Positive And Negative Electrode Current Collector Laser Welding Machine

Item Number: DH09

Introduction

Positive and negative electrode current collector laser welding machine delivers fixture-guided galvanometer welding for full-tab battery cells, combining 99% equipment-related yield, at least 2 PPM throughput, PLC control, dust extraction, and reliable collector positioning in demanding production environments.

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Application	Description	Key Benefit
Full-tab battery cell collector welding	Welds positive and negative current collectors onto prepared full-tab cells after fixture location and collector placement.	Provides a dedicated process sequence for dual-polarity collector attachment.
Battery R&D cell fabrication	Supports laboratory and development teams assembling cells that require collector welding before casing.	Brings fixture positioning, pneumatic clamping, laser welding, and control hardware into one workstation.
Pilot-line process development	Enables teams to assess collector positioning, press-head holding, laser welding, and post-weld handling as linked production steps.	Supplies stated yield, availability, and output references for early process planning.
Pre-casing battery-cell preparation	Completes collector welding and dust extraction before the operator manually places the finished cell into its housing.	Creates a defined handoff from welding to casing operations.
Battery manufacturing workstation deployment	Functions as a single-machine station in a workflow requiring manual material loading with controlled welding actions.	Supports capacity planning with a stated single-machine speed of at least 2 PPM, dependent on material and process.
Collector welding process verification	Uses a cell fixture, collector pressure mechanism, galvanometer welding assembly, and detection-capable electrical controls in one process flow.	Helps teams evaluate the interdependent mechanical, pneumatic, laser, and control stages of the operation.

Specification	Value
Site-facing identifier	DH09
Primary function	Welding positive and negative current collectors on full-tab battery cells
Cell positioning method	Cell positioning fixture
Collector holding method	Positioning press head holds the welding current collector
Operating principle	Fixture locates the cell; collector is placed; positioning press head holds the collector; galvanometer performs collector laser welding
Process step 1	Manually place the flattened cell
Process step 2	Place the current collector
Process step 3	Cylinder positions and presses the current collector
Process step 4	Galvanometer welds the current collector
Process step 5	Weld positive and negative current collectors
Process step 6	After positive and negative collector welding is completed and dust is extracted, manually insert into the casing
Cell positioning mechanism	1 set

Specification	Value
Cell positioning mechanism components	Cylinder and fixture positioning
Welding press-head mechanism	1 set
Welding press-head mechanism components	Cylinder, guide rail, and spring
Current collector welding assembly	1 set
Current collector welding assembly components	Galvanometer, positioning cylinder, and laser source
Welding method	Laser welding
Electrical control system	PLC, touchscreen, detection sensors, relays, pushbuttons, and other control components
Equipment-related product pass rate	99% (only product scrap caused by the equipment)
Single-machine capacity / speed	>=2 PPM (varies slightly according to material and process)
Equipment availability	>=95% (failures caused only by the equipment)
Electrical supply voltage	380V 50Hz
Voltage fluctuation	Less than +/-10%
Equipment power	10KW
Air-source requirement	>=0.6Mpa (provided by customer)
Compressed-air pressure	0.5-0.7 MPa
Compressed-air consumption	100 L/min
Ergonomic requirement	Good ergonomic performance
Machine body construction	Structural-steel square tube
Platform construction	Structural-steel plate
Platform surface treatment	Nickel plated or chromium plated
Enclosure frame	Aluminum alloy frame
Enclosure panel	Transparent PVC board
Preferred machine structural materials	Aluminum, stainless steel, or corrosion-resistant electroplated materials