Intelligent 2600W Ultrasonic Battery Welding Machine For 10 To 25 Layer Electrode Tabs

Item Number: DH02

Introduction

Intelligent 2600W ultrasonic battery welding machine for 10 to 25 layer electrode tabs, delivering automatic frequency tracking, stable amplitude, real-time quality monitoring, and durable high-speed steel tooling for reliable low-resistance cell connections in advanced battery manufacturing environments daily.

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Application	Description	Key Benefit
Lithium-Ion Battery Cell Assembly	Welds 0.1 mm aluminum strip to stacked aluminum foil during electrode-tab connection steps in cell fabrication.	Supports firm, low-resistance connections with defined weld-point sizes for aluminum current-collector assemblies.
Copper-Foil Electrode Tab Welding	Joins 0.1 mm nickel strip to copper foil stacks for battery electrode processing.	Provides a controlled method for nickel-to-copper-foil joining with 3 x 3 mm, 3 x 4 mm, or 3 x 8 mm weld points.
Battery Research and Development	Supports laboratory evaluation of tab materials, foil thicknesses, layer counts, process time, power, and energy settings.	Multiple control modes and real-time process values enable systematic development of welding parameters.
Pilot Battery Manufacturing Lines	Provides a monitored ultrasonic joining station for trial production and process verification before wider manufacturing deployment.	Parameter-limit monitoring and alarms help teams identify process deviations during repeated welding cycles.
Layered Electrode Foil Processing	Processes aluminum foil stacks of up to 40 layers or copper foil stacks of up to 40 layers within the stated welding configurations.	Enables joining of layered foil assemblies while targeting clean weld surfaces and reliable weld-point formation.
Cell Tab Quality Verification	Produces weld samples for visual inspection and destructive tensile-strength assessment based on material, thickness, and layer quantity.	Flat weld surfaces, clear weld points, and configurable process data support practical weld-quality evaluation.
Advanced Materials Joining Studies	Enables controlled ultrasonic metal-joining trials where stable frequency, amplitude, timing, and power are required.	Automatic frequency tracking and amplitude compensation support repeatable experimental conditions.

Parameter	Specification
Site-Facing Model	DH02
Rated Power	2600W
Frequency	24KHZ
Power Supply	220V/ 50Hz
Air Supply	>=0.5MPa
Control Method	CPU control
Maximum Upper Ultrasonic Electrode Stroke	20 mm
Welding Time	0.05~9S
Display	4.3-inch anti-interference touch display, Chinese and English bilingual interface
Adjustable Process Settings	Trigger time, welding time, power, secondary-wave delay time
Real-Time Displayed Values	Frequency and welding power

Parameter	Specification
Alarm Functions	Fault-type alarm; alarm when weld data exceeds configured upper or lower limits
Start-Up Inspection	Automatic self-test scans and displays welding-system parameters in real time
Control Modes	Time, energy, power, energy, and depth modes
Output Control	Full-bridge regulated circuit; constant-amplitude output; automatic frequency tracking; automatic amplitude compensation
Welding Head Material	High-speed steel
Welding Head Construction	Imported high-speed alloy steel, high hardness, precision-ground pattern
Welding Head Service Life	More than 100,000 operations per side
Lower Ultrasonic Electrode Material	Selected imported special mold steel
Lower Electrode Characteristics	Wear resistant, high-temperature resistant, tough, high mechanical rigidity; low deformation after heat treatment
Ceramic Plate	Imported German black ceramic plate
Aluminum Rod	Aluminum rod supplied by a US aluminum producer
Aluminum Welding Capability	0.1 mm aluminum strip plus up to 40 layers of aluminum foil
Copper Welding Capability	0.1 mm nickel strip plus up to 40 layers of copper foil
Supported Weld Point Sizes	3 x 3 mm, 3 x 4 mm, 3 x 8 mm
Stated Weld Characteristics	Firm welding, low internal resistance, no false welding, no powder vibration, no separator burning, no insulation-tape heating, no cracked tab or electrode sheet
Stated Weld Surface Quality	More than 80% residual metal-to-metal welding surface; flat surface, no wrinkles, no raised rear-side burrs, clear and full weld points
Strength Evaluation	Destructive tensile force can be tested according to layer quantity, material, and thickness