



400 9280 998

**Kunshan headquarter**

Jiangsu Fenghesheng Technology Co., Ltd.

Jiangsu Fenghesheng Intelligent Technology Co.,Ltd.

Hotline: 400 9280 998

Email: info@ksfhs.com

Address: No. 268, Kanghui Road, Zhoushi Town,  
Kunshan, Jiangsu Province



**LARGE CYLINDER BATTERY  
ASSEMBLE LINE SOLUTION**



[www.ksfhs.com](http://www.ksfhs.com)

# CORPORATE CULTURE

## VISION

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To become a prestigious global smart manufacturing enterprise

## MISSION

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To seek happiness for employees  
To create value for partners

## VALUES

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Customer orientation;  
Perseverance;  
Innovation;  
Sharing value

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## PRODUCT INTRODUCTION

FENGHESHENG GROUP

# 46

46 Series Fully Automatic Assembly Line for Large Cylindrical Steel Shell and Energy Storage Large Aluminum Cylindrical Battery.

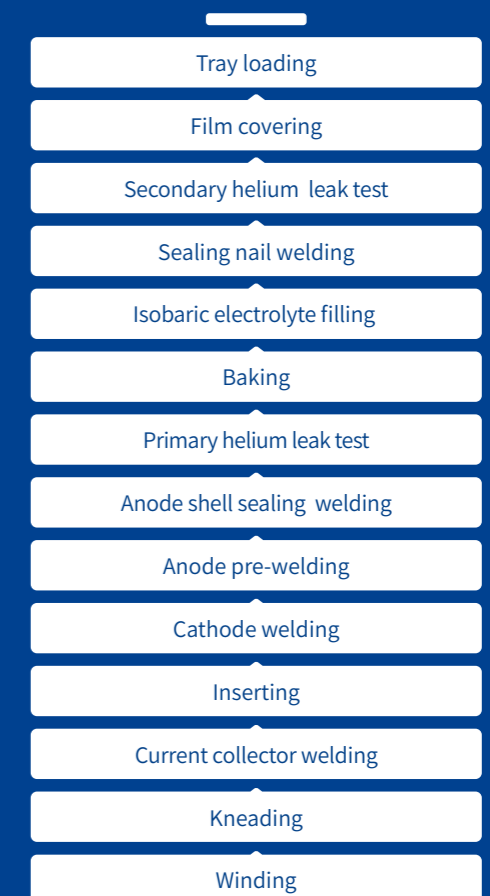
The Company is committed to establishing high-speed mass production lines for steel and aluminum shell cylindrical batteries in the industry, and realize the industry-leading technology of "using high-speed star wheel and cam methods for assembly and welding in the assembly section". By integrating our independently developed virtual simulation digital technology platform, we have launched various the 46 series fully automatic assembly lines for large cylindrical steel shell and energy storage large aluminum cylindrical batteries.

Our main equipment includes: kneading and gluing machine, busbar welding machine, inserting can machine, cathode bottom shell ultrasonic torque welding machine, anode electrode pre-welding machine, high-speed beading machine, baking, cap plate welding machine, helium leak detector, isobaric electrolyte filling machine, sealing nail welding machine, cap plate assembly feeding machine, sealing machine, cleaning machine, etc. Currently, these core equipments have been validated through relevant pilot lines and tests.

### Process Route of the 46 series cylindrical power steel shell battery



### Process Route of the 46 series energy storage aluminum shell cylindrical battery



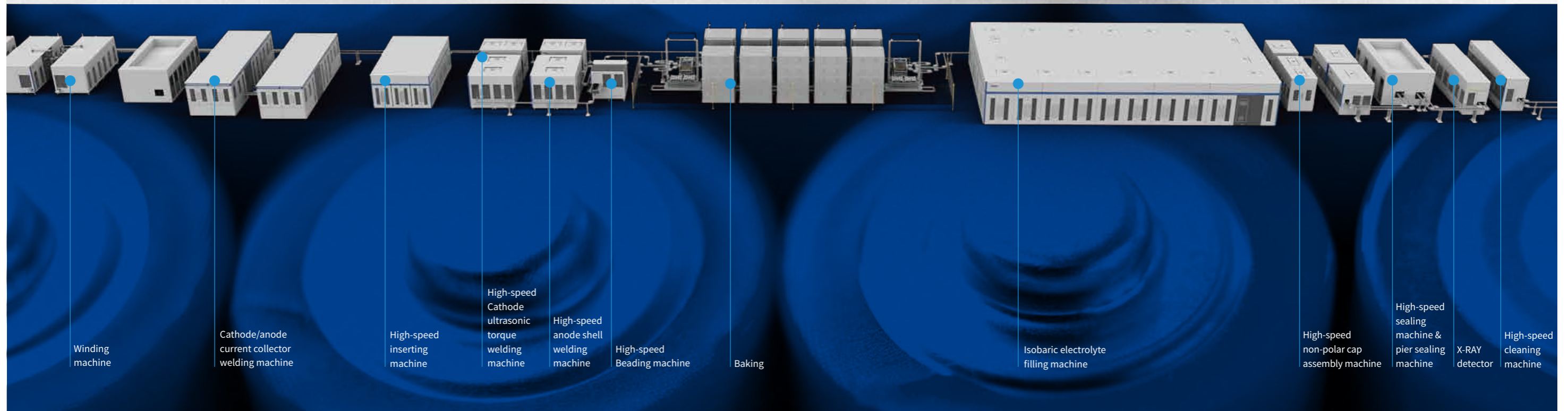
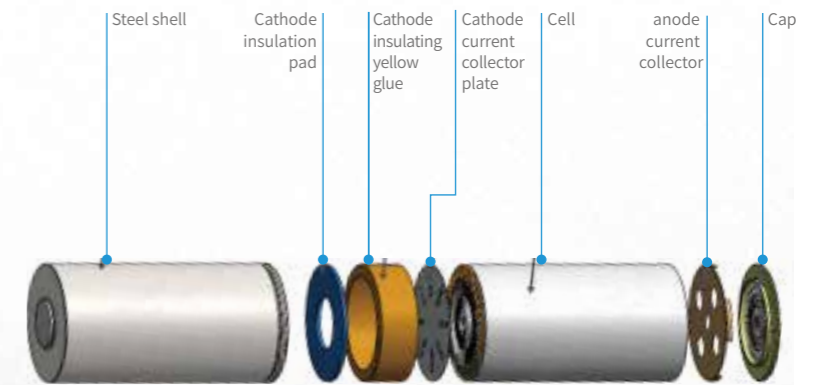
# 4680

## LARGE CYLINDRICAL STEEL SHELL STANDARD STATION DESCRIPTION

### Equipment parameters and description:

- Rated production capacity: 400PPM;
- Supply voltage: Three-phase 380VAC;
- Air source: 0.5-0.7MPa;
- Floor area: 150m length/20m width/2.8m height
- Operating environment: Temperature: Max 40°C, min 0°C Humidity: Max 85%, min 35%.

The primary machines in this production line include winding machine (including flattening & kneading), X-Ray detector, cathode and anode current collector laser welding machine, high-speed inserting machine, high-speed cathode ultrasonic torque welding machine, high-speed anode shell welding machine, high-speed beading machine, baking, isobaric electrolyte filling machine, high-speed non-polar cap plate assembly machine, high-speed sealing machine, high-speed cleaning machine, high-speed film machine (optional), high-speed tray loading machine, etc. The equipment automatically binds and saves barcode information and functional information, enabling interfacing with the MES system and previous and subsequent process equipment.



# 4680

## LARGE CYLINDRICAL STEEL SHELL STANDARD STATION DESCRIPTION



### 4680 cathode/anode current collector laser welding machine

#### Brief description of main functions

- The equipment is designed to realize cell barcode scanning, NG removal, matching of accepted products, compaction, dimension measurement, cathode current collector feeding, anode current collector feeding, cathode current collector welding, anode current collector welding, dust removal and regular spot check of tensile force, insulation testing, cathode welding spot inspection, anode welding spot inspection, adhesive application, adhesive tape inspection, etc.;
- The equipment automatically binds and saves barcode and functional information for each cell, enabling interfacing with the MES system, previous and subsequent process equipment;
- Single-line equipment capacity  $\geq 120$ PPM

### 4680 high-speed inserting machine

#### Brief description of main functions

- The equipment is designed to realize cell feeding, flow-out ring insertion, current removal and loop pulling, outflow of current loop pulling, entry of current loop pulling into shell, polarity inspection, entry of main tower, installation of insulation sheet (punching, static elimination, conversion of double to single row, flow-in ring insertion, line buffer, entry of tower, vacuum suction), presence inspection, entry of steel shell into main tower (incoming steel shell, steel shell shaping and diameter inspection, dust removal of steel shell), transition star wheel, CCD inspection, NG removal, line buffer, 180-degree flipping, reflux of current loop pulling into the shell, replacement of current loop pulling and output of accepted products;
- The equipment automatically binds and saves barcode and functional information for each cell, enabling interfacing with the MES system, previous and subsequent process equipment;
- Single-line equipment capacity  $\geq 220$ PPM



### 4680 high-speed cathode ultrasonic torque welding machine

#### Brief description of main functions

- The equipment is designed to realize barcode scanning feeding of cell star wheel, inspection of central cell core, NG removal, main cam on the cell, ultrasonic torque welding, welding spot inspection with 4mm endoscopy, star wheel discharging, etc.;
- The equipment automatically binds and saves barcode and functional information for each cell, enabling interfacing with the MES system, previous and subsequent process equipment;
- Single-line equipment capacity  $\geq 220$ PPM



### 4680 high-speed anode shell welding machine

#### Brief description of main functions

- The equipment is designed to realize barcode scanning of cell star wheel, NG removal, current removal and loop pulling, installation of anode electrode of fixture pressure, entry of main star wheel, locating mark point followed by precise welding, welding dust removal, welding CCD detection, installation of current loop pulling, HI-POT testing, output of accepted products, etc.;
- The equipment automatically binds and saves barcode and functional information, enabling interfacing with the MES system and previous, subsequent process equipment;
- Single-line equipment capacity  $\geq 220$ PPM



### 4680 high-speed beading machine

#### Brief description of main functions

- The equipment is designed to realize screw feeding, automatic coiling transmission of star wheel, automatic beading in CAM mode, automatic compensation of height synchronously with hob feeding amount, synchronous online dust absorption, automatic discharging, rejection of defective products, cyclic transmission of carriers (automatic filling DMC of hob and synchronous online dust absorption, CCD detection gasket fly-out after channeling or not, groove size, tab position detection, automatic discharging, rejection of defective products);
- The equipment automatically binds and saves barcode and functional information, enabling interfacing with the MES system, previous and subsequent process equipment;
- Single-line equipment capacity  $\geq 220$ PPM

# 4680

## LARGE CYLINDRICAL STEEL SHELL STANDARD STATION DESCRIPTION



### 4680 isobaric electrolyte filling machine

#### Brief description of main functions

- The equipment is designed to realize barcode scanning and feeding of cell, weighing, NG removal, transferring of battery into tray, tray barcode scanning & binding, combination of battery tray and tray cup, air tightness testing, fill electrolyte, pressure standing, separation of tray cup and battery tray, cleaning of tray cup, discharging of battery tray, entry of battery tray cup after weighing, electrolyte supplementation, air tightness testing, etc.;
- The whole line equipment automatically binds and saves the battery barcode, air tightness detection and electrolyte filling information, enabling interfacing with the MES system, previous and subsequent process equipment;
- Single-line equipment capacity  $\geq 200$ PPM

### 4680 high-speed non-polar cap assembly machine

#### Brief description of main functions

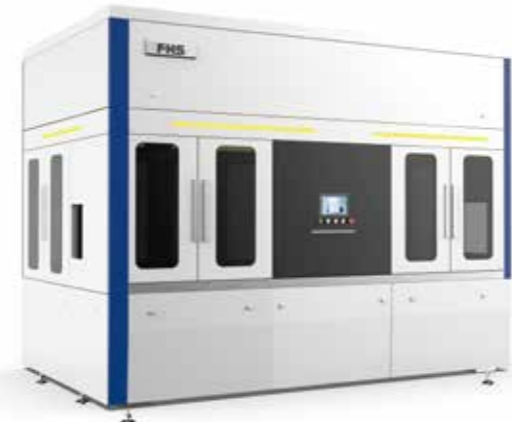
- The equipment is used for automatic barcode scanning of star wheel of battery, star wheel feeding, NG removal, cover board star wheel feeding, entry of main cam, presence inspection of cover board, automatic feeding of cover cap, fixture positioning and cyclic transmission;
- The equipment automatically binds and saves battery barcode and functional information, enabling interfacing with the MES system, previous and subsequent process equipment;
- Single-line equipment capacity  $\geq 200$ PPM



### 4680 high-speed sealing machine

#### Brief description of main functions

- The equipment is designed to realize battery screw feeding, star wheel transition, separation of current loop pulling and cover board inspection and ion dust removal, entry of first sealing turret, first sealing, star wheel transition, entry of second sealing turret, second sealing, star wheel transition, height detection, current loop pulling combination and ion dust removal, star wheel discharging;
- The equipment automatically binds and saves barcode and functional information, enabling interfacing with the MES system, previous and subsequent process equipment;
- Single-line equipment capacity  $\geq 200$ PPM



### 4680 high-speed pier sealing machine

#### Brief description of main functions

- The equipment is designed to realize battery screw feeding, star wheel transition, separation of current loop pulling and cover board inspection, entry of pier sealing turret, pier sealing, star wheel transition, height detection, battery and current loop pulling combination and star wheel discharging, etc.;
- The equipment automatically binds and saves barcode and functional information, enabling interfacing with the MES system, previous and subsequent process equipment;
- Single-line equipment capacity  $\geq 200$ PPM

### 4680 high-speed cleaning machine

#### Brief description of main functions

- The equipment is designed to realize battery screw feeding, star wheel transition, separation of current loop pulling, star wheel transition, cleaning of battery body, star wheel transition, cleaning of upper and lower end of battery, star wheel transition, water removal of star wheel assembly, star wheel transition, drying, star wheel transition, oiling, star wheel transition, baking, star wheel transition, feeding to current loop pulling and star wheel discharging, etc.;
- The cleaning solvent used is tap water and the oil is provided by Party A. During the process of transportation, the battery is rotated to ensure thorough cleaning without any blind spots. High-pressure water jets are applied in combination with rotating brushes to remove stubborn stains. The battery is then dried with hot air, followed by oil mist lubrication, to form an oil film. The process is concluded with automatic discharge. The water used for battery cleaning can be recycled.
- The equipment automatically binds and saves barcode and functional information, enabling interfacing with the MES system, previous and subsequent process equipment;
- Single-line equipment capacity  $\geq 200$ PPM



# 60150

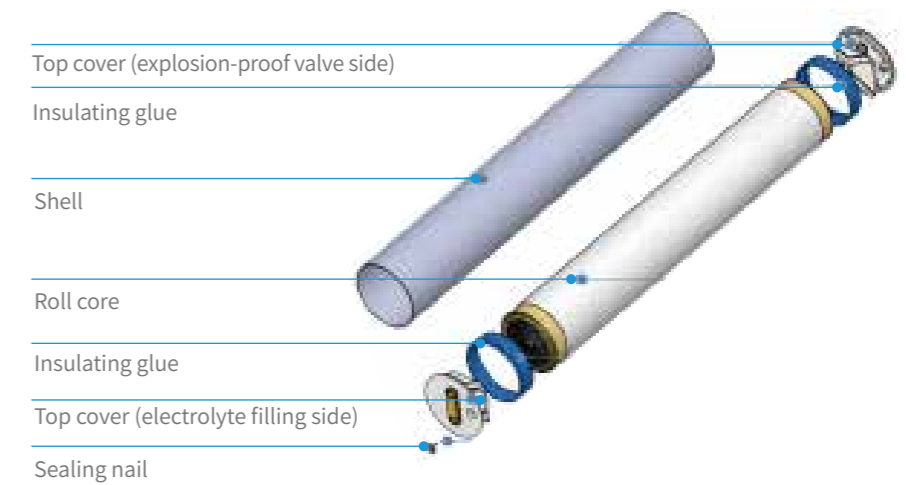
## LARGE CYLINDRICAL ALUMINUM

### STANDARD STATION DESCRIPTION

#### Equipment parameters and description:

- Rated production capacity: 120PPM;
- Supply voltage: Three-phase 380VAC;
- Air source: 0.5~0.7MPa;
- Floor area: 60m length/9m width/2.8m height
- Operating environment:  
 Temperature: Max 40°C, min 0°C  
 Humidity: Max 85%, min 35%.

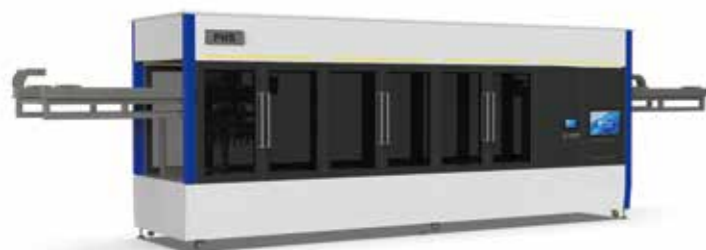
The primary machines in this line include winding machine, flattening & kneading machine, X-Ray detector, cathode and anode current collector laser welding machine, high-speed inserting machine, high-speed positive shell welding machine, high-speed anode shell welding machine, helium leak detector, etc. The equipment automatically binds and saves barcode information and functional information, enabling interfacing with the MES system, previous and subsequent process equipment.



# 60150

## LARGE CYLINDRICAL ALUMINUM

### STANDARD STATION DESCRIPTION



#### 60150 large aluminum cylindrical battery kneading machine

##### Brief description of main functions

- The equipment is designed to realize kneading and wrapping the cathode and anode terminals of the wound battery cell with tape. Its main functions include flattening and kneading, full tray loading, barcode scanning, robotic arm grasping the upper main conveying mechanism fixture, flattening and kneading both ends, wrapping the cathode terminal with tape, measuring the kneades size and exposed tape length, robotic arm transferring the finished cell to the high-speed chain fixture, etc.
- The whole equipment automatically binds and saves cell information and measurement information, supports communication with the MES system, and has open interfaces and programs.
- Single-line equipment capacity  $\geq 120$ PPM



#### 60150 current collector welding machine for large aluminum cylindrical battery

##### Brief description of main functions

- The equipment is designed to realize welding and inspection of the cathode and anode current collectors of the battery cell. Its main functions include cell feeding, barcode scanning, polarity inspection, cathode current collector feeding, cathode current collector welding, post-weld inspection, anode current collector feeding, anode current collector welding, post-weld inspection, HI-POT testing, L-shaped bending, and unloading.
- The whole equipment automatically binds and saves cell information and measurement information, supports communication with the MES system, and has open interfaces and programs.
- Single-line equipment capacity  $\geq 120$ PPM



#### 60150 large aluminum cylindrical battery inserting machine

##### Brief description of main functions

- The equipment is designed to realize the non-destructive cell insertion within the pressure range of the battery core and the aluminum shell. Its main functions include cell loading, barcode scanning, aluminum shell tray incoming, unstacking, dust removal, diameter inspection, insertion, rejection of defective products, etc.;
- The whole equipment automatically binds and saves cell information and measurement information, supports communication with the MES system, and has open interfaces and programs.
- Single-line equipment capacity  $\geq 120$ PPM



#### 60150 cathode welding and anode pre-welding machine for large aluminum cylindrical battery

##### Brief description of main functions

- The equipment is designed to realize welding of cell cathode electrode and aluminum shell bottom, and pre-welding of the anode electrode. Its main functions include cell loading, barcode scanning, loading into the turntable, cathode welding, welding inspection, flipping, aligning the anode cap direction, Z-shaped bending, cap pre-welding, short-circuit testing, rejection of defective products, etc.;
- The whole equipment automatically binds and saves cell information and measurement information, supports communication with the MES system, and has open interfaces and programs.
- Single-line equipment capacity  $\geq 120$ PPM



#### 60150 large aluminum cylindrical battery helium leak detector

##### Brief description of main functions

- The equipment is designed to realize leakage detection of the battery cell after welding. Its main functions include cell loading, barcode scanning, loading onto trays, helium transportation inspection, output after inspection, re-inspection, accepted product tray unloading, rejection of defective products, etc.;
- The whole equipment automatically binds and saves cell information and measurement information, supports communication with the MES system, and has open interfaces and programs.
- Single-line equipment capacity  $\geq 120$ PPM



#### 60150 anode welding machine for large aluminum cylindrical battery

##### Brief description of main functions

- The equipment is designed to realize welding of the anode electrode and aluminum shell top of the battery cell. Its main functions include cell loading, barcode scanning, loading into the screw pitch-changing mechanism, height inspection, entry of main star wheel, follow-up welding, post-weld rolling and dust removal, post-weld follow-up inspection, accepted product unloading, rejection of defective products, HI-POT testing, good product tray loading, etc.;
- The whole equipment automatically binds and saves cell information and measurement information, supports communication with the MES system, and has open interfaces and programs.
- Single-line equipment capacity  $\geq 120$ PPM



#### 60150 sealing nail welding machine for large aluminum cylindrical battery

##### Brief description of main functions

- The equipment is designed to realize sealing nail welding. Its main functions include cell loading, barcode scanning, unstacking, electrolyte filling port wiping, plasma cleaning, sealing nail feeding, CCD inspection of sealing nails, pre-welding and full welding of sealing nails, post-welding inspection, rejection of defective products, etc.;
- The whole equipment automatically binds and saves cell information and measurement information, supports communication with the MES system, and has open interfaces and programs.
- Single-line equipment capacity  $\geq 120$ PPM