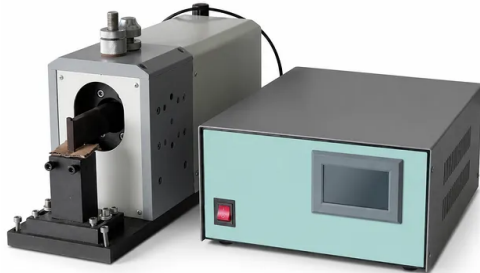


Intelligent 3000W Ultrasonic Battery Welding Machine For Up To 50 Layer Electrode Welding

Item Number: DH03



Introduction

Intelligent 3000W ultrasonic battery welding machine delivers stable 24KHZ electrode tab welding for aluminum and copper foil stacks up to 50 layers with programmable control quality monitoring and automatic amplitude compensation.

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Application	Description	Key Benefit
Lithium-ion cell electrode tab welding	Joins 0.1mm aluminum strip to aluminum-foil electrode stacks of up to 50 layers during electrode or cell assembly.	Supports firm, low-resistance aluminum-to-aluminum-foil connections in specified compact weld formats.
Copper-foil negative electrode connection	Welds 0.1mm nickel strip to copper-foil stacks of up to 50 layers for battery electrode connection processes.	Provides a defined ultrasonic process for nickel-strip and copper-foil stack joining.
Battery R&D process development	Enables laboratories to set trigger time, weld time, power, and secondary-wave delay while observing frequency and welding power.	Gives development teams adjustable process inputs and real-time operating visibility.
Electrode stack validation	Produces welds that can be assessed through joint appearance and destructive tensile-force testing based on layer quantity and material thickness.	Supports practical verification of bond strength for different stack and material conditions.
Pilot-scale battery assembly	Applies programmable welding modes to repeated electrode-tab joining where process values can be monitored cycle by cycle.	Combines configurable welding control with upper- and lower-limit alarm capability for quality oversight.
Battery manufacturing quality monitoring	Uses real-time welding data to establish allowable process windows for individual welded products.	Alarms on process deviation, helping operators identify welding cycles outside the configured value range.
Compact tab weld production	Produces specified weld spot sizes of 33mm, 34mm, and 3*8mm for tab and foil-stack interfaces.	Matches the process to several defined weld-point geometries without changing the stated welding capability.

Parameter	DH03
Site-facing identifier	DH03
Reference model	TOB-USW-3000W
Power	3000W
Frequency	24KHZ
Power supply	220V/ 50Hz
Air supply	≥0.5MPa
Control method	CPU control
Maximum upper sonotrode stroke	20mm
Welding time	0.05~ 9S
Controller circuit	Optimized international advanced full-bridge regulated circuit
Amplitude output	Constant-amplitude output

Parameter	DH03
Frequency adjustment	Automatic frequency tracking; no manual adjustment required
Intelligent control modes	Time, energy, power, energy, depth modes
Touchscreen	4.3-inch anti-interference touch display
Display language	Chinese and English
Adjustable touchscreen parameters	Trigger time; welding time; power; secondary-wave delay time
Real-time display	Frequency and welding power
Alarm functions	Fault-type alarm; start-up self-diagnosis alarm; welding quality data deviation alarm
Start-up self-diagnosis	Scans welding-system parameters and displays them in real time
Welding quality data function	Upper and lower welding-parameter limits can be set to monitor each welded product
Amplitude compensation	Automatic adjustment of amplitude output
Welding head material	Imported powder alloy steel
Welding head characteristics	High hardness; high-precision ground pattern; single-side service life above 150,000 cycles
Lower sonotrode material	Selected imported special mold steel
Lower sonotrode characteristics	Wear resistant; high-temperature resistant; good toughness; high mechanical rigidity; low deformation after heat treatment
Ceramic plate	German imported black plate
Aluminum rod	Aluminum Company of America
Welding head	Powder alloy
Aluminum welding capability	0.1mm aluminum strip + within 50 layers of aluminum foil
Copper welding capability	0.1mm nickel strip + within 50 layers of copper foil
Supported welding spot sizes	33mm, 34mm, 3*8mm
Specified weld result	Firm welding; low internal resistance; residual metal-to-metal weld area above 80%
Specified weld appearance	Flat surface; no wrinkles; no raised burrs on reverse side; full and clear welding spot
Specified process protections	No false welding; no powder vibration; no separator burning; no insulation-tape heating; no vibration cracking of tabs or electrode sheets
Strength verification	Destructive tensile force can be tested according to layer number and material thickness