KINTEK SOLUTION

Supercapacitor Equipment Catalog

Contact us for more catalogs of Laboratory Press Machine, Battery Lab Consumables & Materials, Battery Testing & Electrochemical Equipment, Electrode Fabrication Equipment, Cell Assembly & Filling Equipment, etc.

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.

Eight Channel 5V 20A Lithium Ion Battery Supercapacitor Testing Equipment Battery Tester

Item Number: DC11

Introduction

Eight channel 5V 20A battery tester delivers precise lithium ion battery and supercapacitor charge discharge cycling pulse and DCIR testing with independent control detailed data logging and scalable auxiliary temperature voltage monitoring for demanding research and validation laboratories worldwide.

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Application	Description	Key Benefit
Lithium-ion cell lifecycle testing	Run repeated charge and discharge sequences with voltage, current, time, and capacity cutoff conditions for cell aging studies.	Up to 65535 cycles and three nested loop levels support long-term lifecycle programs.
Supercapacitor performance characterization	Apply constant-current, constant-voltage, constant-power, or constant-resistance discharge profiles to evaluate operating behavior.	Independent channels allow comparative assessment of multiple supercapacitor samples.
DCIR and pulse-response analysis	Configure charge or discharge pulses, then select custom data points for DCIR calculation.	500ms minimum pulse width and 32 pulses per pulse step enable structured transient testing.
Battery cell incoming inspection	Verify cell voltage response, capacity-related limits, and charge-discharge behavior before cells enter research or assembly workflows.	Per-channel independence lets teams evaluate different sample lots concurrently.
Electrode and electrolyte development	Compare cells produced with alternative active materials, formulations, or processing conditions under controlled cycling programs.	Accurate voltage and current control helps make differences between experimental samples easier to interpret.
Formation and validation research	Build multi-step charge-discharge routines with configurable cutoff conditions and extended step duration.	Up to 254 steps per cycle provide substantial program flexibility for research protocols.
Thermal behavior observation	Pair electrical cycling with thermistor-based temperature monitoring from -25C to 110C.	Auxiliary temperature protections help teams observe and control tests around defined thermal limits.
Multi-cell voltage monitoring	Use auxiliary voltage inputs to monitor voltage conditions in cell groups during electrical testing.	Configurable voltage and individual-cell voltage-difference protections add test oversight.

Product Item Number	DC11

Electrical Input and System	Specification
Input power supply	AC 220V +/-10% / 50Hz
Input active power	1418W
AD resolution	16bit
DA resolution	16bit
Input impedance	>=100kOhm
Total channels	8
IP protection rating	IP20
Noise	<85dB

Voltage Performance	Specification
Constant-voltage control range	0.025V~5V
Minimum discharge voltage	0V
Voltage accuracy	+/- 0.1% of FS
Voltage stability	+/- 0.1% of FS
Constant-voltage cutoff current	0.04A

Current and Power Performance	Specification
Output range per channel	0.1A~20A
Current accuracy	+/- 0.1% of FS
Current stability	+/- 0.1% of FS
Maximum output power per channel	100 W
Power stability	+/- 0.2% of FS
Current response time	Maximum current rise time 20ms

Time and Data Recording	Specification
Step time range	<=(365*24) hours/step
Supported time format	00:00:00.000 (h, min, s, ms)
Minimum time recording interval	100ms
Minimum voltage recording interval	10mV
Minimum current recording interval	40mA
Recording frequency	10Hz

Charge Functions	Specification
Charge modes	Constant-current charge, constant-voltage charge, constant-current constant-voltage charge, constant-power charge
Charge cutoff conditions	Voltage, current, relative time, capacity, -deltaV

Discharge Functions	Specification
Discharge modes	Constant-current discharge, constant-voltage charge, constant-current constant-voltage discharge, constant-power discharge, constant-resistance discharge
Discharge cutoff conditions	Voltage, current, relative time, capacity

Pulse and DCIR Functions	Specification
Charge pulse modes	Constant-current mode, constant-power mode
Discharge pulse modes	Constant-current mode, constant-power mode
Minimum pulse width	500ms
Pulses per single pulse step	32 different pulses
Charge-discharge switching	One pulse step can continuously switch from charging to discharging
Pulse cutoff conditions	Voltage, relative time
DCIR test	Supports customized point selection for DCIR calculation

Cycle Programming	Specification

Cycle test range	1~65535 cycles
Steps per single cycle	254
Cycle nesting	Nested cycle function; maximum 3 nesting levels

Protection and Channel Design	Specification
Power-loss data protection	Offline testing function available
Configurable safety protection	Upper voltage limit, lower voltage limit, upper current limit, lower current limit, upper capacity limit, delay time
Reverse-connection protection	Available
Channel control mode	Independent control
Source structure	Dual closed-loop structure for constant-current source and constant-voltage source
Voltage and current sensing	Four-wire connection

Data Management and Communication	Specification
Database	MySQL database for centralized test-data management
Host computer communication	Based on TCP/IP protocol
Server disk configuration	500GB
Data output	EXCEL 2003, 2010, TXT
Server operating system	Windows 7
Communication interface	Network port

Operating Environment	Specification
Operating temperature range	0C~40C (within 25+/-10C, measurement accuracy is guaranteed: accuracy drift 0.005% of FS/C)
Storage temperature range	-10C~50C
Operating relative humidity	<=70% RH (without water vapor condensation)
Storage relative humidity	<=80% RH (without water vapor condensation)

Fixture and Enclosure	Specification
Fixture type	Alligator clip fixture
Available tester accessories	Alligator clip fixture, polymer fixture, terminal lug fixture
Fixture selection	Select one of the listed fixtures; images are for reference only and the actual product prevails
Dimensions per unit enclosure (WDH)	12U (19 inch), 600*600*740 mm

Auxiliary Channel Monitoring	Specification
Auxiliary channel types	Temperature, voltage
Temperature range	-25C~110C (thermistor)
Temperature accuracy	+/-1C (within 2m cable length)
Temperature resolution	0.1C
Auxiliary voltage range	-5V~5V
Auxiliary voltage accuracy	+/- 0.1% of FS
Temperature auxiliary channels per test channel	Configurable as required; maximum 248 temperature auxiliary channels
Voltage auxiliary channels per test channel	Configurable as required; maximum 248 voltage auxiliary channels

Auxiliary Channel Monitoring	Specification
Auxiliary-channel protection conditions	Configurable temperature upper limit, temperature lower limit, voltage upper limit, voltage lower limit, and individual-cell voltage difference
Compatibility note	Not compatible with testing batteries whose protection boards have a soft-start function

Fully Automatic Supercapacitor Electrode Separator Winding Machine

Item Number: CX04

Introduction

Fully automatic supercapacitor winding machine for precise electrode and separator assembly, automatic tension control, length detection, alignment correction, short circuit testing, protective tape application, quality sorting, and high consistency production across demanding laboratory and industrial workflows with repeatable process performance.

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Application	Description	Key Benefit
Supercapacitor Cell Development	Produces wound positive electrode, negative electrode, and separator groups for laboratory-scale supercapacitor research and process development.	Provides repeatable winding conditions for comparing materials, designs, and process parameters.
Energy Storage Pilot Production	Supports pilot-line fabrication of supercapacitor electrode groups before higher-volume manufacturing.	Integrates feeding, winding, inspection, testing, and classification into a controlled workflow.
Electrode Process Validation	Evaluates electrode lengths, widths, thicknesses, alignment, and winding behavior under defined product requirements.	Helps engineering teams verify process capability before production release.
Advanced Materials Research	Handles electrode and separator materials used in energy storage research programs and advanced material evaluations.	Enables consistent sample preparation for reliable laboratory testing and analysis.
Manufacturing Quality Control	Tests completed wound groups for short circuits and separates qualified products from nonconforming units.	Detects electrical integrity issues before downstream assembly, reducing avoidable process losses.
Product Design Verification	Produces electrode groups for assessing new supercapacitor geometries, material combinations, and tape application methods.	Supports structured development work with controlled length and material positioning.
Academic and Institutional Research	Provides an automated winding platform for universities, research institutes, and shared laboratory facilities.	Combines practical process automation with a specification range suited to varied research programs.

Specification	Details
Product Item Number	CX04
Equipment function	Manual loading of positive and negative electrode sheets, separator, termination tape, and protective tape; automatic winding of the electrode group according to predetermined product and process requirements
Length detection	Included
Tension control	Automatic
Alignment correction	Automatic
Short circuit testing	Included
Product classification	Good-product determination included

Specification	Details
Operating condition	Stable and reliable working state with process assurance

Step	Operation
1	Separator feeding
2	Termination tape and protective tape feeding
3	Positive and negative electrode feeding
4	Electrode foil connection-tape inspection
5	Electrode group winding
6	Length control
7	Termination tape and protective tape application
8	Short circuit testing
9	Good-product classification

Material	Feeding Method	Material Single Piece Length (mm)	Material Width (mm)	Width Tolerance (mm)	Material Thickness (μm)	Thickness Tolerance (μm)	Maximum Outer Diameter (mm)	Inner Diameter (mm)
Positive electrode sheet	Roll material	600–6000	80–160	±0.1	100–320	±10	400	75.8
Negative electrode sheet	Roll material	600–6000	80–160	±0.1	100–320	±10	400	75.8
Separator	Roll material	Not specified	80–160	±0.1	16–50	±4	350	75.8

Parameter	Specification
Power supply	Single-phase AC220V, 10KW
Voltage fluctuation range	±10%
Compressed air	0.45–0.6 MPa; 10 L/min
Ambient temperature	20–35°C
Relative humidity	30–55% RH
Overall dimensions	2500 L × 1700 W including dust cover × 2000 H
Weight	3000 kg
Site atmosphere requirement	No corrosive gases, corrosive liquids, or explosive gases present on site

Cylindrical Capacitor Case Cnc Grooving Pre Sealing Machine

Item Number: CX01

Introduction

CNC grooving and pre sealing machine for cylindrical supercapacitor cases delivers servo controlled forming, precise dimensions, stable concentricity, programmable HMI operation, and durable tooling for reliable high quality capacitor assembly production.

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Application	Description	Key Benefit
Cylindrical supercapacitor case grooving	Forms the required groove in cylindrical supercapacitor enclosures before pre-sealing operations.	±0.02 mm grooving-depth precision supports controlled case geometry.
Supercapacitor pre-sealing curl forming	Produces the pre-sealing rolled edge on suitable cylindrical supercapacitor products.	Slowdown at the curl-forming stage supports gradual, controlled forming.
60-series diameter battery case processing	Processes battery products in the stated 60-series diameter category.	Programmable HMI settings support precise adjustment to the required dimensions.
Customized-diameter cylindrical case production	Supports cylindrical battery or supercapacitor case work where a custom diameter is required.	Diameter can be customized to match the intended product requirement.
Repeatable high-volume case preparation	Performs repeated grooving and sealing operations for production environments requiring stable forming results.	Tooling life exceeding 5 million normal-use operations supports long-term production continuity.
Automated capacitor assembly lines	Serves as a controlled grooving and pre-sealing station within a broader automated manufacturing sequence.	PLC control and HMI display support automation-oriented process management.

Parameter	Specification
Site-facing identifier	CX01
Applicable products	60-series diameter batteries and supercapacitor products
Diameter option	Diameter can be customized
Process functions	Grooving; pre-sealing curl forming
Grooving drive	Servo motor screw drive
Sealing drive	Servo motor screw drive
Feed control	Accurate control of feed distance and stable feed speed; no rebound during feed
Grooving and sealing setting method	Data set through human-machine interface; automatic precision adjustment to required data
Sealing feed sequence	Fast feed first; slow feed during pre-sealing curl forming
Workpiece holding method	Jacket-style clamping fixation
Clamping characteristics	Stable without shaking; high centering coaxiality
Forming quality	Uniform grooving and sealing; good roundness
Feed guidance	High-precision linear guide assembly
Grooving height precision	±0.05 mm

Parameter	Specification
Grooving depth precision	±0.02 mm
Capacitor height after sealing	±0.05 mm
Grooving method	Die roller grooving method
Tooling and die service life	More than 5 million operations under normal use
Capacity	≥3 PCS
Utilization rate	98%
Control system	PLC control
Display and operation	Human-machine interface display
Safety protection	Intelligent external protective enclosure
Air supply	0.5~0.7 MPa, adjustable
Air consumption	0.2 m^3/min
Power supply	220V/50HZ
Power	2.5KW
Overall dimensions	L1100mm *W 900mm * 1700mm
Weight	800kg

Precision Digital Battery Cell Shaping Machine Supercapacitor Cell Flattening Machine

Item Number: CX06

Introduction

Precision digital cell shaping machine for battery and supercapacitor cells, delivering four-station foil forming, short-circuit screening, accurate length adjustment, PLC control, and repeatable preparation for dependable collector-tab laser welding in demanding manufacturing environments.

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Application	Description	Key Benefit
Cylindrical battery cell production	Shapes and compacts the positive and negative electrode end faces of applicable No. 60 battery cells before collector-tab joining.	Creates a compact end-face condition for upper and lower collector-tab laser welding preparation.
Supercapacitor cell manufacturing	Processes applicable supercapacitor cells with an approximate 57 mm diameter and lengths from 50 to 204 mm.	Four-station inward folding forms copper and aluminum foil substrates in an orderly sequence.
Collector-tab laser welding preparation	Forms electrode ends so they are ready for connection to upper and lower collector tabs by laser welding.	Supports a consistent physical interface before the downstream welding operation.
Incoming and in-process defect screening	Uses the standard short-circuit test during the shaping workflow to identify defective products.	Screens short-circuit defects before products continue to subsequent manufacturing stages.
Resistance-based quality sorting	Adds optional resistance testing where resistance-value acceptance screening is required.	Allows the detection range and unacceptable resistance threshold to be set for product selection.
Multi-format cell production	Supports changeover between applicable product lengths using displayed grating-scale measurement.	Provides accurate and intuitive length adjustment when product models change.
Automated cell processing lines	Uses PLC control, HMI display, and multiple automatic operating modes to address different production conditions.	Gives production teams controlled operation with adjustable shaping speed and dwell time.

Parameter	Specification
Product Item Number	CX06
Applicable product	No. 60 battery and supercapacitor cells
Applicable cell diameter	Approximately 57 mm
Applicable cell length	50-204 mm
Other applicable product specifications	Customizable
Forming configuration	Four stations
Forming function	Copper and aluminum foil substrates are pressed inward one by one in a regular sequence
Standard test function	Short-circuit test for defective-product screening
Optional test function	Resistance test function; detection range can be set; screens products with unqualified resistance values
Length adjustment measurement and display	Grating scale detection and display
Control method	PLC process control

Parameter	Specification
Operator interface	Human-machine interface display
Automatic operation	Multiple automatic operating modes
Adjustable process settings	Shaping speed and dwell time adjustable
Maximum slide block (press head) stroke	30 mm
Length positioning accuracy	+/-0.03 mm
Shaping length error	+/-0.1 mm
Tooling and mold normal service life	More than 5 million cycles
Capacity	>=3 PPM
Availability rate	98%
Power supply	220 V/50 Hz
Air consumption	0.5 m3/min
Power	0.5 kW
Compressed-air requirement	0.5-0.7 MPa dried compressed air
Overall dimensions	L1100 mm x W850 mm x H1700 mm
Installation floor load requirement	More than 0.5 T/m2
Operating temperature	10-35 degrees C
Operating humidity	10-80% Rh
Ground-floor handling height requirement	More than 1.8 m
Upper-floor elevator transport requirement	Elevator width at least 1 m, height at least 1.8 m, and depth at least 1.3 m
Installation planning requirement	Confirm the transport route and installation method from outside the plant to inside the workshop in advance

Automatic Supercapacitor Electrolyte Filling Machine

Item Number: CX05

Introduction

Automatic supercapacitor electrolyte filling machine uses vacuum filling and pressurization for accurate adjustable 0 to 250 ml dosing, reliable electrolyte absorption, corrosion-resistant construction, and independent multi-station operation.

Learn More

Application	Description	Key Benefit
60-Series Supercapacitor Manufacturing	Fills electrolyte into compatible 60-series supercapacitor products using the specified vacuum, filling, and pressurization sequence.	Supports a process designed for consistent, reliable, and complete electrolyte absorption.
Supercapacitor Pilot-Line Development	Provides adjustable vacuum, standing, and pressurization settings for teams establishing filling conditions before broader production deployment.	Enables process parameters to be configured around the required cycle stages.
Electrolyte Filling Process Validation	Supports controlled evaluation of filling volume, vacuum condition, standing time, and pressure-based post-fill treatment.	Helps teams set repeatable operating conditions using defined adjustable parameters.
Multi-Station Cell Processing	Uses selectable workstations that can operate independently when separate products or process activities must be handled at different stations.	Reduces station-to-station interference during operation.
Dry-Air Energy-Storage Production Areas	Operates with dry air, a -98 KPa-or-better vacuum source, and nitrogen compatible with the glove-box working gas.	Aligns the equipment with the stated utility and environmental requirements.
Laboratory and Production Transfer	Applies the same vacuum-filling and pressurization principle for process work ranging from controlled laboratory activity to production-oriented operation.	Combines adjustable process settings with a nominal capacity of 1 PCS per minute.

Parameter	Specification
Site-facing item number	CX05
Intended application	Electrolyte filling process for supercapacitors
Compatible product	60-series supercapacitor products
Process method	Vacuum first, then electrolyte filling, then pressurization
Filling accuracy	Plus or minus 1 percent
Adjustable filling volume	0 to 250 ml adjustable
Vacuum during filling	Maintained at -98 KPa or above; vacuum pump supplied separately
Required vacuum source	Vacuum pump, 20 L/s, -98 KPa or above; or pipeline vacuum, -98 KPa or above
Nitrogen requirement	Consistent with glove-box working gas; greater than or equal to 0.4 MPa
Supply voltage	AC220V
Site power supply	220V, 50HZ
Permitted voltage fluctuation	+10% to -10%
Power	1.5KW
Environmental temperature	Determined by the purchaser's factory environment

Parameter	Specification
Relative humidity / atmosphere	Dry air
Airflow requirement	Site air circulation must be maintained
Adjustable vacuuming time	Settable and adjustable
Adjustable low-vacuum level	Settable and adjustable
Adjustable filling standing time	Settable and adjustable
Adjustable pressurization pressure	Settable and adjustable
Adjustable pressurization time	Settable and adjustable
Workstations	Up to 12 workstations selectable; each station can operate without interfering with the others
Dual-station overall dimensions	Length 900 x width 800 x height 880 mm
Filling-tank fittings	Stainless steel
Flexible tubing	Corrosion-resistant PE tubing
Machine body material	6-series aluminum alloy
Corrosion resistance	Complete unit is corrosion resistant
Nominal production capacity	1 PCS per minute; actual capacity depends on the purchaser's conditions

Electric Riveting Machine For Supercapacitor And Capacitor Cell Assembly

Item Number: CX13

Introduction

Electric riveting machine for supercapacitor and horn type capacitor cell assembly, delivering adjustable riveting height, motor driven operation, customizable tooling travel, and approximately 10 pieces per minute output for dependable production workflows.

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Application	Description	Key Benefit
Supercapacitor cell cover riveting	Riveting cell top covers during supercapacitor cell assembly, where cover positioning and a controlled joining action are required.	Supports a dedicated process for securing top-cover components in supercapacitor production workflows.
Supercapacitor tab assembly	Joining cell tabs as part of supercapacitor cell construction. The equipment can be configured around the relevant cell size and chuck-travel requirements.	Adjustable height and customizable compatibility help align the process with the target cell design.
Horn-type capacitor manufacturing	Riveting operations for horn-type capacitor cells, including their cell cover and tab-related assembly work.	Provides a production-oriented, motor-driven riveting method for this capacitor format.
Slip-thread riveting	Processing slip-thread components associated with the specified cell assembly applications.	Automatic riveting action supports repeat handling of applicable components.
Capacitor pilot-line development	Establishing and evaluating a repeatable riveting step while developing capacitor cell assembly processes.	Customizable cell specification and chuck stroke provide useful process-configuration flexibility.
Laboratory cell assembly stations	Performing dedicated riveting work in laboratory or small-scale cell assembly environments where operators need a defined machine process.	Manual hydraulic tightening paired with automatic riveting supports controlled operator-led use.
Dedicated capacitor production workstations	Integrating a fixed riveting operation into an organized capacitor manufacturing workstation.	Approximately 10 pieces per minute provides a stated reference for production planning.

Parameter	Specification
Site-Facing Identifier	CX13
Equipment Type	Electric riveting machine
Applicable Products	Supercapacitors and horn-type capacitors
Applicable Riveting Parts	Cell top cover, cell tab, and slip thread
Riveting Drive	Motor-driven riveting
Hydraulic System	Manual tightening hydraulic system
Riveting Mechanism	Automatic riveting mechanism
Riveting Height	Adjustable
Upper Die Stripper Plate	Elastic stripping device
Lower Die Stripper Plate	Elastic stripping device
Power Supply / Power	AC220V 50Hz 500W

Parameter	Specification
Cell Specification	ф20-□ 35mm (customizable)
Chuck Stroke	20-40mm (customizable)
Working Efficiency	Approximately 10pcs/min
Overall Dimensions	610(L)x440(W)x1060(H)mm
Weight	139KG

Supercapacitor Laser Welding Machine Laser Welder

Item Number: CX03

Introduction

Precision laser welding machine for supercapacitor and lithium ion battery sealing, delivering narrow welds, minimal heat affected zones, accurate positioning, strong joints, and automation ready production performance.

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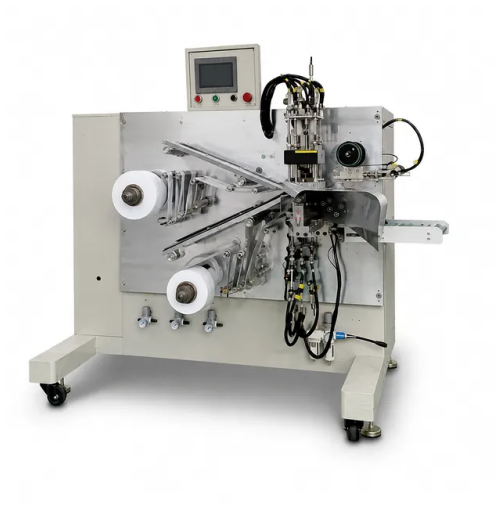
Application	Description	Key Benefit
Supercapacitor cell-to-cover sealing	Welds supercapacitor cell bodies to upper and lower cover plates during enclosure assembly.	Supports compact, controlled sealing welds with limited local heat influence.
Supercapacitor cap welding	Joins caps used in supercapacitor cell assembly and closure operations.	Produces smooth weld seams that may need little or no post-weld treatment.
Electrolyte filling-hole closure	Performs sealing welds at supercapacitor electrolyte filling-hole locations after filling operations.	Enables precise focal positioning on a small, critical sealing feature.
Lithium-ion battery welding	Supports laser welding work within lithium-ion battery manufacturing, where laser processing is widely used.	Delivers the speed, narrow weld width, and small heat-affected zone associated with laser welding.
Automated energy-storage cell assembly	Integrates into controlled welding sequences for repeated joining of cell covers, caps, and closure features.	The controllable focused laser process is well suited to automation.
Dissimilar-material component joining	Applies laser welding where different materials must be joined within an energy-storage assembly.	Provides a joining method capable of welding dissimilar materials.

Parameter	Specification
Site-Facing Item Number	CX03
Equipment Type	Laser welding machine
Primary Application	Sealing welding of supercapacitor cells with upper and lower cover plates, caps, and electrolyte filling holes
Relevant Welding Field	Lithium-ion battery and supercapacitor welding
Welding Method	High-energy pulsed laser welding
Laser Generation Principle	The laser power supply ignites a pulsed xenon lamp and discharges it to form light waves with a defined frequency and pulse width. The light is radiated into a concentrating cavity and excites an Nd3+:YAG laser crystal.
Laser Resonance Process	Light emitted by the excited Nd3+:YAG laser crystal resonates in the laser cavity to generate pulsed laser output.
Laser Wavelength	1064 nm
Beam Delivery and Focusing	The pulsed laser is expanded and reflected, or transmitted through optical fiber, then focused onto the workpiece.
Weld Geometry Characteristic	High depth-to-width ratio; small weld width
Heat Influence Characteristic	Small heat-affected zone

Parameter	Specification
Deformation Characteristic	Small deformation
Welding Speed Characteristic	Fast welding speed
Weld Appearance	Smooth and aesthetically refined weld seam
Post-Weld Processing	No post-weld treatment required, or only a simple treatment process required
Positioning Characteristic	Small focused spot and high-precision positioning capability
Automation Characteristic	Easy to automate
Material Compatibility	Capable of welding dissimilar materials
Weld Quality Characteristic	High weld quality with no porosity

Supercapacitor Semi Automatic Winding Machine For Cylindrical Lithium Ion Cells

Item Number: CX02



Introduction

Semi automatic winding machine for cylindrical lithium ion and supercapacitor cell production with controlled separator tension precise alignment automatic termination tape application and reliable cell unloading for research pilot line and manufacturing operations.

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Application	Description	Key Benefit
Cylindrical lithium-ion cell winding	Winds manually introduced positive and negative electrode sheets with separator material for applicable cylindrical cell formats.	Supports a defined separator-negative-positive wrapping sequence for cylindrical cell formation.
Battery research and development	Provides a controlled winding process for laboratories developing cylindrical lithium-ion cell structures and material combinations within the stated dimensions.	Adjustable winding speed and convenient specification changes support process evaluation work.
Pilot-line cell fabrication	Supports semi-automatic production workflows where operators feed electrode sheets and the equipment automatically winds, tapes, and unloads cells.	Combines manual material introduction with automatic downstream process steps.
Electrode and separator process validation	Processes electrode widths, separator widths, thicknesses, and roll materials within the stated requirements to evaluate winding compatibility.	Active separator tension adjustment helps maintain controlled material delivery during winding.
Cylindrical cell assembly preparation	Produces wound cell assemblies before later battery-cell assembly operations.	Automatic transverse termination-tape application and automatic unloading streamline the winding-stage handoff.
Advanced materials battery prototyping	Supports work using positive electrodes, negative electrodes, separators, and termination tapes that conform to the specified material dimensions.	Defined alignment criteria provide measurable winding targets for prototype evaluation.

Parameter	Specification
Product item number	CX02
Primary function	Precision winding of cylindrical lithium-ion battery cells
Operating sequence	Manual introduction of positive and negative electrode sheets; separator interleaving; winding; automatic termination-tape application; automatic cell unloading
Winding structure	Single-needle through-winding structure
Winding assemblies	Two sets; single-head through-winding configuration
Station-transfer assembly	One set; transfers between winding station and tape-application station
Separator-unwinding assemblies	Two sets; active separator-roll unwinding with pneumatic adjustment control
Separator tension control	Proximity-switch control technology; automatic smooth tension adjustment during winding
Electrode-guiding assemblies	Two sets; single-side adjustment
Taping and unloading assembly	One set
Termination-tape application direction	Transverse application; termination tape perpendicular to electrode tab
Termination-tape performance	Flat tape application; precisely controllable tape position; does not pull the cell tight; stable and reliable application

Parameter	Specification
Winding speed	Adjustable winding-needle winding speed
Electrode dust control	Electrode-sheet dust-removal device included
Separator finishing	Separator outer-wrap finishing
Process wrapping relationship	Separator completely wraps negative electrode; negative electrode wraps positive electrode
Separator pre-winding	Toothed-knife process; saves pre-winding separator length
Separator width	33-150 mm
Electrode sheet width	33-150 mm
Winding-needle specification	∮6-∮10 mm; customized according to customer requirements
Supplied winding needles	One set, according to customer requirements
Applicable cell outside diameter	∮35-62∮ mm
Positive electrode length	200-6000 mm
Positive electrode width	33-150 mm
Positive electrode thickness	0.1-0.2 mm
Negative electrode length	200-600 mm
Negative electrode width	33-150 mm
Negative electrode thickness	0.1-0.2 mm
Separator material form	Roll
Separator width	20-180 mm
Separator thickness	0.016-0.045 mm
Separator roll inner diameter	76.2 mm
Separator roll outer diameter	250 mm
Termination-tape material form	Roll
Termination-tape width	10-50 mm
Termination-tape thickness	0.01-0.035 mm
Termination-tape roll inner diameter	76.2 mm
Termination-tape roll outer diameter	150 mm
Electrode width condition for winding accuracy	Width error less than ±0.2 mm
Electrode curvature condition for winding accuracy	“S” bending error less than ±1 mm/500 mm
Separator roll condition for winding accuracy	Roll taper error less than ±0.2 mm
Separator alignment error	Less than ±0.5 mm, when stated material conditions are met
Electrode alignment error	Less than ±0.5 mm, when stated material conditions are met
Finished cross-section alignment	±0.5 mm; negative electrode wraps positive electrode and separator wraps negative electrode
Cell condition after winding	No damage, core extraction, or electrode-sheet misalignment
Qualification rate	≥98% (excluding non-equipment factors)
Input power supply	AC220V, 1.5KVA, 50HZ
Compressed air supply	0.4-0.6MPa
Equipment weight	Approximately 500 kg
Equipment dimensions	1750mm*1350mm*1570mm (length*width*height)
Dimension scope note	Does not include the extended length of the electrode-sheet material trough; unit: mm
Stated dimensional tolerances	W < 0.5 mm; D < 0.3 mm; L < 1000 mm

Six Station Vacuum Electrolyte Filling Machine For Supercapacitor Batteries

Item Number: CX11

Introduction

Six station vacuum electrolyte filling machine for supercapacitor batteries delivers ±1% filling accuracy, adjustable 0–250 ml volume, reliable corrosion resistance, and independent operation for consistent cell production in controlled inert glovebox environments and demanding laboratory manufacturing workflows worldwide.

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Application	Description	Key Benefit
Supercapacitor Cell Production	Fills cylindrical supercapacitors after electrode and separator assembly using vacuum-assisted electrolyte impregnation.	Improves electrolyte absorption consistency and reduces variation between cells.
60-Series Battery Processing	Supports electrolyte filling for 60-series batteries with product heights from 50 to 204 mm.	Provides adjustable fixturing and filling volume for multiple product heights.
Pilot Manufacturing Lines	Processes small production batches with six individually controllable stations.	Enables flexible loading and unloading while maintaining useful throughput.
Battery Research and Development	Supports process development for vacuum level, filling quantity, pressure, and standing-time studies.	Allows researchers to optimize electrolyte uptake without replacing the core filling platform.
Glovebox-Based Assembly	Operates with nitrogen supplied consistently with the glovebox working gas environment.	Limits electrolyte exposure and reduces unnecessary glovebox contamination and purification demand.
Materials and Electrochemical Research	Provides controlled liquid infiltration for experimental supercapacitor and battery formats.	Delivers repeatable filling conditions for comparative testing and scale-up studies.

Parameter	Specification
Product Item Number	CX11
Application	Supercapacitors and 60-series batteries
Applicable Product Height	H50–204 mm
Filling Accuracy	±1%
Adjustable Filling Volume	0–250 ml
Vacuum During Filling	Vacuum pressure maintained above -98 KPa
Vacuum Source	Customer-supplied vacuum pump or vacuum pipeline above -98 KPa
Recommended Vacuum Pump Capacity	10 L/s, above -98 KPa
Nitrogen Pressure	≥0.4 MPa
Nitrogen Requirement	Nitrogen consistent with the glovebox working gas
Gas Consumption	0.2 m^3/min
Power Supply	Single-phase AC220V

Parameter	Specification
Rated Power	1 KW
Workstations	6
Workstation Operation	Each workstation can be selected and operated independently without mutual interference
Filling Cycle	One filling cycle requires 12 minutes
Capacity per Cycle	6 units per cycle
Adjustable Process Settings	Vacuum time, high-vacuum value, low-vacuum value, filling volume, filling standing time, pressurization pressure, pressurization time, and pressure-release time
Process Sequence	High vacuum, electrolyte filling, low vacuum and pressurization cycling, then completion of filling
Cleaning Function	DMC cleaning function for scheduled pipeline maintenance
Valve Construction	Special dual-path pneumatic valves
Valve Material	SUS316 and PTFE
Tank Connection Material	Stainless steel
Hose Material	Corrosion-resistant PE
Machine Body Material	6-series aluminum alloy
Filtration and Protection	Multi-stage filtration and special adsorption system
Workstation Dimensions	L900 × W450 × H870 mm
Workstation Net Weight	160 kg
Control Box Dimensions	L600 mm × W450 mm × H1500 mm
Control Box Net Weight	80 kg
Total Gross Weight	330 kg
Installation Floor Load Requirement	Above 0.3 T/m²
Working Temperature	15–30°C
Working Humidity	30–80% Rh
Customization	Other product specifications can be customized
First-Floor□□ Requirement	Equipment□□ height greater than 1.8 m must be considered
Upper-Floor□□ Requirement	Elevator should provide at least 1 m width, 2 m height, and 1.3 m depth
Installation Planning	Transport route and installation method from the factory exterior to the workshop must be confirmed in advance

Manual Lead Tab Riveting Machine For Supercapacitor And Cylindrical Capacitor Battery Electrode Sheets

Item Number: CX15

Introduction

Manual lead tab riveting machine for cylindrical capacitors supercapacitors and battery electrode sheets delivers adjustable electrode width stable 500W operation and straightforward maintenance for dependable laboratory and production assembly workflows requiring clean controlled installation environments and pneumatic supply.

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Application	Description	Key Benefit
Cylindrical capacitor lead riveting	Riveting leads on cylindrical capacitor products during component assembly operations.	Provides equipment purpose-built for the stated cylindrical capacitor riveting application.
Supercapacitor assembly	Processing supercapacitor lead-riveting tasks where a manual, pneumatically supplied unit is required.	Supports a defined supercapacitor assembly step with adjustable electrode-sheet width.
Battery electrode-sheet lead riveting	Riveting leads associated with battery electrode sheets before subsequent cell-related assembly work.	Accommodates electrode-sheet width adjustment according to manufacturer requirements.
Battery research and development	Supporting controlled lead-riveting work for electrode-sheet preparation in battery R&D settings.	Combines simple operation with a clearly specified power, air-source, and installation requirement.
Capacitor development laboratories	Performing manual riveting work on applicable cylindrical capacitor and supercapacitor components during development activity.	Convenient maintenance and stable performance suit recurring laboratory processing tasks.
Electrode component preparation	Preparing applicable electrode-sheet components that require lead riveting as part of a defined workflow.	Helps teams establish a dedicated manual riveting station in a suitable controlled environment.

Item	Specification
Site-facing identifier	CX15
Intended use	Equipment for riveting leads on cylindrical capacitors, supercapacitors, and battery electrode sheets
Operating mode	Manual lead riveting
Electrode-sheet width	Adjustable according to manufacturer requirements
Power supply	AC220V / 50Hz
Power	500W
Air source	5-8kg/cm2
Product dimensions	500×400×1200mm
Weight	50KG
Installation environment: moisture and dust	Install in a location without water droplets, steam, dust, or oily dust
Installation environment: gases and liquids	Install in a location without corrosive or flammable gases or liquids
Installation environment: airborne contaminants	Install in a location without floating dust or metal particles

Item	Specification
Installation environment: stability	Install in a firm location without vibration
Installation environment: electrical interference	Install in a location without electromagnetic-noise interference

Cnc Grooving Pre Sealing Machine For Supercapacitor Sealing

Item Number: CX10

Introduction

Precision CNC grooving and pre-sealing equipment for supercapacitor housings delivers servo-controlled forming, stable concentric clamping, programmable dimensions, and high uptime for consistent roll-groove and crimp-seal production across demanding high-volume manufacturing operations with reliable tooling and controlled motion performance.

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Application	Description	Key Benefit
Supercapacitor Can Grooving	Forms the required rolling groove in size 60 supercapacitor housings before final sealing operations.	Servo-controlled feed supports groove-depth accuracy of LA: ±0.02mm.
Supercapacitor Pre-Sealing	Produces the rolled sealing edge on capacitor products after grooving.	Controlled transition from fast approach to slow rim forming supports gradual sealing-edge formation.
Cylindrical Energy-Storage Device Assembly	Supports housing preparation steps for cylindrical supercapacitor products within an energy-storage production process.	Concentric sleeve clamping keeps the component stable during rotating-tool operations.
High-Volume Capacitor Production	Repeats grooving and pre-sealing cycles for production-oriented manufacturing.	Rated capacity of ≥3PCS and a 98□ operating rate support production continuity.
Customized Supercapacitor Housing Formats	Accommodates other product specifications beyond the stated H50 to H204 mm length range through customization.	HMI-based dimensional setting enables precise adjustment to required process data.
Automated Capacitor Manufacturing Cells	Provides a controlled grooving and sealing station that can form part of an automated line.	PLC control and interface-based parameter display facilitate automation-oriented operation.

Parameter	Specification
Site-facing identifier	CX11
Applicable product	Size 60 battery supercapacitor
Applicable product length	H50□ 204mm
Other product specifications	Customizable
Process method	Mold-roller grooving method
Workpiece clamping	Automatic sleeve clamping ring; concentric capacitor fixation
Spindle motion	Motor-driven sleeve main spindle with uniform rotation
Grooving tool motion	Servo motor-driven feed
Sealing tool motion	Servo motor-driven downward rotating seal forming
Grooving and sealing drive method	Servo motor screw drive
Sealing motion sequence	Rapid tool feed followed by slow, gradual rim forming at the sealing edge
Tool-feed guidance	High-precision linear guide group
Control system	PLC control with human-machine interface display

Parameter	Specification
Safety protection	Intelligent external protective enclosure
Capacitor height after sealing	HA□ ±0.05mm
Grooving height accuracy	LB□ ±0.05mm
Grooving depth accuracy	LA□ ±0.02mm
Grooving width	L □ 1.4mm□ optional□
Tooling and mold service life	More than 5 million cycles under normal use
Capacity	≥3PCS
Operating rate	98□
Air supply	0.5~0.7MPa adjustable
Air consumption	0.2m³/min
Compressed-air requirement	Dried compressed air at 0.5□ 0.7MPa pressure
Power supply	Single-phase 220V/50HZ
Power	2.5KW
Overall dimensions	L1100mm *W 640mm * 1700mm
Net weight	350KG
Gross weight	400KG
Working temperature	15□ 30℃
Working humidity	30□ 80□ Rh
Ground-floor handling requirement	Handling height greater than 1.8m
Upper-floor elevator requirement	Elevator width 1m, height 1.8m, and depth 1.3m or more
Installation logistics requirement	Confirm the handling route and installation method from outside the plant to the workshop before delivery

Automatic Supercapacitor Cell Casing Machine

Item Number: CX07

Introduction

Automatic supercapacitor cell casing machine for precise insertion of welded cells with assembled covers and O rings delivers adjustable depth reliable sealing high throughput safe PLC operation and flexible production integration for battery manufacturing applications efficiently at scale

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Application	Description	Key Benefit
Supercapacitor Cell Assembly	Presses welded supercapacitor cells with preassembled covers and O-ring seals into cylindrical outer cases.	Consistent seating of the internal sealing ring and controlled casing depth.
60-Series Supercapacitor Production	Supports 60-series products with lengths from 50 to 204 mm, with other specifications available through customization.	One adjustable platform can support a broader product range.
Interference-Fit Case Assembly	Uses the optional high-frequency heating function for cases and positive current collectors requiring interference-fit installation.	Expands process capability for specialized mechanical assembly designs.
High-Volume Energy Storage Manufacturing	Provides automatic insertion, production counting, and a specified utilization rate of 98 percent.	Improves repeatability and supports stable production scheduling.
Pilot and Scale-Up Battery Lines	Adjustable height, depth, and pneumatic speed make the system suitable for new product introduction and production transfer.	Simplifies process adaptation when cell dimensions or assembly conditions change.
Automated Component Sealing Processes	Positions the cell and sealing components accurately before full insertion into the external housing.	Helps establish a repeatable sealing assembly sequence and reduce manual variation.
Laboratory and Engineering Validation	Supports controlled casing trials for supercapacitor development, process qualification, and equipment verification.	Provides adjustable operating conditions for engineering evaluation and optimization.

Parameter	Specification
Product Model	CX07
Applicable Product	60-series battery supercapacitor
Applicable Product Length	50–204 mm
Other Product Sizes	Other specifications can be customized
Insertion Depth Accuracy	±0.1 mm
Insertion Depth	Adjustable
Insertion Speed	50 mm/s, adjustable
Tooling and Mold Service Life	More than 500,000 cycles under normal use
Production Capacity	≥3 PCS
Utilization Rate	98%
Required Air Source	0.5–0.8 MPa, adjustable
Recommended Air Supply	Dried compressed air at 0.5–0.7 MPa pressure
Air Consumption	0.5 m^3/min

Parameter	Specification
Power Supply	220 V / 50 Hz
Rated Power	0.5 kW
Working Temperature	10–35°C
Working Humidity	10–80% RH
Working Dimensions	L700 mm × W500 mm × H2200 mm
Transportation Dimensions	L700 mm × W500 mm × H1900 mm
Weight	300 kg
Control System	PLC control with human-machine interface display
Safety System	Electronic light-curtain protection
Heating Option	Optional high-frequency heating casing function
Casing Height Adjustment	Adjustable for different product heights
Pneumatic Cylinder Speed	Adjustable
Production Counting	Integrated product counting function
Casing Process	Inserts welded supercapacitor cells with assembled top covers and O-ring seals into the outer case
Sealing Position	O-ring seal is seated and retained in the internal sealing position
Installation and Handling Requirement	For first-floor placement, handling height must be ≥2 m
Upper-Floor Transport Requirement	Elevator route must be at least 1 m wide, ≥2 m high, and more than 1.3 m deep
Logistics Planning	Transport route from outside the factory to the workshop and installation method must be confirmed in advance

Capacitor Tab Punching Machine

Item Number: CX09

Introduction

Precision capacitor tab punching machine with 3 mm hole, ±0.05 mm hole accuracy, ±0.02 mm position accuracy, ≥100 kg cutting force, compact glovebox-compatible design for reliable cell assembly preparation and clean, repeatable riveting workflows in laboratory and pilot-scale capacitor manufacturing.

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Application	Description	Key Benefit
Capacitor Cell Tab Preparation	Punches accurately positioned round holes in capacitor cell tabs before washer and end-cap riveting.	Improves tab readiness and supports more consistent downstream assembly.
Laboratory Capacitor Prototyping	Provides repeatable tab punching for research teams producing small batches of capacitor cells.	Offers controlled, flexible processing without requiring a large production machine.
Glovebox-Based Cell Assembly	Passes through transfer chambers with diameters of 200 mm or more for use in controlled-atmosphere environments.	Helps preserve workflow continuity between glovebox operations and external preparation areas.
Pilot-Scale Capacitor Manufacturing	Supports repeatable punching during pilot production and process validation activities.	Combines compact installation with stable hole and position accuracy.
Battery and Energy-Storage Research	Supports tab preparation studies associated with capacitor, hybrid capacitor, and related electrochemical cell development.	Provides a practical mechanical preparation step for experimental cell assembly.
Advanced Materials Laboratories	Enables controlled punching operations during materials processing and component fabrication research.	Delivers a dedicated, easy-to-maintain tool for precision laboratory work.
Academic and R&D Facilities	Serves research groups that need a compact tab punching solution for repeated experiments and prototype assembly.	Reduces manual variability while remaining easy to relocate between workstations.

Parameter	Specification
Product Item Number	CX09
Product Type	Capacitor cell tab punching machine
Application	Punching holes in capacitor cell tabs for washer and end-cap riveting
Standard Hole Shape	Round hole
Standard Hole Diameter	3 mm
Hole Diameter Accuracy	±0.05 mm
Hole Diameter Customization	Available upon request
Hole Position Accuracy	±0.02 mm
Cutting Pressure	≥100 kg
Cutting Stroke	≥25 mm
Overall Dimensions	L150 × W170 × H320 mm
Glovebox Transfer Compatibility	Can pass freely through glovebox transfer chambers with a diameter of Φ200 mm or larger
Body Material	Aluminum alloy

Parameter	Specification
Body Properties	Corrosion-resistant and rust-resistant
Collection Box	Static-resistant ABS material; supports residual material discharge
Weight	8 kg

Manual Supercapacitor Plug Pressing Machine

Item Number: CX12

Introduction

Manual supercapacitor plug pressing machine for post-filling battery assembly, delivering compact, flexible operation with a 20mm working stroke, 60mm product diameter compatibility, and glovebox transfer capability for efficient laboratory production workflows in advanced electrochemical research environments today worldwide.

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Application	Description	Key Benefit
Supercapacitor assembly	Pressing plugs after electrolyte filling during supercapacitor cell assembly.	Provides a dedicated manual station for the specified post-filling operation.
Battery laboratory assembly	Supporting the plug-pressing step after battery filling in laboratory-scale assembly workflows.	Compact dimensions help preserve valuable laboratory workspace.
Electrochemical R&D	Processing prototype batteries or supercapacitors during research and development activities.	Manual operation accommodates flexible development schedules and changing sample needs.
Glovebox-based cell preparation	Moving the unit through a Phi360 mm glovebox transfer chamber for compatible controlled-environment workflows.	Enables practical placement where the stated transfer-chamber diameter is available.
Small-format product processing	Handling products with a 60 mm diameter in the standard applicable format.	Gives buyers a defined starting point for product-to-equipment compatibility checks.
Customized cell-format projects	Configuring the equipment for product diameters outside the standard stated suitability.	Supports adaptation to application-specific battery or supercapacitor product dimensions.

Parameter	Specification
Site-facing item number	CX12
Primary use	Pressing plugs after electrolyte filling in batteries and supercapacitors
Operating type	Manual
Working stroke	20mm
External dimensions	L200 x W200 x H450mm
Weight	15Kg
Standard suitable product diameter	60mm
Customization	Available for product diameter requirements
Glovebox transfer compatibility	Can freely pass through a glovebox transfer chamber with diameter Phi360mm

Aluminum Shell Small Capacitor Grooving Sealing Machine

Item Number: CX14

Introduction

Aluminum shell small capacitor grooving and sealing machine for Φ16 cases delivers synchronized grooving sealing high concentricity stable dimensions 98 percent uptime and 500000 cycle tooling life for efficient production with automatic clamping imported grooving tooling and convenient operator access

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Application	Description	Key Benefit
Small Aluminum Shell Capacitor Production	Processes Φ16 aluminum shell capacitors through coordinated grooving and sealing operations.	Supports repeatable shell forming with fewer separate process steps.
Capacitor Edge Grooving	Creates the required groove on aluminum capacitor shells using a high-hardness grooving tool.	Improves process durability and supports long tooling service life.
Capacitor Sealing and Flanging	Performs mold rotary sealing for the shell sealing and flanging operation.	Provides controlled mechanical forming and consistent edge dimensions.
Battery and Energy Storage Component Manufacturing	Integrates into specialized production workflows requiring compact aluminum component forming.	Offers a compact, dedicated solution for repetitive shell processing.
Pilot Production and Process Development	Supports small-scale or development-stage production of aluminum shell capacitors.	Combines multiple forming steps in one unit for efficient process evaluation.
Customized Capacitor Formats	Can be customized for aluminum shell capacitor specifications other than the standard Φ16 format.	Helps manufacturers adapt the equipment to application-specific product requirements.

Parameter	Specification
Product Item Number	CX14
Application	Grooving, sealing, and flanging forming for small aluminum shell capacitors
Standard Applicable Capacitor	Φ16 aluminum shell capacitor
Other Product Specifications	Customizable
Operating Rate	98%
Power Supply	220 V / 50 Hz
Power	0.2 kW
Overall Dimensions	L300 mm × W240 mm × H570 mm
Weight	Approximately 40 kg
Sealing and Flanging Process	Mold rotary sealing method
Integrated Operations	Grooving and sealing
Grooving Tool Material	Imported material
Grooving Tool Hardness	High hardness

Parameter	Specification
Tooling and Mold Service Life	More than 500,000 cycles under normal use
Product Fixing Method	Automatic jacket clamping
Feeding Guidance	High-precision linear guide

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

info@kindle-tech.com | https://kinteksolution.com