



# E-bike battery system

Powering the evolution  
of battery technology

# We are EMBS

Industry leader in bespoke e-bike battery systems

We are experienced producer of li-ion e-bike batteries, with a portfolio of high-quality battery systems used by clients worldwide.

Our exceptional expertise in the industry allow us to meet all clients' demands, and we've become a valued partner of several major businesses.

**We stand with those calling for cleaner modes of transport and support our customers throughout e-bike battery development, as well as with production, encouraging environmentally friendly practices throughout the process.**

As one of Europe's top battery manufacturers, we've been providing tailored solutions to e-bike industry for over 25 years. And we are proud of our excellent industry reputation in the market. Our success is almost entirely down to the hard work and drive of our team. They have propelled our exceptional growth over previous years, and we expect to see this growth continue.

**25+**  
years of experience

**>3.5 M**  
batteries produced per day

**>600**  
employees

**>100 M**  
cells used annually

**12.500 sqm**  
advanced manufacturing plant

## One stop shop battery provider

All core competences in one location, ensure an optimal solution for your application.



In-house laboratories for efficient and cost-effective testing – including UN 38.3 – and R&D.



External locations for alternative cell tests to expedite time to market and promote savings.



Battery design and manufacture to meet the requirements of all external certifications.



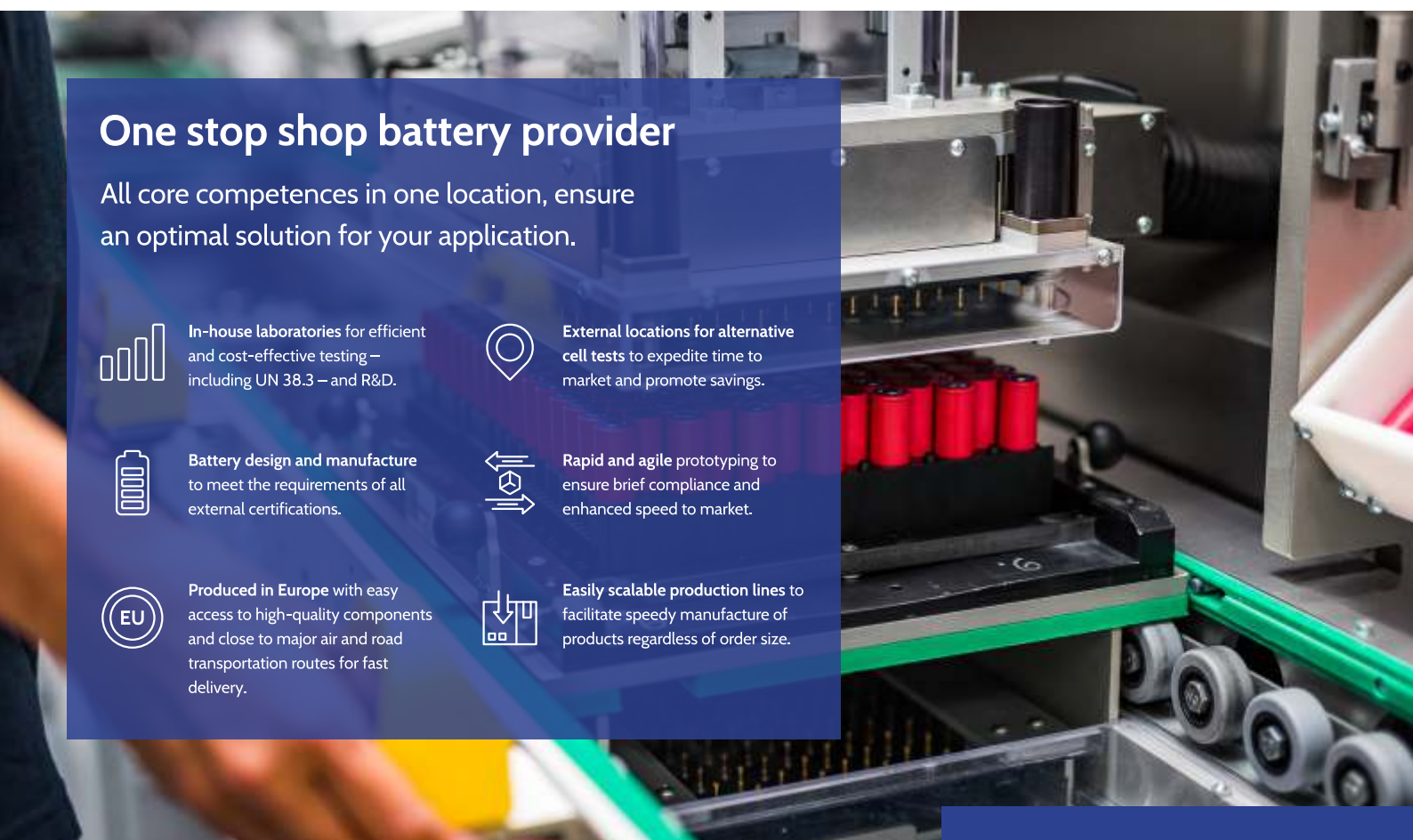
Rapid and agile prototyping to ensure brief compliance and enhanced speed to market.



Produced in Europe with easy access to high-quality components and close to major air and road transportation routes for fast delivery.



Easily scalable production lines to facilitate speedy manufacture of products regardless of order size.





# E-bike batteries tailored to your needs

Powered by pursuit of innovation

We prioritise our clients' wants and needs. Before beginning any partnership, we listen carefully, ensuring we understand exactly what you need. We then work diligently to find the best possible solution.

Our expertise, allied with our resources, ensure we're well-placed to plan and execute each project to the highest standards. The result? Innovative, tailored, and budget-friendly solutions every time.

Our R&D department is integral to the overall process, working with clients to perfect battery system design, mechanical and electrical engineering, BMS development, software management, system integration, and materials research. We use the advanced product quality planning approach to ensure optimal results. Our testing services work to the highest standards. We carry out periodic quality assurance purposes in our modern and well-equipped laboratory.

## **Our range of battery systems tests encompasses the following:**

- UN 38.3 testing to ensure safety of Li-ion and lithium metal batteries during transportation.
- IEC 62133 testing, an important standard for the global exportation of Li-ion batteries.
- Periodic tests for quality control.
- Mechanical tests, including IP, life performance, temperature, and drop and drum testing.
- Cell tests.

We constantly strive not to meet but exceed the expectations of our customers. To ensure we can provide products at scale, we regularly invest in innovative ways to maximise our production capabilities. This ability to supply large volumes ensures we can develop and run cost-effective production lines for our customers.

## **We can help you:**

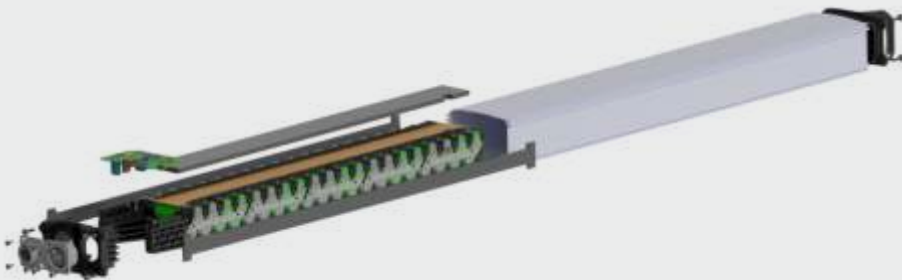
- Design complete battery systems focused on high performance.
- Optimise your battery packs through more efficient assembly processes.
- Create prototypes at each stage of the product.
- Secure high-quality components for use in the production phase.
- Perform advanced laboratory testing to ensure maximum performance.
- Design and deliver cost-effective production lines and assembly processes.
- Carry out chemistry-based evaluation to ensure the correct cell choice.

# S-tube 36V battery system

S-tube was designed to combine low weight, slim form, and optimal performance.

Convenience has been prioritised with this e-bike battery, with a handle and slide-in design making replacement simple. We've used aluminium within the design to ensure low weight and maximum durability, while standard 18650 cells are used for their narrow design – although different cell models can be used if required.

As always, safety has been strongly considered when designing the S-tube. We've implemented temperature control via BMS and a second, independent system to protect against overheating. CAN communication used by BMS can be adjusted to meet client needs. What's more, all materials are UL 94 V-0 flame-retardant rated.



We understand that different clients will have different requirements, which is why we can offer full customisation of mechanics, electronics and product configuration, such as cell model and IP rating.

We can also provide products specifically designed to conform with other markets and standards than those outside the EU.

## Key features



Can weight as little as 2.4 kg UL 94 V-0 Flame-retardant materials used throughout.



18650 cells used as standard - can be changed to suit client needs. Flex PCV to save space and provide additional durability.



Cell connectors optimised with complex thermal simulations. BMS with CAN communication for temperature control.



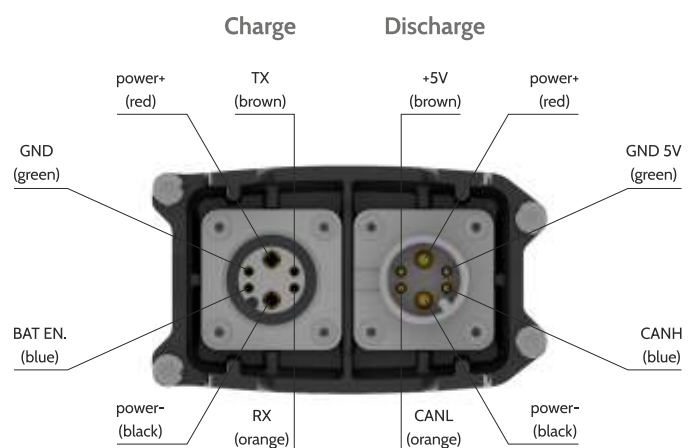
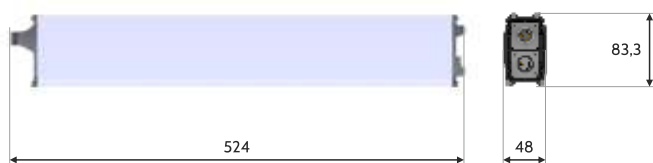
Second independent protection against overheating 36 V typically offered. Certification for the EU market.

# S-tube 36V battery system



## Technical specifications

Parameters	Eco	Light	Standard	Ultra
Nominal voltage	36 V	36.5 V	36 V	36.5 V
Cell configuration	10S3P	10S3P	10S4P	10S4P
Nominal capacity	9.6 Ah	10.5 Ah	12.8 Ah	14 Ah
Nominal energy	346 Wh	384 Wh	461 Wh	511 Wh
Nominal charge current			2 A	
Maximum charge current			6 A	
Nominal continuous discharge current			4 A	
Maximum continuous discharge current			16 A	
Charge operating temperature			0...45°C	
Discharge operating temperature			-5...60°C	
Storage			1 month: -20...60°C 3 months: -10...45°C 1 year: 0...20°C	
Weight	~2.4 kg	~2.5 kg	~2.8 kg	~2.8 kg
Communication			CAN	
Connector			A&C Z624C male + female - or optional different type (customizable)	
Additional features			5 V, 12 V output - optional	
Housing			IP54, IPX4 - higher on request, Aluminium tube + plastic covers	
Compliance			EN 60529:2014, CE, UN 38.3, IEC 62133 - other certification possible	
Dimensions (L x W x H)			524 x 83.3 x 48 mm	

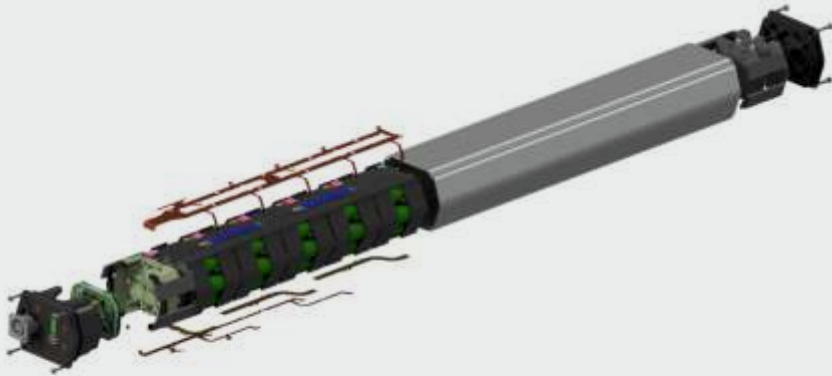


# B-tube 48V battery system

Developed by our team, the B-tube delivers up to 949 Wh, making it a standout performer in the field of larger batteries. We have used 21700 cells with a capacity of up to 5 Ah, and to ensure the best possible performance under heavy load, we've chosen a voltage of 48 V for this battery.

Aluminium housing is used to minimise temperature, as well as for durability. Despite their high energy output, B-tube batteries have retained their aesthetic appearance, offering a rounded shape made possible by intelligent design.

The design of the B-tube has been optimised to enable high-volume production, with flex PCB used to quicken the assembly process. This also boosts the overall endurance of the battery plus increases the battery's longevity.



Many B-tube features, such as the number of DC outputs and the connector types used, can be customised to ensure all customers get the right solution.

We can provide certification for higher IP ratings and conform to the requirements of most specific markets and standards.

## Key features



48 V for optimal performance under heavy load UL 94 V-0 flame-retardant materials used throughout.



Maximum energy of 949 Wh. Modern 21700 cells with 5 Ah capacity used.



Flex PCB used to expedite production and improve strength and longevity.



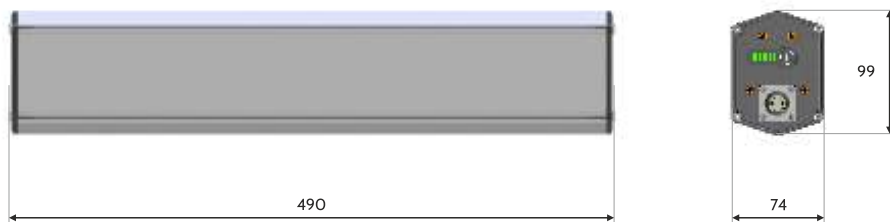
Designed to facilitate high-volume production. Option to include Soc LED indicator.

# B-tube 48V battery system



## Technical specifications

Parameters	Eco	Light	Standard	Ultra
Nominal voltage	46.8 V	46.7 V	46.8 V	46.7 V
Cell configuration	13S3P	13S3P	13S4P	13S4P
Nominal capacity	13.5 Ah	17.1 Ah	18 Ah	22.8 Ah
Nominal energy	630 Wh	798 Wh	842 Wh	1064 Wh
Nominal charge current			4 A	
Maximum charge current			8 A	
Nominal continuous discharge current			10 A	
Maximum continuous discharge current			20 A	
Charge operating temperature			0...45°C	
Discharge operating temperature			-20...45°C	
Storage			1 month: 0...60°C 3 months: 0...45°C 1 year: 0...20°C	
Weight	~4.3 kg	~4.4 kg	~5.1 kg	~5.2 kg
Communication			CAN	
Connector			Customizable	
Additional features			5 V, 12 V output - optional, Soc LED display - optional	
Housing			Option for IP67, IPX4, Aluminium tube + plastic covers	
Compliance			IEC 62133, IEC 60529:2014, CE, UN 38.3 - other certification possible	
Dimensions (L x W x H)			490 x 99 x 74 mm	





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# Advanced Battery System Solutions

Providing increased value through innovation

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Get in touch

