

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