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Spot Welder Catalog

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COMPANY PROFILE

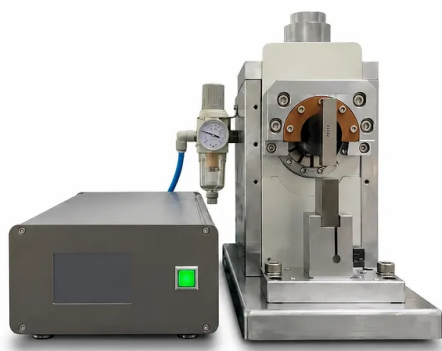
>>> About Us

KINTEK Solution is a technology-driven innovator specializing in comprehensive laboratory equipment for battery R&D and advanced materials research. Our portfolio spans the entire cell fabrication workflow—from mixing, coating, and precision pressing (automatic, heated, isostatic) to cell assembly and testing. Also essential in ceramics and powder metallurgy, our systems prioritize precision, safety, and repeatability, empowering researchers and industrial labs to achieve groundbreaking results.



Ultrasonic Metal Welding Machine For Glove Box Use Battery Tab Cap Welding

Item Number: DH01



Introduction

Ultrasonic metal welding machine for glove box use, featuring 220V operation, 0.4-0.6MPa air supply, metric controls, and customizable welding tooling for battery research and advanced materials laboratories requiring compact, repeatable metal joining performance within controlled laboratory workflows.

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Application	Description	Key Benefit
Aluminum Tab to Battery Cap Welding	Weld 0.1 mm aluminum strip to a battery cap using a reference welding area of 1.5 x 3 mm. The welding die or horn can be customized for the required joint configuration.	Supports controlled joining of thin aluminum battery tabs while allowing the tooling to reflect the component design.
18650 Cylindrical Cell Assembly	Perform cap welding for 18650 cylindrical battery cells during laboratory cell fabrication or pilot process development.	Provides a dedicated point-welding solution for a widely used cylindrical cell format.
21700 Cylindrical Cell Assembly	Apply the welding process to cap-related assembly work for 21700 cylindrical cells and associated battery research procedures.	Helps battery R&D teams evaluate a common larger-format cylindrical cell workflow with purpose-selected tooling.
Glove Box Battery Research	Install and operate the compact generator and welding head as part of a controlled glove box-based cell assembly workflow, subject to facility integration and environmental requirements.	Combines a defined equipment footprint with specified electrical, pneumatic, and environmental conditions for planning enclosed laboratory processes.
Battery Materials Research	Use the unit for repeatable joining studies involving thin metal strips, caps, and related battery component interfaces.	Gives researchers a configurable platform for process trials where weld area and component geometry may change.
Academic and Advanced Materials Laboratories	Integrate the equipment into laboratory programs studying electrochemical cells, metal joining, or small-format component assembly.	Metric instrumentation, bilingual program support, and documented utilities simplify use across technical teams.

Parameter	Specification
Product Item Number	DH01
Equipment Type	Ultrasonic metal welding machine / point welding equipment
Primary Intended Use	Battery component point welding and metal joining
Glove Box Suitability	Designed for glove box use according to the supplied product keyword and application requirement; confirm final integration conditions before purchase
High-Power Generator Dimensions L x W x H	480 mm x 365 mm x 202 mm
Welding Head Dimensions L x W x H	420 mm x 180 mm x 290 mm at the maximum top end dimensions
Measuring Instrument Units	Metric units for all measuring instruments on the equipment
Electrical Voltage	220 V $\pm$ 10%
Required Air Source Pressure	0.4-0.6 MPa
Required Air Source Humidity	Less than 48%
Maximum Temperature	Not higher than 45°C

Parameter	Specification
Reference Welding Material	0.1 mm aluminum strip plus battery cap
Reference Welding Area	1.5 x 3 mm
Welding Tooling	Welding die or horn can be customized
Supported Battery Cap Formats	18650 and 21700 cylindrical cell caps
Transducer Emission Line Length	3 m between the transducer emission line and electrical control box
Program Language Requirement	Chinese and English
Installation Planning Consideration	Account for generator dimensions, welding head clearance, and the 3 m transducer connection when arranging the station

Intelligent Ultrasonic Battery Welding Machine For 60 Layer Electrode Welding

Item Number: DH04



Introduction

Intelligent 3600W ultrasonic battery welding machine delivers stable 24 kHz bonding for aluminum and copper electrode stacks up to 60 layers, with automatic amplitude compensation, process monitoring, bilingual touchscreen control, and dependable weld quality.

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Application	Description	Key Benefit
Lithium-ion cell electrode-tab welding	Bonds 0.2 mm aluminum strip to aluminum-foil electrode stacks of up to 60 layers using the specified weld spot sizes.	Supports firm aluminum-to-aluminum joints with low internal resistance and a flat weld appearance.
Copper-foil negative-electrode tab welding	Bonds 0.2 mm nickel strip to copper-foil electrode stacks of up to 60 layers.	Provides a defined process capability for nickel-to-copper electrode assemblies.
Battery R&D sample preparation	Establishes weld settings through time, energy, power, or depth modes during experimental cell fabrication.	Enables parameter-based process evaluation with real-time frequency and welding-power display.
Pilot-line electrode assembly	Repeats controlled tab welding while monitoring process data against configured upper and lower limits.	Helps identify parameter deviations through alarm prompts before they become repeated process issues.
Multilayer pouch-cell electrode production	Joins thick electrode stacks where tab integrity, insulation protection, and bond stability are important.	Designed to avoid false welding, separator burning, insulation-tape heating, and electrode-tab cracking.
Battery quality and process development	Uses live welding data and post-weld pull-strength assessment appropriate to layer count and material thickness.	Supports evaluation of weld strength while maintaining a clear, full, and reliable weld point.
Advanced materials joining studies	Evaluates controlled ultrasonic metal-to-metal joining conditions for aluminum and copper foil stack structures.	Offers selectable control modes and adjustable welding time for structured process trials.

Parameter	Specification
Site-Facing Identifier	DH04
Power	3600W
Frequency	24KHZ
Power Supply	220V/ 50Hz
Air Supply	>=0.5MPa
Control Method	CPU control
Maximum Upper Sonotrode Stroke	20mm
Welding Time	0.05 to 9S
Display	4.3-inch anti-interference touch display
Interface Languages	Chinese and English
Adjustable Parameters	Trigger time; welding time; power; secondary-wave delay time

Parameter	Specification
Real-Time Display	Frequency and welding power
Control Modes	Time, energy, power, energy, depth modes
Frequency Management	Automatic frequency tracking; no manual adjustment required
Amplitude Output	Constant-amplitude output with automatic amplitude compensation
Startup Inspection	Automatic self-test; scans and displays welding-system parameters in real time
Fault Handling	Fault-type alarm prompt; alarm issued when a startup fault is detected
Quality Monitoring	Upper and lower welding-data limits can be configured; alarm prompt for values outside limits
Welding Head Material	Imported powder alloy
Welding Head Characteristics	High hardness; precision-ground pattern; stated service life of more than 150,000 cycles per side
Lower Ultrasonic Electrode Material	Imported special mold steel
Lower Ultrasonic Electrode Characteristics	Wear resistant; high-temperature resistant; good toughness; high mechanical rigidity; low deformation after heat treatment
Main Component: Ceramic Piece	German imported black piece
Main Component: Aluminum Rod	Aluminum rod from an American aluminum company
Main Component: Welding Head	Powder alloy

Welding Configuration	Electrode Stack	Weld Spot Size
0.2mm aluminum strip + aluminum foil	Up to 60 layers of aluminum foil	3 x 6mm, 3 x 8mm, 3 x 12mm
0.2mm nickel strip + copper foil	Up to 60 layers of copper foil	3 x 6mm, 3 x 8mm, 3 x 12mm

Stated Weld Result	Performance Detail
Joint strength	Firm welding; destructive pull force can be tested according to layer count, material, and thickness
Electrical performance	Low internal resistance
Weld integrity	No false welding; no powder vibration; no separator burning; no insulation-tape heating
Electrode protection	No vibration cracking of tabs or electrode sheets; weld-point position does not crack
Metal-to-metal weld area	Residual weld area exceeds 80%
Weld appearance	Flat surface without wrinkles; no protruding burrs on the reverse side; full, clear weld points

Fully Automatic Lithium Battery Positive And Negative Electrode Sheet Making Machine With Tab Welding And Automatic Rewinding

Item Number: DH14



Introduction

Fully automatic lithium battery electrode sheet making machine integrates ultrasonic tab welding protective tape application inspection dust collection and precision rewinding for positive and negative electrode production with reliable alignment high yield and consistent cell manufacturing performance.

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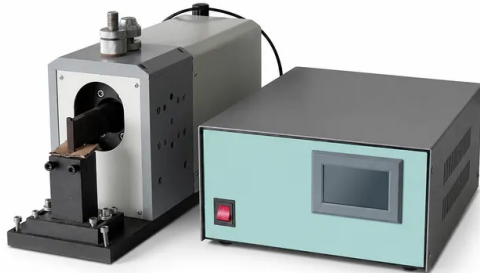
Application	Description	Key Benefit
Lithium-Ion Positive Electrode Preparation	Processes slit positive-electrode rolls through tab welding, a single set of opposed protective-tape application, dust removal, and rewinding.	Provides a defined, automated route for producing positive electrode rolls with protected tab areas.
Lithium-Ion Negative Electrode Preparation	Processes negative-electrode material with two welding assemblies, two tabs welded once each, two sets of opposed tape application, and rewinding.	Supports the specified dual-tab negative-electrode process in one equipment configuration.
Pouch Cell Electrode Manufacturing	Produces tab-welded and tape-protected electrode sheets that can be transferred to downstream pouch-cell assembly operations.	Improves consistency of tab placement and protection before cell stacking or packaging.
Battery Pilot-Line Production	Provides a compact automated processing stage for development lines using electrode sheets from 300 mm to 2000 mm long.	Enables repeatable process evaluation without relying on manual tab and tape placement.
Cell Process Development	Allows teams to work with electrode widths from 40 mm to 130 mm, tab widths of 3, 4, 5, or 6 mm, and adjustable tape width.	Gives R&D teams parameter coverage for evaluating multiple electrode and tab formats.
Electrode Roll Finishing	Automatically collects processed single electrode sheets into complete rolls after traction and powder removal.	Produces aligned rolls with ± 1 mm rewinding alignment accuracy and pressure-roll support against edge bursting.
Quality-Controlled Electrode Processing	Uses welding-presence and tape-presence checks during the intermediate process, with manual reverse capability for correction.	Helps operators address missed operations before the electrode material progresses further.

Parameter	DH14 Positive Electrode Configuration	DH14 Negative Electrode Configuration
Equipment type	Fully automatic lithium battery positive electrode sheet making machine	Fully automatic lithium battery negative electrode sheet making machine
Equipment dimensions	Approx. 2000L900W1600H	Approx. 3030L900W1600H
Weight	Approx. 600 kg	Approx. 700 kg
Power supply	Single-phase AC220V 50HZ	Single-phase AC220V 50HZ
Power	Approx. 6.0KW	Approx. 6.0KW
Air source pressure	5~7 kgf/cm ²	5~7 kgf/cm ²
Air consumption	Approx. 50 l/min	Approx. 60l/min
Operating environment	No corrosive gas, liquid, or explosive gas	No corrosive gas, liquid, or explosive gas

Parameter	DH14 Positive Electrode Configuration	DH14 Negative Electrode Configuration
Blowing section	Tab tape, vacuum generator, and similar blowing components are separate from the equipment air-source triple unit	Tab tape, vacuum generator, and similar blowing components are separate from the equipment air-source triple unit
Noise requirement	Complies with TJ36-79 Industrial Enterprise Design Hygiene Standard requirements and GB3096-82; measured at 1 m from equipment; no-load operation $\leq 75\text{dB}$; cutting and loaded operation $\leq 85\text{dB}$; equipment noise not to exceed 80dB(A)	Complies with TJ36-79 Industrial Enterprise Design Hygiene Standard requirements and GB3096-82; measured at 1 m from equipment; no-load operation $\leq 75\text{dB}$; cutting and loaded operation $\leq 85\text{dB}$; equipment noise not to exceed 80dB(A)
Electrode thickness	90um-250um	90um-250um
Electrode width	40mm-130mm	40mm-130mm
Guide-roller material condition	No wrinkling or wavy edges as electrode passes through rollers	No wrinkling or wavy edges as electrode passes through rollers
Individual electrode sheet length	300 mm-2000 mm	300 mm-2000 mm
Tab width	3, 4, 5, 6mm; two types	3, 4, 5, 6mm; two types
Protective tape width	6-20; adjustable width; one set of opposed application	6-20; adjustable width; two sets of opposed application
Tape application length	40mm-80mm	40mm-80mm
Tab length	30 mm-80mm	30 mm-80mm
Exposed tab length	10 mm-25mm; tab encapsulation	10 mm-25mm; tab embossing
Tab tape position accuracy	$\pm 0.5\text{mm}$	$\pm 0.5\text{mm}$
Tab protective-tape length position accuracy	$\pm 0.5\text{mm}$; two protective-tape application mechanisms	$\pm 0.5\text{mm}$; four protective-tape application mechanisms
Tab welding length error	$\pm 0.5\text{ mm}$; no tab warpage or deformation; cut end burr $\leq 0.01\text{mm}$; cutter effective life $\geq 100\text{□}$ cycles	$\pm 0.5\text{ mm}$; no tab warpage or deformation; cut end burr $\leq 0.01\text{mm}$; cutter effective life $\geq 200\text{□}$ cycles
Tab welding position error	$\pm 0.5\text{mm}$; welding effective area $\geq 80\%$; welding tensile force $\geq 15\text{N}$; no over-welding or false welding; welding head and welding seat effective life $\geq 100\text{□}$ cycles	$\pm 0.5\text{mm}$; welding effective area $\geq 80\%$; welding tensile force $\geq 15\text{N}$; no over-welding or false welding; welding head and welding seat effective life $\geq 20\text{□}$ cycles
Welding mechanism	One set	Two sets
Tab welding inclination	$\pm 2^\circ$	$\pm 2^\circ$
Rewinding function	Alignment accuracy $\pm 1\text{mm}$; pressure-roll mechanism to prevent edge bursting	Alignment accuracy $\pm 1\text{mm}$; pressure-roll mechanism to prevent edge bursting
Production speed	One tab welded once; approx. $\geq 20\text{PCS/minute}$ within 1700mm; opposed application once	Two tabs each welded once; approx. $\geq 20\text{PCS/minute}$ within 1700mm; each opposed application once
Qualified product rate	$\geq 97\%$	$\geq 97\%$
Operating rate	$\geq 94\%$	$\geq 94\%$
Standard ultrasonic welding	Chinese KEPu	Domestic brand KEPu
Servo control	Delta	Delta
Electrode powder removal	Powder brushing and dust-collection device installed at rewinding guide roller for brushing and extraction	Powder brushing and dust-collection device installed at rewinding guide roller for brushing and extraction

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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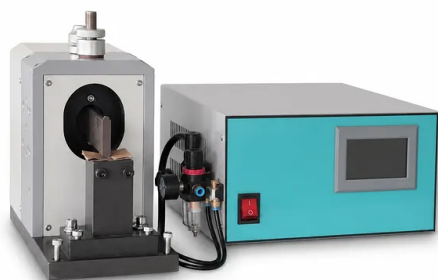
Application	Description	Key Benefit
Lithium-ion cell electrode tab welding	Joins 0.1mm aluminum strip to aluminum-foil electrode stacks of up to 50 layers during electrode or cell assembly.	Supports firm, low-resistance aluminum-to-aluminum-foil connections in specified compact weld formats.
Copper-foil 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

Smart 4500W Ultrasonic Battery Tab Welding Machine For 70 Layer Electrode Stacks

Item Number: DH05



Introduction

Smart 4500W ultrasonic welding machine delivers stable low resistance battery tab joints for aluminum and copper foil stacks up to 70 layers with automatic frequency tracking quality monitoring and bilingual touchscreen control.

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Application	Description	Key Benefit
Lithium-ion cell tab welding	Joins 0.2 mm aluminum strip to aluminum-foil electrode stacks of up to 70 layers for battery cell fabrication.	Produces firm, low-resistance aluminum-to-aluminum joints with controlled ultrasonic output.
Copper-foil negative-electrode assembly	Joins 0.2 mm nickel strip to copper-foil stacks of up to 70 layers.	Supports the nickel-to-copper tab connection required for controlled negative-electrode processing.
Battery R&D sample preparation	Establishes welding conditions using adjustable time, energy, power, and depth modes during development of electrode-stack configurations.	Gives researchers parameter flexibility while retaining real-time process visibility.
Pilot-line cell fabrication	Repeats defined tab-welding settings for early-stage battery manufacturing and process validation.	Parameter limits and out-of-range alarms help monitor weld-to-weld consistency.
Multilayer electrode-stack joining	Creates weld points sized 3 x 8 mm, 3 x 10 mm, or 3 x 12 mm on supported aluminum-foil and copper-foil stack assemblies.	Provides specified weld-point options for matching the joint area to the stack design.
Battery quality-process monitoring	Uses real-time welding data, real-time frequency, real-time welding power, and configurable upper and lower limits during production checks.	Helps identify parameter deviations before affected assemblies proceed further.
Tab-joint strength evaluation	Produces joints whose destructive pull force can be evaluated according to layer count, material selection, and material thickness.	Supports process teams in relating joint strength checks to the actual stack construction.

Parameter	Specification
Site-facing identifier	DH05
Rated power	4500W
Frequency	24KHZ
Power supply	220V/ 50Hz
Compressed-air supply	≥0.5MPa
Control method	CPU control
Controller circuit	Optimized internationally advanced full-bridge regulated circuit; constant-amplitude output; automatic frequency tracking; no manual adjustment required
Intelligent control modes	Time, energy, power, energy, depth modes
Maximum upper ultrasonic electrode stroke	20mm
Welding time	0.05~ 9S

Parameter	Specification
Display	7-inch interference-resistant touch display
Display languages	Chinese and English
Settable display parameters	Trigger time; welding time; power; secondary-wave delay time
Real-time displayed parameters	Frequency and welding power
Fault indication	Fault-type alarm
Start-up inspection	Automatic self-test; scans welding-system parameters and displays them in real time; alarms when a fault is present
Welding-quality data assistance	Upper and lower parameter limits can be set from real-time welding-data parameters; alarm is issued when values exceed the limits
Amplitude compensation	Automatic amplitude adjustment for more stable amplitude output, welding stability, and welding-quality consistency
Welding horn material	Imported powder-alloy steel
Welding horn characteristics	High hardness; high-precision ground pattern; service life greater than 150,000 operations per side
Lower ultrasonic electrode material	Selected imported special mold steel
Lower ultrasonic electrode characteristics	Wear-resistant; high-temperature resistant; good toughness; high mechanical rigidity; small deformation after heat treatment; consistent ultrasonic output frequency; large, strong, stable mechanical high-frequency displacement amplitude
Ceramic plate	Imported German black ceramic plate
Aluminum rod	Aluminum rod from an American aluminum company
Welding horn component	Powder alloy
Aluminum welding capability	0.2mm aluminum strip + up to 70 layers of aluminum foil
Aluminum weld-point sizes	38mm; 310mm; 3*12mm
Copper welding capability	0.2mm nickel strip + up to 70 layers of copper foil
Copper weld-point sizes	38mm; 310mm; 3*12mm
Joint quality characteristics	Firm welding; low internal resistance; no false welding; no powder vibration; no separator burning; no insulation-tape heating; no tab or electrode-sheet cracking
Residual welded interface between metals	Greater than 80%
Weld appearance	Flat surface; no wrinkles; no raised burr on the reverse side; full and clear weld point; firm and reliable weld; weld-point location does not crack
Strength verification	Destructive pull force can be tested according to layer count and material thickness

Fully Automatic Single Sided Spot Welding Machine For Cylindrical Lithium Battery Packs

Item Number: DH10



Introduction

Automated single-sided spot welding machine for cylindrical lithium battery packs delivers servo-controlled precision, 0.30-second weld cycles, CAD pattern import, fault alarms, and production-ready throughput for energy storage, mobility, and power-tool assembly with configurable fixtures, touchscreen PLC control, repeatable nickel-tab placement.

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Application	Description	Key Benefit
Energy storage battery modules	Weld nickel interconnect strips across cylindrical-cell assemblies used in modular energy-storage battery packs.	High cell-per-hour capacity supports repeatable production of large pack quantities.
Electric motorcycle battery packs	Process symmetrical positive and negative weld layouts for cylindrical-cell modules used in electric motorcycle battery systems.	Coordinate-based welding helps maintain consistent interconnect placement across pack designs.
Automotive lithium battery modules	Support automated spot welding of cylindrical-cell subassemblies for automotive battery pack production.	Servo-driven X and Y motion provides repeatable positioning for production workflows.
Electric bicycle battery manufacturing	Join nickel strips on cylindrical cells used in e-bike battery packs, including common 18650 and 21700 formats.	CAD import and stored programs simplify repeat production of defined pack layouts.
Balance vehicle battery assembly	Produce cylindrical-cell battery modules for balance vehicles using fixture-based handling and single-sided welding.	Dedicated fixtures can be configured to customer drawings for controlled workpiece location.
Power tool battery packs	Weld cylindrical-cell interconnects for rechargeable power-tool battery assemblies.	Fast weld cycles and alarm functions help improve operational efficiency and process monitoring.
Digital battery production	Assemble digital battery packs based on cylindrical lithium cells and nickel connection strips.	Adjustable current and timing settings allow the welding process to be configured within the stated power-source controls.
Battery-pack production lines	Integrate the equipment as part of a lithium battery-pack manufacturing line for module-level spot welding.	Automated operation, program storage, and restart functions support coordinated production-line use.

Parameter	Specification
Site-facing model	DH10
Equipment type	Fully automatic single-sided spot welding machine
Input power	AC220V AC input, 50HZ
Working air pressure	0.3-0.8MPa
Power consumption	500W
Applicable battery categories	Digital batteries, power batteries, electric bicycle batteries, balance vehicle batteries, electric tool batteries, etc.
Suitable cell types	Cylindrical lithium batteries, such as 18650, 21700, 16650, 26650, 32650, 14500, etc.
Spot welding power source	Equipped with 10000A transistor power source, 1 unit
Feeding method	Dedicated fixture, customized according to customer drawings

Parameter	Specification
X-axis travel	0-300mm
X-axis maximum load	>=50kg
Y-axis travel	0-200mm
Y-axis maximum load	>=10kg
Z-axis travel	50-130mm
Control accuracy	Coordinate value accuracy: 1 wire; repeat positioning accuracy: <=0.02mm
Single-point spot welding speed	>=0.30S/point, calculated using 18650 cells
Single-sided spot welding efficiency	>=2000 cells/hour, calculated using 18650 cells
Welding connection-strip thickness	0.1-0.3mm; strips above 0.20 require fork opening and embossed spot preparation
Control method	PLC control
Equipment dimensions	L900W750H1250
Equipment weight	250KG
Welding power source input	AC 220V+/-15%
Welding power source maximum output current	10000A, power 350W
Pre-weld current adjustment	0-99%
Rise time	0-3.0mS
Welding current adjustment	0-99%
Welding time	0-3.0mS
Falling time	0-3.0mS
Comparison current value	0-9.99KA
Welding power source dimensions	360x300x225 (mm)
Welding power source weight	20-25kg

Double Sided Automatic Spot Welder For Lithium Ion Battery Pack Production

Item Number: DH15



Introduction

Double sided automatic spot welder for lithium-ion battery pack production, delivering synchronized resistance welding, 0.02mm positioning accuracy, AI inspection, traceable process data, and configurable high-throughput automation for EV, energy storage, power tool, and consumer battery manufacturing lines worldwide.

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Application	Description	Key Benefit
Electric vehicle battery module production	Welds nickel interconnects to cylindrical cells used in traction battery modules and pack assemblies.	Supports high-volume, repeatable joining with synchronized double-sided processing.
Energy storage battery pack manufacturing	Produces electrical connections for stationary storage packs built from cylindrical steel-cased cells.	Programmable recipes and production records support controlled, traceable assembly.
Power tool battery assembly	Automates nickel-strip welding for compact, high-current rechargeable battery packs.	Fast cycle capability helps match the output demands of mass-production lines.
Consumer electronics battery production	Joins cylindrical cells for digital battery products where compact fixtures and repeatable positioning are required.	Fine positioning accuracy supports consistent weld placement on smaller pack designs.
Battery pack contract manufacturing	Handles different cell diameters, lengths, strip materials, and fixture formats across multiple customer programs.	Broad cell compatibility and recipe storage simplify product changeover.
Smart factory battery lines	Connects welding operation data to optional manufacturing execution and supervisory data systems.	Enables production visibility, local data retention, and quality traceability.
Multi-cell fixture welding	Processes welding paths across fixtures containing multiple battery groups with barcode-controlled identification.	Optional sequential barcode workflow links generated data to the applicable battery group.

Parameter	Specification
Site-facing item number	DH15
Original reference configuration	TOB-850DN-XZ-12000A transistor
Power supply	220V 50/60Hz 6KW
Operating air pressure	0.4-0.8Mpa, oil-free and water-mist-free
Welding target	Resistance welding of steel-cased cells and nickel strip, including pure nickel, nickel-plated nickel, and copper-nickel composite strip
Compatible cell length	20-70MM
Compatible cell diameter	10-65MM
Example compatible cell formats	14200 / 14430 / 18650 / 21700 / 26650 / 32700
Welding operations per single cell	1-5 times
Transistor welding power supply	BTH10000A unipolar: maximum current 10000A, single-direction discharge; BTH6000B bipolar: maximum current 6000A bidirectional discharge, namely 12000A

Parameter	Specification
Optional welding power supply	MIYACH MDA8000B / MDB4000B
Welding current control	Built-in welding-current gradual rise and gradual fall function
Power-output monitoring	Built-in automatic output current and voltage detection; undercurrent, undervoltage, and welding spark alarms
Weldable pure or nickel-plated nickel thickness	0.08-0.2MM
Recommended strip treatment	0.16-0.2MM thickness is recommended to use a current-guiding groove
Thick-strip welding method	0.2-0.5MM thickness requires projection welding
Factory welding speed	0.4 seconds/time, namely 9000 times/hour
Adjustable welding speed	6000-10500 times/hour; adjusted according to specific process and product structure
Welding electrode material	American aluminum oxide copper
Standard spot-welding electrode	Diameter 1.7*100MM
Standard projection-welding electrode	Diameter 3-6-3-45MM
Optional spot-welding electrodes	Diameter 1.5100MM; diameter 2.0100MM; diameter 3.0*100MM
Welding electrode pressure	1-5KG; factory preset 2.5KG
X-axis travel	1-620MM; front and rear motion
Y-axis travel	1-390MM; up and down motion
R-axis travel	0-100 degrees; rotational motion
Z-axis travel	40-160MM; welding electrode advance and retreat; suitable for 20-70MM-long cells
Positioning accuracy	Plus or minus 0.02MM
Axis configuration	One X axis with 700W servo motor; two Y axes with 700W servo motors; two R axes with 400W servo motors; two Z axes with 400W servo motors; one material-pressing axis with pneumatic cylinder
Control system	Industrial PC + PLC, equipped with proprietary battery welding system
Human-machine interface	24-inch color display with Chinese and English operating interface
Intelligent detection	AI self-correction of welded-item length; AI self-detection of spot-welding electrode length error; AI self-detection of welding limit position
Welding parameter generation	DXF file import and automatic generation; file names must not be duplicated
Welding pattern programming	Array mode / block array; surplus points can be deleted manually after array generation
Welding path display	Real-time current welding position display; welded points shown in blue and unwelded points shown in yellow
Zone welding	Specified-position welding, for example input points 20-50 to weld from point 20 through point 50
Breakpoint continuation	After an abnormal stop and fault clearance, welding can resume from an entered breakpoint position
Two-stage welding speed	High-speed movement to the set position followed by low-speed contact with nickel strip and cell
Welding power parameter record	Current welding parameters displayed in real time and saved to local disk
Electrode cooling	Dedicated cold-water chiller; circulating water cooling; flow approximately 6L/min; temperature below 20 degrees
Process recipe storage	More than 1000 data groups can be stored and recalled
Compatible spot-welding fixture range	Length within 260-680MM; height within 260-450MM; thickness 76.5MM
Equipment certification	CE certification
Equipment dimensions	L 1630MM * W 1050MM * H 1940MM
Packing dimensions	L 1730MM * W 1280MM * H 2130MM
Equipment weight	Approximately 450KG
Weight after wooden-case packing	Approximately 600KG

Custom Function	Specification
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Spot-welding electrode pressure detection sensor	MS2009-20KG
Pressure detection converter	MI2008
Pressure detection communication	RS232
Pressure setting	Basic setting 2-3.5KG, adjusted according to specific process and product
Pressure alarm	Upper and lower limits can be set; alarm and stop when outside range; can also be disabled
Production data upload communication	Web/API
Local production-data storage location	D drive software root directory
Local production-data format	Xlsx
Barcode scanners for scan-to-start function	Newland OY20+ / Hikvision MV-IDH3000/13NR/05RN/U
Barcode scanner interface	USB
Supported barcode formats	One-dimensional barcode example: CODE 128; two-dimensional barcode example: QR CODE
Multiple battery groups in one fixture	Scan multiple barcodes sequentially; corresponding barcode data are generated after welding completion
Multi-group local data storage location	D drive software root directory
Multi-group local data format	Xlsx

Ultrasonic Metal Welding Machine For Glovebox Use

Item Number: DH08



Introduction

Ultrasonic metal welding machine for glovebox use supports 0.1 mm aluminum strip to cap welding with a 1.5 x 3 mm weld area 220V power configurable tooling for battery cell cap assembly in controlled laboratory environments with bilingual control software.

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Application	Description	Key Benefit
18650 cylindrical cell cap welding	Joining 0.1 mm aluminum strip to caps used in 18650 battery-cell assembly and development work.	Applies the specified aluminum-strip-to-cap process to a widely used cylindrical cell format.
21700 cylindrical cell cap welding	Performing cap interconnection work for 21700-format cells using the stated weld geometry.	Supports a larger cylindrical cell format without changing the core application focus.
Similar cylindrical battery formats	Evaluating or implementing cap welding for cylindrical cells beyond the specifically listed 18650 and 21700 sizes.	Extends use to similar cap configurations where compatible customized tooling is selected.
Battery R&D process development	Establishing and documenting a defined weld area for aluminum-strip-to-cap joining during cell-development programs.	Provides reference-backed utility, geometry, and installation parameters for process planning.
Pilot cell assembly	Supporting controlled cap-welding steps in pilot-scale cylindrical cell assembly environments.	Enables a compact generator and welding-head layout to be considered in workcell planning.
Glovebox-adjacent battery processing	Positioning the welding head and generator according to the available controlled-environment workflow and the specified 3 m connection length.	Helps teams plan physical separation between the process head and electrical control box.
Materials joining evaluation	Assessing aluminum strip and cap joining requirements where a 1.5 x 3 mm weld area is appropriate.	Allows the application-specific tooling requirement to be defined from the target joint geometry.

Parameter	Specification
Site-facing identifier	DH08
Equipment type	Ultrasonic metal welding machine for glovebox use
Referenced welding process	0.1 mm aluminum strip + cap
Welding area	1.5 x 3 mm
Welding tooling	Can be customized
Referenced cap applications	18650, 21700, and similar caps
Power supply voltage	220V ±10%
Air supply pressure	0.4 to 0.6 MPa
Air humidity requirement	Less than 48%
Ambient temperature requirement	Not higher than 45°C
High-power generator dimensions (L x W x H)	480 mm x 365 mm x 202 mm
Welding head dimensions at highest point (L x W x H)	420 mm x 180 mm x 290 mm
Transducer emission-line length to electrical control box	3 m

Parameter	Specification
Instrument units	All metering instruments use metric units
Program language requirement	Chinese and English

Single Sided Automatic Battery Spot Welding Machine

Item Number: DH13



Introduction

Automated single-sided battery spot welding equipment with rotating servo head delivers fast, consistent nickel strip connections for cylindrical cell packs, supporting flexible layouts, monitored welding quality, and efficient production for energy storage, mobility, and power-tool manufacturers worldwide operations.

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Application	Description	Key Benefit
Power Tool Battery Packs	Produces series and parallel cylindrical-cell assemblies for rechargeable power tool battery packs.	Approximate 1,500-2,000 cells per hour supports efficient pack production.
Energy Storage Battery Packs	Welds cell interconnects for multi-series, multi-parallel stationary energy storage pack configurations.	Programmable coordinates and USB data transfer support repeatable pack layouts.
Electric Scooter Batteries	Supports cylindrical-cell pack assembly for scooter battery applications using formed nickel interconnects.	Rotating head positioning accommodates angled welding requirements within the specified range.
Electric Vehicle Battery Assemblies	Handles supported cylindrical cell sizes in serial and parallel combinations for electric vehicle battery production.	Independent terminal welding-current settings allow distinct positive and negative process specifications.
Self-Balancing Scooter Batteries	Produces battery packs for self-balancing scooters with automated welding points and programmable layouts.	Rapid program recall supports quicker transitions between product configurations.
Multi-Model Battery Pack Manufacturing	Supports facilities producing packs based on 14500 through 32700 cylindrical cells.	Up to 199 stored data groups help retain established welding programs for supported variants.
Nickel Interconnect Welding	Joins formed nickel strip or embossed nickel strip to cylindrical cells in battery-pack production.	Real-time monitoring, uniform weld results, and automatic fault response support consistent interconnect quality.
Copper-Tin Alloy Interconnect Preparation	Supports welding applications using copper-tin alloy material when I-shaped slots and embossed points are prepared.	Defined material-preparation requirements help align the interconnect design with the welding process.

Parameter	Specification
Site-Facing Identifier	DH13
Equipment Type	Automatic single-sided spot welding machine with rotating welding head
Equipment Power	4KW
Electrical Input	220V AC, 50HZ
Required Air Pressure	0.4-0.8Mpa, water-free and impurity-free
Supported Cell Types	14500 / 18500 / 18650 / 18730 / 21700 / 26650 / 32700
Supported Cell Configuration	Series and parallel combinations; multiple parallel and multiple series combinations
Suitable Battery Pack Types	Power tool battery, self-balancing scooter battery, energy storage battery pack, scooter battery, electric vehicle battery
Maximum X-Axis Travel	350MM
Maximum Y-Axis Travel	450MM
Larger Travel Requirement	Customization required

Parameter	Specification
Welding Head Rotation Range	Configurable within plus or minus 45 degrees
Compatible Nickel Strip Width	Formed nickel strip / embossed nickel strip; confirm during customization
Compatible Nickel Strip Thickness	0.1MM---0.3MM
Heavy Nickel Strip Requirement	0.21-0.3MM nickel strip requires slots or embossed points
Copper-Tin Alloy Requirement	I-shaped slot and embossed-point welding required
Production Efficiency	Approximately 1500-2000PCS cells/hour
Standard Spot Welding Power Source	One 10000A transistor spot welding power source
Spot Welding Speed	2-10ms
Weld-Point Temperature	Low
Welding Monitoring	Real-time monitoring for undercurrent or explosive sparking
Welding Completion Signal	Included to save welding time
Welding Specification Settings	Configurable; positive and negative terminals can use different welding currents
Abnormal Welding Response	Automatic alarm and machine stop when current is too low or an abnormality occurs during spot welding
Welding Result	Very good welding consistency; weld points are uniform and visually neat
Welding Data Entry Methods	Dot-matrix input; array input; USB import
USB Data Workflow	CAD data is imported to the touch screen one set at a time; data can be exported from the touch screen to USB in batches and imported to other machines at one time
Rotating-Machine Angle Entry	Angle requires manual input
Spot Welding Fixture Name Entry	Chinese and English input
Display Interface	7-inch color touch screen; Chinese and English display
Controller	5-axis high-speed PLC programmer
Servo Motors	4 axes
Nickel Strip Method	Formed nickel strip, reducing waste
Program Recall	0-199 groups of data can be called
Setup and Changeover	Simple commissioning; easy to learn and understand; fast model changeover
Welding Head Drive	Servo electric, with rotating function
Cooling Equipment	Water chiller supplied
Welding Head Cooling	Water-cooling system
Finished Battery Fixture	One set of insulated bakelite fixture supplied, including 2 pieces
Fault Handling	Built-in fault alarm; faults can be cleared according to displayed prompts
Warranty Period	Two years
Overall Dimensions	L900W900H1730MM
Weight	380KG

Prismatic Aluminum Case Battery Laser Welding System

Item Number: DH11



Introduction

Integrated laser welding system for prismatic aluminum case batteries combines top cover full seam and sealing pin welding with precise fixturing vision inspection protective gas and dust extraction for consistent high quality production in advanced battery manufacturing lines worldwide.

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Application	Description	Key Benefit
Prismatic lithium battery top-cover assembly	Performs laser pre-welding and full-seam welding between the top cover and aluminum case using top-surface datum positioning.	Supports controlled seam geometry, with effective penetration of 0.5-1.2 mm and weld width of 0.8-1.4 mm.
Sealing-pin closure welding	Uses CCD capture, focus detection, optional four-quadrant pre-welding, and full welding for sealing-pin installation.	Delivers sealing-pin positional control and weld-seam offset ≤ 0.05 mm.
Battery pilot-line manufacturing	Supports manual cell loading, clamping, laser welding, inspection, and manual unloading for process development and pilot production.	Integrates two welding processes in one platform while supporting compatible battery formats.
Battery production-line operations	Provides a controlled workstation for repeated aluminum-case closure welding with monitored air pressure, gas flow, focus, and dust extraction.	Supports equipment-caused scrap performance of 99.5% qualification rate and equipment availability $\geq 95\%$.
Aluminum-case battery manufacturing	Welds aluminum cases with wall thicknesses of 0.4-0.8 mm while protecting enclosure surfaces and top-cover terminal plastic parts.	Helps achieve smooth, bright weld appearance with smooth transition to the base material.
Multi-format battery production	Accommodates compatible cells 12-60 mm thick, 80-170 mm wide, and 90-190 mm high through product-specific fixtures.	Enables fixture conversion in ≤ 30 minutes without reducing locating precision.

Parameter	Specification
Site-facing identifier	DH11
Applicable battery type	Prismatic aluminum-case battery
Reference battery format thickness	20-25 mm
Reference battery format width	100 mm
Reference battery format height	120 mm
Compatible battery thickness	12-60 mm
Compatible battery width	80-170 mm
Compatible battery height	90-190 mm
Integrated processes	Top-cover full welding / sealing-pin welding
Top-cover loading and unloading	Manual cell loading; manual cell unloading
Top-cover welding sequence	Fixture clamping; laser pre-welding; full welding
Sealing-pin loading and unloading	Manual cell loading; fixture clamping; manual sealing-pin installation; laser welding; manual inspection and unloading
Top-cover fixture arrangement	Traveling fixture clamping; vertical welding
Top-cover positioning datum	Top surface (top-cover surface)

Parameter	Specification
Top-cover repeated fixture positioning tolerance	± 0.02 mm, repeated clamping Master test
Master-to-clamping-plate gap after clamping	≤ 0.04 mm
Fixture movement requirement	Avoid sliding friction between clamping fixture and battery during positioning in different axial directions
Clamping-cylinder air-pressure control	Pressure monitoring and alarm; pressure fluctuation ≤ 0.05 Mpa
Fixture upper-surface to top-cover upper-surface height difference	1.5-2.0 mm
Top-cover fixture battery-contact material	Non-metallic
Top-cover shielding gas	Coaxial N ₂ , purity $\geq 99.99\%$
Top-cover gas-flow adjustment	Adjustable; resolution 0.1 L/min; flow monitoring and alarm
Laser-head height visualization resolution	0.05 mm
Automatic defocus measurement	Abnormal alarm; resolution ≤ 0.05 mm
Top-cover laser source	Ring-spot laser, 2KW+1KW
Laser line diameter	$> 100\mu\text{m}/600\mu\text{m}$
Laser cooling	Water chiller equipped
Laser-head and transmission-fiber laser-power fluctuation	$\leq 3\%$
Laser power linearity	≥ 0.99
Top-cover laser-head X/Y/Z repeated travel tolerance	± 0.02 mm
Top-cover welding speed	≥ 70 mm/s
Laser-head movement jitter amplitude	≤ 0.05 mm
Corner welding speed fluctuation	≤ 10 mm/s
Top-cover welding trajectory deviation	± 0.05 mm
Laser welding angle	Adjustable; 5~13° laser inclination
Top-cover effective weld penetration	0.5-1.2 mm
Top-cover weld width	0.8-1.4 mm
Top-cover pre-welding	Includes pressing function; 6-8 weld points before full welding
Top-cover seam pressure resistance	≥ 1.1 Mpa
Laser travel repeat accuracy	± 0.04 mm
Aluminum-case wall thickness	0.4-0.8 mm
Top-cover weld quality requirement	Flat and bright weld appearance and internal weld trace; smooth transition with base material; no incomplete welding, missed welding, over-welding, inclusions, pores, or burst points
Top-cover dust extraction	Included
Welding protection-gas device	Adjustable flow, angle, and distance; flow traceable
Emission-head extension beyond dust port	≤ 5 mm
Top-cover terminal dust-port air speed	≥ 15 m/s
Top-cover spatter protection	Welding station includes weld-slag protection; no weld-slag residue on aluminum-case surface
Dust-extraction main duct	Stainless-steel piping with adjustment valve for airflow and air-speed adjustment
Duct pressure monitoring	Main duct pressure gauge with real-time monitoring; linked to equipment control program; stop alarm for excessive or insufficient pressure
Top-cover protection cover	Fits tightly to top-cover surface during welding; protects terminal plastic parts and battery surface; no visible smoke residue
Sealing-pin lifting and fixture arrangement	Cylinder lifts to datum plate; mechanical limit; spring fixture
Sealing-pin datum-plate underside coating	0.1~0.3 mm Teflon coating for insulation at battery contact
Sealing-pin fixture accuracy	≤ 0.1 mm

Parameter	Specification
Sealing-pin post-location centering tolerance	± 0.5 mm
Sealing-pin height datum	Battery top cover
Sealing-pin position capture	CCD system; capture-positioning accuracy $\leq \pm 0.03$ mm
Sealing-pin automatic focus-detection resolution	≤ 0.02 mm
Sealing-pin pre-welding	Fixture automatically clamps battery; four-quadrant-point pre-weld; may be omitted according to process
Sealing-pin welding sequence	Full welding after pre-welding
Sealing-pin laser angle	Adjustable; 5~13° laser inclination
Sealing-pin weld penetration	> 0.5 mm
Sealing-pin spot diameter or molten-pool width	> 0.95 mm
Sealing-pin welding speed	≥ 6 mm/s
Sealing-pin seam pressure resistance	≥ 1.1 Mpa
Motor positioning and weld-seam offset	≤ 0.05 mm
Sealing-pin weld appearance	Smooth; no burrs, black spots, pits, or similar defects
Sealing-pin heat-affected zone	Temperature $< 80^{\circ}\text{C}$ at 2 mm from weld seam
Sealing-pin spatter protection	Protective cover protects battery from welding spatter; independently designed welding-station fixture ensures lifting consistency
Sealing-pin smoke extraction	Real-time smoke extraction with dust collector and stainless-steel piping
Sealing-pin terminal dust-port air speed	≥ 10 m/s
Sealing-pin laser-head movement stability	X/Y/Z-axis jitter amplitude ≤ 0.05 mm within speed range
Sealing-pin laser-head X/Y repeated travel accuracy	≤ 0.05 mm
Sealing-pin focus compensation	Focal distance monitored in real time; measured value compensated to welding Z axis
Product fixture changeover	≤ 30 min; simple installation and removal; does not affect fixture locating accuracy or equipment service life
Electrical supply	AC380 $\pm 10\%$
Compressed air	0.6MPa
Safety enclosure	Aluminum-alloy protective enclosure with organic-glass structure and organic-glass operating door
Ergonomic requirement	Good human-machine engineering performance
Qualification rate	99.5% (only product scrap caused by equipment reasons)
Equipment capacity or speed	≥ 120 PPM/10H, based on actual manual operating speed
Equipment availability	$\geq 95\%$ (failures caused only by equipment)

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	$\geq 95\%$ (failures caused only by the equipment)
Electrical supply voltage	380V 50Hz
Voltage fluctuation	Less than $\pm 10\%$
Equipment power	10KW
Air-source requirement	≥ 0.6 MPa (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

Intelligent 8000W Ultrasonic Battery Welding Machine For Up To 120 Layer Electrode Welding

Item Number: DH06



Introduction

Intelligent 8000W ultrasonic battery welding machine delivers stable 24 kHz electrode tab welding for aluminum and copper foils up to 120 layers, with automatic amplitude compensation, quality monitoring, bilingual touchscreen control, and reliable low-resistance joints.

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Application	Description	Key Benefit
Lithium-ion cell tab welding	Joins 0.2 mm aluminum strip to up to 120 layers of aluminum foil for battery electrode-tab connections.	Supports high-layer aluminum-foil welding with specified 3 x 10 mm, 3 x 20 mm, or 3 x 30 mm weld points.
Copper current-collector tab welding	Joins 0.2 mm nickel strip to up to 120 layers of copper foil in electrode assembly workflows.	Provides a defined capability for dense copper-foil stacks and nickel-strip connections.
Battery R&D process development	Establishes and evaluates welding conditions for varying material thicknesses and layer counts during cell research.	Time, energy, power, and depth modes support structured process trials.
Pilot-line electrode assembly	Produces repeatable welded tab connections while recording real-time frequency and welding-power conditions.	Quality-limit monitoring and alarms help identify parameter deviations during repeated work.
Multilayer foil stack joining	Creates metal-to-metal welds where a large number of thin current-collector layers must be consolidated.	Stable amplitude output and automatic compensation help maintain welding stability.
Battery manufacturing quality verification	Evaluates weld quality through visual weld condition, defined monitoring limits, and destructive tensile-strength checks as appropriate for the material stack.	Helps teams assess joint integrity, surface condition, and process consistency.
Aluminum and copper foil electrode fabrication	Supports separate aluminum/aluminum and nickel/copper welding combinations used in battery electrode processing.	Dedicated stated welding capacities clarify material compatibility before process setup.

Parameter	Specification
Site-facing identifier	DH06
Power	8000W
Frequency	24KHZ
Power supply	220V/ 50Hz
Air supply	≥0.5MPa
Control method	CPU control
Maximum upper ultrasonic electrode travel	20mm
Welding time	0.05~ 9S
Touch display	4.3-inch anti-interference touchscreen
Display language	Chinese and English
Adjustable display parameters	Trigger time; welding time; power; secondary-wave delay time

Parameter	Specification
Real-time display	Frequency and welding power
Alarm functions	Fault-type alarm; out-of-limit welding-quality alarm
Startup diagnostic function	Automatic self-inspection; welding-system parameter scan and real-time display
Amplitude function	Automatic amplitude compensation
Controller circuit	Optimized international advanced full-bridge regulated circuit; constant-amplitude output; automatic frequency tracking; no manual adjustment required
Intelligent control modes	Time, energy, power, energy, depth
Welding-head material	Powder alloy
Welding-head material detail	Imported powder-alloy steel with high hardness; high-precision ground pattern
Welding-head service life	More than 150,000 operations per side
Lower ultrasonic electrode material	Imported special mold steel
Lower ultrasonic electrode characteristics	Wear-resistant, high-temperature-resistant, tough, high mechanical rigidity, and low deformation after heat treatment
Ceramic plate	German imported black plate
Aluminum rod	Aluminum Company of America
Aluminum welding capacity	0.2mm aluminum strip + aluminum foil within 120 layers
Aluminum weld-point sizes	310mm, 320mm, 3*30mm
Nickel/copper welding capacity	0.2mm nickel strip + copper foil within 120 layers
Nickel/copper weld-point sizes	310mm, 320mm, 3*30mm
Stated weld characteristics	Firm weld; low internal resistance; no false welding; no powder vibration; no separator burning; no insulating-tape heating; no electrode-tab or foil cracking
Stated weld surface condition	Smooth surface without wrinkles; no raised burrs on reverse side; full, clear weld spots; firm and reliable welds
Remaining welded contact area between metals	More than 80%
Strength assessment	Destructive tensile strength can be tested according to layer count and material thickness

Inverter Dc Welding Power Supply

Item Number: DH12



Introduction

Inverter DC welding power supply delivers 3000A controlled output, 4KHz response, dual-pulse programming, current monitoring, and GO NG quality signals for precise resistance welding operations.

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Application	Description	Key Benefit
Battery tab welding	Joins conductive tabs to battery cell terminals or related current-collection components using a programmed resistance welding sequence.	Two-stage current, adjustable slopes, and current-result judgment support controlled joining of battery-related conductive parts.
Battery busbar and interconnect welding	Supports resistance welding of electrical interconnects and busbar-related assemblies used in battery module and pack manufacturing.	Eight selectable welding conditions help teams change between validated interconnect processes efficiently.
Plated component welding	Processes workpieces with plated surfaces where the surface layer can affect energy delivery and welding behavior.	The two-stage energization function is specifically positioned to help address plated-workpiece welding requirements.
Electrical contact manufacturing	Welds electrical contacts, terminals, and conductive hardware that require controlled current delivery and verified process output.	Constant-current load control and GO/NG monitoring provide a structured basis for repeatable process checks.
Precision metal assembly	Applies resistance welding to small metal assemblies where spatter control and programmed current transitions are important.	Adjustable upslope and downslope functions help shape the welding sequence and suppress spatter.
Electronics hardware fabrication	Supports the joining of conductive components in production equipment, fixtures, and electrical hardware assemblies.	Fast 4KHz inverter response supports high-quality welding control with programmable timing stages.
Materials research welding trials	Enables laboratories and development teams to evaluate welding profiles across different materials, coatings, and joint configurations.	Detailed time settings and two current stages allow systematic adjustment of the welding cycle.
Automated welding stations	Integrates into production cells that require a discrete welding-quality output for downstream handling or external control.	Open-collector GO/NG result output provides a specified interface for process-status signaling.

Parameter	Specification
Site-facing identifier	DH12
Equipment type	Inverter welding power supply with built-in inverter transformer
Input power supply	AC 220V±10% 50/60Hz
Operating temperature	0°C~+50°C
Operating humidity	90% or less
Maximum output current	3000A
Control frequency	4KHz
Control method	Primary current detection static current control method
Cooling method	Forced-air cooling
Maximum duty cycle	20%(3000A)
Welding transformer output	Maximum current 3000A; no-load voltage 8.5V

Parameter	Specification
Welding condition setting	8MODE (MODE 0, 1, 2, 3, 4, 5, 6, 7)
Current 1 setting range	800~5000A
Current 2 setting range	800~5000A
Welding current detection function	Freely set monitoring range of set current: $\pm 3\sim\pm 9\%\pm N$
Current judgment logic	Outputs GO when actual welding current is within the set current; outputs NG when actual welding current exceeds the set current
Judgment-result output method	Open collector output
Judgment-result output rating	DC 30V 200mA MAX
Display	20 x 4-line LCD displaying welding information and welding parameters
Squeeze time SQUE	0-999ms
Current 1 upslope U1	0-49ms; included in Current 1 I1
Current 1 I1	0-99ms
Current 1 downslope D1	0-49ms
Cooling time COOL	0-99ms
Current 2 upslope U2	0-49ms; included in Current 2 I2
Current 2 I2	0-99ms
Current 2 downslope D2	0-49ms
Hold time HOLD	0-999ms
Dimensions	195(W)*280(H)*450(D)m/m
Weight	19KG

Ultrasonic Metal Welding Machine For Glovebox Use

Item Number: DH07



Introduction

Ultrasonic metal welding machine for glovebox use supports aluminum foil and nickel copper foil tab welding with 800W 40kHz power precise 4 x 4 mm weld area and controlled utility requirements for battery research laboratory assembly workflows under specified compressed air conditions.

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Application	Description	Key Benefit
Lithium-ion battery cell research	Join a 0.10 mm pure aluminum strip to 0.012-0.018 mm pure aluminum foil for laboratory electrode-tab and current-collector studies, within the stated limit of 20 foil layers.	Provides a reference-backed aluminum welding process with a defined material stack and 4 x 4 mm weld area.
Copper-foil current collector development	Weld a 0.10 mm pure nickel strip to 0.012-0.018 mm copper foil for experimental copper-side interconnect work.	Supports the specified nickel-to-copper combination at the documented 800 W and 40 kHz configuration.
Glovebox-based cell assembly workflows	Use the equipment in glovebox-related battery assembly planning where the stated footprint, 110 V power condition, and compressed-air requirement can be accommodated.	Enables utility and space evaluation using published generator and welding-head dimensions.
Multilayer foil connection trials	Evaluate the documented aluminum-foil or copper-foil joining processes using stacks of up to 20 foil layers.	Establishes a clear layer-count boundary for experimental planning and process documentation.
Battery tab process development	Develop point-welded connections using the specified 4 x 4 mm welding area and applicable aluminum or nickel strip combinations.	Gives teams a fixed weld-footprint reference for tab geometry and fixture design.
Materials joining laboratories	Conduct controlled ultrasonic welding studies on the two documented pure-metal strip and foil combinations.	Uses explicit thickness ranges and environmental requirements to define the tested operating envelope.
Pilot cell fabrication stations	Integrate the unit into a compact laboratory station supplied with 110 V power and 0.4-0.6 MPa compressed air.	Allows facilities to verify key utility conditions before assigning the system to a pilot workflow.

Parameter	Specification
Site-facing item number	DH07
Equipment type	Ultrasonic metal welding machine for glovebox use
Ultrasonic power	800 W
Operating frequency	40 KHZ
Welding area	4 x 4 mm
High-power generator dimensions (L x W x H)	480 mm x 365 mm x 202 mm
Welding head dimensions at uppermost point (L x W x H)	420 mm x 180 mm x 290 mm
Measurement units	All measuring instruments on the equipment use metric units
Voltage requirement	110 V +/-10%
Air-source pressure	0.4-0.6 MPa
Maximum humidity	Less than 48%
Maximum temperature	Not higher than 45 C

Documented welding process	Strip material	Strip thickness	Foil material	Foil thickness	Maximum foil layers	Welding area
Process 1	Pure aluminum strip	0.10 mm	Pure aluminum foil	0.012-0.018 mm	Within 20 layers	4 x 4 mm
Process 2	Pure nickel strip	0.10 mm	Copper foil	0.012-0.018 mm	Within 20 layers	4 x 4 mm

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



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