



晖耀激光
HUIYAO LASER



Turnkey Solution For Intelligent Equipment In New Energy Industry

Huiyao Laser Technology (Luoyang) Co., Ltd.

YAOLASER

ABOUT YAO LASER

Huiyao Laser Technology (LuoYang) Co., Ltd. (AKA Yao Laser) is an industry-leading manufacturer of new energy intelligent equipment, dedicated to providing innovative turnkey solutions for **Battery Module PACK Production Lines and CCS Intelligent Manufacturing Production Line** across various industries. Since its establishment in 2019, Yao Laser has continuously advanced the development and application of laser technology, providing customers with high-quality, high-performance laser equipment and **Battery Module PACK Automated Production Lines, and CCS Intelligent Manufacturing Production Line**. Since its establishment, Huiyao Laser has established deep cooperation with well-known domestic and international enterprises, such as **CALB (China Aviation Lithium Battery), BYD, SVOLT Energy, State Energy Group, Xuji Group, Sacred Sun Power, Tianhui Lithium Battery, New Taihang, Harbin Coslight, and Wan Yang Lithium Battery**.

The company covers an area of **10,800 Square Meters** and is equipped with a number of automated and semi-automated production lines and advanced laser welding equipment. It holds **ISO9001 Quality Management System Certification, ISO14001 Environmental Management System Certification and ISO45001 Occupational Health and Safety Management Certification**. The company actively promotes standardized production models, improves product quality management and ensures after-sales service guarantee, and commits to providing customers with reliable products and high-quality service.



REPRESENTATIVE CUSTOMERS

 <p>国家能源集团 CHN ENERGY 国能信控互联技术有限公司 CHN ENERGY I&C INTERCONNECTION TECHNOLOGY CO.,LTD.</p>	 <p>中航锂电</p>	 <p>BYD</p>	 <p>SVOLT 蜂巢能源</p>
 <p>中国电气装备集团有限公司 China Electrical Equipment Group Co., Ltd.</p>	 <p>CEIC 中国电子科技集团公司第十八研究所</p>	 <p>THLD 天辉锂电</p>	 <p>光宇集团 COSLIGHT COSLIGHT GROUP</p>
 <p>圣阳电源 SACRED SUN</p>	 <p>新太行电源 XINTAIHANGPOWER</p>	 <p>国家电网 STATE GRID 许继集团有限公司 XJ GROUP CORPORATION</p>	 <p>金冠电气 JINGUAN ELECTRIC</p>
 <p>PLANNANO 普兰纳米</p>	 <p>万洋锂电 WANYANG LITHIUM BATTERY</p>	 <p>SEMI 赛美科技</p>	 <p>中国船舶集团有限公司 第七二五研究所 双瑞 SUNRUI LUOYANG SHIP MATERIAL RESEARCH INSTITUTE</p>
 <p>BLD 博磊达</p>	 <p>HNE JANGSU NATURE ZHENYUAN ENERGY STORAGETECHNOLOGY CO., LTD</p>	 <p>安徽和鼎机电设备 有限公司</p>	 <p>洛阳储变电系统有限公司</p>
 <p>凯迈 (洛阳) 气源有限公司</p>	 <p>LEOCH 理士电池 LEOCH BATTERY</p>	 <p>日出东方</p>	 <p>海博电气</p>
 <p>ENEROC 鹏成科技</p>	 <p>通盛能源 TONGFEED</p>	 <p>威腾电气 WETOWN ELECTRIC</p>	 <p>GMDE 煦达新能源</p>
 <p>CEES 中电储能</p>	 <p>NARADA 南都电源</p>	 <p>中航太克 All For Reliability</p>	 <p>大连理工大学 DALIAN UNIVERSITY OF TECHNOLOGY</p>

COMPANY QUALIFICATION



Henan Province
Specialized and
Innovative Enterprise



Henan Province
High-tech Enterprise



Luoyang City
Enterprise R&D Center



Luoyang City
Industrial Design Center

FDA



ISO



Enterprise Credit Rating Certificate



Utility Model Patent And Invention Patent Certificate



More international certifications are currently being applied for.....

CORE TECHNOLOGY

Turnkey Solution For Intelligent Equipment In New Energy Industry



Laser Welding Technology



Quality Control Technology



Intelligent Control System



Flexible Module Design Capability



Data Management and Traceability Capabilities



System Integration and Collaborative Capabilities



Continuous Innovation and R&D Capabilities

AFTER-SALE SERVICE

Warranty and Guarantee

Your satisfaction is our top priority. All single-station equipment and production lines sold by Yao Laser come with a one-year free warranty and a lifetime quality guarantee, covering any manufacturing defects or malfunctions. If you encounter any issues, rest assured, we will promptly address them, ensuring your peace of mind.

Quality Assurance

At Yao Laser, we place the highest priority on delivering products of the utmost quality. Before any sale, our Battery Modules and PACKs undergo rigorous testing and inspection to ensure they meet the industry's highest standards. We are committed to providing you with reliable and safe products that exceed your expectations.

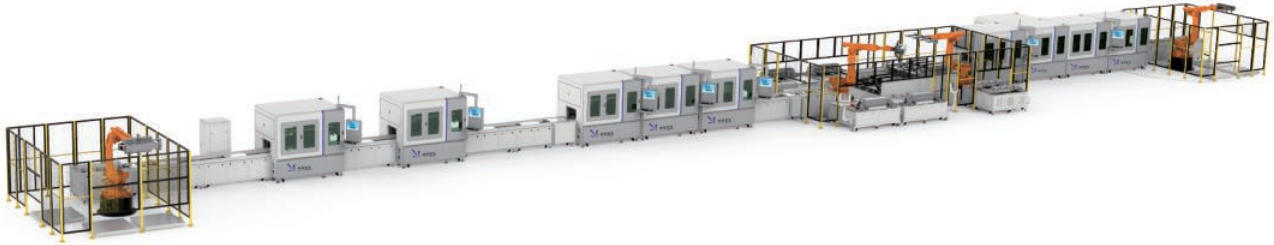
Customer Support

Our team of experts is here to assist you through the whole process. Whether you have questions about product features, compatibility, or any other concerns, we offer personalized consult services to ensure you make the right choice.

PROCESS DISPLAY



BUSINESS CATEGORIES



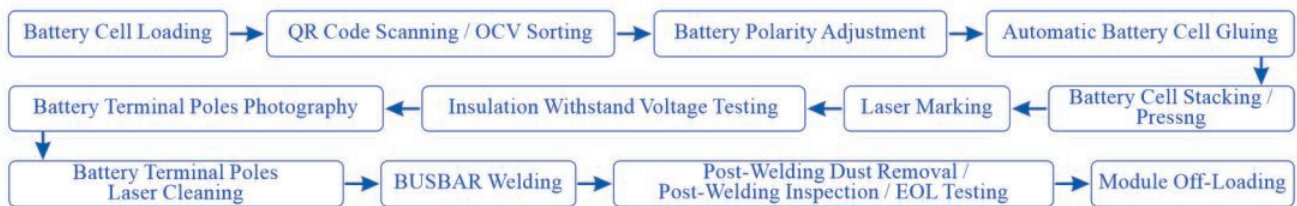
Prismatic Battery Module Automation Assembly Production Line

Prismatic Battery Module Automation Assembly Line is compatible with a variety of size module specifications with quick change. Laser output power stability (fluctuation) is $\leq \pm 1\%$. The focal length of the galvanometer can be digitally displayed and adjusted, the range is $-5.0 \sim +5.0\text{mm}$, and the adjustment accuracy is $\leq 0.5\text{mm}$. The welding track is edited by welding software, and the welding process is automated. The parameters can be modified, and the operation and modification authority can be set.

Key Features

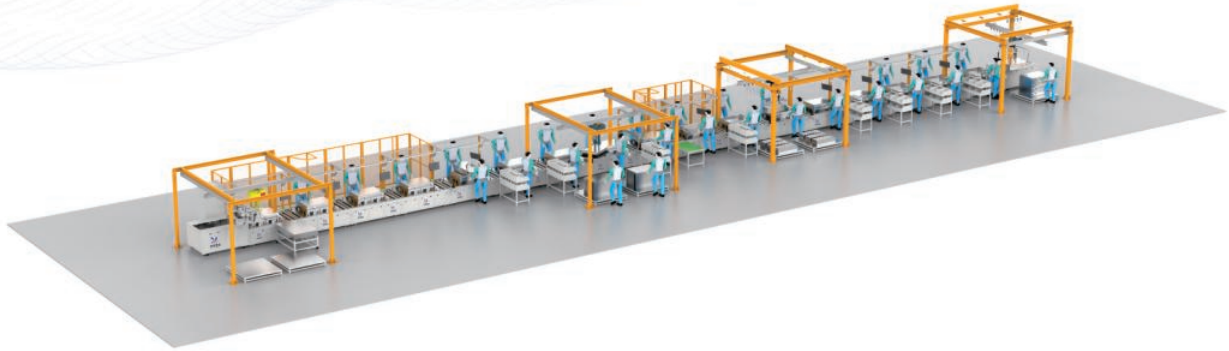
- The whole line adopts modular design, which can realize flexible configuration of the production line;
- It is compatible with various prismatic battery models and can quickly change models to meet production needs;
- The equipment is efficient, stable, and intelligent, capable of precise control and optimization of the production process;
- Equipped with advanced safety functions, it complies with international safety standards.

Process Flow



Technical Parameter

Item	Value
Dimension (L*W*H)	58000mm*8000mm*3200mm 190ft*26ft*10ft
Line Efficiency	$\geq 10\text{PPM}$
Final Yield Rate	$\geq 99.8\%$ (only counting defects caused by the equipment)
Line Failure Rate	$\leq 2\%$



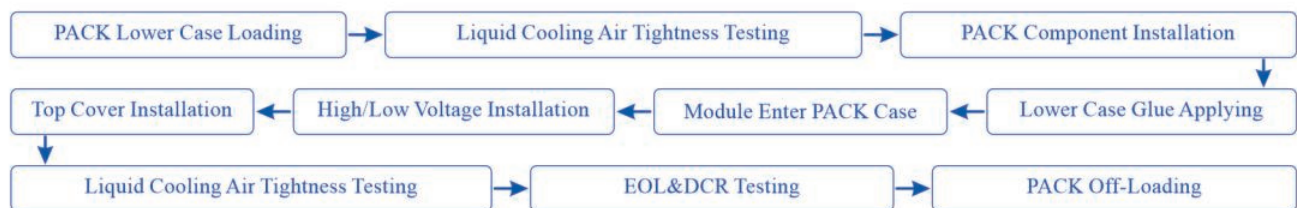
Prismatic Battery PACK Assembly Production Line

The automated assembly line for prismatic battery PACK is primarily based on a heavy-duty roller conveyor line with a two-layer recirculating structure. It can be customized according to customer requirements and is compatible with both air cooling and liquid cooling systems. The complete line includes workstations for water-cooling plate air-tightness testing, component installation, automatic gluing of the PACK bottom case, high and low voltage wiring harness installation, End-Of-Line (EOL) testing, DCR (Direct Current Resistance) testing, complete package air-tightness testing, and other PACK assembly and testing processes.

Key Features

- Standard modular design greatly improves production efficiency;
- Compatible with both liquid cooling and air cooling, adaptable to various PACK types;
- Based on a 280Ah battery cell, it is compatible with multiple prismatic cells, with fast changeover speeds;
- Multiple line designs available, allowing for flexible configurations based on customer facility space, ensuring a high degree of adaptability to various site sizes.

Process Flow



Technical Parameter

Item	Value
Dimension (L*W*H)	37000mm*6350mm*3500mm 121ft*20ft*11ft
Final Yield Rate	≥99.8%
Line Failure Rate	≤2%
Cooling Method Compatible	Air Cooling&Liquid Cooling



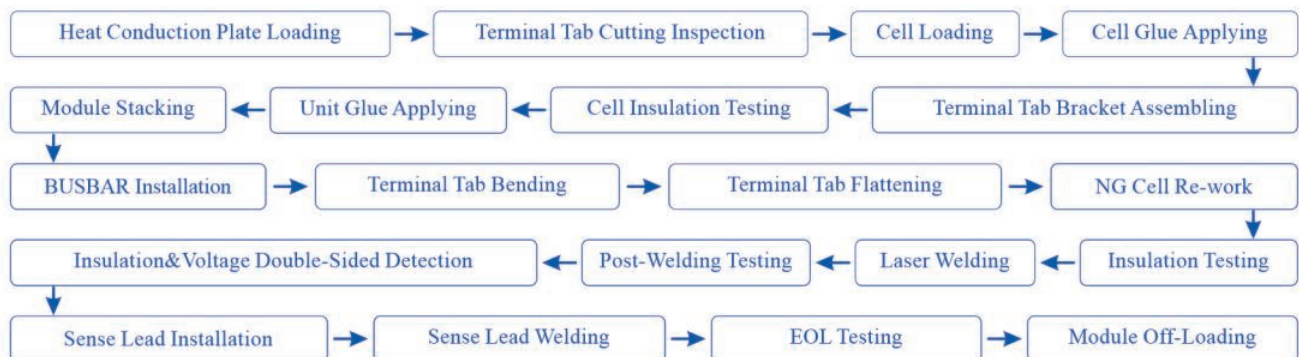
Pouch Battery Module Automation Production Line

It is an automatic production line from cell to module, mainly including cell loading, terminal tab cutting, terminal tab bending, terminal tab flattening, insulation testing, BUSBAR welding, sense lead welding, EOL testing and other processes.

Key Features

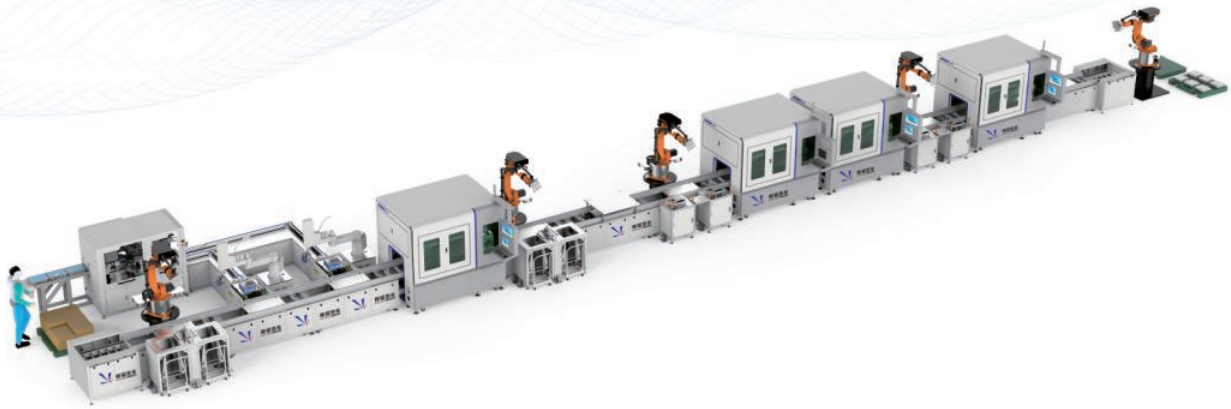
- High degree of customization: design the layout of the production line according to customers' needs;
- High stability: simple equipment layout, stable operation and low maintenance cost;
- Wide range of compatibility: can achieve rapid switching between different modules production processes;
- High degree of automation: automated production line, reducing labour costs.

Process Flow



Technical Parameter

Item	Value
Dimension (L*W*H)	60000mm*8500mm*3500mm 196ft*27ft*11ft
Line Efficiency	≥12PPM
Final Yield Rate	≥99.8%
Line Failure Rate	≤2%



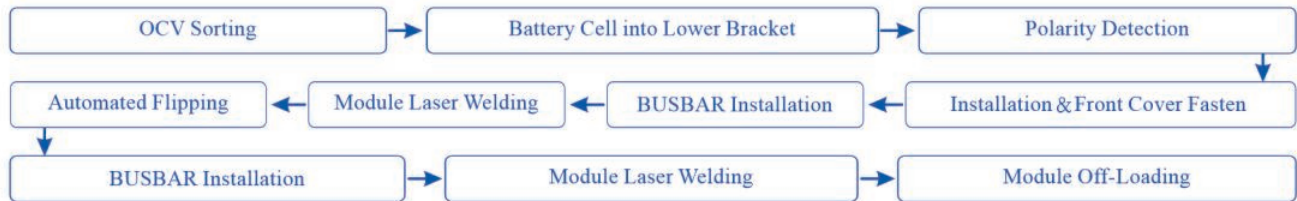
Cylindrical Battery Module PACK Automation Production Line

The production process of Cylindrical Battery Module PACK Line includes cell sorting, cell sequencing, cell welding, cell testing, cell packaging, cell assembly, PACK assembly and PACK testing.

Key Features

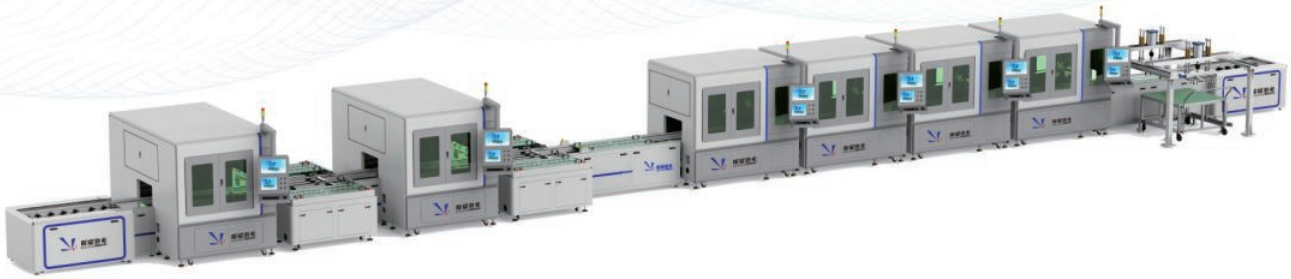
- Rapid off-standard customisation based on customer's process;
- Automated processes, seamless workflow integration and real-time data management ensure excellent productivity;
- Precise assembly, welding and quality control of battery PACK components using superior laser technology and advanced robotics;
- Integration of machinery and automation systems creates a seamless and intelligent production line, minimising downtime and increasing resource utilisation.

Process Flow



Technical Parameter

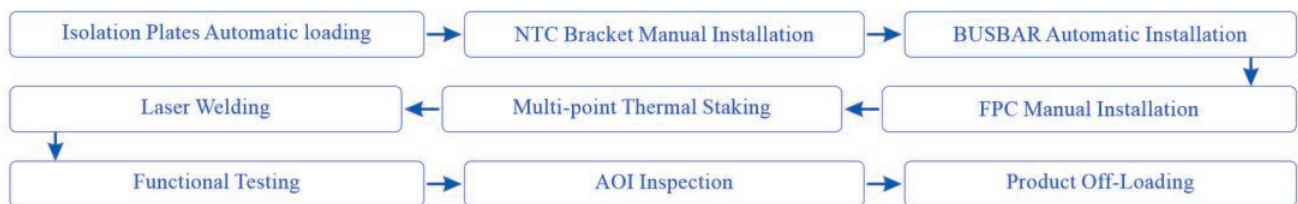
Item	Value
Dimension (L*W*H)	35700mm*3000mm*3300mm 117ft*9ft*10ft
Line Efficiency	≥33PPM
Final Yield Rate	≥99.8%
Line Failure Rate	≤2%
Blueprint Battery Cell	26700 Cell
Cooling Method Compatible	18650, 21700, 26700 and 32700



CCS Intelligent Manufacturing Production Line

The CCS intelligent manufacturing production line of Huiyao Laser is a highly integrated and flexible system, including automated equipment such as wire harness isolation plate feeders and automatic BUSBAR feeders, as well as core process equipment such as single-point/multi-point riveting machines and nickel sheet laser welding machines. The production line is also equipped with precise detection devices such as automatic electrical performance testers and Automatic Optical Inspection (AOI) equipment.

Process Flow



Detail demonstration



Technical Parameter

Item	Value
Equipment Yield Rate	First-pass yield rate of laser welding station $\geq 99.5\%$
Final Yield	$\geq 99.8\%$ (Including rework)
The first-pass yield of electrical performance testing	$\geq 97\%$
The first-pass yield of AOI inspection	$\geq 97\%$
Line Failure Rate	$\leq 2\%$ (only including the faults caused by equipment)
MTBF (Mean Time Between Failures)	$\geq 4\text{H}$ (Excluding alarms lasting $< 2\text{min}$)
Entire Line's OEE	$\geq 85\%$

Prismatic Battery Module Laser Welding Machine



It utilizes advanced laser welding technology to perform high-precision welding on the connection points of the battery modules, ensuring excellent electrical conductivity and mechanical strength at the weld sites.



Equipment Capacity
12 PPM



Equipment Failure Rate
 $\leq 2\%$

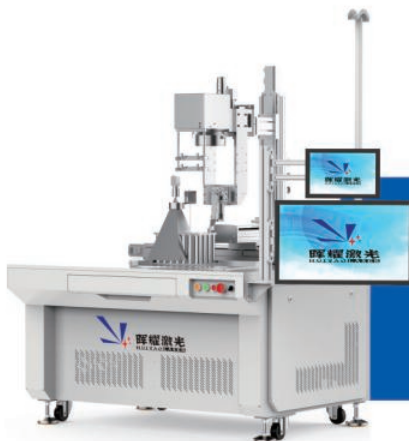


Equipment Efficiency
 $\geq 99.8\%$



Single Station Changeover Time
 $\leq 0.5h$

Cylindrical Battery Module Laser Welding Machine



Its design takes into account the unique structure of cylindrical batteries, employing a multi-axis linkage system to achieve flexible positioning and high-speed welding of the welding head, ensuring consistency at each battery weld point.



Equipment Capacity
12 PPM



Equipment Failure Rate
 $\leq 2\%$



Equipment Efficiency
 $\geq 99.8\%$



Single Station Changeover Time
 $\leq 0.5h$

Pouch Module Welding Workstation



This equipment utilizes non-contact laser welding to avoid physical damage to sensitive battery materials, making it particularly suitable for the welding needs of flexible packaging.



Equipment Capacity
12 PPM



Equipment Failure Rate
 $\leq 2\%$



Equipment Efficiency
 $\geq 99.8\%$



Single Station Changeover Time
 $\leq 0.5h$

Prismatic Aluminum Shell Battery Cell Production Line

Flexible battery cell assembly line, capable of rapid changeover and compatible with various types of prismatic battery cells. Yield rate $\geq 99.9\%$, failure rate $\leq 2\%$, and all production line equipment can be customized according to specific requirements.

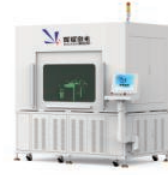
⊙ Battery Cell Hot Pressing HIPOT Equipment



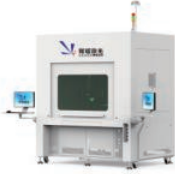
⊙ Battery Cell Tab Cutting Equipment



⊙ Battery Cell Ultrasonic Welding Equipment



⊙ Battery Cell Adapter Plate Welding Equipment



⊙ Battery Cell MYLAR Film Wrapping Equipment



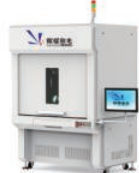
⊙ Battery Cell Top Cover Welding Equipment



⊙ Battery Cell Helium Detector Equipment



⊙ Battery Cell Sealing Nail Welding Equipment



⊙ Battery Cell Blue Film Wrapping Equipment



Prismatic Battery Cell OCV Sorting Equipment

OCV (Open Circuit Voltage) sorting equipment measures battery cell voltage and internal resistance to identify and separate defective cells, ensuring high-quality and safe battery packs.



Prismatic Battery Robot Dual-Station Welding Equipment

Robot dual-station welding equipment revolutionizes manufacturing with its advanced robotics for precise and efficient welding. Featuring dual stations, it maximizes productivity while ensuring consistent weld quality.



Battery Structural Part Assembly Automation Line

This line is an integrated automatic line consisting of explosion-proof valve welding equipment, cover plate component assembly welding equipment, air tightness testing equipment, and impedance performance testing equipment. The line adopts automatic loading with auxiliary machines to reduce manual involvement, greatly improving production efficiency.



⊙ Dual-Station Terminal Poles Welding Equipment

⊙ Six-Station Rotary Enclosed Welding Equipment



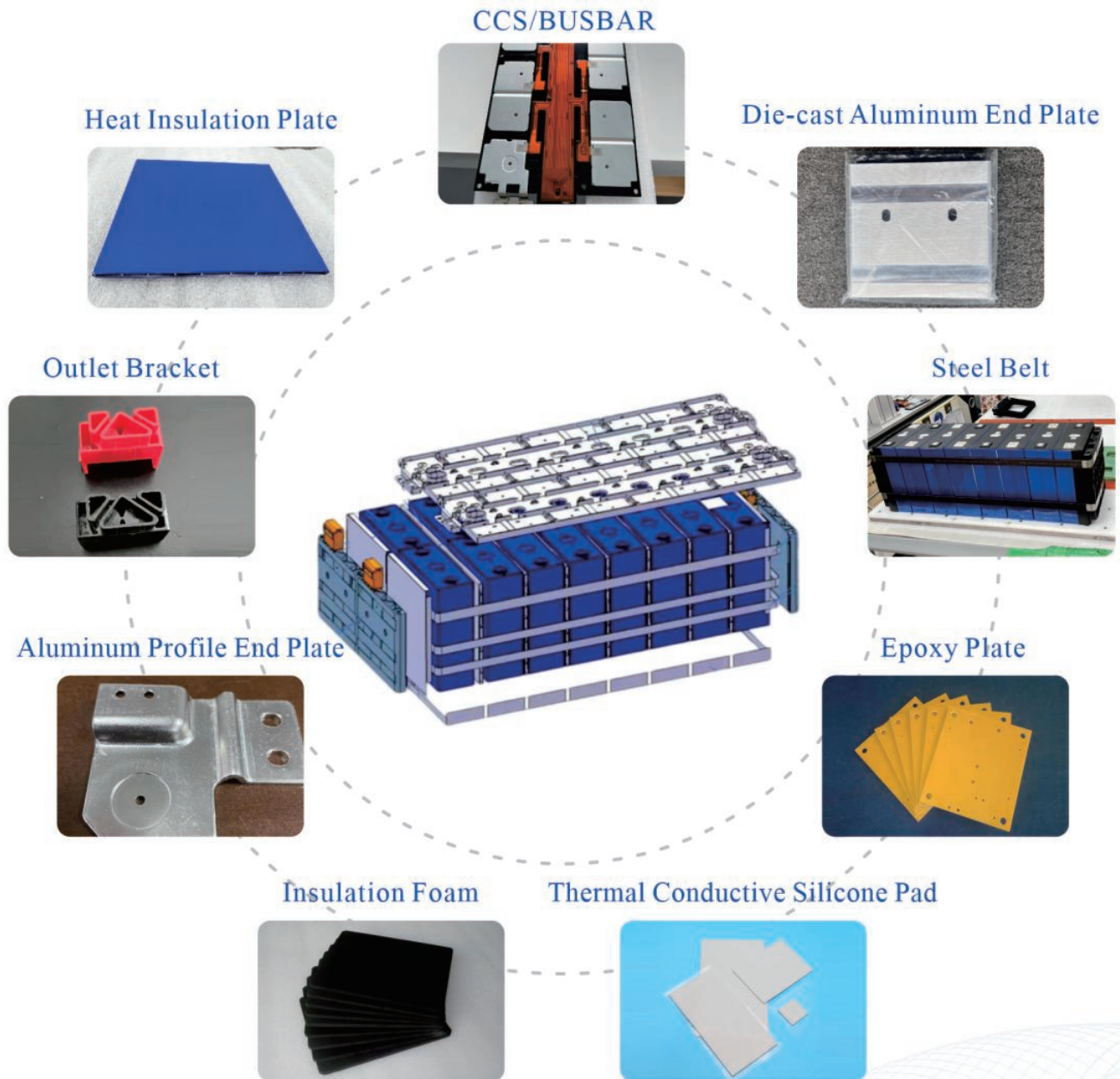
⊙ Explosion-Proof Valves Automatic Welding Equipment

⊙ Dual-Station Rotary Enclosed Welding Equipment



MODULE PACK ACCESSORIES

Can Be Customized According To The Battery Model





For More Information, Please Scan the QR Code by Camera to Reaching the Yao Laser Official Website



Mail: info@huiyaolaser.com



WhatsApp Business: YaoLaser



YouTube: YaoLaserTechnology



Facebook: Yao Laser(YaoLaser Tech)



TikTok: Yaolaserwelding



LinkedIn: YaoLaser Technology Co.,Ltd



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