

Customization Turnkey Solution



Turnkey Solution for PV Module Manufacturing



HANGZHOU CONFIRMWARE TECHNOLOGY CO.,LTD.

📍 ConfirmWare Plaza, No.258, Xietong Road, Binjiang District, Hangzhou City, Zhejiang, China

☎ 0571-88253203

✉ marketing@confirmware.com

🌐 www.confirmware.com

The logo for CONFIRMWARE, featuring the word 'CONFIRMWARE' in a bold, blue, sans-serif font. Above the 'I' in 'CONFIRM' is a small blue dot, and above the 'M' is a small green dot. The 'M' is also green. The 'WARE' part is in blue.

PROFESSIONAL MANUFACTURER OF SOLAR PV MODULE EQUIPMENT

Founded in 2005, Hangzhou ConfirmWare Technology Co., Ltd. is a national high-tech enterprise specializing in the R&D and manufacturing of intelligent equipment.

Headquartered in Hangzhou, ConfirmWare has a 25,000 m² production center and a 3,000 m² R&D laboratory, obtaining more than 150 licensed patents. Our products have been widely used in more than 20 countries and regions, such as China, the U.S., Canada, South Korea, Turkiye, Austria and Vietnam. ConfirmWare is committed to constantly providing customers with overall solutions for intelligent manufacturing to improve the customer experience.

For over a decade, ConfirmWare has always focused on technical research on automation control, sensing, driving and information system. The solar cell series stringer independently developed by ConfirmWare has been included in the directory of the first set (series) of products in key fields of the equipment manufacturing industry of Zhejiang Province. The equipment in the field of photovoltaic module manufacturing, such as MBB cell stringer, automatic bussing machine and automatic layup machine, have reached the leading level in the industry.

We believe that intelligent manufacturing is a powerful weapon to restructure the value system of the manufacturing industry and will play a key role in the process of promoting sustainable development. Guided by the national strategic goal of “peak carbon emissions and carbon neutrality”, ConfirmWare will focus on intelligent manufacturing, put customers first, stick to the globalization strategy and help manufacturing enterprises realize smart transformation.

CORPORATE STRENGTHS

18Years

- 18 Years of Experience in Intelligent Equipment and Automation Technology

20+

- 20+ Countries and Regions Covered within Partnership Network

150+

- 150+ Patents and Copyright Certificates

500+

- 500+ Professional Staffs

25000m²

- 25000m² Specialized Plant

3000m²

- 3000m² R&D Lab



INTELLIGENT MANUFACTURING DEVELOPMENT CONCEPT

ConfirmWare continues to keep an eye on the development trend of the industry, develop customized intelligent manufacturing equipment according to customer needs, and provide customers with optimal intelligent production solutions taking factors like the site, automation level and capacity requirements into account, to help customers save labor and improve efficiency.

Lean manufacturing management system

We strictly follow the 7S lean management model and fully implement ISO9001 quality management and ISO 14001 environmental management system to ensure production quality and efficiency.



Rich project management experience

Based on years of project practice, we have formed a standardized project management system and have rich experience in team configuration, schedule control, quality control, etc.

Professional solution design capability

With customer needs as the guide and process flow and efficiency analysis as the basis for capacity design, we plan precisely to create one-stop integrated service solutions for our customers.



Globalized service layout

We have established several overseas local service centers and spare parts warehouses to quickly respond to customers' after-sales maintenance needs. Our one-to-one personalized and exclusive service team will respond promptly within 24 hours and flexibly follow up production to ensure the steady state operation of equipment.





Ultrahigh Speed MBB Cell Stringer with Inline NDC

PRODUCT INTRODUCTION



● Ultrahigh Speed MBB Cell Stringer with Inline NDC integrates non-destructive Cutting and cell Soldering, and has the performance characteristics of high productivity, high stability, easy operation, and wide range of compatible cell processes.

Basic parameter	Value
Cell size	156-230mm half-cell, 210-230mm 1/3, 1/4cell, 120-200μm, 9-20BB
Scribing precision	±0.1mm
Cycle	7200half-cell/hour
Soldering string yield	98%
Max. string length	1250mm (Customizable)
Cell space range	Standard 1.8-6mm adjustable, -1 to 1.8mm customizable
Ribbon size	Round ribbon φ0.22-φ0.35mm
Ribbon application	Ribbon immersion
Soldering method	IR
Uptime	≥95%
Power	Rated power 65kW, Peak power 90kW
Air consumption	2700L/min
N.W.	12000kgs
Dimensions	L11063mm*W2480mm*H2250mm

High Efficiency

- ◆ The feeding and unfeeding return mechanism on the same side, to achieve the same station in a single side to load the feeding box and take down the empty box; no downtime is required for box replacement.
- ◆ It is equipped with process detection when scribing, which can reduce manual intervention; it supports half-cell feeding so scribing maintenance does not affect production.
- ◆ Stäubli four-axis robot grabber, as well as the dual-sided design of the slide, vertical gripper and tail clamp, to match the high-speed robot beat.

Soldering Precision

- ◆ With high-precision temperature control algorithm, tunnel lighting box can realize preheating, welding and cooling sectional steady state soldering, running continuously without stopping to ensure the welding quality under high speed beat.
- ◆ Self-developed thermostat, with the advantages of stable output, high control accuracy and PID control, to ensure the consistency of the temperature in the soldering light box.
- ◆ Position tolerance ≤ 0.1mm, with 2000W high-definition vision camera and high-precision robot.
- ◆ Servo-motor driven cell transport lines, together with a full-positioning mechanism, effectively prevent shifting and angular drift.

Multi Compatibility

- ◆ Compatible with PERC, TOPCON and HJT, it supports round and shaped soldering tapes.
- ◆ Expandable appearance inspection, with standard data interface to MES system standard data interface.
- ◆ Support docking with AGV to realize unmanned feeding.

Ultrahigh Speed MBB Cell Stringer

AMS60A



- ◆ Stäubli four-axis robot grabber, as well as the dual-sided design of the slide, vertical gripper and tail clamp, to match the high-speed robot beat.
- ◆ With self-developed high-precision thermostat, tunnel lighting box can realize preheating, welding and cooling sectional steady state soldering, to ensure the welding quality under high speed beat.
- ◆ It is compatible with PERC and TOPCON, can be upgraded to HJT, and supports round and shaped soldering tapes.

Basic parameter	Value
Cycle	7200 half-cell/hour
Soldering string yield	98%
Cell size	156-210mm half-cell, 210-230 1/3, 1/4cell
Bus bar number	9-20BB
Max. string length	1250mm
Cell space range	Adjustable from 1.8 to 6 mm, -1 to 1.8 mm, If there is a requirement of cell space<1.8mm, an additional flattening configuration is needed.
Ribbon size	Round ribbon ϕ 0.22-0.35mm
Ribbon application	Ribbon immersion
Soldering method	IR
Power	Rated power 45kW, Peak power 60kW
Air consumption	1700L/min
N.W.	9500kgs
Dimensions	L8570mm*W2480mm*H2450mm

MBB Cell Stringer

AMS-L4000-II



- ◆ Adopt dual belts for cell feeding, dual 4-axis robots for cell arrangement and dual vision system for detection.
- ◆ The round ribbon is fixed by fixtures to effectively prevent the ribbon from rolling so as to ensure seamless connection between the ribbon and cells.
- ◆ With strong scalability, it also supports appearance inspection, cell splicing and negative spacing.

Basic parameter	Value
Capacity	PERC 9-12BB \geq 3400 half-cell/hour, HJT TOPCON 9-20BB \geq 2600 half-cell/hour
Cell size	156-220mm
Bus bar number	3-20BB
Max. string length	2250mm
Cell space range	1.8-6mm can be set in units of 0.01mm. If there is a requirement of cell space<1.8mm, an additional flattening configuration is needed.
Ribbon size	ϕ 0.22-0.35mm Round ribbon
Ribbon application	Ribbon immersion
Soldering method	IR
Power	Rated power 32kW, Peak power 45kW
Air consumption	1000L/min
N.W.	7200kgs
Dimensions	L8300mm*W2200mm*H2300mm

Auto Bussing Machine

ABM20A



- ◆ The soldering head adopts integrated linear design, so it has the advantages of high integration and convenient installation; it also has high positioning accuracy with cell secondary correction function.
- ◆ For cells of the same specification, changing the number of bus bar and bus bar spacing does not require replacing the soldering head.
- ◆ It supports busbar ribbon punching, black busbar soldering, can be upgraded to 10-string single bypass, and has 12-string double bypass soldering capability.

Basic parameter	Value
Cycle	16s/Module
Module conveying height	980±30mm
Cell size	156-230mm 5-20BB 1/2 1/3 cell
Glass size	L1630-2600mm, W 986-1450mm
Adjustable string spacing	2-6mm
Bus bar size	4-8mm (Width) 0.2-0.4mm (Thickness), Roll feed (replacement parts for different widths)
Material plate size	Innerφ16mm-φ25mm, Outer ≤φ200mm
Soldering method	Electromagnetic soldering
Automatic correction accuracy range	≤±1mm
Secondary string sorting accuracy	≤±0.5mm
Power	Rated power 20kW, Peak power 40kW
Air consumption	0.6-0.8MPa 2000L/min
N.W.	5000kgs
Dimensions	L5050mm*W5050mm* H2500mm

Non-destructive Cutting Machine

ULC-4000/ULC-8000

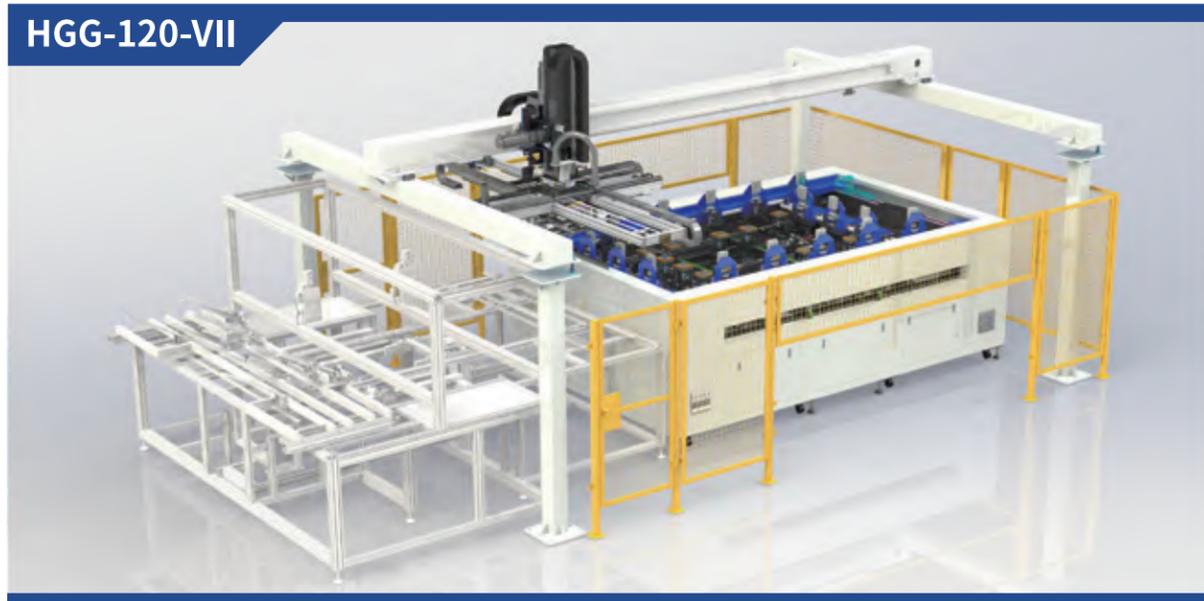


- ◆ Compatible with 156-230mm cells, the parts needn't replacing during a switch among different sizes of cells, highly adjustable.
- ◆ 12-megapixel industrial camera has high resolution, ensuring highly accurate scribe positioning.
- ◆ The equipment is equipped with imported lasers, which are independently controlled, thus ensuring device operation ratio.

Basic parameter	Value	
Cycle	≥3600 pcs/hour	7200 pcs/hour
Scribing function	1/2, 1/3 Upgradable	1/2, 1/3 Upgradable
Uptime	98%	98%
Cell type	Single and polycrystalline cells; cell size: 156-230mm, thickness: 0.15mm-0.2mm	
Scribing precision	±0.1mm	±0.1mm
Breakage	≤0.05%	≤0.05%
Feeding detection	Cell placement direction; more than 0.3mm edge collapse, missing angle	
Blanking detection	Large and small piece detection, and cutting line straightness detection to identify any crack, broken edge and unfilled corner	
Power	Rated power 10kW Peak power 15kW	Rated power 12kW Peak power 16kW
Air consumption	0.5m ³ /min	1m ³ /min
N.W.	3.5T	8T
Dimensions	L3858mm*W1850mm*H2454mm	L3750mm*W2300mm*H2400mm

Auto Framing Machine

HGG-120-VII

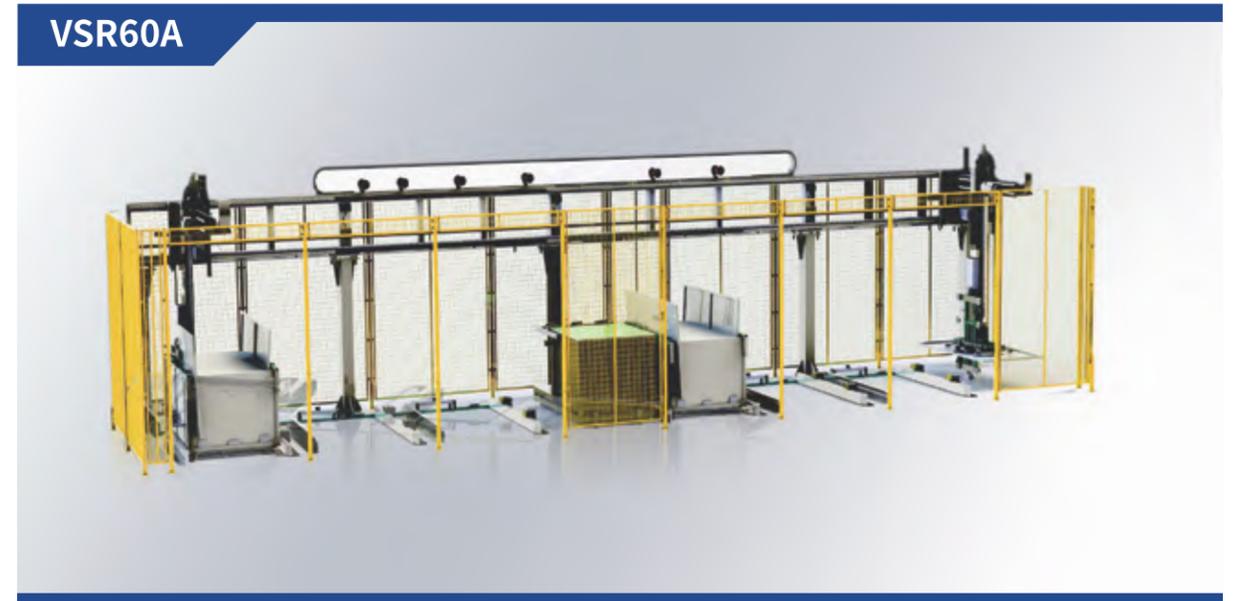


- ◆ The stress points of the group frame are evenly distributed to ensure uniform glue overflow.
- ◆ 20 sets of vacuum cups complete the assembly leveling, and the glass has no marks left.
- ◆ The framing machine is designed with profile straightening mechanism and pressure angle function.
- ◆ Framing position torsion is detected by PLC instantly to ensure accuracy and non-breakage.

Basic parameter	Value
Cycle	<20s
Applicable module size	L1630-2600mm , W950-1450mm
Module diagonal tolerance	≤1.5mm
Opposite sides length	≤1mm
Framing tolerance	≤0.3mm
Yield	≥99%
Rated power	12.7kW
Air consumption	300L/min
N.W.	4600kgs
Dimension	L5560mm*W4030mm*H3000mm

Auto Vertical Sorter

VSR60A



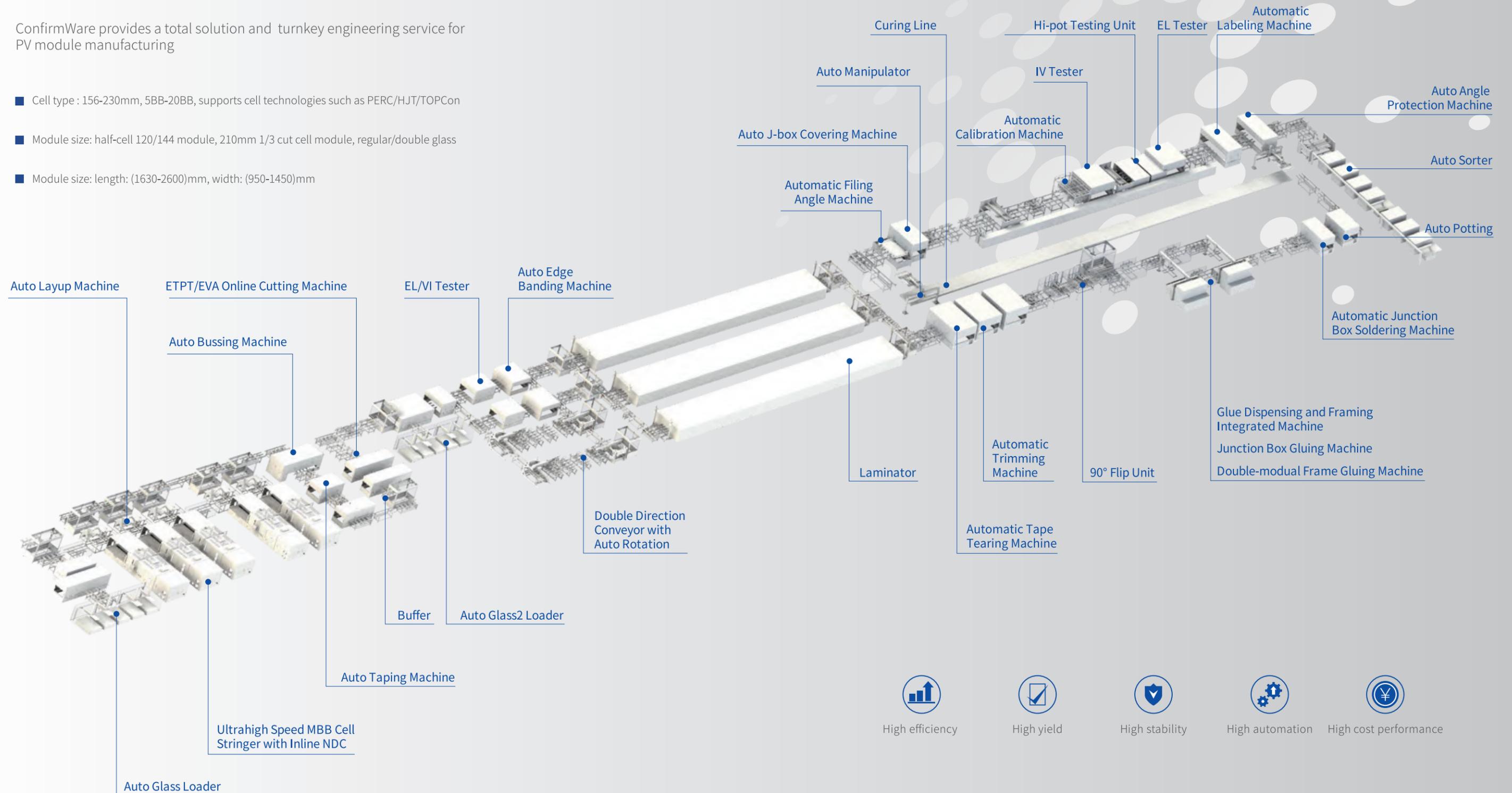
- ◆ Compatible with both automatic insert and flat release for PV module sorting.
- ◆ The clamping jaws of the grabbing units adopt a pneumatic insertion and clamping structure, which is reliable and does not scratch the module frame.
- ◆ The grasping manipulator adopts a double-set design to improve the speed of binning.
- ◆ The lifting displacement device has the function of holding the brake to ensure that it will not fall down.

Basic parameter	Value
Applicable module size	L1630-2600mm, W950-1450mm
Lumber of pallet	6 (It can be customized)
Cycle	<16s
Pick up weight	50kgs
Yield	99.9%
Rated power	20kW
Air consumption	50L/min
N.W.	9.4T
Dimension (6 grades)	L17300mm*W4175mm*H3800mm

800MW PV MODULE PRODUCTION AUTOMATION SOLUTION

ConfirmWare provides a total solution and turnkey engineering service for PV module manufacturing

- Cell type: 156-230mm, 5BB-20BB, supports cell technologies such as PERC/HJT/TOPCon
- Module size: half-cell 120/144 module, 210mm 1/3 cut cell module, regular/double glass
- Module size: length: (1630-2600)mm, width: (950-1450)mm



- High efficiency
- High yield
- High stability
- High automation
- High cost performance

PV MODULE MANUFACTURING AUTOMATION SOLUTION

Equipment List

Auto Glass Loader

Ultrahigh Speed MBB Cell Stringer with Inline NDC

Auto Layup Machine

Auto Bussing Machine

Auto Taping Machine

Auto Glass2 Loader

TPT/EVA Online Cutting Machine

EL/VI Tester

Double Direction Conveyor with Auto Rotation

Auto Edge Banding Machine

Buffer

Laminator

Automatic Tape Tearing Machine

Automatic Trimming Machine

90° Flip Unit

Glue Dispensing and Framing Integrated Machine

Junction Box Gluing Machine

Double-modul Frame Gluing Machine

Automatic Junction Box Soldering Machine

Auto Potting

Auto Manipulator

Automatic Filing Angle Machine

Auto J-box Covering Machine

Automatic Calibration Machine

IV Tester

Hi-pot Testing Unit

EL Tester

Automatic Labeling Machine

Auto Angle Protection Machine

Auto Flip Machine for Inspection

Auto Sorter



TYPICAL CASES

A. 1.2GW Module Production Line Taizhou China



B. 3.5GW MBB Stringer in Yancheng China



C. 1GW Module Production Line in Haining China



D. 600MW Pre-lamination Equipment in Korea



E. 1.2GW Module Production Line in Cambodia



F. 1GW Module Production Line in India



G. 1GW Module Production Line in Vietnam



H. 1GW Pre-lamination Equipment in Korea



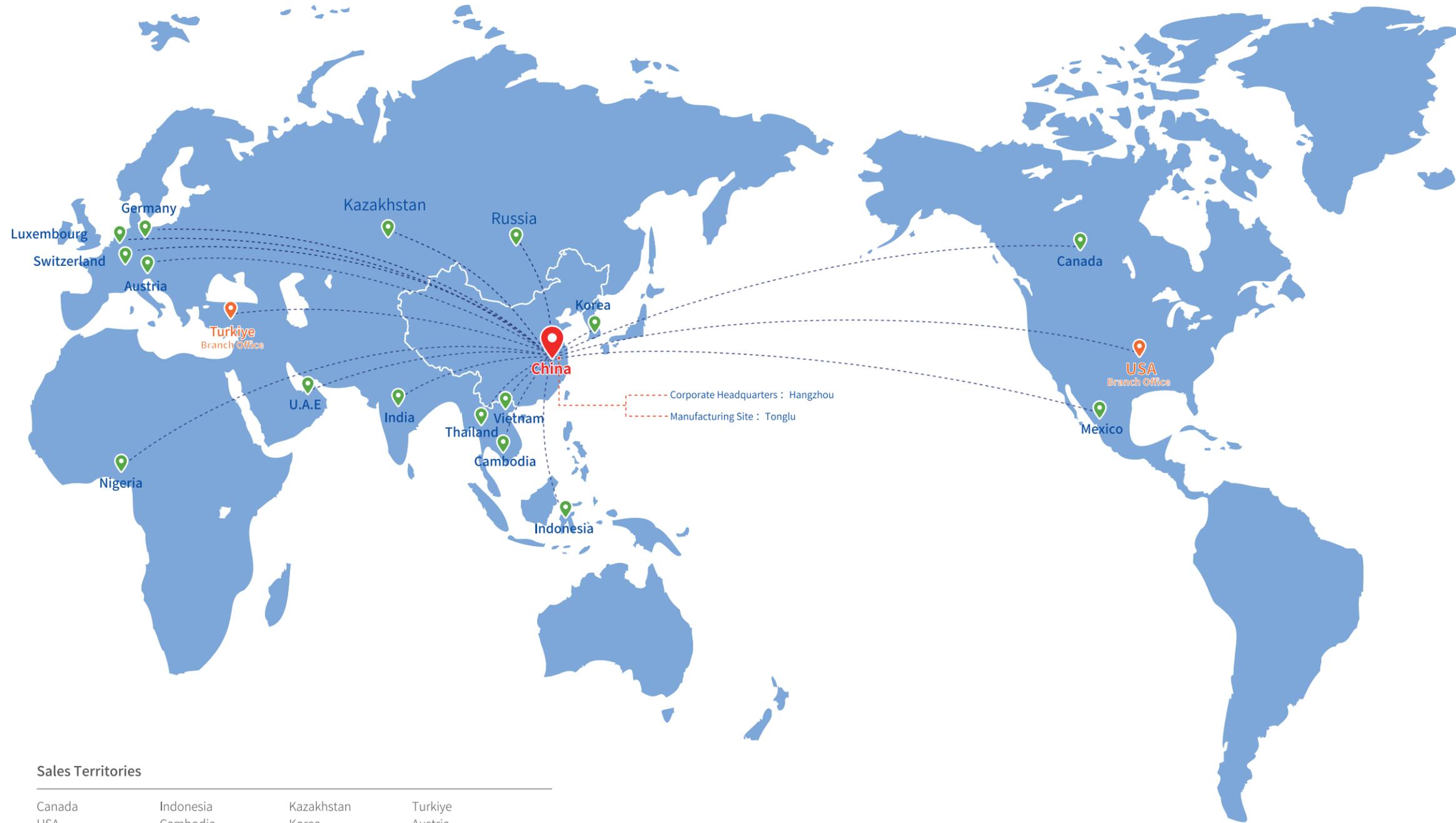
I. 1GW Module Production Line in USA



J. 2.4GW Module Production Line in Turkiye



MARKETING NETWORK AND PARTNERS



- CW Enerji ENERGATE
- SWISS PV socom
- Heckert Solar PEAK PV SOLAR
- solarTurk ENERJI TOP SUN
- PLURAWATT NUSA
- JAKSON mirsolar
- SUNPOWER® ÖDÜL SOLAR ENERJI
- MISSION SOLAR ENERGY NE Solar Cambodia
- ANLEE gazioglu solar enerji
- semi photon parla
- WOSUN OLIVE SOLAR
- Trinasolar 天合光能 YINGLI 英利集团
- GCL 协鑫 SPIC 国家电投
- 海泰新能 HT SOLAR SolarggaEnergy