LASER WELDING

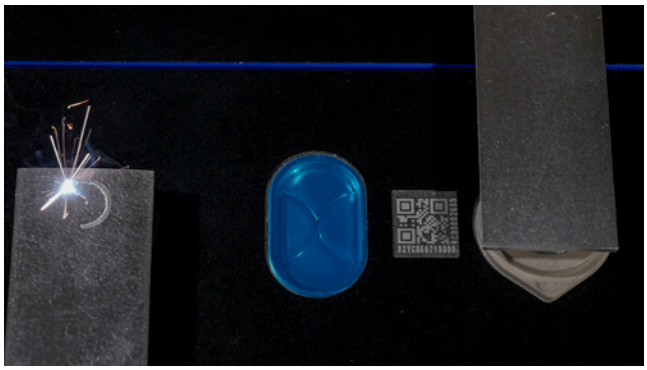
Current Transfer

When it comes to making interconnections in the battery module, laser welding is faster than traditional wire bonding methods. With laser technology, the busbar can be welded directly to the cells instead of connected via wires, diminishing by half the number of welds in the module. Single-mode fiber lasers provide an excellent and controlled weld penetration with minimal spatter and reduced heat.

Whereas ultrasonic welding systems use sonotrodes and anvils specifically designed for each application and limited to simple shapes, the Laserax welding systems can be adjusted on the fly to create various welding patterns and sizes.

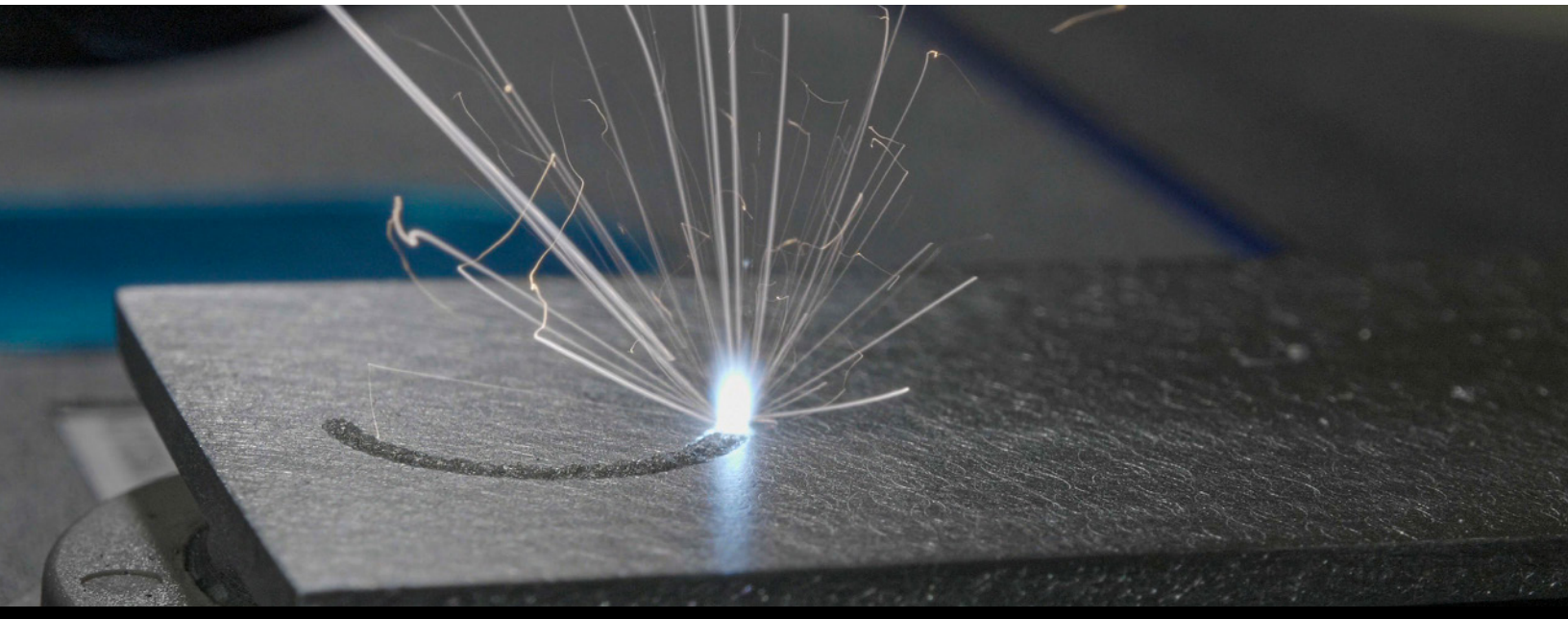
This offers the following possibilities:

- Lasers can be quickly configured for different battery assemblies. This is done using a simple, automatic change in the laser configuration.
- Lasers can be used to weld the cell's rigid case, tabs, safety vents, and cover plates.
- When assembling modules together in a pack, lasers can join various busbars and other interconnections together.



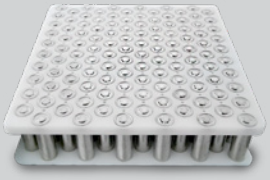
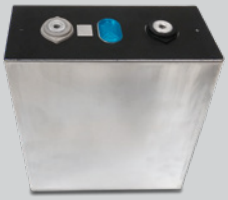
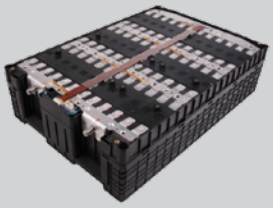
Overview of battery welding applications:

- **Materials:** Copper, nickel, aluminum, and stainless
- **Types of cells:** Pouch, cylindrical and prismatic welding
- **Battery components:** Terminals, foils, busbars, cell cases, safety vents, cover plates



JOINING METHOD BY CELLS TYPE FORMAT

= Feasible joining method
= Potential joining method

Cell Type	Module	Screw & Bolt	Arc Welding	Ultrasonic Welding	Laser Welding
		✓	✓	✓	✓
		✓	✓	✓	✓
			✓		✓

LASERAX BENEFITS

- Fastest lasers on the market with unmatched scanning speed
- Turnkey solutions (Class 1 certified laser safety, fume extraction, vision, automation, etc.)
- High-quality hardware and software components (including ultra-precise scanners)
- Welding patterns tailored and optimized for each design
- Welding for all cell types (cylindrical, prismatic and pouch)
- Suitable for highly conductive metals
- Precise welding quality
- High weld strength
- Ability to weld dissimilar metals
- Minimal heat affected zone (HAZ)

LASERAX

INDUSTRIAL LASER SOLUTIONS
VISIT LASERAX.COM

LASERAX HEADQUARTERS
101-2811 Watt Ave
Quebec, QC G1X 4S8
Canada
+1 418 780-7324

LASERAX USA
2401 Parkman Road
Warren OH 44485
United States
+1 412 301-9957

LASERAX GMBH
Ferhrenheitdtraße 1
28359 Bremen
Germany
+49 421 2208-121