

Company Profile

Established in Dongguan in 2018, Yanke Intelligent Technology Co., Ltd. is a national high-tech enterprise that focuses on serving enterprise research and development, universities, and research institutes. It has long been committed to creating a safe, efficient, and intelligent one-stop experimental research and development service platform. After years of development and accumulation, it has become a comprehensive solution provider for basic research on materials and new energy, small and medium-sized trials, testing and evaluation; The product application covers directions such as lithium-ion batteries, sodium ion batteries, fuel cells, solid-state batteries, etc. Yanke Intelligence has established a global service network and delivered equipment to more than 20 countries around the world, providing turnkey engineering solutions for scientists in their laboratories.

Main product series:

Battery research and development experimental preparation equipment (including preparation plans for lithium-ion batteries, sodium ion batteries, solid-state batteries, etc.);

Battery safety testing equipment (testing equipment that complies with international and domestic standards such as GB31241, GB31485, IEC62133, UN38.3, etc.);

A turnkey project for the full process system equipment plan of lithium-ion battery production and preparation, including various battery preparation plans such as buckle, column, soft package, square aluminum shell, etc;

Fuel cell research and development experimental preparation equipment (including preparation schemes for solid oxide, proton exchange membrane fuel cells, etc.);

And pass ISO14001, ISO9001, ISO45001 quality system certification; Obtained the title of National High tech Enterprise; Obtained over 50 certificates, including invention and utility model patents.

Website: www.yanke181206.com

Prismatic cell introduction

Choosing a certain model of aluminum alloy as the power battery casing mainly considers that the alloy meets the following requirements:

1. Sufficient strength (if a certain brand requires a tensile strength of 200MPa).
2. The power battery casing made of this aluminum alloy product has impact resistance, is not easy to break and leak.
3. Corrosion resistance (long service life).
4. Good heat resistance (long-term use at 100 °C).
5. Good thermal conductivity (180W. m-1. K-1).
6. Excellent welding performance.





Vacuum Mixer YK-JBJ-5L



Product Introduction

This product is an efficient equipment integrating vacuum mixing and dispersion, which is suitable for the positive and negative electrode slurry mixing process in the battery experiment process. Can be used in various solvents and powder mixing process.

Product Feature

- ◆ The agitator blade has a double blade spiral 90 degree structure, equipped with a high-speed dispersion plate and a scraping wall, ensuring no dead corners during mixing.
- ◆ The temperature control device is a multi-point temperature measurement at the bottom ,accurately measuring the actual temperature of the material.
- ◆ The tank adopts double jacket structure, can pass cooling water, suitable for various process requirements.
- ◆ The slurry barrel is designed with electric lifting and equipped with spotlights for easy operation.

Tank volume	Maximum effective volume 5L, designed volume 7L
Vacuum degree	-0.098 MPA
Stirring speed	0~80rpm
Dispersion speed	0~6000rpm
Applicable viscosity	0~12000CPS
Power supply	AC 380V / 50 Hz, power approximately 4KW
Weight	Approximately 450kg
Size	Approximately L(1.3m) x W(0.9m) x H(1.7m)

Transfer Coating Machine YK-TBJ200-1m



Product Introduction

Applied to the positive and negative electrode coating process of lithium batteries, adopting a high-precision vertical plate structure and stable operation. The central controller with high-speed computing function can be used for continuous and intermittent coating, making it convenient for surface coating processes on various substrates.

Product Feature

- ◆ Substrate tension control, stable belt running, equipped with correction device.
- ◆ The scraper adopts a high-precision displacement sensor combined with a servo motor for automatic adjustment.
- ◆ The design of circulating air in the oven saves losses, and the independent air doors of the blower and exhaust fan are adjusted
- ◆ PLC control, touch screen operation, convenient and easy to use.

Coating method	Continuous coating, intermittent coating
Operating substrate range	Aluminum foil 10um~25um copper foil 6um~15um
Effective coating width	The coating width is 200mm
Single-side coating thickness range	The thickness can be applied to 1um~30um
Coating precision	Single-side coating thickness accuracy of 1-2 um
Running speed	The coating speed is 0.5m~1m / min
Baking temperature range	Room temperature ~80℃, temperature deviation ± 3℃
Correction accuracy of winding and unwinding	≤±0.5mm
Power supply	AC 380V / 50Hz, power approximately 13KW
Weight	Approximately 900 kg
Size	Approximately L(2.5m) x W(1.4m) x H(1.6m)

Electrode Roller Pressing Machine YK-GYJ-210x330

Product Feature



Product Introduction

Suitable for thinning and increasing density of lithium battery electrodes, in order to achieve the designed/predetermined volumetric energy density and battery performance of lithium batteries produced by rolled electrodes.

- ◆ The constant pressure pump station adopts an automatic gas-liquid boosting workstation imported from the United States, an Italian solenoid valve, and a Swedish pressure sensor.
- ◆ The electrode roller is made of high alloy forged steel material, with dual medium frequency induction quenching and electroslag remelting process treatment.
- ◆ The two rollers are horizontally arranged up and down, and the overall memorial archway type

Effective size of rolling surface	Φ210mmx330mm, The effective roller pressure width is 150~320mm
Linear pressure between two rollers	Maximum 35T
Roller hardness	HRC 65, hardness uniformity HS ± 2
Roller material	9Cr3mo
Roller surface roughness	Ra≤0.2
Roll straightness	≤±0.0015mm
Installation radial runout	≤±0.0025mm
Equipment operation speed	0~4m/min
Power supply	AC 220V / 50Hz, power approximately 7KW
Weight	About 1,000 kg
Size	Approximately L(1.5m) x W(1.5m) x H(1.3m)

Electrode Cutting Machine YK-DMQ-350

Product Feature



Product Introduction

Suitable for automatic punching and forming of positive and negative electrode plates in lithium batteries.

- ◆ Adopting an inflatable shaft unwinding structure and using a photoelectric switch to automatically unwind the induction electrode.
- ◆ Adopting servo motor automatic control for traction, it can be set to traction of any electrode length.
- ◆ The cam mechanism is used to pull the cutting die up and down for punching and shaping. The cutting die can be adjusted up and down, front and back, angle, and other functions. The cutting die support plate adopts a modular mechanism, which is convenient for loading, unloading, and adjustment.
- ◆ Installing protective optical fibers

Maximum feed width	350mm
Maximum die-cutting area	330mm×280mm
Maximum die-cutting speed	2000 times/h (pulling length of 80mm)
Pulling accuracy	±0.05
Applicable cutter mold	Wooden knife mold
Power supply	AC 220V/50Hz, Power approximately 5KW
Weight	Approximately 1500kg
Size	Approximately L (2.7m) x W (1.3m) x H (1.7m)

Semi-Automatic Laminating Machine YK-BDP-220



Product Introduction

Used for the stacking process of lithium battery electrodes, it adopts a Z-shaped laminating method, which can achieve automatic stacking, automatic counting, automatic pressing, and automatic cell feeding, and can achieve continuous production without interruption.

Product Feature

- ◆ Stacking automatic positioning with high positional accuracy
- ◆ Replaceable fixtures, compatible with multiple cell sizes.
- ◆ The number of lamination can be set.
- ◆ Z-shaped lamination, low tension control of isolation membrane

Laminating efficiency (seconds/piece)	(1.8-2.5) seconds x number of layers+(10-15) seconds
Precision of pole and diaphragm alignment	Center deviation $\pm 0.3\text{mm}$
Diaphragm end face alignment accuracy	$\pm 0.5\text{mm}$
Adjacent electrode alignment accuracy	$\pm 0.3\text{mm}$
Electrode overall alignment accuracy	$\pm 0.5\text{mm}$
Laminating size	Length 100-220mm, width 80-180mm
Power supply	AC 220V/50Hz, Power approximately 6KW
Weight	Approximately 600kg
Size	Approximately L (1.3m) x W (1.2m) x H (2m)

Hot Pressure Testing Machine YK-RYCS-180x220



Product Introduction

Suitable for hot pressure and short circuit measurement of square aluminum shell battery cells.

Product Feature

- ◆ The parallelism is ensured by the structure of thickened guide pillars and extended guide sleeves.
- ◆ The cylinder is an adjustable cylinder, and the pressure regulating valve is adjustable.
- ◆ Three side protection of the equipment, setting up a safety light screen, and operating the left and right start buttons.
- ◆ Can achieve short-circuit testing of batteries under heating and pressure conditions, with precise and adjustable heating temperature and applied pressure.
- ◆ Precision testing of insulation resistance, identification of micro short circuit conditions in battery cells, and assessment of battery cell safety performance.

Maximum reshaping area	180mm long * 220mm wide
Hot pressure temperature range	30℃~120℃
Hot pressure temperature accuracy	$\pm 3^\circ\text{C}$
Temperature rise time	About 10 minutes (target temperature: 80℃)
Shaping time	Adjustable from 0 to 99.9 seconds
Maximum working pressure	10T
Insulation resistance tester	Yangzi YD9820D
Power supply	AC 220V/50Hz, power approximately 1.5KW
Weight	Approximately 700kg
Size	Approximately L (1.2m) x W (1m) x H (2.2m)



Product Feature

- ◆ The mechanical structure of the machine head adopts a German X guide rail structure, with extremely high precision.
- ◆ The system performs self check upon startup, automatically searches for frequencies, and after replacing or repairing the welding head, the system does not need to be recalibrated.
- ◆ The cutting blade adopts SDK11 material for heat treatment and strengthening, with an accuracy of $\pm 0.005\text{mm}$ on the finely ground plane.
- ◆ Precision testing of insulation resistance, identification of micro short circuit conditions in battery cells, and assessment of battery cell

Applicable battery cell range	Height 90-220mm, width 90-180mm, thickness 30-80mm
Positive/negative electrode material	Aluminum foil, copper foil
Positive/negative electrode thickness	0.006~0.020mm
Positive/negative tabs material	Aluminum tabs, nickel tabs, copper plated nickel tabs
Positive/negative tabs thickness	0.1-0.3mm
Maximum number of stacked layers	10-120 layer
Supporting power	8000W+ (peak)
Ultrasonic frequency	20KHz
Welding tension	$\geq 300\text{N}$
Insulation resistance tester	Yangzi YD9820D
Power supply	AC 220V/50Hz, Power approximately 8.5KW
Weight	Approximately 500kg
Size	Approximately L (1.2m) x W (1m) x H (2.2m)

Product Introduction

Applied to square aluminum shell battery cells for pre welding and cutting of tabs after soft winding/stacking, and conducting short circuit testing on the cells.

Final Welding, Shaping and Gluing Machine YK-ZZJ-220



Product Feature

- ◆ Adopting advanced constant current and constant voltage circuit technology, the ultrasonic amplitude is continuously adjustable.
- ◆ The mechanical structure of the machine head adopts a German X guide rail structure, with extremely high precision.
- ◆ The adhesive gluing mechanism consists of two groups of mechanisms and four sets of adhesive tapes, which shape the battery cells and press them flat to apply adhesive. Equipped with vacuum alarm function to check for broken tape and whether the tape is adsorbed.

Applicable battery cell range	Height 90-220mm, width 90-180mm, thickness 30-80mm
Positive/negative electrode material	Aluminum foil, copper foil
Positive/negative electrode thickness	0.006~0.020mm
Positive/negative tabs material	Aluminum tabs, nickel tabs, copper plated nickel tabs
Positive/negative tabs thickness	0.1-0.3mm
Maximum number of stacked layers	10-120 layer
Supporting power	8000W+ (peak)
Maximum shaping pressure	400Kg
Power supply	AC 220V/50Hz, power approximately 8.5KW
Weight	Approximately 400Kg
Size	Approximately L (1.5m) x W (1.5m) x H (2m)

Product Introduction

Used for the terminal welding, shaping, and gluing processes of square aluminum shell battery cell tabs, achieving automatic sequence transfer in one of the three processes.

Cell Merging ,Testing and Gluing Integrated Machine YK-HXCSTJ-220



Product Introduction

Suitable for the gluing process of square aluminum shell battery cells after current collection welding.

Product Feature

- ◆ Adopting servo motor and screw automatic control, with high displacement accuracy.
- ◆ Mechanical arm operation, no need for manual contact with battery cells.
- ◆ Precision testing of insulation resistance, identification of micro short circuit conditions in battery cells, and assessment of battery cell safety performance.

Applicable battery range	Height 90-220mm, width 90-180mm, thickness 30-80mm
Gluing length	15-25mm \pm 0.5mm
Tape width	20mm
Insulation tester	Yangzi Instrument Digital Display YD9820A
Power supply	AC 220V/50Hz, power approximately 2KW
Weight	Approximately 800kg
Size	Approximately L (1.2m) x W (1m) x H (2m)

Film Wrapping and Gluing Machine YK-BMTJ-220



Product Introduction

Suitable for wrapping and protecting the square aluminum shell batteries cell with Mylar film.

Product Feature

- ◆ Equipped with servo motor automatic control and high displacement accuracy.
- ◆ The mobile module is controlled by 6 sets of servo motors to run back and forth between four processes.
- ◆ The gluing mechanism is composed of two sets of mechanisms and two sets of adhesive tapes to fix the coated battery cells with adhesive. Equipped with vacuum alarm function to check for broken tape and whether the tape is adsorbed.

Applicable battery cell range	Height 90-220mm, width 90-180mm, thickness 30-80mm
PET film thickness	0.15-0.18mm
PET film size	460*280
Tape width range	15-20mm
Tape length range	70-160mm
Power supply	AC 220V/50Hz, power approximately 2.2KW
Weight	Approximately 800kg
Size	Approximately L (1.5m) x W (1.46m) x H (2.0m)

Shell Entering and Testing Machine YK-RKCS-220



Product Introduction

Suitable for the process of installing square aluminum shell battery cells into aluminum shells and conducting short circuit tests on the cells.

Product Feature

- ◆ Adopting servo motor and screw automatic control, with high displacement accuracy.
- ◆ The mobile module is controlled by 6 sets of servo motors
- ◆ Shell dust removal, guiding into the shell, and short circuit detection.
- ◆ Mechanical arm operation, no need for manual contact with battery cells.
- ◆ Precision testing of insulation resistance, identification of micro short circuit conditions in battery cells, and assessment of battery cell safety performance.

Applicable battery range	Height 90-220mm, width 90-180mm, thickness 30-80mm
Servo motor	6sets
Incoming and outgoing materials	Belt conveyor
Insulation resistance tester	Yangzi YD9820D
Power supply	AC 220V/50Hz, power approximately 1.5KW
Weight	Approximately 800kg
Size	Approximately L (1.5m) x W (1.46m) x H (2.0m)

Current Collector Laser Welding Machine YK-JLTHJ-300



Product Introduction

Applied to the current collector and cover plate welding process of square aluminum shell battery cells.

Product Feature

- ◆ Adopting high-power laser mirror control, with high focusing accuracy.
- ◆ Adopting servo motor automatic control and high displacement accuracy
- ◆ The movement is controlled by modular servo motors.

Effective working range of the workbench	Length 300mm x Width 300mm x Height 350mm
Repetitive positioning accuracy of laser welding heads	$\leq \pm 0.02\text{mm}$
Laser welding machine power	4000W
Precision of welding head focal length adjustment	0.02mm
Servo motor	6sets
Power supply	AC 380V/50Hz, power approximately 10KW
Weight	Approximately 450kg
Size	Approximately L (1.2m) x W (1.1m) x H (2m)

Semi-Automatic Helium Detector YK-HJJ-220



Product Introduction

Suitable for dry leak detection of finished battery cells after sealing nail welding of square aluminum shell battery cell after liquid injection.

Product Feature

- ◆ The system is controlled by PLC, operated by touch screen, and has functions such as production statistics, fault statistics, and password protection.
- ◆ The system structure is clear and visible, relevant functional modules and parameters can be set, and the operating interface is simple.
- ◆ Equipped with safety gratings to ensure safe equipment operation

Applicable battery cell range	Height 90-220mm, width 90-180mm, thickness 30-80mm
Helium filling pressure (absolute pressure)	$\leq 0.1\text{MPa}$
Minimum detectable leakage rate (negative pressure mode)	$5 \times 10^{-13} \text{Pa} \cdot \text{m}^3/\text{s}$
Minimum detectable leakage rate (positive pressure mode)	$1 \times 10^{-9} \text{Pa} \cdot \text{m}^3/\text{s}$
Leakage rate display range	$1 \times 10^{-3} \sim 1 \times 10^{-13} \text{Pa} \cdot \text{m}^3/\text{s}$
Power supply	AC 220V/50Hz, power approximately 3KW
Weight	Approximately 300kg
Size	Approximately L (0.8m) x W (0.8m) x H (1.8m)

Three-Layer Vacuum Oven YK-GZK03-D2



Product Introduction

Used for baking lithium-ion battery electrodes, cells, and batteries to be filled with liquid. Each workroom independently, and the heating, vacuuming, and inflation work in an automatic cycle mode. The time of each working section is set through the touch screen.

Product Feature

- ◆ The inner cavity is made using standard welding techniques for pressure vessels, with high vacuum retention, durability, and long service life, without deformation
- ◆ Temperature control adopts thyristor SSR+PID mode, with small thermal inertia and good temperature control effect.
- ◆ Hot air is used to circulate inside and outside the chamber, ensuring consistent temperature inside and outside the furnace chamber.
- ◆ Using magnetic fluid for air transportation, with good sealing and high temperature resistance.

Vacuum degree	Empty chamber vacuum degree $\leq 10\text{pa}$, full load chamber vacuum degree: $50\text{pa} \sim 100\text{pa}$, leakage rate $\leq 500\text{pa}$ within 24 hours
Temperature range	Room temperature+20 °C~150 °C
Temperature error inside the box	$\pm 3\text{ °C}$ (empty box, constant temperature state)
Main heating temperature control	Temperature control accuracy within $\pm 0.5\text{ °C}$
Inner cavity size	350mm high x 850mm wide x 700mm deep (X 3 pieces)
Power supply	AC 380V/50Hz, power approximately 25KW
Weight	Approximately 1500kg
Size	Approximately L (1.9m) x W (1.3m) x H (1.9m)

Aluminum Shell Liquid Injection Machine YK-LKZY-A4



Product Feature

- ◆ Digital liquid injection volume setting, convenient operation and high accuracy.
- ◆ Adopting an equal pressure liquid injection vacuum static box.
- ◆ The reservoir will automatically replenish when it is out of liquid.
- ◆ Corrosion resistant material injection nozzle
- ◆ The storage cup and pipeline are made of corrosion-resistant materials.

Product Introduction

Suitable for the liquid injection process of square aluminum shell batteries cell.

Applicable battery cell range	Height 90-220mm, width 90-180mm, thickness 30-80mm
Upper and lower storage tanks	Size 200mm * 100mm * 110mm (length * width * height)
Electric pump	150g ceramic single head electric pump without dynamic sealing ring
Single pump accuracy	The accuracy of the injection pump is within $\pm 0.75\%$
Power supply	AC 220V/50Hz, power approximately 3.5KW
Weight	Approximately 600kg
Size	Approximately L (1m) x W (1m) x H (2m)

Negative Pressure Formation Machine YK-FYHC16CH-5V30A



Product Feature

- ◆ The high current probe structure and four wire system are adopted, and the contact surface is gold-plated with embossing
- ◆ The negative pressure system is composed of a negative pressure cup module, stainless steel fittings, corrosion-resistant pipelines, and a vacuum control system.
- ◆ The heating component adopts a dual temperature control heating system.
- ◆ The safety protection for abnormal charging and discharging adopts a dual smoke sensor alarm system.

Product Introduction

Used for the formation process of square aluminum shell batteries under high temperature and negative pressure conditions.

Applicable battery cell range	Height 90-220mm, width 90-180mm, thickness 30-80mm
Formation channel	16 channel
Heating temperature	Room temperature~80 °C, accuracy ± 3 °C
Heating rate	Room temperature~80 °C for 30 minutes
Reaching vacuum degree	-1kPa~-95kPa
Charging voltage	0~5V
Charging current	0.6A~30A
Voltage accuracy	$\pm (0.05\%RD + 0.05\%FS)$
Current accuracy	$\pm (0.05\%RD + 0.05\%FS)$
Power supply	AC 220V/50Hz, power approximately 8KW
Weight	Approximately 300kg
Size	Approximately L (1m) x W (0.8m) x H (1.8m)

Laser Sealing Machine YK-JHJ-1500



Product Feature

- ◆ Standardized workbench design, simple and flexible welding fixture debugging.
- ◆ The battery model has strong compatibility and is equipped with a blueprint size welding fixture, suitable for sealing welding of most models.
- ◆ PC control operation is convenient, with trajectory teaching function, and easy to use.
- ◆ Equipped with three axes as standard, it can be expanded to four-axis linkage to achieve three-dimensional welding in any space.

Product Introduction

Suitable for laser welding of liquid injection holes in square aluminum shell batteries.

Applicable battery cell range	Height 90-220mm, width 90-180mm, thickness 30-80mm
Center wave length	1077~1085nm
Full height half width spectral width	<3nm
Rated maximum output power	1500W
Maximum modulation frequency	50KHz
Laser output head	QBH
Cooling model	Water-cooling
Power supply	AC 380V/50Hz, power approximately 5.5KW
Weight	Approximately 1000kg
Size	Approximately L (1.5m) x W (1.2m) x H (2m)

Grading and Testing Integrated Machine YK-LKFR32CH-5V30A



Product Feature

- ◆ Equipped with capacity sharing charging and discharging functions, it can achieve energy-saving charging and discharging feedback to the power grid.
- ◆ The high current probe structure and four wire system are adopted, and the contact surface is gold-plated with embossing.
- ◆ Adopting a movable clamping and pressing mode, electrically opening the clamp, and using reinforced specialized fixtures.

Product Introduction

Used for charge and discharge testing and capacity separation process of square aluminum shell batteries.

Applicable battery cell range	Height 90-220mm, width 90-180mm, thickness 30-80mm
Formation channel	32channels
Charging voltage	0~5V
Charging current	0.6A~30A
Voltage accuracy	$\pm (0.05\%RD + 0.05\%FS)$
Current accuracy	$\pm (0.05\%RD + 0.05\%FS)$
Power supply	AC 220V/50Hz, power approximately 6KW
Weight	Approximately 300kg
Size	Approximately L(1.6m) x W(0.8m) x H(1.8m)

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