Battery Pack Equipment

Welding, Assembly & Testing - Reference Configurations

Reference configurations compiled from current product documentation. Final specifications, layout and performance criteria are custom
Document generated from the SZ product database. Contact us for project-specific configuration.

SZ-WD-617 AC/DC/Transistor Welding Power Supplies

Model: SZ-WD-617 | Category: Welding Equipment

This series includes AC, DC and transistor welding power supplies for precision resistance welding of fine wires, coin-cell connectors, miniature relay contacts and metal foils. Transistor models deliver rapid current rise for short weld cycles, limited heat affected zones and reduced spatter.

Reference specifications

- Power input: Single-phase AC 100–120 V or AC 200–240 V, 50/60 Hz; factory configured to order
- Maximum voltage: 30 V
- Maximum current: 1,500 A, 4,900 A, 5,190 A, 7,900 A, 9,990 A or 10,100 A, depending on configuration
- Current setting range: 0–2.99 kA, 0–4.99 kA, 0–5.99 kA or 0–9.99 kA, depending on configuration
- Voltage setting range: 0–9.99 V
- Rated power: 160 W, 300 W or 600 W, depending on configuration
- Timing settings: Squeeze: 0–2,999 ms; upslope, weld, cool and downslope: 0.00–9.99 ms; hold: 0–999 ms
- Cooling: Air-cooled
- Overall dimensions: Configured to order

Specifications are reference only and configured to order.

SZ-WD-284 High-Precision Heavy-Duty Gantry Spot Welder

Model: SZ-WD-284 | Category: Welding Equipment

Designed for precision resistance spot welding of battery connectors and similar components, this gantry welder combines a rigid frame with digital weld control for consistent results, straightforward operation and efficient maintenance.

Reference specifications

- Power supply: AC 220 V ±10%, 50 Hz
- Air pressure: 0.5–0.6 MPa
- Machine weight: 50 kg
- Machine dimensions: 350 × 180 × 280 mm
- Weld time: Adjustable from 1.0 to 20.0 ms
- Maximum transformer output: 20 kVA
- Maximum short-circuit current: Optional configuration
- Welding voltage: Adjustable from 80.0 to 330 V; accuracy: 0.5 V
- Nickel strip thickness: 0.08–0.3 mm

Specifications are reference only and configured to order.

SZ-WD-935 Multifunction Spot Welder for Battery Protection Boards

Model: SZ-WD-935 | Category: Welding Equipment

An automated system for spot welding straight nickel strips and inline nickel tabs to mobile-phone battery protection boards, integrating feeding, a moving worktable, welding and unloading.

Reference specifications

- Power supply: AC 220 V ±10%, 50 Hz
- Air pressure: 0.4–0.6 MPa
- Machine weight: Approximately 200 kg
- Machine dimensions: 1,385 × 1,100 × 1,420 mm
- Total power: 0.8 kW
- Production rate: 3,000–3,500 pieces/hour
- Operator interface: PLC display
- Protection-board width: 20–100 mm
- Protection-board length: 165 mm

Specifications are reference only and configured to order.

SZ-WD-461 Automatic Battery Protection Board Tester

Model: SZ-WD-461 | Category: Testing Equipment

Designed for automated testing of single- and dual-cell lithium battery protection boards, this system combines board feeding, an adjustable test fixture, a moving worktable and centralized control for high-volume inspection and reject handling.

Reference specifications

- Power supply: AC 220 V ±10%, 50 Hz
- Air pressure: 0.4–0.6 MPa
- Total power: 0.2 kW
- Machine weight: 100 kg
- Machine dimensions: 800 × 550 × 1,230 mm
- Compatible nickel-strip length: 15–150 mm
- Voltage measurement accuracy: ±0.01 V
- Current measurement accuracy: ±0.2 A
- Resistance measurement accuracy: ±2%
- Internal-resistance measurement accuracy: ±2%
- Self-consumption measurement accuracy: ±0.5 μA

Specifications are reference only and configured to order.

SZ-WD-758 Multifunction Machine for Insulation Sticker Application, Testing,

Model: SZ-WD-758 | Category: Welding Equipment

This integrated system combines insulation sticker application, testing, flipping and spot welding for ten-cell assemblies using 18650 cells, reducing inter-process handling and improving assembly throughput.

Reference specifications

- Power supply: AC 220 V, 50 Hz
- Total power: 2.4 kW
- Operating air pressure: 0.4–0.6 MPa
- Ambient temperature: 0–50 °C
- Relative humidity: 15–90% RH
- Cell format: 18650
- Cell configuration: Ten-cell assembly
- Welding rate: >1,800 pieces/hour
- Nickel strip thickness: 0.08–0.15 mm
- Insulation gasket thickness: 0.25–0.5 mm
- Changeover time: ≤15 min
- Nickel-strip weld-position accuracy: ≤0.2 mm

Specifications are reference only and configured to order.

SZ-WD-326 High-Precision Single-Side Automatic Spot Welder

Model: SZ-WD-326 | Category: Welding Equipment

An automatic single-side spot welding system for series- and parallel-connected battery assemblies using 18650, 26650 and 32650 cylindrical cells, prismatic cells and similar formats.

Reference specifications

- Power supply: AC 220 V/380 V, 50 Hz
- Air pressure: 0.4–0.6 MPa
- Machine weight: 200 kg
- Machine dimensions: 1,800 × 920 × 1,940 mm
- Production rate: 1,500–1,600 pieces/hour
- Working travel: 400 × 500 mm
- Welding-head drive: Pneumatic/electric
- Welding-head cooling: Water-cooled
- Total power: 3 kW

Specifications are reference only and configured to order.

SZ-WD-842 High-Precision Double-Side Automatic Spot Welder

Model: SZ-WD-842 | Category: Welding Equipment

An automatic double-side spot welder for cylindrical-cell modules using 18650, 26650 and 21700 cells, suitable for energy-storage, electric-motorcycle and electric-vehicle battery production and for integration into battery-pack lines.

Reference specifications

- Power supply: AC 220 V/380 V, 50 Hz
- Air pressure: 0.5–0.6 MPa
- Machine weight: 230 kg
- Machine dimensions: 1,000 × 900 × 1,700 mm
- Production rate: 3,500 pieces/hour
- Working travel: 500 × 350 mm
- Welding-head drive: Electric/pneumatic
- Welding-head cooling: Water-cooled
- Total power: 3 kW

Specifications are reference only and configured to order.

SZ-WD-590 Continuous-Wave Automatic Laser Welding Machine

Model: SZ-WD-590 | Category: Welding Equipment

A continuous-wave laser welding system for batteries and precision metal components, available with multiple laser power levels and integrating motion control, drawing import and programming in a compact platform.

Reference specifications

- Operating mode: Continuous modulation
- Average output power: 1,000 W/2,000 W/3,000 W/4,000 W/6,000 W, depending on configuration
- Laser wavelength: 1,080 nm
- Laser frequency: 10–20,000 Hz
- Red aiming-beam power: 0.2 mW
- Fiber output connector: Standard QBH
- Fiber length: 15 m
- Minimum bend radius: 200 mm
- Ambient temperature: 10–40 °C
- Relative humidity: 10–90% RH
- Standard working range: 600 × 400 × 300 mm
- Cooling: Water-cooled

Specifications are reference only and configured to order.

SZ-AS-473 Finished Battery Shrink-Sleeve Machine

Model: SZ-AS-473 | Category: Assembly Equipment

Designed to apply PVC shrink sleeves to finished soft-pack cylindrical cells, e-cigarette batteries and similar products, with optional inkjet coding. The machine automatically feeds, positions, cuts and applies the film before unloading.

Reference specifications

- PVC film cutter width: 40 mm
- Production capacity: 1,200–1,500 cells/hour
- Pass rate: ≥98%
- Power supply: AC 220 V, 50 Hz
- Machine power: 0.3 kW
- Compressed air: ≥0.6 MPa
- Machine weight: 35 kg
- Overall dimensions: Approximately 500 × 400 × 400 mm

Specifications are reference only and configured to order.

SZ-AS-806 Automatic Film-Peeling Machine for Cylindrical Cells

Model: SZ-AS-806 | Category: Assembly Equipment

Automatically removes existing film from 18650-series cylindrical cells so they can be re-sleeved. The process combines hopper feeding, hot-air heating, rotary laser film cutting, mechanical peeling and collection in A4 material boxes.

Reference specifications

- Equipment pass rate: 99.5%, referring only to defects attributable to the equipment
- Equipment availability: ≥95%, referring only to faults attributable to the equipment
- Production capacity: 50–55 cells/minute
- Power supply: AC 220 V, 50 Hz; voltage fluctuation below ±10%
- Machine power: 1.5 kW
- Air supply: ≥0.6 MPa, supplied by the customer
- Air consumption: 20 L/min

Specifications are reference only and configured to order.

SZ-AS-259 Double-Side Insulation Sticker Machine for Cylindrical Cells

Model: SZ-AS-259 | Category: Assembly Equipment

Automatically applies fish-paper insulation stickers to both sides of cylindrical cells with leads, terminals or protection boards. It accommodates 18650 and 14500 cells and varying cell lengths within the supported formats.

Reference specifications

- Power supply: AC 220 V/380 V, 50 Hz
- Machine power: <800 W
- Operating air pressure: 0.4–0.6 MPa
- Operating method: Stepper motor with pneumatic actuation
- Punching drive: Pneumatic
- Insulation-pad thickness: 0.15 mm or 0.2 mm
- Production rate: 3,000 pieces/hour
- Compatible cells: Cylindrical cells
- Overall dimensions: 1,115 × 550 × 1,320 mm

Specifications are reference only and configured to order.

SZ-AS-681 Side-Tape Application Machine for Cylindrical Cells

Model: SZ-AS-681 | Category: Assembly Equipment

After cells are manually placed in the loading chute, the machine automatically feeds them, applies side tape and unloads them for continuous cylindrical-cell taping.

Reference specifications

- Production capacity: 2,800 pieces/hour
- Pass rate: ≥99%
- Power supply: AC 220 V, 50 Hz
- Machine power: 0.3 kW
- Compressed air: ≥0.5 MPa
- Machine weight: Approximately 40 kg
- Overall dimensions: Approximately 500 × 500 × 420 mm

Specifications are reference only and configured to order.

SZ-AS-947 Universal Five-/Ten-Grade Sorting Machine for Cylindrical Cells

Model: SZ-AS-947 | Category: Assembly Equipment

Automatically tests and sorts 18650 cells and customized 26650, 32650 and 21700 formats into five or ten grades according to voltage and internal-resistance results.

Reference specifications

- Power supply: AC 220 V, 50 Hz
- Air pressure: ≥0.6 MPa
- Total power: 1 kW
- Machine weight: 200 kg
- Production rate: Approximately 4,600 cells/hour
- Internal-resistance accuracy: ±0.5% of reading
- Voltage accuracy: ±0.05% of reading
- Test method: Ten-grade sorting per test
- Machine dimensions: 1,530 × 720 × 1,350 mm

Specifications are reference only and configured to order.

SZ-AS-374 CCD Battery Polarity Inspection Machine

Model: SZ-AS-374 | Category: Testing Equipment

Automatically inspects positive and negative polarity in cells and battery modules using CCD imaging, template matching and vision analysis, with results displayed on the control computer.

Reference specifications

- Main power input: AC 220 V, 50 Hz
- Overall dimensions: 2,300 × 1,150 × 1,800 mm
- Inspection travel: 500 × 500 mm
- Control system: Industrial controller with computer monitor
- Machine weight: 200 kg
- Total power: 0.5 kW
- Production rate: 600–1,000 pieces/minute; higher rates for smaller products

Specifications are reference only and configured to order.

SZ-AS-725 Large Prismatic Aluminum-Case Cell Sorter

Model: SZ-AS-725 | Category: Assembly Equipment

An automatic sorting system for prismatic aluminum-case cells. Voltage and internal-resistance measurements are compared with host-computer settings to route each grade into its designated channel and collection station.

Reference specifications

- Power supply: AC 220 V, 50 Hz
- Power: 600 W
- Internal-resistance measurement: Range: 0–60 mΩ; accuracy: ±0.5% of reading; resolution: 0.1 mΩ
- Voltage measurement: Range: 0–20 V; basic accuracy: ±0.015% of reading; resolution: 0.1 mV
- Equipment fault rate: ≤2%, covering equipment-caused faults only
- Product damage rate: ≤0.1%
- Sorting capacity: 10–15 pieces/minute
- Operating environment: 0–50 °C, free from contamination and strong electromagnetic interference
- Air supply: Factory air: 0.5–1.0 MPa; compressed air: 0.5–0.7 MPa
- Weight: Approximately 400 kg
- Overall dimensions: 2,500 × 3,500 × 1,500 mm

Specifications are reference only and configured to order.

SZ-AS-518 Multifunction Machine for Taping, Tab Bending and Wrapping

Model: SZ-AS-518 | Category: Assembly Equipment

This system combines manual loading, two insulation-wrapping stages, tab pre-bending, final tab bending and automatic unloading for batteries requiring tab forming and insulated wrapping.

Reference specifications

- Manual cell loading: Operator loads cells after arranging their leads
- First insulation wrap: Tape thickness: ≥0.05 mm; film thickness: ≥0.025 mm
- Tab process: Tab pre-bending and final bending
- Second insulation wrap: Second insulation-paper wrapping stage
- Product pass rate: ≥98%
- Equipment fault rate: ≤2%
- Production rate: Estimated approximately 1,300 pieces/hour, depending on manual feeding

Specifications are reference only and configured to order.

SZ-AS-862 Single-Cell Taping, Forming and Nickel-Strip Welding Production

Model: SZ-AS-862 | Category: Battery PACK Production Lines

A continuous single-cell production line for taping, forming and automatic nickel-strip welding, with optional voltage/internal-resistance testing, rotary text inspection and high-temperature tape application at multiple positions.

Reference specifications

- Machine power: 4 kW
- Power supply: AC 220 V, 50 Hz
- Operating air pressure: 0.4–0.8 MPa
- Nickel-strip length: 12–18 mm
- Exposed nickel-strip length: 2.5–10 mm
- Nickel-strip width: 3–6 mm
- Nickel-strip thickness: 0.08–0.15 mm
- High-temperature tape width: 10 mm
- Production rate: 1,000–1,300 pieces/hour

Specifications are reference only and configured to order.

SZ-AS-296 Single-Cell Cylindrical Battery Production Line

Model: SZ-AS-296 | Category: Battery PACK Production Lines

A welding and assembly line for individual 18650 cylindrical cells used in automotive, electric-vehicle, energy-storage, power-tool and consumer-electronics battery products.

Reference specifications

- Compatible cell: 18650 cylindrical cell
- Power supply: AC 220 V, 50 Hz
- Ambient temperature: –10 to 35 °C
- Relative humidity: 30–95% RH
- Actuation: Stepper motors/servo motors/pneumatics
- Power: 3 kW
- Availability: 98%
- Controls: 10-inch touchscreen/PLC
- Air pressure: 0.5–0.6 MPa
- Output: 1,200 cells/hour
- Fish-paper rolls: Maximum roll diameter: 300 mm; core inner diameter: 72–75 mm
- Nickel strip: Minimum width: 3 mm; thickness: 0.05–0.15 mm

Specifications are reference only and configured to order.

SZ-AS-640 Automatic Prismatic Battery PACK Production Line

Model: SZ-AS-640 | Category: Battery PACK Production Lines

A configurable production line for prismatic aluminum-case energy-storage battery modules, covering assembly, inspection and welding. Automated and manual stations handle cell sorting, stacking, polarity inspection, busbar welding and final testing.

Reference specifications

- Compatible battery-pack envelope: 650 × 500 mm
- Power supply: AC 380 V, 50 Hz
- Air pressure: 0.5–0.6 MPa
- Total power: ≤12 kW
- Floor loading: ≥400 kg/m²
- Ambient temperature: 10–40 °C
- Line output: 300 packs per 12-hour day, based on eight cells per PACK module
- Equipment availability: >95%
- Product pass rate: >99%
- Pallet dimensions: 850 × 600 mm
- Line dimensions: 20,000 × 2,000 × 1,900 mm; subject to final design

Specifications are reference only and configured to order.

SZ-AS-178 Polymer Battery PACK Production Line

Model: SZ-AS-178 | Category: Battery PACK Production Lines

An automatic polymer battery PACK line covering cell loading, code association, tab forming and testing, laser welding, protection-board assembly, adhesive application, final inspection and surface protection.

Reference specifications

- Compatible product: Polymer battery PACK
- Overall line length: 17,600 mm as shown in the layout; subject to final design
- Line capacity: Configured to order
- Power and air-supply requirements: Configured to order

Specifications are reference only and configured to order.

SZ-AS-914 Automatic Cylindrical Battery PACK Production Line

Model: SZ-AS-914 | Category: Battery PACK Production Lines

This cylindrical-cell PACK line links cell loading, test sorting, robotic cell insertion, double-side welding, CCD inspection, manual assembly and unloading through pallet-based conveying for high-volume module production.

Reference specifications

- Air pressure: 0.5–0.6 MPa
- Power: 40 kW
- Availability: 90%
- Output: 4,000–4,500 cells/hour
- Power supply: AC 220 V/380 V, 50 Hz
- Ambient temperature: 10–35 °C
- Relative humidity: 30–65% RH

Specifications are reference only and configured to order.

SZ-TS-536 5 V Capacity Grading Cabinet, 10/20/30/60 A

Model: SZ-TS-536 | Category: Testing Equipment

A channel-independent test system for formation, capacity grading, cycle-life and finished-product testing of lithium-polymer, lithium-ion, NiMH and NiCd batteries. Its modular architecture simplifies maintenance and system upgrades.

Reference specifications

- Output voltage class: 5 V
- Current configurations: 10 A/20 A/30 A/60 A
- Output range per channel: 0.8–5 V
- Voltage measurement range: 0–5,000 mV
- Power supply: AC 220 V, 50 Hz
- Power consumption: 30 W per eight channels
- Input impedance: ≥10 MΩ
- Current control accuracy: ±(0.1% of reading + 0.1% of full scale)
- Voltage control accuracy: ±(0.1% of reading + 0.1% of full scale)
- Current setting resolution: 1 mA
- Voltage setting resolution: 1 mV
- Time measurement resolution: 1 s

Specifications are reference only and configured to order.

SZ-TS-782 Charge/Discharge Aging Cabinet

Model: SZ-TS-782 | Category: Testing Equipment

Designed for battery-pack charge/discharge aging, protection-function verification and capacity logging, with selectable configurations from 30 V to 1,200 V, multiple current levels and one to six channels in a parallel-capable 4U modular format.

Reference specifications

- 30 V configurations: 60 A/6 channels; 120 A/3 channels; 240 A/1 channel; 360 A/1 channel
- 60 V configurations: 60 A/6 channels; 120 A/3 channels; 180 A/2 channels; 300 A/1 channel
- 100 V configurations: 30 A/6 channels; 60 A/3 channels; 100 A/2 channels; 200 A/1 channel
- 200 V configurations: 18 A/6 channels; 30 A/3 channels; 54 A/2 channels; 100 A/1 channel
- 300 V configurations: 12 A/6 channels; 24 A/3 channels; 30 A/2 channels; 60 A/1 channel
- 600 V configurations: 12 A/3 channels; 30 A/1 channel
- 900 V configurations: 12 A/2 channels; 24 A/1 channel
- 1,200 V configuration: 18 A/1 channel
- Module format: 4U; parallel operation supported
- Standard accuracy: 0.3%
- Efficiency: 92%
- Response time: 10 ms

Specifications are reference only and configured to order.

SZ-TS-349 Comprehensive Finished Battery Pack Tester

Model: SZ-TS-349 | Category: Testing Equipment

A fast, accurate test platform for finished battery packs, covering open-circuit voltage, AC internal resistance, discharge, overcurrent, short-circuit protection, charging and charge-protection tests for final inspection and quality control.

Reference specifications

- Open-circuit voltage 1: 10–100 V; accuracy: ±2 mV
- Open-circuit voltage 2: 10–100 V; accuracy: ±2 mV
- AC internal resistance: 0–1,000 mΩ; accuracy: ±1 mΩ
- Discharge start voltage: 0–100 V; accuracy: ±2 mV
- Discharge end voltage: 0–100 V; accuracy: ±2 mV
- Discharge current: 0.1–60 A; accuracy: ±1 mA
- Discharge time: 0–60 s; accuracy: ±1 ms
- Over-discharge current: 4–120 A; accuracy: ±1 mA
- Overcurrent delay: 0–20 s; accuracy: ±1 ms
- Short-circuit protection delay: 0–9,999 μs; accuracy: ±1 μs
- Charge start voltage: 10–100 V; accuracy: ±2 mV
- Charge end voltage: 10–100 V; accuracy: ±2 mV

Specifications are reference only and configured to order.

SZ-TS-805 Automatic Tester for 1–32S Battery Protection Boards

Model: SZ-TS-805 | Category: Testing Equipment

An automatic comprehensive tester for 1–32S battery protection boards, covering cell self-consumption, balancing, voltage and current protection, delays, main-loop resistance and short-circuit protection.

Reference specifications

- Power supply: AC 220 V
- Maximum power: 600 W
- Machine weight: 50 kg
- Machine dimensions: 800 × 700 × 1,280 mm
- Series configuration: 1–32S
- Current ratings: 60 A and 120 A
- Ambient temperature: –10 to 40 °C
- Relative humidity: 10–90% RH
- Power-supply fluctuation range: AC 170–260 V
- Overcharge protection: 0–5 V; accuracy: ±5 mV
- Over-discharge protection: 0–5 V; accuracy: ±5 mV
- Over-discharge current threshold: 1–200 A; accuracy: ±0.1 A

Specifications are reference only and configured to order.