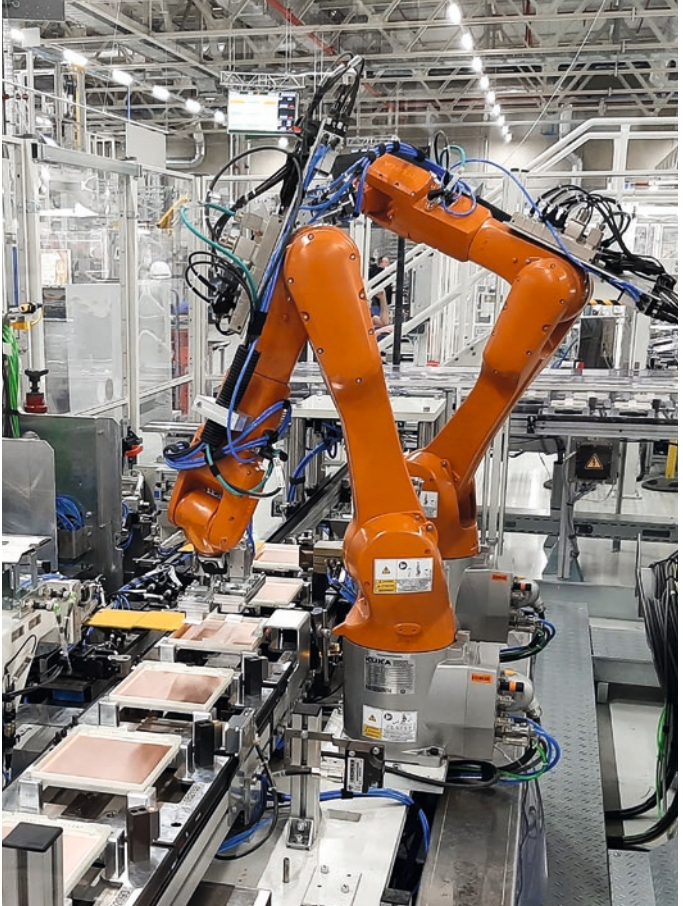




BATTERY SYSTEMS.
CHALLENGE ACCEPTED!



**EBZ GROUP –
BATTERY SYSTEMS**
WE SUPPLY POWERFUL
SOLUTIONS

EXPERTISE IN BATTERY TECHNOLOGY

BATTERY ASSEMBLY TECHNOLOGY

- Planning and designing of automated assembly lines for battery modules and systems
- Turnkey solutions, including planning, design, manufacturing, procurement and commissioning of battery module and system lines
- Quality control implementation through end-of-line testing (EOL)



STANDARD BATTERY SYSTEMS

- Battery systems / modules with focus on LTO or high performance LFP chemistry
- Advantages in terms of service life, safety and high performance
- Main applications are trolleybuses and trams



CUSTOMIZED BATTERY SYSTEMS

- Development to customer requirements
- Production automation level tailored to production volume
- Contract production in Germany or Czech Republic possible



HIGH POWER BATTERY SYSTEMS

EBZ has many years of experience in the development, integration and production of energy storage solutions. With a holistic approach, we support our customers from the initial idea through to (small)-series production and offer comprehensive expertise in the following areas:



Project Management – Efficient and structured realization of battery projects, from conception to delivery.



Prototyping – Development and assembly of functional samples and prototypes for customized applications.



Testing – Extensive testing options in our own state-of-the-art battery laboratories.



Mechanical Design – Construction and development of module or system design.



Electrical Design – Battery architectures with intelligent battery management systems.



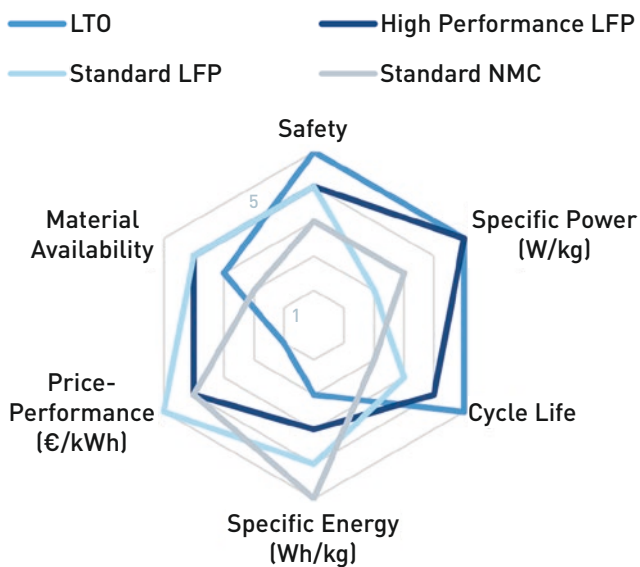
Thermal Design – Development of efficient cooling and thermal management solutions to maximize performance and service life.



Simulation – Virtual modelling and optimization of battery parameters to increase efficiency and safety.

COMPARISON OF CELL TECHNOLOGIES

EBZ Group is capable to deal with LTO, LFP and NMC cell chemistries and will find the perfect fit for the application. The choice of cathode and anode materials is decisive for the properties of the battery cell. Safety always has the highest priority, while the application defines the priorities between energy storage capacity, power capabilities, lifetime, sustainability and costs. The chart compares the state-of-the-art cell chemistries in these dimensions.



1 = Least performing
5 = Best performing

LTO STANDARD SOLUTIONS

CELL

KEY FEATURES (EXTRACT)

Capacity: 70 Ah

Nom. voltage: 2.2 V

Specific energy: 84 Wh/kg

Continuous current: 7C

Peak current: 13C (10s)

Lifetime: 25,000 cycles to EOL (2C/2C, 100% DOD, 25°C, 80% SOH)



MODULE

KEY FEATURES (EXTRACT)

Nom. voltage: 24 V

Energy: 1.5 kWh

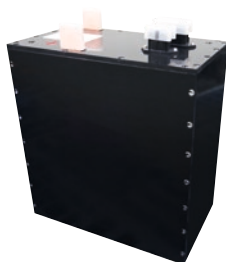
Typ. capacity: 67.4 Ah

Continuous current:
7C (500 A or 12 kW)

Operating temperature range:
-50°C to +65°C

Weight: 28.4 kg

Dimensions:
279 mm x 158 mm x 303 mm



SYSTEM EXAMPLE

KEY FEATURES (EXTRACT)

Nom. voltage: 618.8 V

Energy: 42 kWh

Max. cont. charge &
discharge current: 500 A

Homologation:
ECE R100.02, ECE R10.05

Weight: approx. 1.045 t

Dimensions:
1.512 mm x 773 mm x 810 mm





BATTERY SYSTEMS.
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HIGH PERFORMANCE LFP STANDARD SOLUTIONS

CELL

FEATURES (EXTRACT)

Capacity: 33 Ah

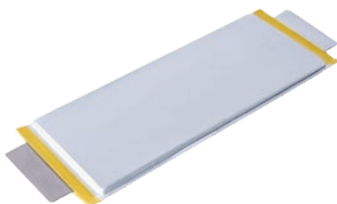
Nom. voltage: 3.0 V

Specific energy: 120 Wh/kg

Continuous current: 5C

Spec. peak power: 3.3 kW/kg

15,000 cycles to EOL (3C/3C,
100% DOD, 25 °C, 70% SOH)



MODULE

KEY FEATURES (EXTRACT)

Nom. voltage: 51 V

Energy: 3.4 kWh

Continuous current:
5C (330 A or 17 kW)

Operating temperature range:
Charging: 0 °C to +55 °C
Discharging: -20 °C to +60 °C

Weight: 35 kg

Dimensions:
566 mm x 345 mm x 123 mm



SYSTEM

In development

EBZ BATTERY SYSTEMS

www.ebz-group.com/battery-systems



EBZ GROUP

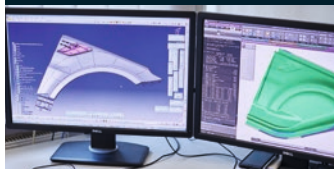
The EBZ Group is one of the world's top suppliers to the automotive industry and a developer of pioneering technologies. EBZ is known in the industry for its sophisticated prototypes, press tooling, automated body-in-white and assembly systems. The service portfolio includes production system engineering, production consulting, virtual factory as well as tool & die engineering. Development and production of battery and electrolyzer systems conclude the company's portfolio and show EBZ Group's commitment to future sustainability.

More
information:



RANGE OF SERVICES

PLANNING & ENGINEERING



PROTOTYPING



TOOLMAKING



PLANT CONSTRUCTION



BATTERY SYSTEMS



ELECTROLYSIS STACKS



AEROSPACE COMPOSITES



FURTHER SERVICES





BATTERY SYSTEMS. CHALLENGE ACCEPTED!



CUSTOMIZED SOLUTIONS

We offer customized solutions that are individually tailored and developed to the requirements of our customers. This includes for example the choice of the cell (chemistry, format, capacity), the variability of system voltage levels, the selection of a suitable battery management system as well as the design of thermal management.

EBZ BATTERY SYSTEMS

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