generate more revenue per square meter with lower capital risk.

KEY BSR-R3 KARTING ADVANTAGES

REVENUE-OPTIMIZED CHARGING ARCHITECTURE

A charging strategy matches different business models.

Quick Swap Battery System

Low-CAPEX solution for compact tracks, limited space, or smaller fleets, maximizing uptime without a second kart fleet.

Permanent Ultra-Fast Charging

High-capacity charging for large venues and double-fleet rotation operations.

Wireless Charging System

Fully automated, cable-free charging for premium and landmark projects.

HIGH PERFORMANCE IN ALL OPERATING CONDITIONS

Built for indoor and outdoor commercial use.

- High software-controlled power output across multiple driver profiles.
- Lightweight lithium battery technology with maintenance-free air cooling.
- Reliable operation in rain, heat, and cold-weather conditions.
- Racing-level performance adapted for rental durability and safety.

SERVICE-OPTIMIZED ENGINEERING

Designed to reduce downtime and lifecycle costs.

- Multi-stage impact protection redirects crash energy to low-cost, replaceable components.
- Reduced structural damage after incidents enables faster recovery and longer chassis life.
- Simplified component layout and cabling allow fast diagnostics and repairs.

ONE PLATFORM FOR ALL DRIVER CATEGORIES

Maximum fleet utilization with a single kart model.

- One chassis platform suitable from junior to adult drivers.
- Adjustable seat, pedals, and safety elements support a wide driver range.
- Software-controlled power levels adapt to skill levels and session formats.

OPEN TECHNOLOGY PLATFORM

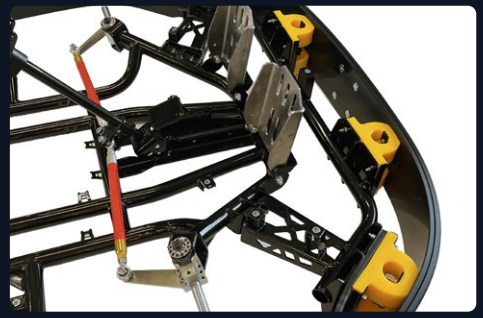
Ready for future systems and digital experiences.

- CAN-open architecture compatible with modern control, data, and automation systems.
- Supports integration with telemetry, gamification, and advanced control features.
- Designed for projects exploring new operational and experiential formats.

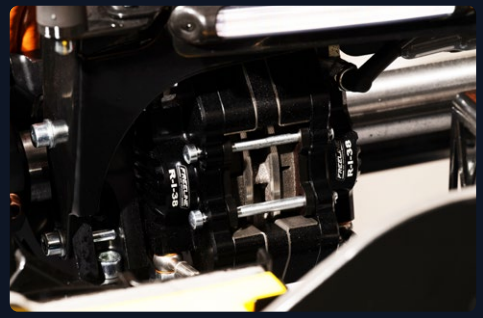
CHASSIS & DIMENSIONS

BSR in-house developed Generation 2.5 chassis, refined over ten years for intensive rental operation.

CHASSIS
32 mm chromoly steel frame



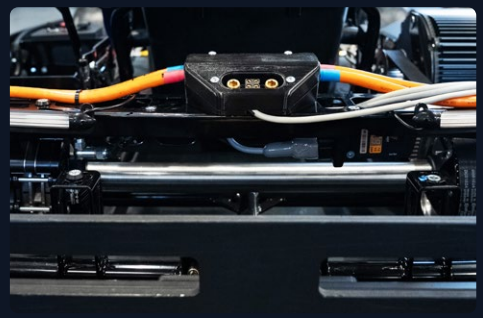
BRAKES
Freeline hydraulic system, 200 mm disc with pressure sensor



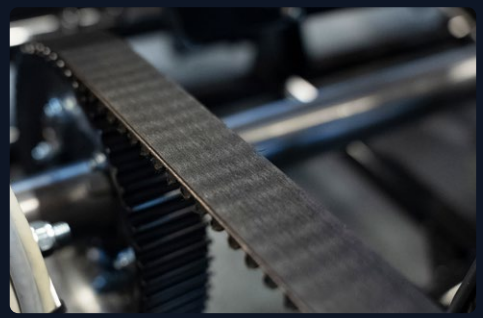
RIMS
Alloy (standard)

PEDALS
Adjustable, with anti-acceleration sensor

REAR AXLE
40 × 1000 mm



TRANSMISSION
Timing belt (30 × 960 × 8M)



SEAT
Adjustable seat with reinforced support structure

STEERING WHEEL
320 mm diameter

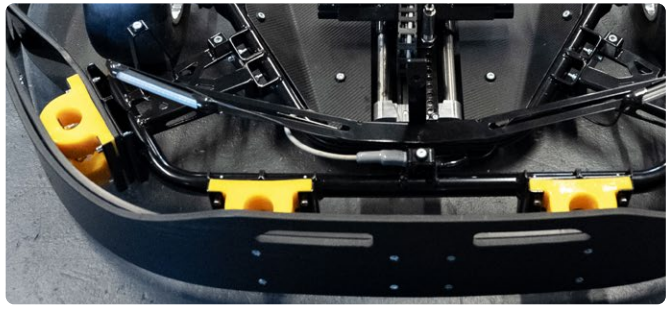
IMPACT PROTECTION SYSTEM

BSR-developed multi-layer impact absorption system designed for intensive rental operation.

PRIMARY IMPACT PROTECTION
10–20 mm PE plastic molds

IMPACT ABSORPTION BLOCKS
40 mm polyurethane shock absorbers

ENERGY DISSIPATION ELEMENTS
Multi-directional deformation elements for low-cost replacement

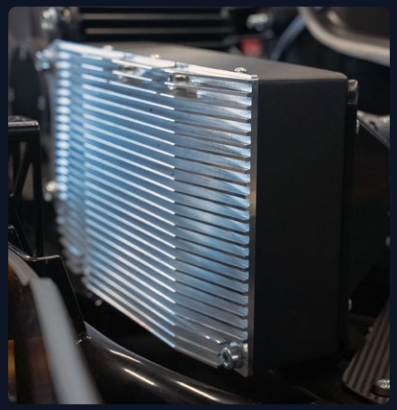


BODY PANELS
4-5 mm High-impact-resistant plastic

ELECTRIC POWER UNIT

BSR in-house developed electric power unit designed for continuous rental operation.

MOTOR TYPE: PMAC brushless motor
NOMINAL POWER: Up to 10 kW / 14 hp (software adjustable)
BOOST POWER: Up to 12 kW / 16 hp (software adjustable)
MOTOR TORQUE: Up to 60 Nm / 44 lb-ft (software adjustable)
REAR AXLE TORQUE: Up to 180 Nm / 133 lb-ft
MAX MOTOR SPEED: Up to 4,000 rpm
EFFICIENCY: Up to 92%
TOP SPEED: Up to 85 km/h / 53 mph (gear ratio dependent)
ACCELERATION: 0–60 km/h / 0–37 mph in approx. 4–5 s
COOLING: Air cooling (maintenance-free)
THROTTLE SYSTEM: BSR Gen 5.0
NOMINAL VOLTAGE: 50.4 V
DATA INTERFACE: CAN communication
SYSTEM COMPATIBILITY: Compatible with standard remote control and timing systems
INGRESS PROTECTION: IP65 (suitable for rainy conditions)



BATTERY SYSTEM

BSR in-house developed and manufactured battery system designed for continuous rental operation.

NOMINAL CAPACITY: Standard: 64 Ah / 3.2 kWh | Ultra: 80 Ah / 4.0 kWh
NOMINAL VOLTAGE: 50.4 V DC
MAX DISCHARGE CURRENT: Up to 250 A
WEIGHT: 22.5 kg / 49.6 lb (fully assembled pack)

BATTERY SWAP TIME: Under 10 seconds
FAST CHARGING: 20–80% in approx. 20 minutes (daily operation charge)
FULL CHARGING: 0–100% in approx. 50 minutes (off-peak charging)
COOLING: Air cooling (maintenance-free)

CELL TECHNOLOGY: Lithium-ion (Samsung cell technology)
SAFETY SYSTEMS: Integrated BMS, fuse protection, temperature management
STATUS INDICATORS: State of Charge (SOC) and temperature LED indicators
DATA INTERFACE: CAN communication
INGRESS PROTECTION: IP65 (suitable for rainy conditions)

APP ACCESS: BSR service monitoring system
AFTER-LIFE SUPPORT: Factory battery capacity restoration service

BATTERY OPTIONS

STANDARD BATTERY PACK
64 Ah / 3.2 kWh

Cost-efficient battery configuration optimized for high-power rental operation and fast rotation projects.

ULTRA CAPACITY BATTERY PACK
80 Ah / 4.0 kWh

Higher-capacity battery designed for extended run times, outdoor tracks, and ultra-high-usage operations.

CHARGING & ENERGY MANAGEMENT

BSR in-house developed charging system supporting both Quick Swap and permanent on-kart charging.

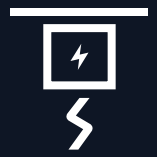
MAX CHARGING CURRENT: Up to 80 A DC
MAX CHARGING POWER: Up to 4.7 kW
INPUT VOLTAGE: 90–250 V AC, single-phase (Optional three-phase configuration)
OUTPUT VOLTAGE: Up to 58.8 V DC
SYSTEM EFFICIENCY: Up to 93%
COOLING: Active air cooling (supports stable battery performance)
MONITORING: LED status panel for battery charge state
DATA INTERFACE: CAN communication
INGRESS PROTECTION: IP60 (designed for controlled indoor operating areas)

CHARGING CONFIGURATIONS

STATIONARY CHARGING DOCK
QUICK SWAP SYSTEM

High-power charging dock for daily operations and fast turnaround.

Charging power: Up to 4.7 kW



OVERHEAD ROOF CHARGER
PERMANENT CHARGING

Fixed overhead charging system installed above the kart grid.

Charging power: Up to 4.0 kW

WIRELESS CHARGING SYSTEM
CABLE FREE

In-floor integrated wireless charging for fully automated, cable-free operation.

Charging power: Up to 3.5 kW

OPERATIONAL & SAFETY FEATURES

Integrated operational and safety features compatible with standard karting control systems and BSR extensions.

CUSTOM BRANDING
Project-specific or sponsor graphics and stickers

FRONT LIGHTS
White LED headlights

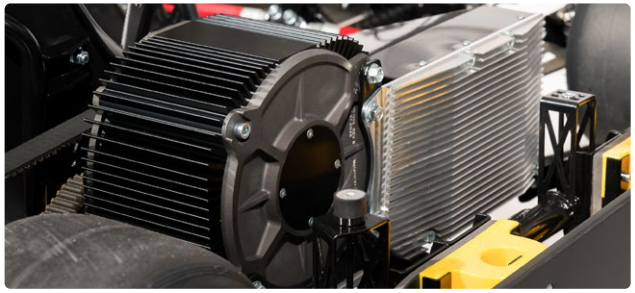
REAR LIGHTS
Red LED braking lights

SEAT BELT
Adjustable 3-point safety belt

SAFETY REMOTE CONTROL
Remote power control with up to 8 configurable power levels

BOOST FUNCTION
Configurable power-based boost feature

REGENERATIVE BRAKING
Adjustable regenerative braking system



WHAT IS INCLUDED / OPTIONAL

All optional equipment is configured in coordination with the client, based on the track concept and operational plan, to ensure optimal performance and operational efficiency.

BASE PACKAGE INCLUDES

- Fully assembled electric kart
- One battery pack
- LED lighting and brake sensors

The kart is delivered fully assembled and ready for operation.
Tire selection and charging system are configured separately based on the track requirements.
Tires and charging dock are not included.

OPTIONAL / CONFIGURABLE

- Charging systems (stationary, overhead, or wireless)
- Additional battery packs
- Track-specific tire sets
- Custom branding and sponsor graphics
- Advanced fleet software features
- Additional features available on request

INTEGRATED SAFETY, CONTROL, SOFTWARE & DATA SYSTEMS

The BSR karting platform supports integration with third-party safety, control, and management systems, allowing operators to configure the control architecture according to their operational model.

FLEET CONTROL & SAFETY

- Real-time remote control of the entire kart fleet
- Software-based power level management
- Speed reduction in pit lanes and safety zones
- Individual kart stop or full fleet stop when required

DATA & TRACK MANAGEMENT COMPATIBILITY

- Compatible with standard track management and timing systems
- Monitoring of kart usage, session data, and driver distribution
- Support for on-track positioning and operational data analysis

OPEN SYSTEM ARCHITECTURE

- Open architecture for third-party system integration
- Support for power-based gamification and boost features
- Compatibility with interactive and digital experience tools

WARRANTY OVERVIEW

BSR in-house developed technologies ensure full control over component quality, manufacturing processes, and after-sales support.

ELECTRIC COMPONENTS & BATTERY

All BSR electric components, including the battery system, are covered by a 12-month warranty with unlimited operating hours. The warranty applies to manufacturing defects and industrial failures, provided the equipment is operated in accordance with the official BSR user manual.

AFTER-SALES SUPPORT

We operate as a long-term business partner, not just a supplier. Our 24/7 support reduces operational risk and protects business continuity when uptime is critical.
Problems are addressed quickly, clearly, and with accountability.

FOR BUSINESS OPERATORS

BSR Quick Swap Battery System — Key Business Benefits

REDUCED INITIAL INVESTMENT

The Quick Swap Battery System eliminates the need for a second kart fleet required by fixed charging solutions.
This reduces initial capital expenditure by approximately 30–40%, allowing full daily operation with fewer karts and improving ROI from the first year.

OPERATIONAL SIMPLICITY

Battery replacement takes under 10 seconds and is performed between sessions or during driver changeovers.
This enables continuous operation without additional staff, keeping labor costs low and throughput high during peak hours.

INFRASTRUCTURE FLEXIBILITY

Quick Swap operates effectively where on-track charging is impractical, electrical capacity is limited, or permanent installations are restricted.
It is especially well suited for converting existing gasoline kart tracks to electric, requiring minimal changes to track layout, pit lane space, or infrastructure strategy.
This makes the system suitable for outdoor tracks, temporary venues, seasonal operations, infrastructure-constrained locations, and retrofit projects transitioning from combustion to electric karting.

HIGH-LOAD OPERATIONAL STABILITY

By rotating batteries instead of relying on on-kart charging, the system avoids battery overheating typical of fixed-battery setups.
This ensures stable, maximum utilization throughout the day without forced downtime, even under heavy customer traffic.

LOWER ENERGY COSTS

Charging cycles are distributed evenly throughout the day, reducing peak power demand and required grid capacity.
This lowers grid upgrade costs, electricity tariffs, and overall energy consumption, improving long-term operating margins.

LONG-TERM BUSINESS ADVANTAGE

Unlike fixed battery systems that limit scalability, Quick Swap enables higher utilization, extended operating hours, and capacity growth without infrastructure redesign.
The result is lower operational risk, greater flexibility, and stronger long-term returns, particularly for growing or multi-location projects.

WHY BLUE SHOCK RACE

Blue Shock Race is a full-cycle electric karting technology platform built for daily commercial operation.
It integrates performance, energy architecture, and software-defined control into a single system designed for continuous, high-load use.
By working with BSR, partners gain predictable operations, high fleet utilization, and long-term efficiency without compromising performance or business logic.
The platform is engineered to reduce total investment, optimize energy use, simplify service, and provide structured operational support for sustainable business growth.

YOUR NEXT STEPS

From Project Idea to Operational Karting Center

01 SHARE YOUR PROJECT

You introduce your karting project to the BSR team.
BSR reviews your:

- Location, space, and target audience
- Business goals and budget framework

BSR value: Clear project direction and early identification of efficiency, cost-saving, and revenue opportunities.

02 OPTIMIZE THE SYSTEM

BSR prepares an optimized karting, battery, and charging concept based on:

- Track layout and throughput targets
- Energy availability and operational load
- FIA-CIK entertainment karting recommendations

BSR value: Optimized investment size, higher utilization, and improved operational efficiency.

03 RECEIVE A PLUG-AND-PLAY PROPOSAL

BSR delivers a complete, compatible solution including:

- Kart fleet configuration
- Battery and charging systems
- Optional software and control integrations

BSR value: Reduced integration risk, faster launch, and one coordinated system.

Karting is an entertainment business that requires a system-level view.
BSR helps operators avoid overinvestment, reduce operational risk, and achieve stronger long-term ROI.

DEMO PROJECT COMPARISON

Permanent Battery System vs. BSR Quick Swap Battery System

PROJECT OVERVIEW (REFERENCE CASE)

TOTAL AREA: ~2,000 m²
TRACK: Multi-level track with a small 2-level elevation loop
TRACK LENGTH: ~300 m
OPERATIONAL FLEET: 14 karts on track
SAFETY & CAPACITY RESERVE: +2 karts
TOTAL SESSIONS: 10-minute sessions, ~5 sessions/hour
SESSION FLOW: 1–2 min gap between sessions (driver change & pit operations)

This reference project represents a typical small-to-medium commercial karting center, operating under continuous daily load.

QUICK SWAP BATTERY SYSTEM

SYSTEM REQUIREMENTS

- Total karts required: 14 + 2 reserve
- Charging stations: 15
- Spare batteries: 14 packs
- Charging concept: Centralized battery rotation

OPERATIONAL CHARACTERISTICS

- One battery supports 3–6 sessions per charge
- Battery swap performed on 2–4 karts per session cycle
- Battery Swap time: 5–10 sec per kart (60–90 sec per fleet)
- Fully integrated within the standard 1–2 min session gap

INVESTMENT & COST IMPACT

- Estimated investment per track seat:
  €15,000 – €20,000
- CAPEX reduction:
  ~30–40% lower compared to permanent battery systems
- Pit lane space:
  Up to 50% space savings, enabling better layout efficiency or additional activities

OPERATIONAL & BUSINESS ADVANTAGES

- No increase in staff requirements
- Stable operation under medium and high load
- Battery overheating affects only the battery, not the kart
- Ideal for indoor, outdoor, and mixed-use tracks
- Enables endurance events with simple battery swaps instead of kart replacement

KEY STRATEGIC ADVANTAGE

Quick Swap allows existing gasoline kart tracks to transition to electric without changing:

- track layout
- pit lane dimensions
- core operational strategy

PERMANENT BATTERY

SYSTEM REQUIREMENTS

- Total karts required: 28 + 2 reserve
- Charging stations: 15 (including 1 backup)
- Charging concept: 1:1 kart-to-charger ratio
- Battery configuration: Higher-capacity batteries per kart
- Cooling: Additional active cooling systems on each kart

OPERATIONAL CHARACTERISTICS

- Each kart operates ~50% fewer sessions (due to fleet rotation)
- Higher electrical load and peak power demand
- Complex cabling and charging infrastructure
- Additional pit lane space required for charging zones

INVESTMENT & COST IMPACT

- Estimated investment per track seat:
  €30,000 – €35,000 (or local currency equivalent)
- CAPEX impact:
  +30–40% higher total investment due to doubled kart fleet
- Infrastructure cost:
  Higher grid capacity, more powerful chargers, larger pit area

KEY ADVANTAGES

- No manual battery handling
- Lower per-kart operating hours (longer kart lifecycle per unit)

KEY LIMITATIONS

- High initial investment
- Large space requirement
- Limited scalability without infrastructure redesign

ROI & BUSINESS LOGIC COMPARISON (SUMMARY)

METRIC	BSR QUICK SWAP	PERMANENT BATTERY
Initial CAPEX	30–40% Lower	High
Karts Required	16	28–30
Pit Lane Space	Up to 50% Less	High
Grid Power Demand	Lower & Balanced	High
Scalability	High	Limited
Ideal Project Size	Small & medium projects	Large flagship

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DISTRIBUTION