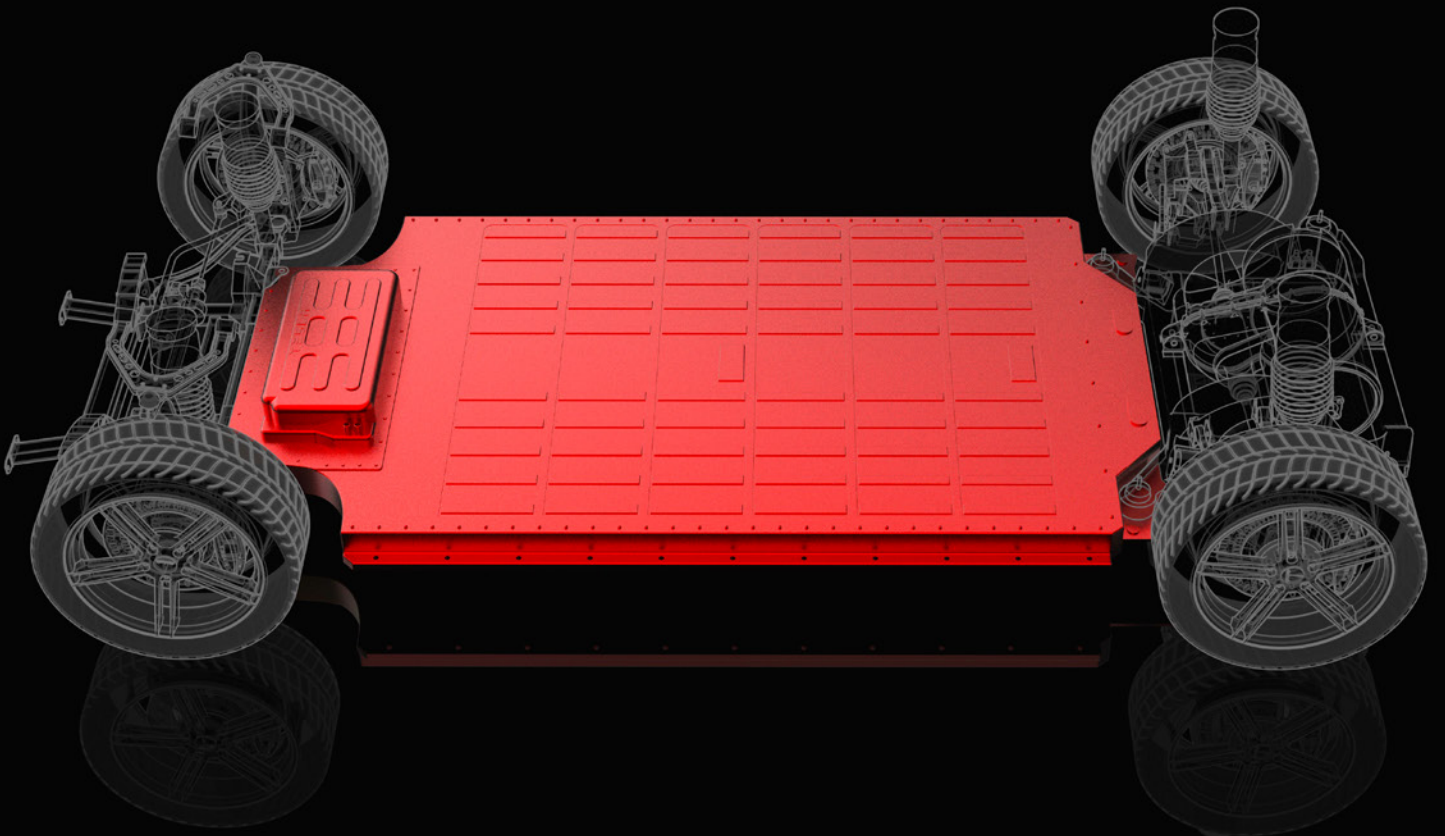




# INDUSTRIAL LASER SOLUTIONS

FOR THE BATTERY INDUSTRY



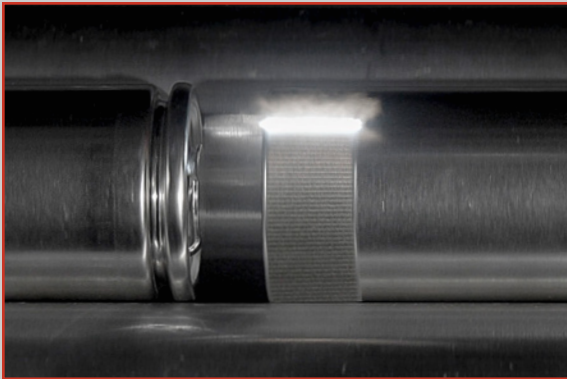
# LASER APPLICATIONS FOR BATTERY MANUFACTURING



## LASER CLEANING

### BEFORE BONDING AND WELDING

Batteries include thousands of welds and bonded components that are critical for the good operation of the battery. A good bonding and welding performance starts with a good surface preparation. Laser cleaning is a highly precise, consistent, and fast process that removes all types of contaminants from metal surfaces, such as electrolytes, dust, oils, and oxides, while leaving the battery components intact.



## LASER TEXTURING

### FOR THERMAL AND STRUCTURAL ADHESIVES

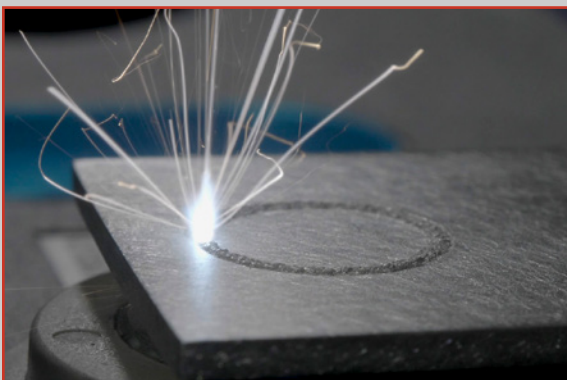
Laser texturing is a key technology for battery structural resistance and cooling systems. By creating a desirable texture and roughness on metal surfaces, it improves surface properties before assembly, resulting in better heat transfer for thermal adhesives and better bonding performance for structural adhesives. The process can be optimized to meet specific adhesive requirements. It can also be performed at the same time as laser cleaning for complete surface preparation in a single step.



## LASER MARKING

### FOR PERMANENT TRACEABILITY

There are thousands of cells and hundreds of parts that need to be identified for traceability in a battery assembly. Laser marking is a fast, precise, and consistent process that creates permanent markings for optimal traceability. Serial numbers, data matrix codes, and other types of identifiers can be etched within less than 100 milliseconds.

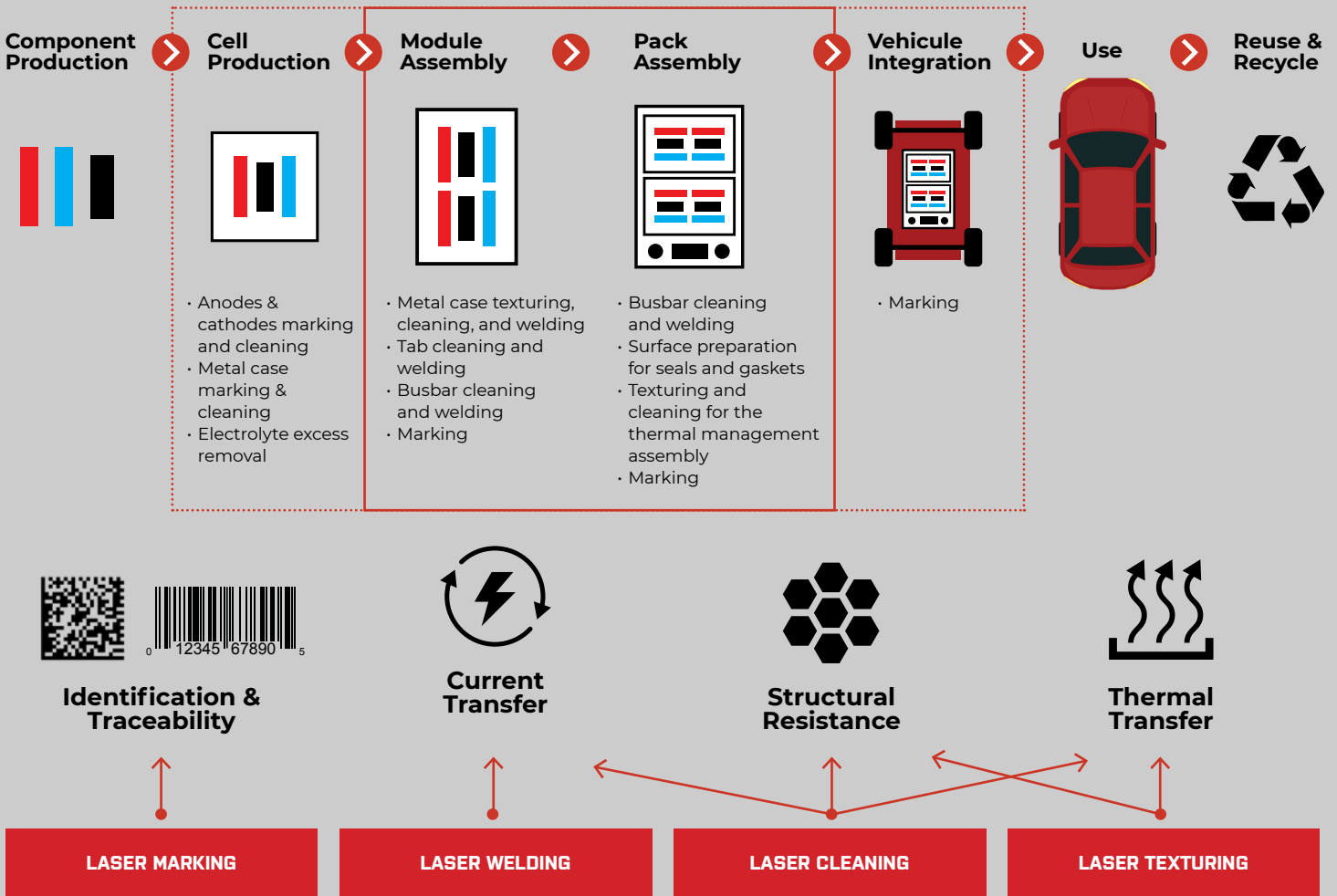


## LASER WELDING

### OUTPERFORMS ULTRASONIC BONDING AND RESISTANCE WELDING

With its high flexibility, precision, and speed, laser welding is an increasingly popular and proven method, especially for the most recent processes in the battery industry. Welds can be sized and shaped to fit into small spaces, allowing for a wider range of designs. As a non-contact process, laser welding can reach small battery areas that are often not accessible with ultrasonic bonding and resistance welding.

# LASER USAGE IN THE MANUFACTURING PROCESS



## LASER TECHNOLOGY BENEFITS

### MEET YOUR PRODUCTION GOALS

With their variety of power and optical configurations, lasers can be optimized to meet all types of production requirements. This guarantees you do not reduce your production capacity when adding an extra step in your production line.

### CONTROL QUALITY WITH A PRECISE PROCESS

With its unmatched precision, laser technology is the best way to control the quality of your manufacturing processes. Laserax's vision expertise allows us to combine our lasers' high precision with sensor cameras to achieve near perfect repeatability regardless of positioning variations.

### ADOPT A GREEN TECHNOLOGY WITHOUT CONSUMABLES

By replacing polluting technologies with greener ones, laser technology is in line with the goals of the battery industry. Fiber lasers operate without consumables and have a longer operating life than alternatives, reducing waste management and equipment maintenance.

## BATTERY TYPES AND COMPONENTS

	Laser Marking	Laser Cleaning	Laser Welding	Laser Texturing
Cylindrical Cells	✓	✓	✓	✓
Pouch Cells	✓	✓	✓	✓
Prismatic Cells	✓	✓	✓	✓
Battery Pack Components	✓	✓	✓	✓

## COMPANY

### UNLOCKING YOUR FULL POTENTIAL WITH IMPRESSIVE LASER SOLUTIONS

Laserax is revolutionizing manufacturing processes across the world for fast growing industries like EVs and batteries that benefit from faster, more efficient, and greener methods.

We deliver industrial laser solutions inspired by your needs, enabling us to provide unparalleled features and a seamless, customized experience. From OEM lasers to fully automated turnkey solutions, all our projects are tailor made for your applications. Get ready to work with the industry's finest laser solutions and a team of dedicated experts to make your projects a resounding success.

## MISSION

### SHAPING THE USE OF LASERS IN BATTERY MANUFACTURING

At Laserax, we believe in the power of laser technology to improve battery manufacturing. Our lasers solutions enable enormous manufacturing gains in performance and efficiency, while minimizing the environmental footprint.

Our mission is to empower our clients with the right tools to reach their full manufacturing potential while building a sustainable future.



## LXQ AND LXQ-HP SERIES

### FIBER LASER SYSTEMS

The LXQ and LXQ-HP are the fiber lasers that power our solutions. They are made of the world's finest components, including the laser source, optical components, and so on. Ranging from 20W to 500W, they provide the power needed for all types of battery applications.

Our fiber lasers include scanner technology specifically chosen for electric batteries to prevent overheating. Our unique configuration allows for the system to monitor all optics positioning in the head and shut down the laser source if there is a malfunction.

## BATTERY LASER CLEANING MACHINE

The Battery Cleaning Machine is a complete solution for battery-module-related applications running on conveyors. It can be used to clean, mark, and texture battery components in-line. A vision system detects module positioning errors and dynamically adjusts cleaning locations. Vision cameras can also be included to control quality.

The machine is highly customizable to accommodate for various requirements, such as manual, robot, or conveyor part loading, or large modules with several areas to process. Certified Class-1, it includes everything you need to ensure safety.

Visit our website to see our wide variety of laser machines and available configurations.



[laserax.com](https://laserax.com)

## INDUSTRIAL LASER SOLUTIONS FOR THE BATTERY INDUSTRY

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