



KINTEK SOLUTION

Cylindrical Cell Assembly Equipment Catalog

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KINTEK SOLUTION

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.



Semi Automatic Cylindrical Battery Grooving Machine

Item Number: YZ08



Introduction

Semi automatic cylindrical battery grooving equipment delivers adjustable 1.2 to 2.0 mm depth precision for steel cell cases and aluminum capacitor shells with PLC touchscreen control dependable 400 EA per hour production and stable adjustable speed operation performance.

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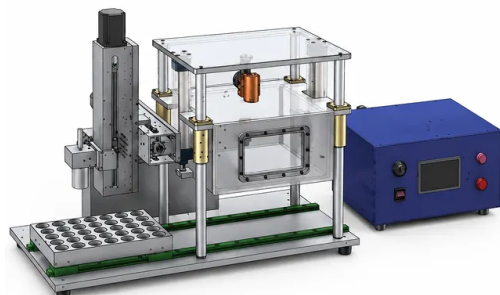
Application	Description	Key Benefit
Cylindrical lithium battery research	Grooving steel cylindrical cases for laboratory development of 18650, 21700, and 26650 cell formats.	Adjustable groove dimensions support work across multiple common cylindrical case sizes.
Battery pilot-line assembly	Preparing cell-loaded cylindrical steel cases during semi-automatic pilot-scale cell fabrication.	400 EA/H capacity supports repeatable processing without requiring a large machine footprint.
Battery case process development	Evaluating groove depth, width, and rotational operating conditions when developing cylindrical-case forming procedures.	PLC settings and digital speed display provide clear, adjustable process references.
Aluminum capacitor manufacturing	Forming grooves in aluminum capacitor cases with diameters up to Phi 30.	Extends the equipment's use beyond steel battery cases to compatible capacitor housings.
Battery laboratory prototyping	Processing different cylindrical battery case configurations during prototyping and experimental assembly.	Compatibility with multiple steel case formats helps laboratories accommodate changing project requirements.
Academic electrochemical research	Supporting hands-on cylindrical cell fabrication work in university and research institute laboratories.	Compact dimensions and straightforward touchscreen operation suit controlled laboratory workflows.
Quality-focused case preparation	Producing uniform case grooves where dimensional repeatability is important before subsequent assembly operations.	+/-0.1 mm processing accuracy supports stable groove dimensions.
Electrolyte-adjacent assembly environments	Operating a grooving station in battery-processing areas where moisture and electrolyte exposure are relevant considerations.	Metal waterproof buttons resist moisture and electrolyte corrosion.

Parameter	Specification
Product Item Number	YZ08
Control Method	PLC touchscreen control
Suitable Steel Cylindrical Battery Cases	18650, 26650, 21700, and other steel cylindrical battery cases
Suitable Aluminum Capacitor Cases	Within Phi 30
Groove Depth	1.2-2.0 mm, adjustable
Groove Width	1.1-1.5 mm, according to roller thickness
Processing Accuracy	+/-0.1 mm
Roller Service Life	Greater than 1 million operations
Capacity	Semi-automatic 400 EA/H
Speed Regulation	Digital display; precise adjustment and display of current rotational speed
Control Buttons	Metal waterproof push buttons, resistant to moisture and electrolyte corrosion

Parameter	Specification
Power Supply	220v/50Hz
Power	140W
Compressed Air	0.5MPa-0.7MPa
Product Dimensions	L740X 250X 350mm
Net Weight	37kg
Routine Cleaning Requirement	Frequently wipe dirt from guide posts and other moving parts; keep clean and lubricated for smooth movement
Long-Term Idle Care	Clean the forming mold and apply oil to keep the forming surface clean and smooth when the equipment is not used for an extended period
Fastener Inspection	Regularly inspect screws, nuts, pins, and other fasteners to prevent loosening and avoid sealing-quality and personal-safety incidents
Operating Safety	Do not place hands in the active area of the forming mold during operation to avoid hand injury
Mold Inspection	Regularly check the forming mold for foreign objects
Mold Protection	Do not strike the forming mold section with hard objects

Electrolyte Vacuum Filling And Soaking Integrated Machine

Item Number: YZ13



Introduction

Electrolyte vacuum filling and soaking integrated machine delivers $\pm 0.5\%$ dosing accuracy for cylindrical, coin, and pouch battery cells, combining programmable vacuum, inert-gas filling, and controlled resting to improve electrolyte uptake consistency in advanced battery manufacturing and laboratory research workflows.

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Application	Description	Key Benefit
Cylindrical lithium-ion cell development	Fills supported cylindrical cell formats during battery R&D, pilot trials, and controlled sample preparation.	Processes up to 35 specified cylindrical cells in one loading cycle with adjustable dosing and resting settings.
Coin-cell research	Supports electrolyte filling and soaking workflows for coin-cell samples used in electrode, separator, and electrolyte evaluation.	$\pm 0.5\%$ filling accuracy supports more consistent electrolyte quantities across comparative test cells.
Pouch-cell electrolyte preparation	Dispenses electrolyte into pouch cells in a dry-room or glove-box workflow; pouch cells do not undergo vacuum extraction.	Provides controlled filling capability for pouch-cell processing while respecting the specified non-vacuum method.
Battery capacitor filling operations	Performs electrolyte injection and static resting for battery capacitor-related processes requiring controlled dosing.	Integrates two process stages in one system to simplify handling and standardize operator workflow.
Electrolyte formulation screening	Prepares cells using different electrolyte quantities, dispense speeds, and rest durations during formulation studies.	Adjustable process variables allow teams to align the filling sequence with defined experimental conditions.
Glove-box battery prototyping	Enables electrolyte filling in an inert controlled environment for development work requiring glove-box operation.	Vacuum or inert-gas filling capability provides flexibility for controlled-atmosphere process integration.
Dry-room pilot processing	Supports repeatable electrolyte dispensing and soaking in dry-room battery assembly areas.	PLC and touchscreen controls provide programmable, repeatable process settings for routine operation.
Cell process optimization	Evaluates the effect of vacuum degree, fill quantity, dispense speed, and pressure-hold rest time on sample preparation.	Brings key adjustable variables into a single automated station for structured process studies.

Specification	Value
Site-facing identifier	YZ13
Applicable cell types	Cylindrical battery capacitor cells, coin cells, and pouch cells
Pouch-cell vacuum operation	Pouch cells do not undergo vacuum extraction
Core functions	Electrolyte filling and soaking/resting
Filling environment	Vacuum or inert-gas environment
Process sequence	Vacuum extraction before electrolyte filling, followed by resting
Adjustable parameters	Filling speed, filling quantity, vacuum degree, pressure-hold resting time
Filling precision	$\pm 0.5\%$
Filling precision basis	Precision after electrolyte is delivered to the cell
Stated filling quantity range	0.2 ml-200 ml

Specification	Value
Technical capacity range	0.2 ml-100 ml
Cell electrolyte filling quantity	0.2 g-100 g
Dispense/output speed	0.1-20 ml/s, adjustable
Cylindrical cells per cycle	35
Supported cylindrical format 1	13 mm OD x 27 mm H
Supported cylindrical format 2	16 mm OD x 37 mm H
Supported cylindrical format 3	18 mm OD x 27 mm H
Supported cylindrical format 4	22 mm OD x 44 mm H
Supported cylindrical format 5	30 mm OD x 50 mm H
Supported cylindrical format 6	35 mm OD x 82 mm H
Critical-part materials	304 and 316 corrosion-resistant stainless steel
Inlet and outlet connection	Chemical-corrosion-resistant flexible tubing
Control system	PLC and touchscreen operation
Automation	High degree of automated programming with flexible parameters
Installation location	Glove box or dry room
Ambient temperature requirement	Determined by the customer's factory environment
Power supply requirement	220V, 50HZ; voltage fluctuation range: +10% to -10%
Configured power supply	AC220V/50Hz/1KW
Compressed-air requirement	Dried, filtered, and pressure-regulated air; outlet pressure greater than 4.0 kg/cm ²
Glove-box compressed-gas requirement	Gas used must be consistent with the gas inside the glove box
Vacuum-source requirement	Vacuum pump 2 liters/second, -98KPa or above; or pipeline vacuum (-98KPa or above)
Main machine dimensions	L900mm x W450mm x H640mm
Control box dimensions	L450mm x W420mm x H255mm
Weight	180kg

Five Axis Double Sided Automatic Servo Spot Welding Machine

Item Number: YZ06



Introduction

Five axis double sided automatic servo spot welding machine delivers monitored high speed welding for lithium battery packs with programmable points arrays and graphic import supporting 18650 21700 26650 and 32650 cells plus configurable 5000A 6000A or 8000A transistor power.

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Application	Description	Key Benefit
Cylindrical lithium battery pack production	Automatically weld nickel interconnect strips across 18650 cell arrays used in standard battery-pack assemblies.	Supports up to 360 standard 18650 cells in one loading arrangement for efficient pack processing.
21700 battery module assembly	Creates programmed spot-weld patterns for 21700 cylindrical-cell module layouts using point, array, or imported graphic programming.	Enables repeatable positioning for structured interconnection patterns.
High-capacity battery pack fabrication	Processes 26650 and 32650 cylindrical cells used in larger-format battery-pack configurations.	Extends automated welding capability beyond a single cylindrical cell format.
Pure nickel strip welding	Performs flat welding of 0.15 to 0.2 mm pure nickel strip within the specified process range.	Provides a defined process capability for common battery interconnect materials.
Nickel-plated steel strip welding	Performs flat welding of 0.15 to 0.2 mm nickel-plated steel strip and projection welding of 0.3 mm nickel-plated steel strip.	Supports both flat and projection-welding approaches for specified strip conditions.
Battery-pack pilot lines	Stores up to 99 program file groups for repeated trial builds, product changes, and multiple pack configurations.	Reduces setup repetition when switching among established welding programs.
Battery R&D and process development	Uses programmable weld locations, current monitoring, and alarm feedback to evaluate welding operations on cylindrical-cell assemblies.	Gives development teams direct process visibility during welding trials.
Automated cell interconnect workstations	Integrates controlled motion, adjustable head pressure, and water-cooled welding hardware for recurring production tasks.	Combines positioning, welding, cooling, and monitoring functions in one equipment platform.

Parameter	Specification
Product Item Number	YZ06
Equipment power supply	220V±10%/50Hz±10%
Overall dimensions	1500mm (L) × 900mm (W) × 1800mm (H)
Equipment weight	400KG
Transistor power supply options	5000A / 6000A / 8000A
Transistor power supply output	5000A, 6000A, and 8000A single-wave output; 5000A polarity switching is dual-wave output
8000A transistor power supply capability	Suitable for nickel strip welding below 0.25 mm
Z-axis travel	350mm
Y-axis travel	650mm
Spot welding speed	0.5s/point; 3500pcs/H~4000pcs/H
Maximum motor transmission speed	1000mm/s

Parameter	Specification
Maximum loaded cell quantity	360PCS (standard 18650 lithium cells)
Storable program file groups	99 groups
Operating system	Embedded system + human-machine interface screen
Transmission method	Servo + stepper + imported precision linear guideway; imported motor optional
Imported spring pressure adjustment at welding head	1.0-5.0Kg
Flat-welding nickel strip suitable thickness	0.15-0.2mm pure nickel / nickel-plated steel
Projection-welding nickel strip suitable thickness	0.3 nickel-plated steel
Positive and negative current switching speed/specification	Optional
Flat welding speed	0.3-1S; 4000-5000 pcs/h
Projection welding speed	0.5-1S; 3500-4000 pcs/h
Suitable battery models	18650, 21700, 26650, 32650, and other cylindrical lithium batteries
Welding mode	Double-sided automatic spot welding
Programming capability	Any-point programming, array programming, graphic import
Restart function	Breakpoint restart supported
Welding head cooling	Water-cooling circulation
Welding-current monitoring	Integrated welding-current monitoring system
Welding quality alarm	False-weld and insufficient-weld alarm function

Semi Automatic Cylindrical Battery Winding Machine

Item Number: YZ04



Introduction

Semi automatic cylindrical battery winding machine for lithium ion cell production with precision alignment adjustable winding speed automatic termination tape application active diaphragm tension control dust removal and reliable unloading for consistent high yield performance in demanding research environments.

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Application	Description	Key Benefit
Cylindrical lithium ion cell R&D	Produces wound cylindrical cells from manually introduced positive and negative electrode sheets with separator layering.	Supports controlled evaluation of winding recipes and cell construction quality.
Battery pilot production	Provides a semi automatic winding sequence for development lines and low-volume cylindrical cell production.	Reduces repetitive manual operations while retaining flexible material loading.
University battery laboratories	Handles multiple electrode widths, separator widths, winding needle sizes, and cell diameters for experimental programs.	Enables practical format changes across research projects.
Electrode process validation	Evaluates how electrode width, thickness, separator tension, and winding speed influence wound-cell alignment.	Delivers measurable process control for engineering trials.
Cylindrical cell prototype fabrication	Forms prototype cells with controlled positive-electrode, negative-electrode, and separator relationships.	Helps teams move from material samples to repeatable cell prototypes.
Battery manufacturing process development	Supports development of winding, termination taping, separator wrapping, and unloading procedures before larger-scale automation.	Provides a defined process platform for scale-up decisions.
Advanced materials research	Accommodates electrode and separator materials used in experimental lithium ion cell programs within the stated dimensional limits.	Combines broad material compatibility with controlled winding accuracy.

Specification	Details
Equipment type	Semi automatic cylindrical battery winding machine
Primary function	Precision winding of cylindrical lithium ion battery cell electrodes and separators
Process sequence	Separator pre-winding; negative electrode insertion; positive electrode insertion; winding; station transfer; separator cutting; termination tape application; unloading
Winding structure	Two winding assemblies, each formed by a single-head through-type winding structure
Winding station transfer	One station-transfer assembly for switching between winding and tape-application stations
Separator unwinding	Two active separator unwinding assemblies with pneumatic adjustment control
Electrode guiding	Two electrode guiding assemblies with single-side adjustment
Tape application and unloading	One termination tape application and unloading assembly
Dust management	Electrode-sheet dust removal device
Separator finishing	Separator outer-wrap finishing

Material	Length	Width	Thickness	Core Inner Diameter	Roll Outer Diameter
Positive electrode sheet	600 to 7000 mm	178 to 318 mm	0.1 to 0.2 mm	Not specified	Not specified
Negative electrode sheet	600 to 7000 mm	178 to 318 mm	0.1 to 0.2 mm	Not specified	Not specified
Separator	Roll material	180 to 320 mm	0.016 to 0.045 mm	76.2 mm	250 mm
Termination tape	Roll material	10 to 90 mm	0.01 to 0.035 mm	76.2 mm	150 mm

Format Parameter	Specification
Separator width	180 to 320 mm
Electrode-sheet width	178 to 318 mm
Winding needle specification	Diameter 8.0 to 15 mm; customized according to customer requirements
Standard winding needle delivery	One set supplied; configuration according to customer requirements
Applicable finished-cell outer diameter	Diameter 28 to 60 mm

Performance Item	Requirement or Result
Electrode width error condition	Less than ± 0.2 mm
Electrode S-bend error condition	Less than ± 1 mm per 500 mm
Separator roll tower-shaped error condition	Less than ± 0.2 mm
Separator alignment accuracy	Less than ± 0.5 mm
Electrode alignment accuracy	Less than ± 0.5 mm
Finished-cell cross-section alignment	± 0.5 mm
Layer relationship	Negative electrode encloses positive electrode; separator encloses negative electrode
Qualified rate	$\geq 98\%$, excluding factors unrelated to the equipment
Wound-cell condition	No damage, core extraction, or electrode misalignment when material conditions are met

Specification	Details
Input power	AC220V, 3KVA, 50HZ
Compressed-air source	Greater than 0.4 MPa
Equipment dimensions	1850 mm $\times$ 1750 mm $\times$ 1650 mm, length $\times$ width $\times$ height; actual equipment shall prevail
Dimension note	Dimensions do not include the protruding length of the electrode-sheet material trough; unit: mm
Equipment weight	Approximately 1000 kg
Dimensional tolerance W	Less than 0.5 mm
Dimensional tolerance D	Less than 0.3 mm
Dimensional tolerance L	Less than 1000 mm

Manual Lithium Battery Electrode Sheet Winding Machine

Item Number: YZ01



Introduction

Manual lithium battery electrode sheet winding machine for supercapacitor cylindrical and pouch cell fabrication featuring adjustable guides bidirectional variable speed winding support rollers and compact foot-pedal operation for dependable laboratory electrode assembly and repeatable cell winding workflows.

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Application	Description	Key Benefit
Pouch lithium battery cell fabrication	Winds positive and negative electrode sheets with separator material into flat cell cores within the applicable flat-cell dimensional range.	Supports preparation of flat electrode assemblies for pouch-cell work.
Cylindrical lithium battery cell fabrication	Uses the cylindrical winding needle arrangement to wind electrode and separator materials for cylindrical cells up to the stated size limit.	Provides a dedicated winding configuration for cylindrical cell cores.
Supercapacitor cell winding	Forms wound cell structures from positive and negative electrode sheets and separator material for supercapacitor applications.	Extends the equipment's use to supercapacitor electrode assembly.
Electrode winding process development	Allows adjustment of the material guide position, winding speed, direction, and needle arrangement during electrode-winding work.	Provides controllable mechanical settings for evaluating winding procedures.
Flat cell core preparation	Uses the square winding needle component and adjustable square-needle width to prepare flat cell cores.	Accommodates flat-cell winding requirements through a changeable needle assembly.
Cylindrical cell core preparation	Uses opposing left and right round needles to clamp the electrode leader and form a wound cylindrical core.	Supports an ordered operating sequence for cylindrical-core winding.

Product Item Number	Parameter	Specification
YZ01	Power supply	220V/50Hz
YZ01	Power	25W~40W
YZ01	Rotational speed	0~170 revolutions/minute, adjustable
YZ01	Applicable flat cell size	Length (20100) x Width (2080) x Thickness (MAX30) mm; selected according to customer requirements
YZ01	Applicable cylindrical cell	Within Phi35 x L90 mm; changing between flat-cell and cylindrical-cell winding requires changing the winding needle
YZ01	Standard round winding needle	Phi3 mm
YZ01	Equipment dimensions	L550mm x 310mm x 280mm
YZ01	Equipment weight	25Kg

Stage	Procedure
Cell-core winding	Adjust the material-guide channel ruler plate so it matches the electrode sheet width. Place the electrode sheet into the guide channel, then position the leading end of the electrode sheet at the winding needle. Push the right needle inward so it engages with the left needle and clamps the electrode sheet. Press the foot valve to rotate the motor and complete winding. After winding, push the right needle away and remove the cell core.

Stage	Procedure
Round needle replacement	Insert the left round needle into the bearing and tighten the coupling screw. Position the electrode sheet, then engage the right round needle with the left round needle to perform winding.
Square needle replacement	Insert the square winding-needle component into the bearing and tighten the coupling screw. Loosen and remove the support-wheel bracket from the two screws at the bottom to prevent interference. To adjust square-needle width, loosen the square-needle locking screw, set the required width, and retighten the screw.

Cylindrical Battery And Capacitor Case Grooving Machine

Item Number: YZ09



Introduction

Adjustable cylindrical battery and capacitor case grooving machine for precise laboratory sample preparation and low volume pilot production with manual automatic operation adjustable depth width speed accurate repeatable groove forming glovebox compatible design for advanced electrochemical development applications.

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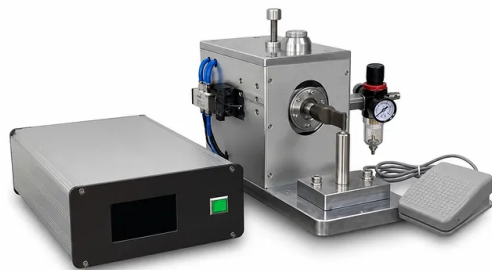
Application	Description	Key Benefit
Cylindrical lithium battery R&D	Form circumferential grooves in cylindrical battery housings used to prepare laboratory cell samples during battery-material development.	Adjustable forming variables support experimental case designs and repeatable sample preparation.
Controlled-atmosphere cell assembly	Place and operate the unit inside a glovebox as part of a workflow that prepares cylindrical cases before downstream cell assembly.	Compact dimensions support integration where controlled-environment handling is required.
Cylindrical capacitor case preparation	Process groove features in cylindrical capacitor housings for laboratory development and evaluation work.	The same equipment addresses both cylindrical battery and capacitor enclosure applications.
Pilot-line process validation	Run low-volume factory trial production to evaluate grooving conditions before broader manufacturing deployment.	Automatic mode and 6-8 pieces/minute output support practical small-batch processing.
Battery enclosure format development	Configure the equipment with an appropriate optional cylindrical battery grooving die for other supported case models.	Die selection helps adapt the process to different cylindrical battery housing formats.
Grooving parameter optimization	Evaluate the interaction of groove depth, tool position, rolling speed, and depth time during process development.	Independently adjustable settings give technical teams direct control over core forming conditions.
Quality-focused sample manufacture	Produce research samples where the target groove profile must be formed with stated +/-0.1 mm processing accuracy.	Precision-machined rolling cutters help promote accurate and reliable groove formation.

Parameter	Specification
Product Item Number	YZ09
Primary application	Laboratory battery-material R&D sample preparation; cylindrical battery and cylindrical capacitor case grooving; factory low-volume pilot production
Supported workpieces	Various cylindrical battery housings and cylindrical capacitor housings
Optional die configuration	Other cylindrical battery grooving dies can be selected
Grooving depth adjustment range	0-10 mm (adjustable)
Rolling-tool position adjustment range	0-20 mm (adjustable)
Grooving depth time	Settable
Grooving rotation speed	Up to 300 r/S (adjustable)
Speed regulation	Stepless speed adjustment
Operating modes	Manual grooving and automatic grooving
Grooving width	1.1-1.6 mm (according to rolling-tool thickness)

Parameter	Specification
Processing accuracy	+/-0.1 mm
Capacity	6-8 pieces/minute (depending on operator proficiency)
Rolling cutter	Precision processed for accurate, reliable, and stable groove forming
Power supply	220 V / 50 HZ, 140 W
Compressed air	0.45-0.6 MPa
Structural component material	High-strength chromium steel
Surface treatment	Environmentally friendly electroplating and spray coating treatment; specified to resist rust
Main-unit dimensions	740 mm x 220 mm x 470 mm (left-right x front-back x height)
Glovebox use	Can be placed and operated inside a glovebox

Ultrasonic Metal Welding Machine Battery Cap Aluminum Strip Single Spot Welding

Item Number: YZ05



Introduction

Ultrasonic metal welding machine for battery cap and aluminum strip single spot welding delivers 40kHz precision bonding fast cycle control adjustable pressure and quality monitoring for reliable battery manufacturing research and advanced materials assembly workflows.

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Application	Description	Key Benefit
Battery cap and aluminum tab assembly	Single-point welding of a single-layer 0.1 mm aluminum tab to a nickel-plated steel battery-cap substrate.	Produces a defined 3 mm x 3 mm weld point for battery cap joining operations.
Lithium battery cell manufacturing	Uses ultrasonic mechanical energy to join conductive metal interfaces during cap-related assembly.	Fast specified welding time of up to 0.4 S per operation supports efficient process flow.
Battery research and development	Evaluates pressure, time, energy, power, and amplitude conditions for battery tab-to-cap material combinations.	Adjustable pressure and time provide controlled process-development variables.
Pilot-line battery assembly	Supports pre-production verification of weld appearance, tensile strength, and process alarm limits.	Energy, time, and power quality alarms help establish repeatable operating windows.
Advanced materials joining studies	Investigates ultrasonic bonding behavior at metal-sheet interfaces where molecular interpenetration is required.	Automatic frequency tracking and constant-amplitude capability support stable test conditions.
Battery quality-control testing	Verifies weld integrity through specified visual requirements and tensile-strength assessment.	The stated weld tensile strength of at least 25 N provides a measurable acceptance reference.

Parameter	Specification
Site-facing identifier	YZ05
Equipment type	Ultrasonic metal welding system
Main components	Ultrasonic generator, transducer, tooling, pneumatic components, frame
Operating principle	The transducer converts ultrasonic high-power oscillation signals into mechanical energy of the corresponding frequency. Applied at the interface of metal sheets, the energy generates instantaneous heat and activates particles in the metal lattice, allowing molecules at the joined interface to interpenetrate and bond.
Ultrasonic frequency	40KHz
Ultrasonic power	800W
Air pressure / air consumption requirement	≥ 0.6 MPa 80L/min
General welding time	Within 0.2S
Supply voltage	220V/50Hz
System weight	45kg
Generator dimensions (W x D x H)	260mm x480mm x168mm

Parameter	Specification
Generator weight	15~20KG
Welding head dimensions (L x W x H)	190mm x460mm x350mm
Welding head weight	30~35KG
Workbench dimensions (L x W x H)	900mm x800mm x (720~820 adjustable height)mm
Tab material	Aluminum sheet
Tab thickness	0.1mm
Cap substrate material	Nickel-plated steel
Cap substrate thickness	0.6mm (subject to the customer's actual material)
Tab welding method	Single-layer 0.1mm aluminum tab welding
Tab welding capability	>0.1mm
Weld point length	3mm
Weld point width	3mm
Welding time per operation	Within 0.4S/time
Weld-point quantity	Single point 3*3mm
Welding pressure	0MPa~1MPa, adjustable
Time control	0~60S, adjustable
Welding head service life	>=120,000 cycles
Welding head material	Imported high-speed steel
Weld-point height	0.08mm
Weld-point / pattern distribution	Mesh pattern / straight pattern
Height from welding surface to welding head	>6mm
Welding head length	>=65mm
Usable welding faces	2
Welding head installation direction	Longitudinal
Amplitude adjustment range	Half cycle 3~10um
Frequency difference between transducers	<=400Hz
Impedance difference between transducers	<=40hm
Capacitance difference between transducers	<=400PF
Insulation resistance between transducer and housing	>=30MOhm
Transducer power capacity	Output power >=800W
Generator frequency-control method	Automatic frequency tracking
Constant-amplitude function	Switching power supply constant voltage and constant current (constant amplitude)
Amplitude adjustment	Continuously adjustable
Circuit technology	Intelligent digital circuit with advanced CPU central processing system; energy mode, power mode, time mode, automatic frequency tracking, and upper/lower quality-control limit alarm functions
Weld appearance requirement	No false welding, burn-through, or missed connection; firm welding; full and clear weld points; after destructive tearing, 80% of foil remains on the tab

Parameter	Specification
Weld tensile strength	>=25N
Product pass rate	>=99.8% (under qualified material conditions)

Fully Automatic Cylindrical Lithium Battery Winding Machine

Item Number: YZ03



Introduction

Fully automatic cylindrical lithium battery winding machine delivers servo indexed positioning dual half pin winding automatic tension control edge correction short circuit testing defect rejection and gentle cell transfer for consistent high efficiency cylindrical cell production across laboratory and industrial workflows.

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Application	Description	Key Benefit
Cylindrical lithium-ion cell fabrication	Wind positive electrode, negative electrode, and separator materials into cylindrical battery cores before downstream cell finishing and assembly.	Integrates critical winding and inspection steps into a repeatable automatic workflow.
Battery R&D laboratories	Evaluate winding parameters, electrode entry order, tension profiles, separator handling, and termination processes during cell development.	Parameter-based setup supports process experimentation without requiring extensive mechanical modification.
Pilot-scale battery production	Produce development or pre-production cylindrical cells using automatic material handling and controlled station indexing.	Reduces operator dependence while maintaining a practical scale for engineering validation.
Electrode process verification	Use controlled unwinding, edge correction, and segmented tension adjustment to assess whether coated and slit electrodes meet winding requirements.	Helps identify material and alignment issues before they affect larger production runs.
Advanced materials research	Fabricate cylindrical test cells for new electrode formulations, separator structures, and battery materials studies.	Provides consistent winding conditions for more reliable comparison between experimental batches.
Battery manufacturing quality control	Apply integrated short-circuit testing, discharge, defective-cell rejection, and qualified-cell conveyance after winding.	Establishes an automated screening point before cells enter subsequent operations.
Cell production line integration	Connect the belt discharge path with a downstream process while keeping the electrical cabinet positioned beside the winding machine.	Supports orderly material flow and minimizes interference with downstream equipment connections.

Parameter	Specification
Model	YZ03
Primary function	Automatic winding of cylindrical lithium-ion battery cells
Process configuration	Positive electrode, negative electrode, and separator active unwinding; tension control; dust removal; edge correction; separator static elimination; winding; termination tape application; reaming; automatic unloading; short-circuit testing; defective-cell rejection; qualified-cell collection
Supported cylindrical cell diameter	φ16 to φ28
Applicable material width	50 to 60 mm, subject to suitable take-out clamp replacement and parameter adjustment
Electrode entry order	Positive electrode first or negative electrode first, freely selected by parameter adjustment
Positive electrode inner diameter	φ76.2 mm
Positive electrode outer diameter	≤φ400 mm
Positive electrode width	40 to 66 mm

Parameter	Specification
Positive electrode thickness	0.1 to 0.2 mm
Negative electrode inner diameter	φ76.2 mm
Negative electrode outer diameter	≤φ400 mm
Negative electrode width	42 to 68 mm
Negative electrode thickness	0.1 to 0.2 mm
Separator inner diameter	φ76.2 mm
Separator outer diameter	≤φ300 mm
Separator width	44 to 70 mm
Separator thickness	0.015 to 0.030 mm
Termination tape inner diameter	φ76.2 mm
Termination tape outer diameter	≤φ150 mm
Termination tape width	20 to 60 mm
Termination tape thickness	0.02 to 0.05 mm
Maximum tabs per individual electrode	≤2
Recommended tab welding process	Through-welding process
Recommended exposed tab length	Less than 25 mm
Electrode coating requirement	Uniform coating with controlled length and position
Electrode calendaring wave	Less than 1 mm
Electrode serpentine bend	Less than 0.3 mm/1000 mm, subject to not affecting winding accuracy
Electrode slitting width error	Less than ±0.05 mm
Electrode roll telescoping	Not more than ±1 mm
Electrode roll winding tension	Uniform
Tab condition	Tabs should be flat; bending should be avoided as far as possible to prevent misjudgment
Post-welding thickness condition	Tab welding must not affect the original electrode thickness
Termination tape roll condition	Uniform winding without obvious telescoping, wrinkles, or warping
Electrode defect marking	Spliced sections, missing tabs, bright spots, and other defects should be identified with color marks for manual detection
Unwinding control	Automatic unwinding for positive electrode, negative electrode, and separator
Tension adjustment	Proportional-valve control with segmented tension adjustment
Edge correction method	Edge-seeking correction based on material-edge detection
Pre-winding correction	Included
Winding-pin structure	Dual half-pin, single-side withdrawal
Winding-pin replacement time	Approximately five minutes to replace and resume normal production
Winding component construction	Slide-rail structure with controlled clearance fit

Parameter	Specification
Termination tape application	Rolling application
Unloading method	Mechanical-hand unloading
Cell transfer method	Belt conveyor to collection table or downstream process
Short-circuit inspection	Short-circuit testing mechanism with testing and discharge completed in one operation
Short-circuit protection	Protective cover included
Human-machine interface	Sliding-type interface for more convenient and safer material replacement and operation
Electrical cabinet position	Right side of the winding machine
Downstream connection	Unloading area designed to avoid affecting connection with the next process
Equipment dimensions	Approximately 2400L × 1500W × 2100H mm, excluding conveyor connection extension
Power supply	Single-phase AC220V 50HZ
Power consumption	Approximately 10 KW
Equipment weight	Approximately 3000 kg
Required air supply	5~7 kgf/cm ² , approximately 100 l/min
Gas and liquid restrictions	No corrosive gas, corrosive liquid, or explosive gas
Pneumatic arrangement	Blow-air section and air-source triplex unit separated
Noise requirement	Must comply with TJ36-79 Industrial Enterprise Design Health Standards
Noise limit reference	Noise must not exceed 80dB (A), national standard GB3096-82
Noise measurement condition	Measured at a distance of 1 m from the equipment
Noise during idle operation	Not more than 75dB
Noise during cutting and loaded operation	Not more than 85dB
Interface and maintenance	User-friendly interface, simple operation, and straightforward maintenance

18650 21700 Series Laboratory Cylindrical Battery Case Opening Machine

Item Number: YZ20



Introduction

Precision 18650 and 21700 cylindrical battery case opening machine with interchangeable tooling, tungsten carbide blade, accurate disassembly, compact design, and safe operation for laboratory research validation in advanced battery development environments with consistent results

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Application	Description	Key Benefit
Cylindrical lithium battery research	Open sealed cylindrical lithium batteries after crimping to retrieve and inspect the internal cell. Standard tooling supports 18650 formats, with optional molds available for other cylindrical sizes.	Provides controlled access to internal components for research and validation.
18650 cell failure analysis	Remove the outer casing from 18650 cells for post-test inspection, defect investigation, or comparison of cells before and after cycling.	Helps expose the cell without unnecessarily damaging the internal structure.
21700 battery development	Use compatible optional tooling to process 21700 cylindrical cells during development and evaluation programs.	Extends one compact system across multiple cylindrical battery formats.
Battery material characterization	Open completed cells so researchers can collect electrodes, separators, and other internal samples for laboratory examination.	Supports downstream materials analysis and research verification.
University and academic laboratories	Provide a practical disassembly solution for teaching laboratories, research groups, and experimental battery programs.	Combines compact installation, straightforward operation, and flexible tooling.
Battery quality and process validation	Examine sealed cells produced during pilot or laboratory-scale fabrication to verify internal condition and assembly results.	Enables repeatable access for inspection and process improvement.
Advanced materials research	Prepare cylindrical battery samples for investigations involving electrode materials, cell construction, and internal component behavior.	Connects controlled mechanical disassembly with broader materials research workflows.

Parameter	Specification
Product Item Number	YZ20
Equipment Type	Laboratory cylindrical battery case opening machine
Primary Function	Removes the outer casing of sealed cylindrical batteries after crimping for research inspection and validation
Compatible Battery Format	Cylindrical lithium batteries
Standard Case Opening Mold	18650 case opening mold
Optional Tooling	Other molds available for different cylindrical battery specifications, including 21700
Cutting Blade Material	Tungsten carbide
Cutting Blade Motor Speed	1000 rpm
Mold Rotation Speed	320 rpm
Micrometer Scale Value Accuracy	0.01 mm
Power Supply	AC220V 50HZ

Parameter	Specification
Power	0.2 KW
Overall Dimensions	L700 mm × W320 mm × H220 mm
Weight	30 kg

Pneumatic Cylindrical Battery Sealing Machine For Laboratory Cell Research

Item Number: YZ19



Introduction

Pneumatic cylindrical battery sealing machine for 18650 cells delivers two station precision sealing, adjustable 0.4 to 0.5 MPa operation, inert gas compatibility, external exhaust, low gas consumption, compact construction, and reliable laboratory sample preparation for battery and capacitor research.

[Learn More](#)

Application	Description	Key Benefit
Cylindrical lithium battery research	Used to seal 18650 cylindrical cells after electrode, separator, electrolyte, and can preparation during laboratory cell development.	Produces controlled and repeatable cell closures for testing and evaluation.
Battery material development	Supports sample fabrication for new cathode, anode, electrolyte, and additive formulations.	Enables researchers to move efficiently from material preparation to sealed-cell testing.
Cylindrical capacitor research	Provides pneumatic sealing for cylindrical capacitor samples used in electrochemical and materials research.	Offers a practical sealing method for small-scale experimental devices.
Glovebox cell assembly	Operates with argon or nitrogen and provides an external exhaust connection for controlled-atmosphere environments.	Helps preserve glovebox atmosphere while supporting inert-environment cell fabrication.
Small-batch pilot production	Suitable for limited production runs, process trials, and engineering validation outside full-scale manufacturing lines.	Provides a compact production aid without the complexity of a large automated system.
Alternative cylindrical formats	Optional tooling can be selected or added for cylindrical sizes such as 21, 26, and 32 series formats.	Extends equipment utility across multiple cylindrical cell development programs.
Academic and advanced materials laboratories	Supports battery, capacitor, powder, ceramic, and related materials research where controlled sample encapsulation is required.	Combines simple operation, compact installation, and adaptable tooling for varied research needs.

Parameter	Specification
Product Item Number	YZ19
Product Type	Pneumatic cylindrical battery sealing machine
Primary Application	Laboratory cylindrical battery and cylindrical capacitor sealing; small-batch trial production
Operating Method	Fully pneumatic operation; no electrical power required
Standard Sealing Tooling	18650 series cylindrical battery sealing die set
Standard Sealing Method	Two-stage sealing using two sealing stations

Parameter	Specification
Optional Tooling	Additional cylindrical battery sealing dies available for other specifications, including 21, 26, and 32 series formats
Gas Supply Options	Argon gas cylinder, nitrogen gas cylinder, or compressed air
Gas Supply Pressure	0.4 MPa to 0.5 MPa
Recommended Operating Pressure	0.4 MPa
Pressure Control	Adjustable regulating valve
Gas Consumption	Approximately 1 L per sealing operation
Sealing Stroke	30 mm
Exhaust Design	Dedicated exhaust port for external connection
External Exhaust Compatibility	Can be connected through components such as KF40 fittings
Compressed Air Guidance	Compressed air is not recommended for use inside a glovebox
Safety Function	Designed to help prevent battery short circuits during sealing
Construction	Steel structure
Installation Dimensions	L360 mm × W220 mm × H490 mm
Approximate Weight	30 kg

Fully Automatic Mechanical Battery Sealing Machine

Item Number: YZ21



Introduction

Fully automatic mechanical battery sealing machine automates first second third and height-setting seals for liquid-filled cylindrical cells, delivering at least 45PPM throughput with 99% equipment-related yield, 98% equipment uptime, pneumatic height control, and corrosion-resistant industrial construction for production lines.

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Application	Description	Key Benefit
Cylindrical battery post-filling sealing	Processes cylindrical batteries after liquid filling through automated transport, separation, positioning, clamping, and sealing.	Replaces a fragmented handling sequence with a defined automatic sealing flow.
First-seal processing	Carries positioned and clamped cells through the automatic first-sealing stage after indexed feeding.	Supports repeatable execution of the initial sealing operation.
Second-seal processing	Applies the automatic second-sealing operation as part of the controlled multi-stage workflow.	Maintains sequence continuity between successive sealing stages.
Third-seal processing	Performs the automatic third-sealing operation before the final height-setting process.	Enables a complete multi-step sealing route within one system.
Battery height-setting after sealing	Uses pneumatic pressure boosting to control and adjust cell height during the final height-setting operation.	Helps ensure consistency of battery height after sealing.
In-line cylindrical cell transfer	Connects incoming liquid-filled cells to discharge through linked-plate conveying and fixed-pitch intermittent feeding.	Provides orderly cell progression across the sealing process.
Battery production capacity expansion	Supports automated sealing production where a throughput requirement of at least 45 pieces per minute is required.	Gives manufacturing teams a stated speed benchmark for line planning.
Equipment-related quality and uptime control	Supports production operations assessing sealing equipment against specified equipment-caused qualification and uptime targets.	Provides measurable references of 99% product qualification and at least 98% uptime under the stated definitions.

Parameter	Specification
Product item number	YZ21
Equipment function	Automatic sealing of cylindrical batteries after liquid filling
Conveyor method	Linked-plate conveyor line
Feeding method	Automatic separation mechanism and intermittent feeding mechanism
Feed characteristic	Fixed-pitch intermittent conveying
Cell handling sequence	Battery positioning and clamping before automatic sealing
Sealing operations	First sealing, second sealing, third sealing, and height-setting sealing
Final operation	Height adjustment / height-setting
Sealing drive method	Mechanical drive power mechanism controlling stamping drive

Parameter	Specification
Sealing-machine operating mode	Single-station sealing machine
Sealing die construction	Integral four-column die body
Die guide method	High-precision ball guide posts
Battery height control	Precision pneumatic pressure-boosting mechanism controls and adjusts sealing height
Product qualification rate	99% (only refers to product scrap caused by the equipment)
Equipment capacity / speed	≥45PPM
Equipment uptime	≥98% (faults caused only by the equipment)
Electrical supply	380V 50Hz
Voltage fluctuation	Less than ±10%
Equipment power	3KW
Compressed-air requirement	≥0.6Mpa (provided by customer)
Ergonomic requirement	Machine design should provide good ergonomic performance
Structural material priority	Aluminum, stainless steel, or electroplated anti-corrosion materials
Process flow	Liquid-filled battery enters sealing line → battery conveying → automatic separation → fixed-pitch intermittent feeding → battery positioning and clamping → automatic first sealing → automatic second sealing → automatic third sealing → height-setting sealing / height adjustment → battery discharge

Laboratory Manual Cylindrical Battery Sealing Machine

Item Number: YZ17



Introduction

Laboratory manual cylindrical battery sealing machine with two stage sealing hydraulic drive embedded pressure gauge and 8 ton maximum force for precise 18650 research

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Application	Description	Key Benefit
Lithium Battery Material Research	Used to seal cylindrical research cells prepared during electrode, electrolyte, and cell-material development programs.	Produces consistent sealing conditions for repeatable sample preparation and subsequent testing.
18650 Cylindrical Cell Prototyping	Supports laboratory assembly and sealing of 18650-format cylindrical battery samples using the standard die set.	Enables controlled two-stage sealing with accurate forming and improved airtightness.
Cylindrical Capacitor Research	Suitable for sealing cylindrical capacitors during material evaluation, component development, and laboratory sample preparation.	Provides strong, stable forming force for dependable enclosure closure.
Glovebox Cell Assembly	The compact unit can be placed inside a glovebox for operations requiring a controlled atmosphere.	Helps maintain a suitable environment during sensitive battery or capacitor assembly procedures.
Small-Batch Trial Production	Supports limited-quantity trial production and process verification before larger-scale manufacturing.	Offers a practical bridge between laboratory development and low-volume production.
Battery Process Development	Allows researchers to evaluate sealing pressure, forming behavior, and dimensional results across experimental cell batches.	Built-in pressure monitoring improves process observation and adjustment.
Academic and Advanced Materials Research	Provides a manually controlled sealing solution for universities, research institutes, and materials laboratories.	Combines compact size, flexible die selection, and accessible operation for varied research programs.

Parameter	Specification
Product Item Number	YZ17
Equipment Type	Laboratory manual cylindrical battery sealing machine
Primary Application	Cylindrical battery and cylindrical capacitor research sample sealing; small-batch trial production
Drive System	Hydraulic drive
Standard Sealing Die	18650 cylindrical battery sealing die set
Standard Die Operation	Two-stage sealing
Optional Die Configuration	Other cylindrical battery sealing die specifications available by selection
Hand Lever Operating Force	Less than 6 kg
Normal Sealing Pressure Gauge Reading	Approximately 80-100 kg/cm ²
Maximum Adjustable Pressure	200 kg/cm ²
Approximate Maximum Sealing Force	Approximately 8 tons
Pressure Adjustment Notice	The unit is adjusted before delivery. Adjustment to higher pressure for special conditions must be confirmed with the manufacturer before operation.

Parameter	Specification
Pressure Monitoring	Embedded pressure gauge
Sealing Characteristics	Flat sealing edge, good airtightness, high dimensional accuracy, high efficiency, and good consistency
Sealing Motion	No vibration during battery sealing
Die Material	Japanese imported die material
Structural Material	High-strength chromium steel
Surface Treatment	Environmentally considerate electroplating and spray treatment; rust-resistant finish
Overall Dimensions	235 mm × 190 mm × 360 mm
Net Weight	35 kg
Installation Environment	Suitable for laboratory bench use; compact enough for placement inside a glovebox
Operation	Manual hand-lever operation

Glove Box Compatible Automatic Cylindrical Battery Sealing Machine

Item Number: YZ23



Introduction

Automatic cylindrical battery sealing machine for glove box operation, three-stage sealing, precise molding, strong airtightness, high consistency, and reliable production of 18650 and 21700 cells with PLC touchscreen control, adjustable parameters, compact construction, and efficient automated loading and unloading

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Application	Description	Key Benefit
Cylindrical Lithium-Ion Cell Assembly	Automates the sealing of cylindrical cells after internal component placement and preparation, including commonly used 18650 and 21700 formats.	Improves sealing consistency and reduces manual assembly variation.
Glove Box Battery Fabrication	Operates with the sealing section positioned inside a glove box for cell processing under a controlled atmosphere.	Supports sensitive battery assembly processes while limiting environmental exposure.
Battery Materials Research	Provides repeatable sealing for laboratory studies evaluating electrode materials, electrolytes, separators, and cell construction methods.	Helps researchers compare cell performance using more consistent sealing conditions.
Pilot-Scale Cell Production	Supports small-batch and pilot-line production where automated transfer and repeatable three-stage sealing are required.	Increases throughput while maintaining controlled forming quality.
Cylindrical Cell Format Development	Uses replaceable molds to process different cylindrical battery sizes and support development work across multiple cell formats.	Extends equipment flexibility without requiring a separate sealing machine for every size.
Academic and Advanced Materials Laboratories	Provides a compact, automated sealing solution for universities, research institutes, and industrial laboratories developing electrochemical devices.	Combines manageable installation requirements with repeatable laboratory operation.

Parameter	Specification
Product Item Number	YZ23
Equipment Type	Automatic cylindrical battery sealing machine
Operating Configuration	Split design; sealing section can operate inside a glove box
Automation Functions	Automatic sealing, automatic loading, and automatic unloading
Sealing Process	First-stage sealing, second-stage sealing, and third-stage squat sealing
Standard Sealing Mold	18650-series sealing mold
Optional Mold Configuration	Other cylindrical battery specifications available through optional mold replacement, including 21700 formats
Maximum Sealing Pressure	Max. 3000 kg
Processing Accuracy	±0.1 mm
Mold Service Life	>3,000,000 cycles
Production Capacity	6 PCS/min
Control Interface	PLC touchscreen operation
Configured Power Supply	220 V / 50 Hz

Parameter	Specification
Rated Power	0.5 kW
Compressed Air Requirement	0.5 MPa-0.7 MPa
Product Dimensions	L550 × W420 × H800 mm
Net Weight	150 kg
Structural Design	Rigid steel structure
Sealing Edge Performance	Smooth sealing edge with reliable airtightness
Forming Performance	High dimensional accuracy, high efficiency, and good consistency
Maintenance Characteristics	Convenient maintenance and compact construction

High Speed Constant Temperature Pvc Heat Shrink Machine

Heat Shrink Packaging Machine

Item Number: YZ24



Introduction

High speed constant temperature PVC heat shrink machine and heat shrink packaging machine for battery pack film processing with heat dissipation safer operation long service life and dependable production workflow support across production environments

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Application	Description	Key Benefit
Battery Pack PVC Film Shrinking	Shrinks PVC film around assembled battery packs after the pack has been prepared for protective packaging.	Provides a dedicated thermal packaging step for battery pack production workflows.
Battery Research and Development	Supports packaging trials and process development where battery pack assemblies require PVC film heat shrinking.	Allows adjustable conveyor movement from 1-7.5 m/min during development work.
Battery Assembly Lines	Integrates into a battery assembly workflow as a conveyor-based heat shrinking station.	Creates a defined processing stage between film application and subsequent handling.
Small-Batch Battery Production	Processes battery pack batches in a fixed laboratory or production area using the specified heat box and conveyor.	Combines dedicated heating with powered product transport for organized batch work.
Battery Packaging Process Validation	Provides equipment for evaluating PVC film shrinking conditions using an adjustable transport speed and dedicated heating zone.	Helps operators establish a suitable operating workflow for the specified packaging material and pack format.
Production Line Expansion	Adds a dedicated PVC film shrinking capability to facilities already performing battery pack fabrication or packaging.	Extends the packaging process without requiring a separate manual heating operation.

Parameter	Specification
Product Item Number	YZ24
Application	PVC film heat shrinking for battery packs
Power Supply	380 V, 50 Hz, three-phase four-wire
Total Power Consumption	10.5 KW maximum
Machine Dimensions	1600 H x 610 W x 2700 L mm
Heat Box Dimensions	250 H x 480 W x 1600 L mm
Conveyor Belt Speed	1-7.5 m/min
Heating Tube Power	11 KW
Machine Weight	210 Kg

Dual Station Vacuum Automatic Electrolyte Filling Machine

Item Number: YZ15



Introduction

Dual-station vacuum automatic electrolyte filling equipment for lithium battery production integrates two 16 dual-head pumps, automated positioning, vacuum processing, PLC control, safety protection, and fault alarms for controlled repeatable cell filling in demanding manufacturing workflows every day.

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Application	Description	Key Benefit
Lithium Battery Electrolyte Filling	Introduces electrolyte into lithium battery cells using the integrated filling system, nozzle mechanism, positioning hardware, and vacuum process configuration.	Combines the core filling, vacuum, movement, and control functions in one dedicated unit.
Battery Cell Pilot Production	Supports electrolyte filling during pilot-scale cell preparation where cell type and process conditions may be evaluated.	Production capability can be considered according to the actual cell type and process.
Battery Process Development	Provides a defined equipment configuration for establishing and reviewing vacuum-assisted electrolyte filling sequences.	Integrated PLC controls, touch-screen operation, and programmed fault functions support organized process operation.
Cell Manufacturing Workstations	Serves as a dedicated electrolyte-filling station within a lithium battery production workflow.	The compact machine body incorporates the filling, vacuum, positioning, and control assemblies required for the operation.
Vacuum-Based Cell Filling Processes	Applies the included vacuum system and vacuum piping to cell-filling workflows requiring vacuum process support.	A dedicated vacuum system is supplied rather than relying on an external vacuum arrangement within the listed configuration.
Controlled Nozzle Filling Operations	Uses the filling nozzle mechanism, automatic displacement mechanism, and battery positioning mechanism for the filling stage.	Aligns the specified mechanical subsystems around a repeatable equipment sequence.
Battery Manufacturing Equipment Integration	Supports deployment where single-phase electrical power and compressed process gas are available.	Uses single-phase AC220V, 50Hz input power and a 0.3-0.6MPa compressed-gas source.

Parameter	Specification
Site-Facing Identifier	YZ15
Equipment Type	Dual-station vacuum automatic electrolyte filling machine
Primary Application	Lithium battery electrolyte filling
Input Power Supply	Single-phase AC220V, 50Hz
Compressed Power Gas Source	0.3-0.6MPa
Coating Color	Silver
Production Capacity	Related to cell type and process
Equipment Weight	120KG
Equipment Dimensions (mm)	L1100W550H900
Filling Chamber Valve Mechanism	None
Positive Pressure System	None
Vacuum System	1 set

Parameter	Specification
Automatic Displacement Filling Mechanism	1 set
Filling System	1 set, including 2 x 16 dual-head filling pumps
Battery Positioning Mechanism	1 set
Filling Nozzle Mechanism	1 set
Weighing System	None
Machine Body	1 set
Control System	1 set
Flow-Pull System	None
Automatic Weighing Manipulator	None
PLC and Expansion Modules	Panasonic
Touch Screen	Weinview
Electric Cylinder and Electric Cylinder Drive	Airtac
Pneumatic Cylinder	Airtac
Alarm System: Fault Stop	Built into program
Alarm System: Fault Indication	Built into program

Functional Area	Included Configuration
Filling Process	Filling system, filling-pump piping, two 16 dual-head filling pumps, and filling nozzle mechanism
Vacuum Process	One vacuum system and vacuum piping system
Cell Handling	One battery positioning mechanism and one automatic displacement filling mechanism
Controls	One control system with Panasonic PLC and expansion modules, plus Weinview touch screen
Motion and Pneumatics	Airtac electric cylinders, electric-cylinder drives, and pneumatic cylinders
Safety and Alerts	Safety protection device, program-integrated fault stop, and program-integrated fault indication
Machine Structure	One complete machine body with silver coating

Item	Specification Status
Filling Chamber Valve Mechanism	Not included
Positive Pressure System	Not included
Weighing System	Not included
Flow-Pull System	Not included
Automatic Weighing Manipulator	Not included

Vacuum Electrolyte Filling And Standing Integrated Machine For Battery Capacitor Cells

Item Number: YZ14



Introduction

Vacuum electrolyte filling and standing integrated machine for battery and capacitor production, delivering adjustable vacuum, precise dosing, consistent absorption, corrosion resistant construction, PLC touchscreen control, and reliable operation in gloveboxes or dry rooms for demanding research and pilot manufacturing.

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Application	Description	Key Benefit
Lithium-ion pouch cell development	Applies electrolyte under vacuum before controlled standing for laboratory pouch cells within the specified dimensional range.	Improves absorption consistency and reduces variation between experimental cells.
Battery prototype fabrication	Supports repeatable electrolyte dosing during research, formulation screening, and prototype assembly.	Provides adjustable process control for changing cell designs and electrolyte quantities.
Supercapacitor and capacitor production	Performs controlled electrolyte filling and standing for capacitor formats requiring accurate dosing and reliable wetting.	Combines two process stages in one compact platform to simplify development workflows.
Glovebox-based cell assembly	Operates inside a glovebox for air- and moisture-sensitive electrolyte handling.	Helps preserve controlled-atmosphere conditions throughout the filling process.
Dry-room pilot production	Supports small-batch or pilot-scale cell processing in dry-room environments.	Enables consistent filling without removing cells from controlled environmental conditions.
Electrolyte absorption studies	Allows researchers to vary vacuum level, filling rate, quantity, and standing time during process optimization.	Generates more controlled comparisons when studying wetting and absorption behavior.
Battery process validation	Provides programmable, repeatable filling conditions for evaluating production methods and cell designs.	Supports traceable parameter control before larger-scale equipment investment.

Parameter	Specification
Product identifier	YZ15
Integrated functions	Electrolyte filling and standing
Process sequence	Vacuum extraction followed by electrolyte filling and standing
Vacuum setting	Low and high vacuum levels adjustable
Vacuum and standing time	Adjustable; each time setting can be configured up to 9999 min
Filling speed	Adjustable, up to 6 mL/s
Filling quantity	Adjustable according to the filling pump; 0.2 mL to unlimited capacity
Electrolyte filling mass	Adjustable according to the filling pump; 0.2 g to unlimited capacity
Filling accuracy	±1%
Pressure holding condition	Adjustable

Parameter	Specification
Standing time	Adjustable
Applicable cell length	20-200 mm, including tabs
Applicable cell width	20-200 mm, including gas-bag position
Applicable cell thickness	0-15 mm
Inlet and outlet tubing	Φ6 tubing
Critical wetted materials	Stainless steel 304 and stainless steel 316 corrosion-resistant materials
Vacuum chamber construction	Welded aluminum, corrosion-resistant and structurally stable
Chamber cover drive	Pneumatic cylinder
Chamber cover guidance	Rotating guide sleeve
Observation	Transparent viewing window for monitoring chamber changes during operation
Control system	PLC control with touchscreen operation
Operating environment compatibility	Suitable for operation in a glovebox or dry room
Overall dimensions	L510 mm × W400 mm × H650 mm
Power supply	AC220V / 50Hz / 1 kW
Weight	90 kg

Laboratory Manual Cylindrical Battery Third Seal Crimping Machine

Item Number: YZ18



Introduction

Laboratory manual cylindrical battery crimping sealing machine for 18650 third sealing delivers precise pressure control, smooth edges, strong airtightness, stable forming, compact operation, and glovebox compatible battery research performance with reliable consistency and convenient maintenance for demanding laboratory workflows

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Application	Description	Key Benefit
18650 Cylindrical Cell Research	Performs the third sealing operation on 18650 cylindrical batteries after cell assembly and preceding process stages.	Produces consistent sealing geometry and reliable airtightness for laboratory cell development.
Battery Materials R&D	Supports experimental battery programs requiring repeatable cylindrical cell sealing after material, electrode, or electrolyte evaluation.	Provides controlled manual forming for small-batch research and process comparison.
Glovebox Cell Fabrication	Operates inside a glovebox for cylindrical battery sealing under a controlled atmosphere.	Compact construction supports sensitive cell assembly workflows while limiting exposure to ambient conditions.
Academic Battery Laboratories	Provides a practical sealing solution for universities and research institutes conducting cylindrical battery experiments.	Low operating complexity and manual control simplify training, experimentation, and batch testing.
Pilot-Scale Cell Prototyping	Handles repeated third sealing tasks during prototype cell preparation and early-stage process development.	Stable hydraulic pressure improves consistency between prototype cells.
Custom Cylindrical Battery Formats	Uses optional cylindrical battery sealing dies when formats other than 18650 are required.	Supports broader development needs without restricting the laboratory to one cell size.

Parameter	Specification
Product Item Number	YZ18
Application	Cylindrical battery third sealing operation
Standard Sealing Die	18650 cylindrical battery third sealing die
Optional Tooling	Other cylindrical battery sealing dies available as optional configurations
Drive Type	Hydraulic drive
Maximum Sealing Pressure	Up to 8 tons
Normal Sealing Pressure Gauge Reading	Approximately 80-100 kg/cm ²
Maximum Pressure Gauge Reading	Up to approximately 200 kg/cm ² , corresponding to approximately 8 tons of pressure
Pressure Adjustment	The machine is adjusted before delivery; adjustment to higher pressure for special conditions must be discussed with the manufacturer before changing the setting
Hand Lever Operating Force	Less than 6 kg
Sealing Characteristics	Smooth sealing edge, good airtightness, high dimensional accuracy, high efficiency, and good consistency

Parameter	Specification
Vibration During Sealing	No vibration during battery sealing under normal operation
Structural Material	High-strength chromium steel
Surface Treatment	Environmentally friendly electroplating and coating treatment; rust-resistant construction
Die Material	Japanese imported die material
Installation Environment	Can be placed and operated inside a glovebox
Overall Dimensions	235 mm × 190 mm × 350 mm
Weight	25 kg

Automatic Cylindrical Battery Grooving Machine For 18650 21700 And 26650 Steel Shells

Item Number: YZ10



Introduction

Automatic cylindrical battery grooving machine for 18650 21700 and 26650 steel shells with adjustable groove depth PLC touch control 6 PCS per minute output precision feeding stable dimensions efficient production for battery research and pilot line manufacturing

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Application	Description	Key Benefit
Cylindrical Battery Cell Assembly	Prepares cylindrical steel shells with uniform grooves before cap installation, sealing, or other cell assembly processes.	Improves dimensional consistency and reduces manual shell handling.
18650 Battery Production	Uses the standard 18650-series grooving tooling for repeatable processing of a widely used cylindrical battery format.	Provides a ready-to-use configuration for common cylindrical cell development and production.
21700 and 26650 Format Processing	Uses interchangeable tooling to support other cylindrical shell dimensions when the correct forming die is installed.	Increases production flexibility across multiple battery formats.
Battery Research and Development	Supports laboratory teams developing cylindrical cells, process recipes, and shell preparation methods.	Enables adjustable groove dimensions and convenient parameter control during process development.
Pilot Production Lines	Automates shell feeding, grooving, and unloading at a capacity of 6 PCS/min for pilot-scale workflows.	Raises throughput while maintaining a compact equipment footprint.
Small Batch Manufacturing	Provides a practical automated solution for workshops producing limited or changing quantities of cylindrical battery shells.	Reduces labor requirements and supports efficient changeover between supported formats.

Parameter	Specification
Product Item Number	YZ10
Equipment Type	Automatic cylindrical battery steel shell grooving machine
Feeding Method	Automatic feeding and unloading
Standard Sealing Die	18650 series sealing die
Optional Tooling	Additional tooling available for other cylindrical battery specifications
Supported Battery Formats	18650, 21700, 26650, and other cylindrical formats through tooling replacement
Groove Depth	1.0-3.0 mm adjustable
Groove Width	1.1-1.5 mm, according to grooving cutter thickness
Processing Accuracy	±0.1 mm
Grooving Cutter Life	□ 3,000,000 operations
Production Capacity	6 PCS/min
Control System	PLC control with touch interface
Operating Interface	Touchscreen parameter setting and machine control

Parameter	Specification
Power Supply	AC220V/50Hz
Rated Power	0.2 kW
Compressed Air Requirement	0.5~0.7 MPa
Product Dimensions	L550 × W600 × H720 mm
Net Weight	50 kg

18650 Cylindrical Battery Microcomputer Precision Dual Pulse Pneumatic Spot Welder

Item Number: YZ07



Introduction

Precision dual pulse pneumatic spot welder for 18650 cylindrical battery assembly delivers adjustable 0-99% energy stable 2500A welding current reliable low spatter joints microcomputer control and pressure verified firing for consistent production across mobile power and battery applications.

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Application	Description	Key Benefit
18650 Cylindrical Battery Packs	Welds battery tabs and connected components during cylindrical-cell pack assembly using a controlled pneumatic electrode head.	Stable dual-pulse energy and pressure confirmation support consistent electrical joints with reduced spatter.
Mobile Phone Battery Production	Supports high-end mobile phone battery assembly where weld appearance, repeatability, and compact equipment layout are important.	Adjustable timing and pulse energy help accommodate different assembly conditions while shortening setup work.
Portable Power Supply Assembly	Used for portable power banks and mobile energy-storage products requiring dependable resistance-welded connections.	Automatic voltage compensation helps maintain stable welding performance despite normal power-grid variation.
Power Battery Manufacturing	Provides a controlled welding process for power-battery assembly and related pack-building operations.	High welding capacity, programmable timing, and multi-level protection support demanding production environments.
Digital Battery Assembly	Suitable for digital-device battery products that require repeatable connections and an efficient operator workflow.	Foot-switch control and LED display simplify operation and help maintain consistent cycle execution.
Nickel-Metal Hydride and Nickel-Cadmium Batteries	Designed for assembly work involving nickel-metal hydride and nickel-cadmium battery products.	Adjustable welding parameters allow the process to be adapted to different battery materials and contact conditions.
Battery Research and Pilot Production	Useful for laboratory development, process validation, and small-batch battery-pack fabrication.	Compact integrated construction and stepless worktable adjustment support flexible experimental setups.

Parameter	YZ07 Specification
Product type	Microcomputer precision dual-pulse pneumatic resistance spot welder
Intended product range	18650 cylindrical battery packs, high-end mobile phone batteries, portable power supplies, power batteries, digital batteries, nickel-metal hydride batteries, and nickel-cadmium batteries
Welding method	Dual-pulse welding
Pulse 1 function	Removes surface coating and oxides and creates slight deformation at the electrode contact area to increase the effective contact surface
Pulse 2 function	Welds the base metal after surface preparation
Pulse energy adjustment	0-99%
Welding cycle frequency	Adjustable
Input-voltage compensation	Automatic tracking and compensation
Controller	High-speed, high-precision 8-bit microprocessor MCU
Display	LED digital display

Parameter	YZ07 Specification
Pre-pressure time	Adjustable, 0-99
Hold time	Adjustable, 0-99
Rest time	Adjustable, 0-99
Parameter protection	Parameter-locking function
Protection architecture	Two different protection circuits for the high-power circuit and control circuit
Protection functions	Protection against overheating, external high voltage, and power-supply fluctuation interference
Fault handling	Common-fault indication; automatic alarm and simultaneous power shutoff in case of overheating or damage
Welding head structure	Cylinder and spring buffering combined design
Electrode pressure	Relative pressure adjustment between the two welding needles; dual-needle pressure adjustable
Welding authorization	Internal photoelectric pressure switch allows discharge only after the two welding needles reach the set pressure
Worktable adjustment	Stepless height adjustment
Worktable locking	Hand-tightened locking
Operating structure	Integrated design with pneumatic operation
Rated power	15KVA
Secondary-side welding current	2500
Secondary no-load voltage	5.5V
Input voltage	220V±10%
Input frequency	50HZ±2Hz
Maximum working air pressure	6KG
Welding control method	Foot-switch control
Machine weight	30KG
Overall dimensions	Length 550mm X width 250mm X height 360mm
Packaging weight	45KG
Packaging dimensions	630330430mm

Automatic Hydraulic Sealing Machine For Cylindrical Batteries

Item Number: YZ22



Introduction

Automatic hydraulic sealing machine for cylindrical batteries with precise multi stage crimping, reliable airtight closure, high throughput, glovebox compatible operation, and repeatable production performance for advanced battery research across workflows

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Application	Description	Key Benefit
Cylindrical lithium-ion battery assembly	Automates final closure operations for 18650 cylindrical cells after electrolyte filling and component placement.	Produces consistent sealing geometry and supports reliable airtight cell construction.
21700 battery development	Uses optional compatible tooling to seal larger cylindrical cells during prototype and process development work.	Allows one equipment platform to support multiple cylindrical cell formats.
Glovebox battery research	Operates with the processing section installed inside a glovebox for controlled-atmosphere sealing.	Reduces exposure to moisture and oxygen during sensitive cell fabrication steps.
Battery R&D laboratories	Provides programmable, repeatable sealing for experimental batches, formulation studies, and design validation.	Improves batch-to-batch consistency and reduces dependence on manual operator technique.
Pilot-scale cell production	Supports repeatable sealing operations between laboratory development and larger-scale manufacturing.	Delivers practical throughput of 6 pieces per minute for structured pilot workflows.
Battery process optimization	Enables evaluation of first-, second-, and third-stage crimping conditions using adjustable PLC-controlled parameters.	Helps engineering teams refine closure quality, dimensional accuracy, and process stability.
Academic materials research	Provides controlled cylindrical cell sealing for university and research institute investigations into new electrode and electrolyte systems.	Offers reliable equipment for repeatable experimental cell preparation.

Parameter	Specification
Product item number	YZ22
Equipment type	Automatic hydraulic sealing machine for cylindrical batteries
Sealing operation	Automatic sealing, automatic feeding, and automatic discharge
Sealing process	First-stage sealing, second-stage sealing, and third-stage crimping sealing
Standard sealing mold	18650 series sealing mold
Optional tooling	Other cylindrical battery specifications, including 21700 series formats
Maximum sealing pressure	Max.3000Kg
Processing accuracy	±0.1mm
Mold service life	≥ 300□
Production capacity	6PCS/min
Power supply	220v/50Hz
Rated power	0.5KW
Compressed air requirement	0.5MPa□ 0.7MPa

Parameter	Specification
Product dimensions	L550W420H800mm
Net weight	150kg
Structural configuration	Split design; suitable for operation inside a glovebox
Control system	PLC touchscreen operation
Operating characteristics	Easy parameter setting, high automation, convenient operation, compact size, accurate forming, and straightforward maintenance

Vertical Cylindrical Battery Grooving Machine

Item Number: YZ12



Introduction

Vertical cylindrical battery grooving machine with adjustable 1.2–2.0 mm depth, ± 0.1 mm precision, PLC touchscreen control, and 400 EA/H semi-automatic capacity for stable cell production and compact 220 V operation across battery research and capacitor shell processing applications.

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Application	Description	Key Benefit
Cylindrical Battery Cell Assembly	Grooves cylindrical steel shells after the cell and internal components have been placed inside the housing.	Supports uniform shell preparation while helping retain internal spacers during processing.
32700 Battery Development	Processes large cylindrical battery shells in research, pilot-line, and small-batch development workflows when configured for the 32700 format.	Provides an adaptable route for larger-format cylindrical cell production.
4680 Cell Process Development	Can be customized for grooving large cylindrical shells used in 4680 battery research and manufacturing development.	Extends equipment utility to emerging large-format cell programs.
Aluminum Capacitor Shell Grooving	Performs grooving on aluminum capacitor shells with diameters up to $\Phi 30$ mm.	Enables one compact system to support both battery and capacitor shell processing.
Battery R&D Laboratories	Supports repeated shell preparation during electrode, cell assembly, and process parameter development activities.	Combines adjustable dimensions, touchscreen control, and compact installation requirements.
Pilot Production	Provides semi-automatic operation at up to 400 EA/H for controlled small-batch manufacturing and process verification.	Delivers practical throughput without the footprint of a larger automated production system.
Quality and Process Validation	Produces repeatable groove dimensions for evaluating shell geometry, assembly compatibility, and downstream manufacturing consistency.	± 0.1 mm machining precision improves measurement and process comparison.

Parameter	Specification
Product Item Number	YZ12
Product Type	Vertical cylindrical battery grooving machine
Product Placement Method	Vertical
Groove Depth	1.2–2.0mm (adjustable)
Groove Width	1.1–1.5mm (according to grooving tool thickness)
Machining Precision	± 0.1 mm
Grooving Tool Life	≥ 100h
Capacity	Semi-automatic 400 EA/H
Power Supply	220v/50Hz
Power	200W
Compressed Air	0.5MPa–0.7MPa
Product Dimensions	L420xW370xH550mm
Net Weight	50kg

Parameter	Specification
Compatible Workpieces	Cylindrical steel battery shells containing cells and aluminum capacitor shells
Aluminum Capacitor Shell Capability	Suitable for grooving aluminum capacitor shells with diameter up to $\Phi 30$
Customization Capability	Can be customized for 32700 and 4680 large cylindrical grooving

Semi Automatic Cylindrical Lithium Battery Winding Machine

Item Number: YZ02



Introduction

Precision semi-automatic cylindrical lithium battery winding machine for consistent cell assembly, adjustable winding speed, controlled diaphragm tension, accurate alignment, reliable tape application, automatic needle exchange, and efficient unloading across battery research and advanced materials manufacturing workflows with repeatable results.

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Application	Description	Key Benefit
Cylindrical Lithium-Ion Cell R&D	Wind positive electrode, negative electrode, and separator materials into cylindrical test cells for formulation and process development.	Provides repeatable winding conditions for comparing electrode and separator designs.
Battery Pilot Production	Support small-batch or pilot-scale cylindrical cell fabrication before high-volume manufacturing.	Combines manual material introduction with automated critical process steps.
Electrode Process Validation	Evaluate the effects of electrode dimensions, winding speed, and separator tension on cell quality.	Enables controlled adjustment of key winding variables.
University and Institute Research	Fabricate experimental cylindrical cells for electrochemical, materials, and energy-storage research.	Offers flexible specification changes for diverse research programs.
Battery Manufacturing Training	Demonstrate electrode feeding, separator wrapping, winding, termination taping, and unloading in a practical production workflow.	Makes the complete cylindrical winding sequence accessible for technical training.
Advanced Materials Research	Process electrode and separator materials during evaluation of new chemistries and cell architectures.	Supports material trials while maintaining defined alignment and tension control.
Small-Batch Custom Cells	Produce cylindrical cells across the applicable $\phi 15$ mm to $\phi 35$ mm outer-diameter range, subject to material and tooling specifications.	Supports multiple cell formats without requiring a dedicated high-volume line.

Parameter	Specification
Product Item Number	YZ02
Equipment function	Precision winding of cylindrical lithium-ion battery cells
Operating mode	Manual electrode introduction with automatic winding, needle exchange, termination taping, and unloading
Winding process standard	Separator completely wraps the negative electrode; negative electrode wraps the positive electrode
Process sequence	Separator pre-winding; negative electrode introduction; positive electrode introduction; winding; station transfer; separator cutting; termination tape application; unloading
Separator pre-winding method	Gear-knife process to reduce the required pre-winding separator length
Separator supply	Two separator rolls with active unwinding
Separator tension control	Proximity-switch control technology with automatic smooth tension adjustment during winding
Termination tape direction	Horizontal application, perpendicular to the electrode tabs
Separator finishing	Separator outer-wrap finishing
Applicable finished cell outer diameter	$\phi 15$ mm to $\phi 35$ mm

Parameter	Specification
Production capacity	5 to 10 PCS/min, depending on electrode length and width
Qualified rate	≥98%, excluding factors unrelated to the equipment

Performance Item	Requirement or Result
Electrode width error for stated accuracy	Less than ± 0.2 mm
Electrode S-bending error for stated accuracy	Less than ± 1 mm/500 mm
Separator roll telescoping error for stated accuracy	Less than ± 0.2 mm
Separator alignment error	Less than ± 0.5 mm when incoming materials meet the specified conditions
Electrode alignment error	Less than ± 0.5 mm when incoming materials meet the specified conditions
Negative-electrode and positive-electrode relationship	Negative electrode wraps positive electrode
Separator and negative-electrode relationship	Separator wraps negative electrode
Finished cut-face alignment	± 0.5 mm
Winding defect control	No cell damage, core pulling, or electrode misalignment under suitable material conditions
Winding speed	Adjustable

Material	Length	Width	Thickness	Inner Diameter	Outer Diameter
Positive electrode sheet	150 to 1000 mm	28 to 73 mm	0.1 to 0.2 mm	Not specified	Not specified
Negative electrode sheet	150 to 1000 mm	28 to 73 mm	0.1 to 0.2 mm	Not specified	Not specified
Separator roll	Roll material	30 to 75 mm	0.012 to 0.045 mm	76.2 mm	250 mm
Termination tape roll	Roll material	8 to 60 mm	0.01 to 0.035 mm	76.2 mm	150 mm

Parameter	Specification
Separator width	25 to 70 mm
Electrode width	24 to 69 mm
Winding needle specification	φ2.5 to φ8 mm, custom-made according to customer requirements
Basic supplied winding needle specification	φ1.8 to φ6 mm
Winding needle delivery	One set supplied; configuration available according to customer requirements
Input power	AC220V, 1.5KVA, 50HZ
Compressed-air source	0.4 to 0.6 MPa

Assembly or System	Quantity or Specification
Frame and mounting plate	1 set
Winding needle assembly	1 set
Electrode supply device	2 sets
Separator supply device	2 sets
Adhesive application device	1 set
Equipment dimensions	1450 mm × 1100 mm × 1150 mm, length × width × height
Dimension measurement note	Does not include the extending length of the electrode material trough; unit: mm
Equipment weight	Approximately 500 kg

System	Specification
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PLC	PANASONIC; 松下 AFRX-HC60T
Touchscreen	MCGS/IGERLON, 7-inch true-color display
Winding motor	PANASONIC/YANKONG servo motor
Tension motor	Shenzhen Yankong/Shenzhen Lisan stepper motor
Sensors	PANASONIC/JYC/DFC
Pneumatic components	AIRTAC/XINGZHEN/气源
Alarm system	Fault stop and fault indication
Program functions	Built-in fault prompts and one-button reset
Operating manual	One set
Spare parts	One set, according to the delivery list

Semi Automatic Bottom Spot Welding And Groove Rolling Machine For Cylindrical Batteries

Item Number: YZ11



Introduction

Semi automatic bottom spot welding and groove rolling machine for cylindrical battery production with adjustable tooling consistent dimensions production counting safety protection and efficient operation for reliable 21700 processing and flexible 18650 workflow integration across demanding manufacturing environments.

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Application	Description	Key Benefit
Cylindrical Battery Bottom Welding	Performs bottom spot welding for cylindrical battery cells before or alongside shell groove preparation. Welding current, voltage, time, pressure, stroke, and interval settings can be adjusted for the required process.	Supports repeatable bottom connections and controlled welding conditions.
Cylindrical Battery Steel Shell Groove Rolling	Rolls the mouth of cylindrical battery steel shells with adjustable cutter position, groove depth, shoulder height, and pneumatic pressure.	Produces consistent shell geometry with controlled inner diameter and shoulder dimensions.
21700 Battery Production	The equipment function is specified for bottom spot welding and groove rolling of 21700 cylindrical batteries.	Combines two shell-processing operations in a single connected production workflow.
18650 Cylindrical Cell Processing	The operating instructions specify uniform 18650 cylindrical cells as the required incoming material for machine operation. Tooling and process compatibility should be confirmed for the intended configuration.	Provides a defined incoming-cell requirement for stable feeding and process consistency.
Battery Pilot Lines	Suitable for pilot-scale battery production where operators load cells manually and the downstream stations automatically transfer and discharge them.	Balances operator control with improved material flow and production efficiency.
Battery Process Development	Manual debugging and adjustable technical dimensions allow users to change same-format process settings for different customer requirements.	Helps development teams evaluate process conditions without replacing the complete machine.
Laboratory and Academic Manufacturing	Can support controlled cylindrical cell preparation in laboratory, academic, and advanced materials research environments where production counts and process settings must be monitored.	Provides measurable process settings and counters for repeatable research work.

Specification Group	Parameter	Value
Product Identification	Item number	YZ11
Process Configuration	Equipment type	Semi-automatic bottom spot welding and groove rolling machine
Process Configuration	Integrated operations	Cylindrical battery bottom spot welding and steel shell mouth groove rolling
Process Configuration	Optional purchasing configuration	Groove rolling machine only or bottom spot welding machine only; standalone machine pricing varies
Supported Cell Process	Specified battery application	21700 cylindrical battery bottom spot welding and groove rolling
Incoming Material Requirement	Operating instruction	Uniform-size 18650 cylindrical batteries are required as incoming material
Dimensional Accuracy	Groove inner diameter accuracy	±0.05 mm
Dimensional Accuracy	Shoulder height accuracy	±0.05 mm

Specification Group	Parameter	Value
Dimensional Accuracy	Total height accuracy	±0.1 mm
Dimensional Accuracy	Shell mouth accuracy	±0.1
Groove Rolling Adjustment	Main top head compression distance	Adjustable according to the customer's steel shell requirements
Groove Rolling Adjustment	Groove cutter adjustment distance	Adjustable according to the required groove dimensions
Groove Rolling Adjustment	Groove depth	Adjustable according to customer requirements
Groove Rolling Adjustment	Groove shoulder height	Adjustable according to customer requirements
Groove Rolling Adjustment	Groove rolling air pressure	Adjustable according to battery steel shell model and thickness
Groove Rolling Control	Groove rolling count	Production counting function provided
Groove Rolling Control	Control interface	Manual and automatic debugging functions
Groove Rolling Control	Oil application	Function provided through the automatic groove rolling interface
Groove Rolling Control	Short-circuit testing	Function provided through the automatic groove rolling interface
Spot Welding Adjustment	Welding power supply voltage	Adjustable
Spot Welding Adjustment	Welding current	Adjustable
Spot Welding Adjustment	Welding time	Adjustable
Spot Welding Adjustment	Welding pressure	Adjustable
Spot Welding Adjustment	Welding stroke	Adjustable
Spot Welding Adjustment	Welding interval time	Adjustable
Spot Welding Verification	Welding power verification	Provided
Spot Welding Verification	Resistance verification	Provided
Spot Welding Verification	Welding count	Production counting function provided
Spot Welding Verification	Current alarm	Provided
Spot Welding Verification	Pull-force testing	Provided
Optional Welding Component	Spring spot welding pressure	4 kg, suitable for pointed-needle spot welding
Material Handling	Loading method	Operator places material at the bottom welding feed position
Material Handling	Downstream handling	Automatic feeding and discharging after the bottom welding loading position
Process Adjustment	Same-format process changes	Technical dimensions can be adjusted for different process requirements within the same battery format
Maintenance	Welding needle service	Welding needle welding area requires maintenance after a period of use
Safety and Monitoring	Fixture-position detection	Automatic detection of whether the tooling fixture is in position
Safety and Monitoring	Abnormal-condition notification	Fault and abnormality prompt function provided
Safety and Monitoring	Protective equipment	External enclosure and safety light curtain
Main Power	Power supply	Single-phase to three-phase, 220 V to 380 V, 50 Hz
Main Power	Power connector	32 A connector
Electrical System	Equipment power	4500 W
Pneumatic System	Air source	0.5 to 0.6 MPa or higher dry air source
Pneumatic System	Connected air pipe	Φ10 mm outer diameter × Φ8 mm inner diameter
Pneumatic System	Exhaust volume	0.113 L/s
Machine Dimensions	Overall dimensions after connection	Length 2280 × width 850 × height 1520
Machine Weight	Equipment weight	200 kg
Production Capacity	Overall efficiency	20 to 30 PPM, with slight variation according to operator proficiency

Precision Ceramic Rotary Plunger Pump For Micro Liquid Metering

Item Number: YZ16



Introduction

Precision ceramic rotary plunger pump for micro liquid metering delivers $\pm 3\%$ accuracy, corrosion resistance, high temperature capability, programmable control, reversible flow, and flexible dosing for demanding laboratory, pharmaceutical, electrolyte, chemical, adhesive, dairy, and advanced materials applications with reliable operation

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Application	Description	Key Benefit
Battery electrolyte dispensing	Precisely meters electrolyte during laboratory cell assembly, electrolyte addition, and advanced battery process development.	Stable micro-volume delivery with ceramic contact surfaces suited to chemically active liquids.
Pharmaceutical liquid filling	Supports controlled filling, addition, and transfer of specialized pharmaceutical liquids and reagents.	Repeatable positive-displacement dosing and automatic stop at the programmed quantity.
Acid and solvent handling	Transfers and meters acidic, alkaline, solvent-based, and other aggressive chemical media in laboratory or pilot systems.	Corrosion-resistant ceramic wetted components reduce reaction and contamination concerns.
Adhesive and reagent dosing	Delivers controlled quantities of adhesives, laboratory reagents, and process chemicals for testing or assembly.	Valve-free operation helps reduce dripping, leakage, bubbles, and material waste.
Dairy and specialty liquid processing	Performs small-volume metering and filling where stable flow and clean handling are important.	Consistent dosing with flexible inlet, outlet, and needle configurations.
Precision coating and line marking	Feeds liquids for micro-scale spraying, coating, dispensing, and line-marking operations.	Adjustable stroke and cycle settings provide adaptable flow control for process development.
Advanced materials research	Supports ceramic, powder metallurgy, materials science, and academic research workflows requiring controlled liquid addition.	Compact programmable control and recipe storage simplify repeatable experimental procedures.
Automated laboratory equipment	Integrates into PLC-controlled or industrial-computer-managed workstations and production equipment.	Standard communication capability enables synchronized operation within larger systems.

Parameter	Specification
Product item number	YZ16
Product type	Single-head, one-inlet and one-outlet reciprocating rotary positive-displacement industrial ceramic plunger metering pump
Pump-core material	ZrO ₂ , Al ₂ O ₃
Pump-core performance	Corrosion resistant, high-temperature resistant, wear resistant, high hardness, low friction coefficient, long service life
Pump-core pairing accuracy	2 μ m
Drive method	Imported servo motor or stepper motor
Speed range	1 to 1200 rpm; forward and reverse rotation reversible
Speed-control method	Pulse control
Display and control method	4.3-inch touchscreen human-machine interface with display and dialogue operation

Parameter	Specification
Programming software	Programmable controller integrated with the display and control system
Memory performance	Permanent memory; stores parameters and up to 100 recipes
Single-stroke capacity range	0 μ L to 10000 μ L; maximum 10000 μ L per stroke
Capacity calculation	$Q_{\text{total, total metered quantity}} = Q_{\text{stroke, stroke volume}} \times N_{\text{stroke, number of strokes}}$
Metering accuracy	$\pm 3\%$
Applicable medium temperature	Liquid medium temperature $\leq 250^{\circ}\text{C}$; material selection must be specified when ordering
Liquid-transfer tubing	PE or Teflon
Inlet tubing dimensions	Inner diameter $\Phi 6$ mm; outer diameter $\Phi 8$ mm
Outlet tubing dimensions	Inner diameter $\Phi 4$ mm; outer diameter $\Phi 6$ mm
Outlet needle options	$\Phi 2.5$ mm, $\Phi 4.0$ mm, or $\Phi 6.0$ mm
Outlet needle length	Selectable
Pump dimensions	L $\times$ W $\times$ H: 201 $\times$ 125 $\times$ 147 mm
Controller dimensions	L $\times$ W $\times$ H: 295 $\times$ 215 $\times$ 157 mm
Weight	Approximately 7.3 kg, including controller and pump
Standard power supply	AC 220 V $\pm 10\%$, 50 Hz/60 Hz
Optional power supply	AC 110 V $\pm 10\%$, 50 Hz/60 Hz
Operating environment	Temperature 0 to 40°C ; relative humidity $< 80\%$
Protection rating	IP31
Safety functions	Password protection and factory-reset function to prevent unauthorized modification of set parameters
Configurable operating modes	Forward suction, retraction, retraction volume, delayed metering, standby cleaning, and production-capacity counting
Communication capability	Standard communication interface for standalone use or connection with a PLC or industrial computer



Kintek Solution

Head Quarter: No.89 Science Avenue, High-Tech Zone,
Zhengzhou, China

