FlareLaser.

PRODUCT BROCHURE

Fiber Laser Welding System

Precision welding for Lithium-Ion battery manufacturing



Enclosed weld cabinet, vision-guided control, and dedicated closed-loop chiller

OVERVIEW

The FlareLaser Fiber Laser Welding System is engineered, built and tested in-house for one job: joining the delicate, highly conductive materials inside a Lithium-Ion battery pack without damaging the cell. It handles cell tab welding, cell-to-busbar and busbar-to-terminal joints, and module/pack interconnects - with the precision, cleanliness and repeatability battery manufacturing demands.

ABOUT FLARELASER

FlareLaser is the laser welding and automation is Based in US. Every system is designed, built and tested in-house, engineered around the weld it needs to make rather than adapted from a general-purpose machine.

HOW IT WORKS

1

Load & Fixture

Cells, tabs and busbars secured in application-specific fixturing.

2

Vision Alignment

Close-up vision display locates the exact weld point.

3

Laser Weld

Focused fiber laser energy joins the materials - no spatter.

4

Inspect & Verify

Weld checked in place before moving to the next joint.

KEY FEATURES

- **Cell tab welding**
  Copper, nickel, aluminum and sigma-clad tab materials at low heat input.
- **No spatter, no contamination**
  Focused laser energy keeps debris off the cell and electronics.
- **Cell-to-busbar & busbar-to-terminal**
  Spatter-free joints across cylindrical, prismatic and pouch formats.
- **Enclosed safety cabinet**
  Double swing-door access for safe, contained operation.
- **Module & pack interconnects**
  Repeatable welds built for production-line-scale output.
- **Vision-guided control**
  External + close-up displays with a dedicated closed-loop chiller.

TECHNICAL SPECIFICATIONS

Laser Type	Fiber laser
Wavelength	1080 nm
Laser Power	1500 W / 3000 W
Weld Control	Software-adjustable - power and speed tuned to material, thickness and weld type
Motion System	3-axis (X/Y/Z) precision positioning
Supported Cell Formats	Cylindrical, prismatic, pouch
Chiller	Closed-loop, dedicated
Footprint	1220 × 1524 × 1880 mm (L × W × H)
Power Requirement	Idle: 2 kW · Normal: 6–9 kW · Max: 17 kW

APPLICATIONS

Automotive | Industrial | Electronics | Aerospace | Custom Automation

PRIMARY APPLICATION

Lithium-Ion / EV Battery Welding

Cell tabs, busbars, module and pack interconnects — purpose-built for this.

GET IN TOUCH

Let's build the right battery welding line.

Tell us your cell format, tab and busbar materials, thickness, and target cycle time - we'll help define the right laser, fixturing and automation architecture.

piyush@flarelaser.com
Fremont, CA 94538
+1 (510) 872-2873