

J.S.Mach'ne

Stock Code: 000821



**PIONEER OF SOLAR
INDUSTRY INTELLIGENT
EQUIPMENT MANUFACTURER**

SC-SOLAR

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MAKE PV MANUFACTURING AS EASY AS POSSIBLE

SC-SOLAR



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AS EASY AS POSSIBLE

COMPANY PROFILE



Suzhou Shengcheng Solar Equipment Co., Ltd. founded in 2010, is a wholly owned subsidiary of J.S.Machine (stock code: 000821). Headquartered in Suzhou New District, it covers an area of 45733 m². The company currently employs over 3400 staff, including over 900 R&D personnel and over 60 master's degree or above talents.

Specializing in R&D, manufacturing, sales and service of intelligent equipment in solar industry, products of SC Solar have been distributed to 31 countries and regions all over the world, including USA, Germany, France, Singapore, South Korea, Japan, India, Brazil etc. SC Solar not only provides customers with turnkey solutions for solar module manufacturing, compatible with diversified requirements including conventional glass-back sheet, G2G, half-cell, MBB, OBB, XBC, shingling modules production and so on, but also offers intelligent equipment and MES systems for the fields of PV cells and silicon wafer manufacturing. SC Solar has advanced technology in TOPCon, HJT and perovskite cell and module equipment fields, and ranks first in the market share of solar module production line segment.

SC Solar has advanced technology in TOPCon, HJT and perovskite cell and module equipment fields, and ranks first in the market share of solar module production line segment. Dedicated to innovation, R&D and continuous quality improvement,

SC Solar has won numerous government honors such as "National Manufacturing Individual Champion Enterprise", "National smart photovoltaic pilot demonstration Enterprise", "High-tech Enterprise", "Jiangsu Enterprise Technology Center", "Jiangsu Engineering Technology Research Center", "Jiangsu Specialized New Small Giant Enterprise", and etc. In terms of product development, SC Solar has obtained 671 technical patents, of which 87 are invention patents. In addition, SC Solar has acquired ISO9001 quality management system certification, and the products have been approved by CE, ETL, UL, TUV certification of many countries. The product and service quality has been broadly recognized by customers and the society.

SC Solar sincerely wishes to cooperate with our clients and friends closely, make progress together, facilitate the PV intelligent manufacturing, and build up a green homeland.



FOUNDED IN
2010



COMPANY LOCATION
Suzhou



EMPLOYEES
3400+



TECHNICAL STAFF
900+

PROJECT DISTRIBUTION



31 COUNTRIES AND
REGIONS

3000+ PROJECTS

800GW+ INSTALLED
BASE

(Sep. 2024)

PRIMARY CUSTOMER

LONGI

JA SOLAR

CHINT

DASOLAR

DMEGC

LESSO

YINGLI SOLAR

REC

SUNPOWER

kalyon-pv

TSEC

MISSION SOLAR ENERGY

Jinko Solar

JA SOLAR

GCL

HUANSHENG

AIKO

SANY

Reliance Industries Limited

HD HYUNDAI ENERGY SOLUTIONS

VINA SOLAR

KIVANÇ

AUO

HELIENE

Trinasolar

CanadianSolar

risen

EGING PV

Haitai Solar

RUNERGY

adani

LG

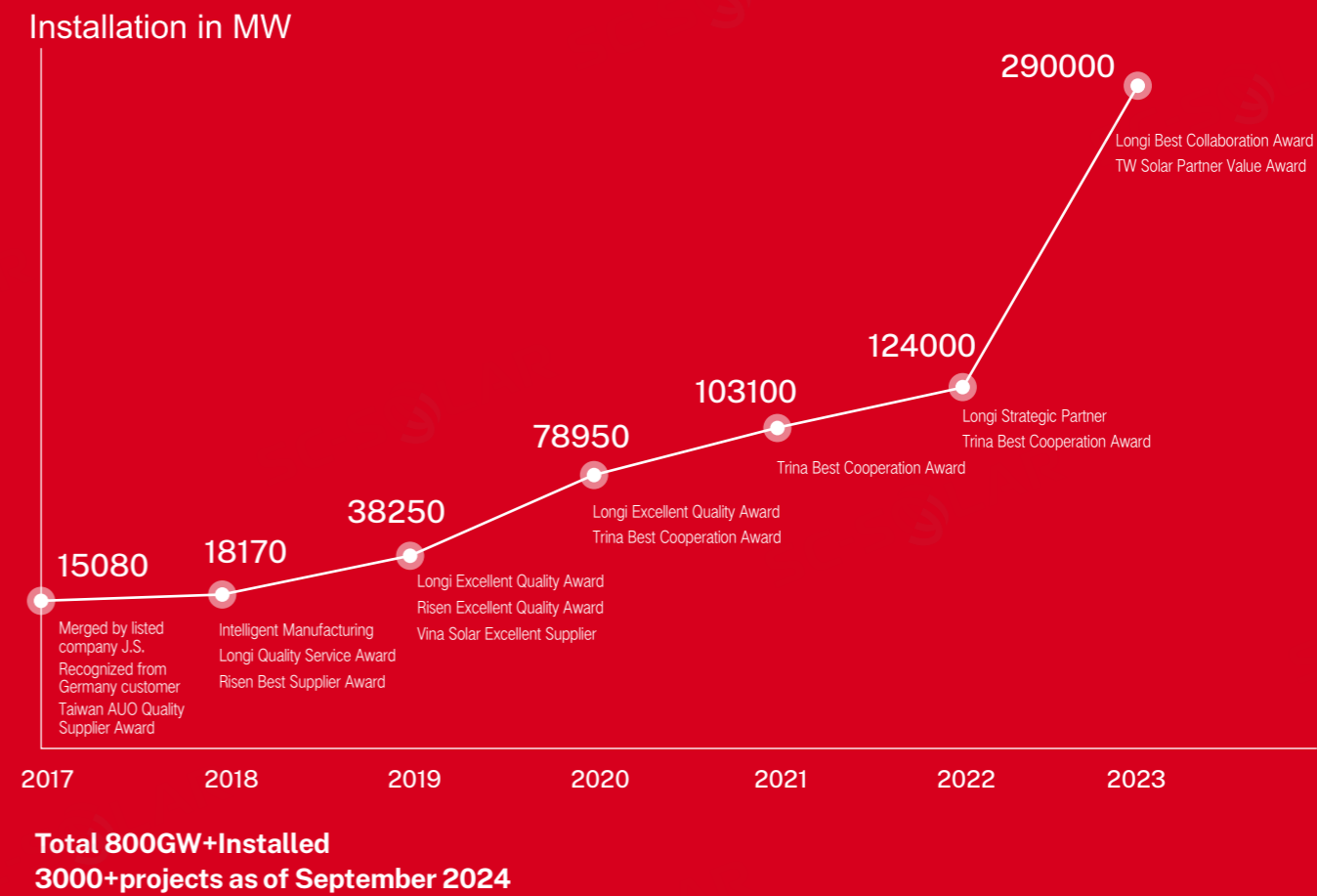
Premier Energies

SOLUXTEC

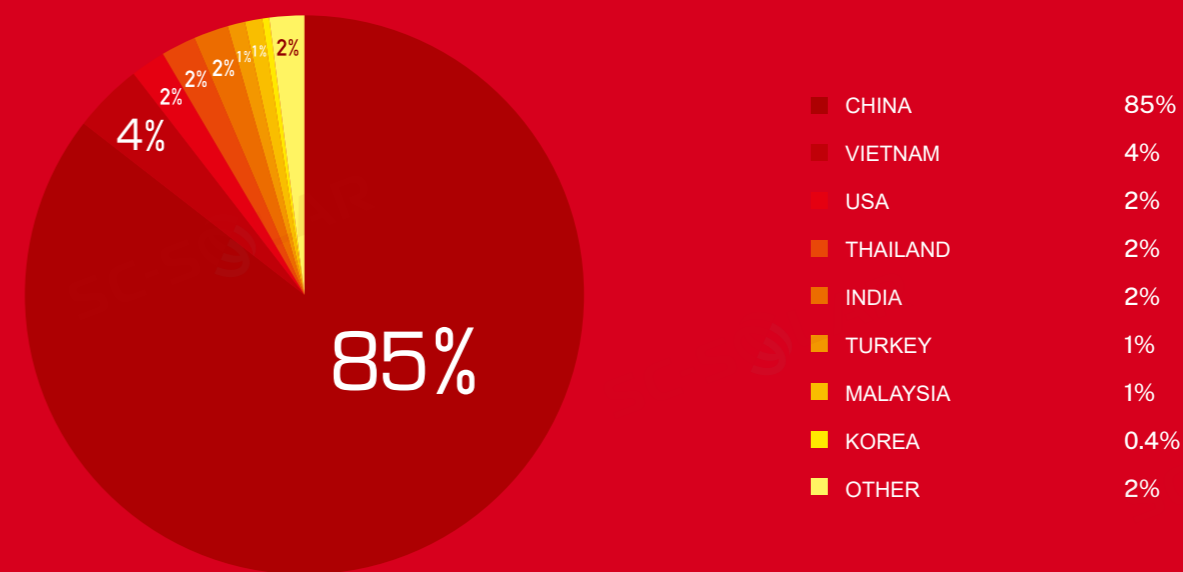
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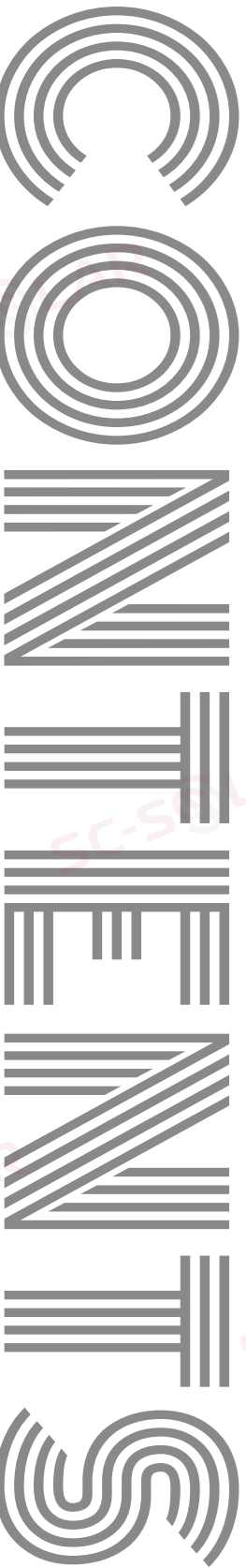
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ANNUAL INSTALLATION BASE



SC SOLAR INSTALLATION BASE RATIO OF TOP 8 COUNTRIES





01 PV module manufacturing automation
turnkey solution

02 Intelligent logistics
system

03 Stereoscopic warehouse
system

04 Machinery vision intelligent
detection system

05 Smart factory management
system

SOLAR PANEL PRODUCTION LINE SOLUTION

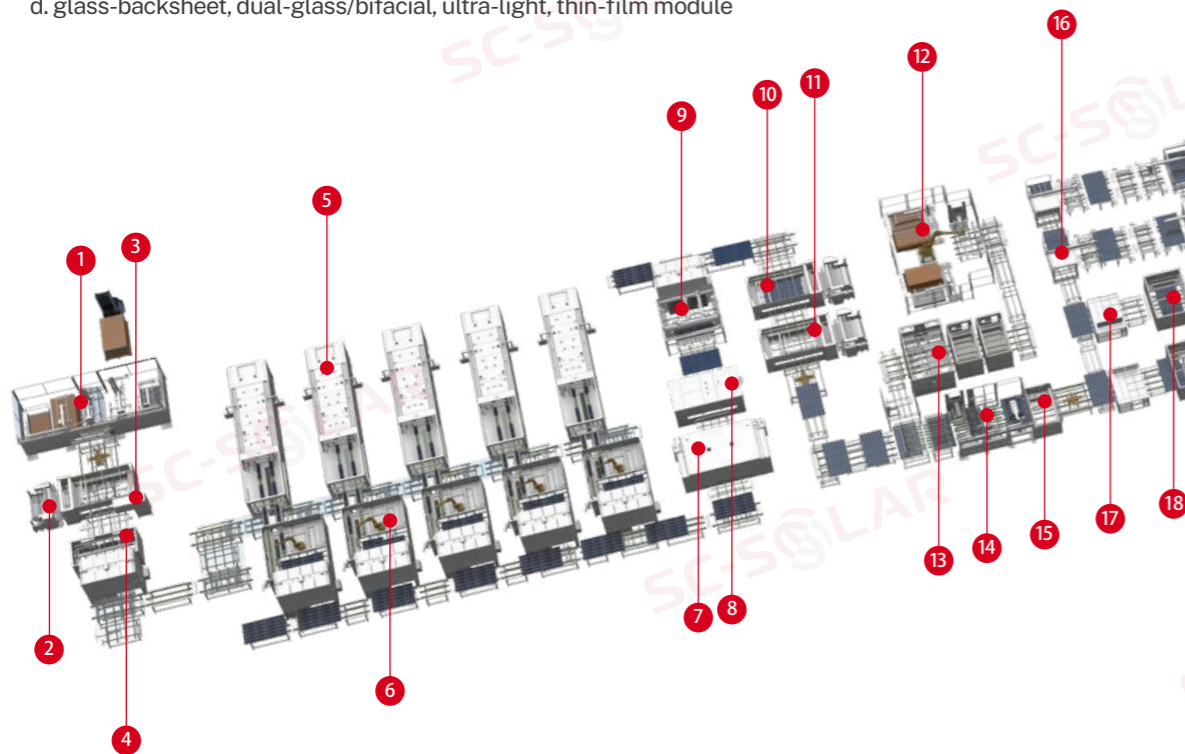
Turnkey solution

Compatible size:

- a. standard length 1640-2520(mm), width 950-1450(mm)
- b. other specs customized

Compatible module:

- a. 0BB, 5BB, MBB, XBC, MWT, HJT, N-TYPE
- b. full-cell, half-cut cell, shingling
- c. framed, framed(no C side), frameless
- d. glass-backsheet, dual-glass/bifacial, ultra-light, thin-film module

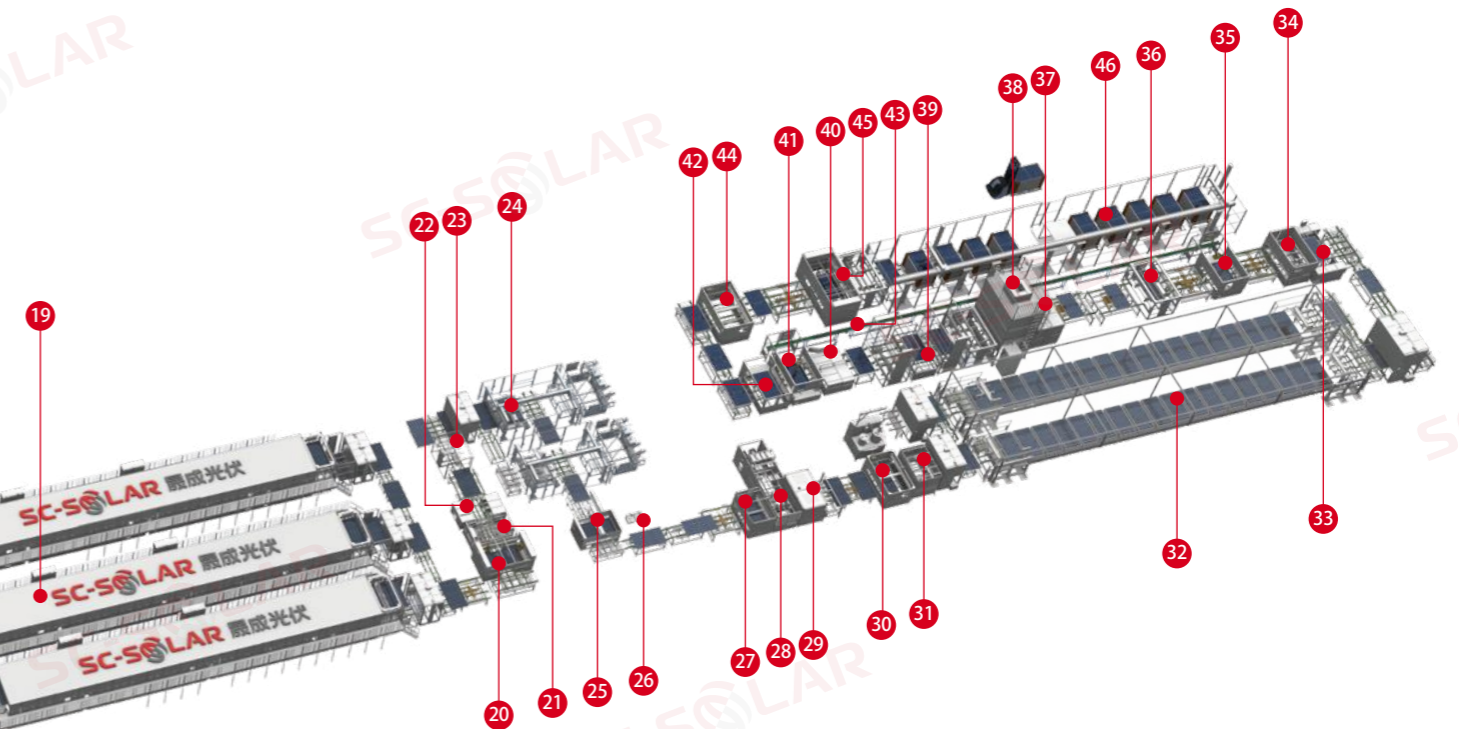


- 1. Auto Glass Loader
- 2. 1st EVA Cutting & Layup
- 3. Glass Barcode Labeling Machine
- 4. EVA Flatting
- 5. Stringer
- 6. Auto String Layup
- 7. Auto Bussing/ ICB Machine

- 8. Isolated Sheet Place Machine
- 9. Auto String Taping
- 10. 2nd EVA Cutting & Layup
- 11. TPT/Backsheet Cutting & Layup
- 12. Auto Glass Loader
- 13. Gap Film Dispensing
- 14. 2nd Glass Loader
- 15. Auto ICB Lead Bending
- 16. Rework Station

- High productivity
- High stability
- High automation

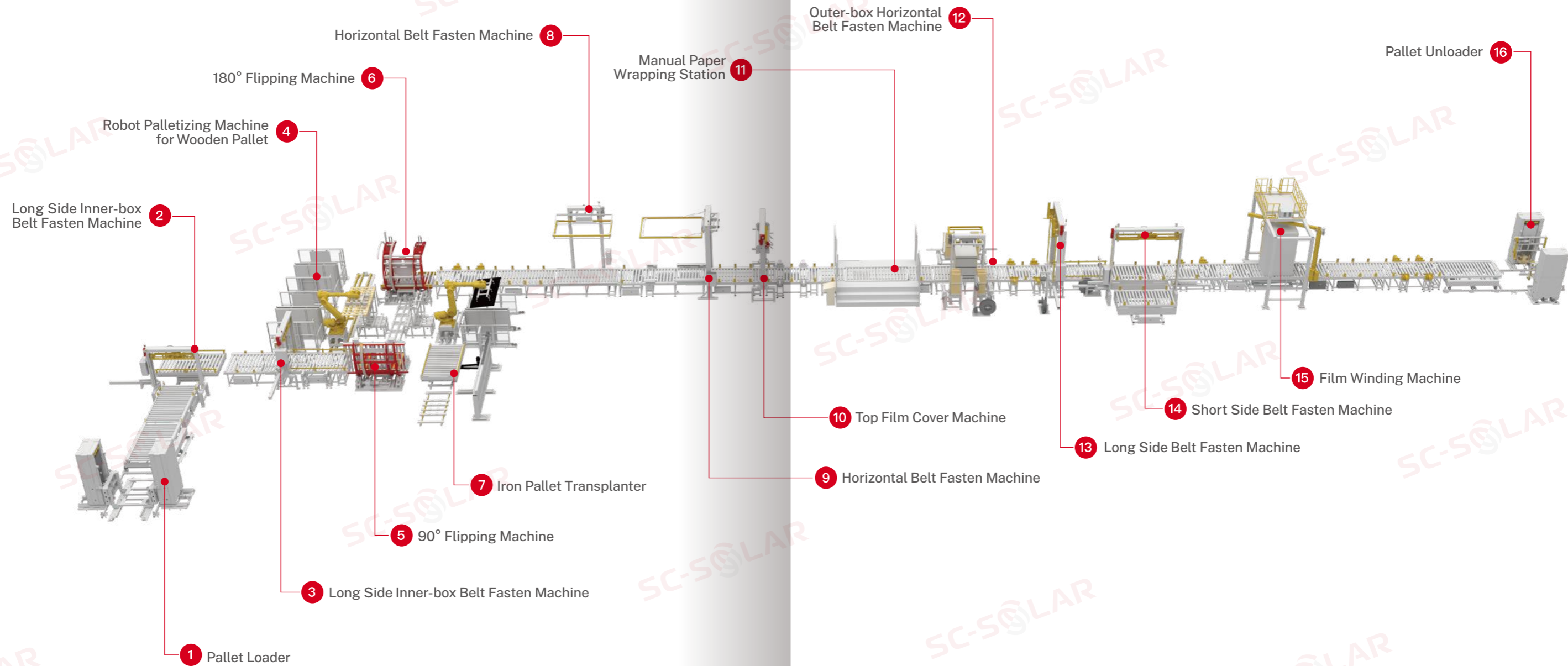
- Low floor area
- Better ROI



- 17. EL + VI Tester
- 18. G2G Edge Taping
- 19. Laminator
- 20. G2G Edge Tape Remover
- 21. Auto Trimming
- 22. Corner Trimming Machine
- 23. Visual Inspection
- 24. Framing System
- 25. Auto ICB Lead Picking Up
- 26. J-Box Dispensing Machine
- 27. Backsheet Dispensing Machine
- 28. J-Box Mounting Machine
- 29. J-Box Soldering Machine

- 30. J-Box Potting Machine
- 31. Potting Detection
- 32. Auto Curing Line
- 33. Auto Filing Machine
- 34. J-Box Cover Installation Machine
- 35. Test Jig Loader
- 36. Flipping Machine
- 37. Golden Module Storage Unit
- 38. IV Tester
- 39. Hi-pot Tester
- 40. EL Tester
- 41. Test Jig Unloader
- 42. Auto Labeling
- 43. Test Jig Return Conveyor
- 44. Nameplate and Barcode Detection
- 45. Auto Corner Protector Placement
- 46. Auto Palletizing Machine

PACKAGING LINE



INTELLIGENT
EDGE-FINDING EVA / POE
CUTTING & LAYUP



Features

- Automatic correction of the film/backsheet laying deviation.
- Automatic hot melt device, material change without stopping.
- Servo-controlled alignment of glass edges, one-click switching between different modules.

Functionality

- The cutting knife moves together with the material pulling and transferring, the fastest cycle is 13s.
- Intelligent correction system automatically corrects the positioning of the film, laying accuracy $\pm 1.5\text{mm}$.
- High efficiency automatic roll changing, changing time less than 30s without stopping.

Specifications

Item	Value
Cutting accuracy	$\pm 1.5\text{mm}$
Cycle time	13s
Compatible module size	length: 1650-2550(mm); width: 990-1450(mm)
Power requirement	AC380V $\pm 5\%$, 3P+1N+1PE, 32A, 50/60Hz
Power	8kW
Air pressure	0.5-0.8(MPa)
Noise	<70dB
Dimension (L×H×W)	6250*2750*2000(mm)
Weight	about 3500kg

FILM HANDING
MACHINE



Features

- Automatic correction of 1st adhesive film and glass laying deviation.
- Realize the functions of film scraping and hot spot positioning.
- Glass servo alignment, one-click switching of different modules.

Functionality

- Through vision and servo system for deviation correction, high accuracy.
- The scraping mechanism from the middle to the outside synchronous scraping, high efficiency, scraping effect is good.
- Four-point hot melt positioning to ensure that the transmission process does not produce secondary offset after correction.
- Can be applied to various types of deviation, and the correction size range is large.

Specifications

Item	Value
Correction accuracy	$\pm 1\text{mm}$
Cycle time	$\leq 15\text{s}$
Compatible module size	length: 1650-2550(mm); width: 990-1450(mm)
Power requirement	AC380V $\pm 5\%$, 3P+1N+1PE, 32A, 50/60Hz
Power	4.5kW
Air pressure	0.5-0.8(MPa)
Noise	$\leq 70\text{dB}$
Dimension(L×W×H)	3530*1920*1885(mm)
Weight	about 2000kg

HIGH SPEED ROBOTIC STRING LAYUP



Features

- The cell string output of the stringer can be applied to single-rail and double-rail.
- String positioning method: visual positioning.
- The main frame structure is steel, firm and reliable.
- The robot has fast speed, high positioning accuracy, stability and reliability.
- The vacuum suction cup sucks cell string without leaving traces.
- Fit for horizontal, vertical and AB string module.
- Fully automatic equipment control, no human intervention is needed during the operation.
- The cell string adsorption fixture has a vacuum detection function to prevent string falling.
- Replace the different cell strings directly, some adjustments needed if necessary.
- Support online and offline rework of strings.

Functionality

- Cycle time: half cell≤3.5s/pcs
- Accuracy: string spacing ±0.4mm; distance between string to the glass edge ±1mm
- Compatible size: 60/72/half-cell/MBB/MBB half-cell
- Rate: ≥98%
- Fragment rate: <0.02%
- Vision: dual image system, resolution of 0.05
- Noise: ≤72dB

Specifications

Item	Value
Model	SC-SL54-RX-01
Compatible module size	length: 1650-2550(mm); width: 990-1450(mm)
Cycle time	half cell: 3.5s/pcs (infeed, outfeed and alignment, 5s)
Power	6kW
Power requirement	AC380V±5%, 3P+1N+1PE, 20A, 50/60Hz
Air pressure	0.6-0.8(MPa)
Air consumption	400L/min
Weight	about 3700kg
Dimension(L×W×H)	3750*3750*2500(mm)

HIGH SPEED LAYUP MACHINE



Features

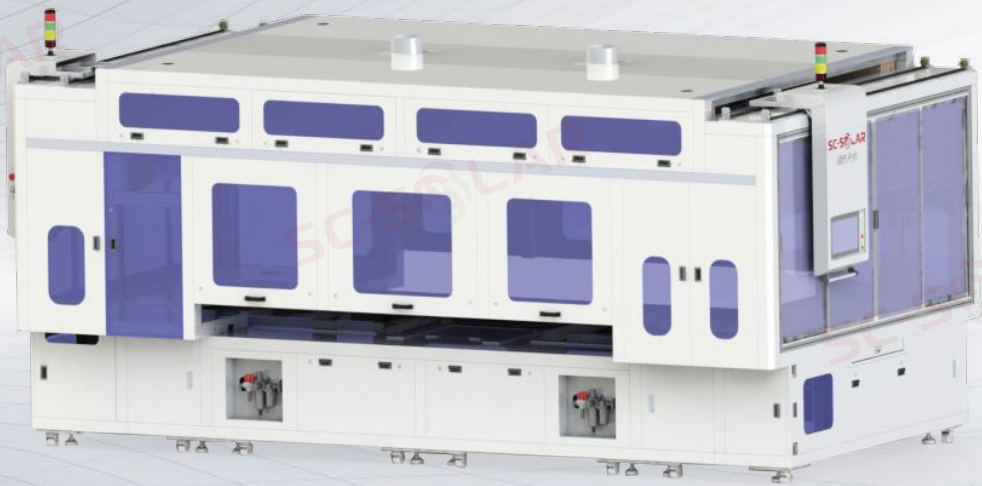
- Realizing visual positioning and automatic high-speed layup of strings.
- Realize the functions of string layout, string turnover (optional), lead cutting (optional), string repair feeding and etc.
- Can meet customer requirements of different cell string version, can be one-click switched.
- Glass servo alignment, one-click switching of different modules.

Functionality

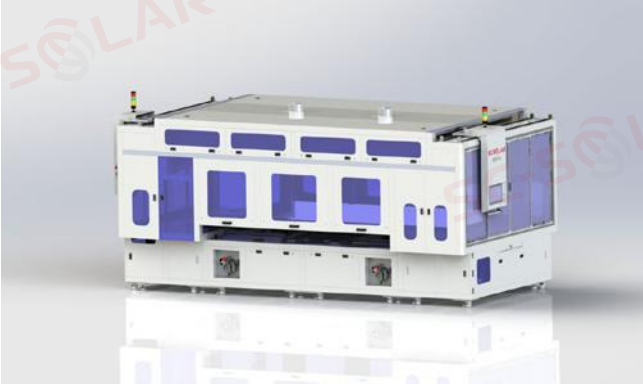
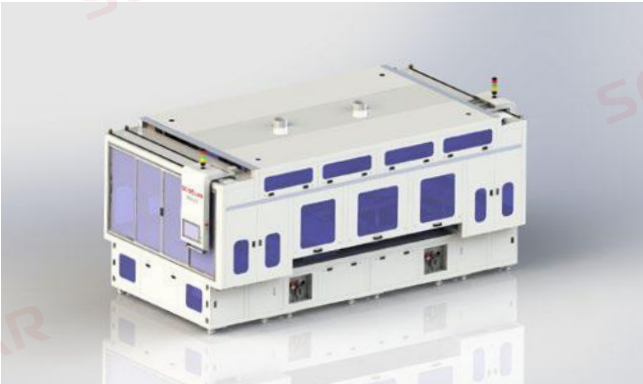
- Fast cycle time, the cycle time of single string is 2.5s.
- The camera has wide field of vision and the switching time is faster.
- Better docking compatibility, can be docking more models of stringer.

Specifications

Item	Value
Layup accuracy	±0.3mm
Glass positioning accuracy	±1mm
Cycle time	≤30s(12series)
Compatible module size	length: 1650-2520(mm); width: 1010-1410(mm)
Power requirement	AC380V±5%, 3P+1N+1PE, 32A, 50/60Hz
Power	18kW
Air pressure	0.5-0.7(MPa)
Noise	≤70dB
Dimension(L×W×H)	4020*3160*2560(mm)
Weight	about 4500kg



AUTO BUSSING MACHINE



Features

- High-speed cycle time: ≤15s (conventional module).
- The deviation correction range ±30mm, cell accuracy ≤0.3mm, the lamination is supported for one-time deviation correction.
- Maintenance space clear, cutting single aging fast:30min-60min.
- Bus bar feeding non-stop.
- With virtual welding detection function.
- The flux has a flow monitoring function, and the backflush is turned on when the nozzle is blocked.
- Compatible with ≤50kg bus bar.
- Bypass welding jumper adopts modular design, can be optional.
- Bus bar punching, black paint scraping (laser) function is optional.

Functionality

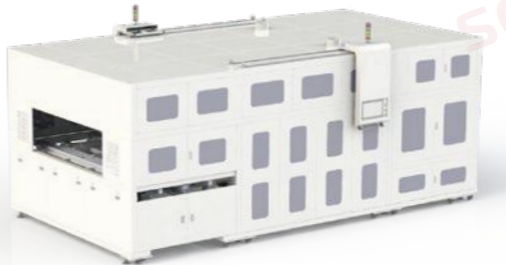
- Cell specification: 156*156-230*230(mm)/5BB-24BB
- Bus-bar specification: roll feeding, material thickness 0.20-0.45(mm), width 4/5/6/7/8(mm)
- Welding tape reel weight: 50kg for large reel
- Module cycle time: 15s
- Pull-off force and welding effect: 5BB≥4N, 9BB≥2N
- Correction characteristics: high cell precision ≤0.3mm, wide correction range ±30mm
- Visual inspection: 15 cameras in the head, middle and tail, supporting lamination correction
- Welding method: electromagnetic welding
- Optional functions: single jumper, lead line punching, lead line rounding, lead line black paint scraping(laser), virtual welding detection, non-stop refueling

Specifications

Item	Value
Applicable glass size	1640*2650(mm), 900*1500(mm)
Cycle time	≤15s
Power	Peak 50kW, average power about 30kW
Power requirement	AC380V±5%, 3P+1N+1PE (3-phase5-wire system)
Air pressure	0.5-0.8(MPa)dry and clean compressed air; dosage: 2m³/min
Weight	7000kg
Dimension(L×W×H)	5635*2840*2450(mm)



LAYUP & BUSSING
INTEGRATION MACHINE



Features

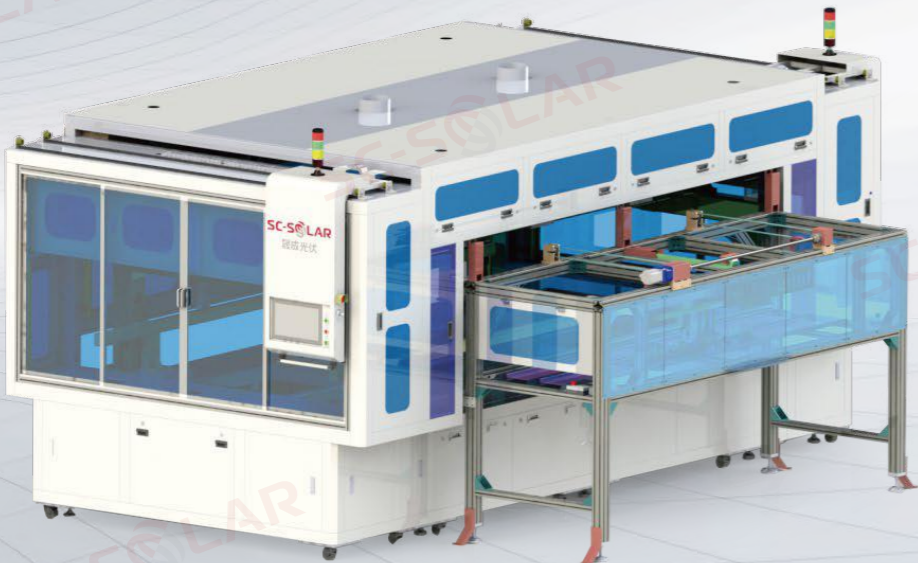
- Equipped with a self-correction system, linear motor + absolute value servo system, correction accuracy $\leq 0.3\text{mm}$. X-axis adopts linear motor with high precision; Y-axis $\pm 100\text{mm}$. No cell overlap issue.
- Optional functions include busbar punching, chamfering, laser paint removal, and non-stop busbar loading. Optional virtual welding detection function. Optional busbar ironing function.
- Simple overall structure, easy to maintain. Fast single-cutting time for modules: 30-60min.
- The equipment is directly connected to the high-speed stringer, reducing the impact of cell overlap downtime on the line capacity compared to the original layout.
- Cycle time: $\leq 40\text{s}$, compatible with high-speed stringer.
- Welding information monitoring: automatic frequency tracking, welding energy monitoring, MOS tube temperature, and soldering iron temperature, with data uploadable to MES system in real-time.
- The equipment integrates layout, cell overlap, virtual welding detection, and busbar ironing functions, making the layout more reasonable. It reduces the number of times the robot grabs and the intermediate transfer links, reduces the overall layout cost, reduces the space occupation of the site, and improves the utilization rate of the site.

Functionality

- Cell specifications: 156*156-230*230(mm)/5BB-24BB
Busbar specifications: Coil feeding, thickness 0.20-0.45(mm), width 4/5/6/7/8(mm)
Busbar weight: $\leq 30\text{kg}$
Cycle time: $\leq 40\text{s}$
Welding tension: 5BB $\geq 4\text{N}$, 9BB $\geq 2\text{N}$, MBB $\geq 2\text{N}$
- Alignment characteristics:
High cell alignment accuracy $\leq 0.3\text{mm}$
Welding method: Electromagnetic induction welding
- Visual inspection: 6 cameras are used for alignment at the head, middle, and tail of the cell, with one camera for each position in two sets, allowing for secondary verification of alignment effectiveness, with no cell overlap issues. Virtual welding detection at the head, middle, and tail is performed using line-scan cameras with high scanning accuracy.
- Optional functions: Busbar punching, chamfering, laser paint removal, non-stop busbar loading, virtual welding detection, busbar ironing function, etc.

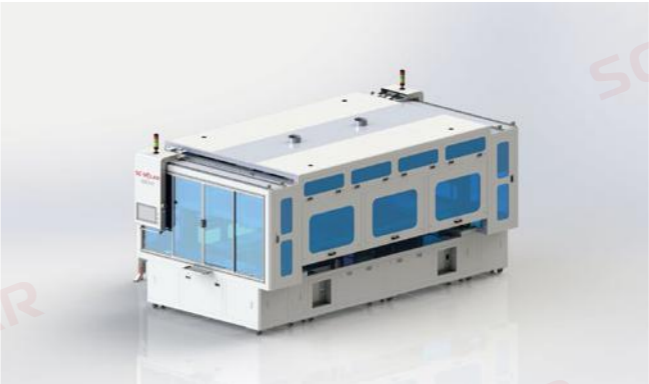
Specifications

Item	Value
Applicable glass size	length: 1640-2550(mm); width: 900-1450(mm)
Cycle time	$\leq 40\text{s}$
Power	peak powe 35kW, average power 15kW
Power repuirement	AC380V $\pm 5\%$, 3P+1N+1PE
CDA	0.6-0.8 (MPa) dry, clean compressed air ; Consumption: 2000L/min
Control system	PLC+touchscreen +CCD vision inspection
Weight	7000kg
Dimension(L×W×H)	6300*3200*2550(mm)



MODULE REPAIRING MACHINE

ALU-HSR module repairing machine, can remove and replace bad cells and busbars, compatible with 166*166mm-230*230mm/ 9BB-20BB cells, compatible module size up to 2700*1500mm.



Features

- Compatible for 210 modules (excluding jumper wire), half-cell modules and double glass modules repairing.
- The disassembling welding head is controlled individually, can disassemble and weld a single string.
- Compatible with larger modules: 2700*1500(mm).
- External feeding unit for OK string feeding and NG string unloading, with a camera to judge the direction of string.
- Have unique deviation correction mechanism, deviation correction range $\pm 20\text{mm}$;

Functionality

- Cell size: 166*166-230*230(mm)/9-20(BB)
- Module specifications:
 - A, 166*166-185*185 cell: 6 strings*10 half-cell*2; 6 strings *11 half-cell*2; 6 strings *12 half-cell*2; 6 strings*12 half-cell*2; cell spacing 0.4-5 (mm), string spacing 1-4(mm);
 - B, 210*210 cell: 6 strings*10 half-cell*2;6 strings*15 one-third cell *2; piece spacing 1-4(mm), string spacing 1-4(mm)
- Bus-bar specification: roll feeding, material thickness 0.18-0.45(mm), width 4/5/6/7/8mm, roll weight $\leq 30\text{kg}$
- Glass size: Max 2700*1500(mm); Min 1640*980(mm)
- Bus-bar and welding belt tension: $>5\text{N/mm}$ (spraying flux)
- Cycle time: 85s
- Fragmentation rate: $<0.2\%$
- Yield: $\geq 99\%$
- Utilization rate: $>98\%$
- Welding mode: electromagnetic induction
- Module input/output height: 950-980(mm)
- Bend up U/L lead height range: 10-25(mm)

Specifications

Item	Value
Working power	AC380V $\pm 5\%$, 3P+1N+1PE(3-phase5-wire system)
Working pressure	0.5-0.8(MPa)dry and clean compressed air; dosage: 2m ³ /min
Power requirement	Rated 50kW, average power about 35kW
Weight	6500kg
Dimension(L*W*H)	5280*3866*2520(mm)

ISOLATED SHEET
PLACING
MACHINE



Features

- Compatibility with multiple module sizes, and a fast swap servo alignment system.
- Insulation block cutting combined with punching function with a feeding buffer conveyor makes possible material replacement non stop.
- The visual system detects the status of small blocks and ribbons by calculating the offset value. and arranges them using a four axis robotic arm.
- Auto barcode labelling function with visual system for checking how the barcode is well attached.

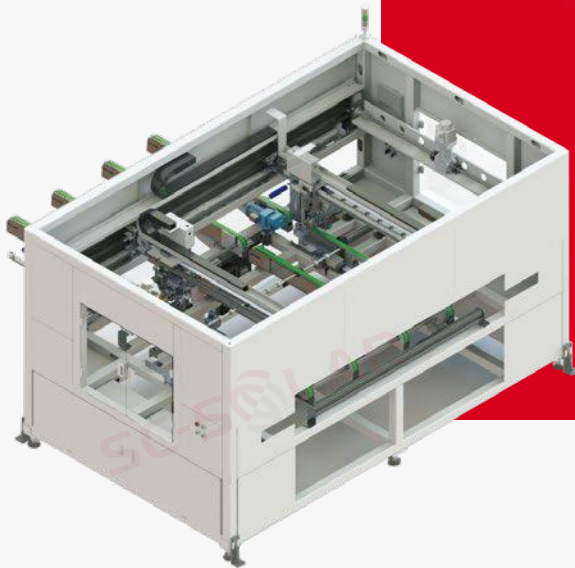
Functionality

- Sheet cutting accuracy: ±1mm
- Punching accuracy: ±0.5mm
- Cycle time: <14s
- Noise: <70dB
- Label material: compatible with materials such as PER, synthetic paper, PE, PVC, PP, etc
- Barcode size: length 40-60(mm); Width 6-12(mm)
- Barcode detection: Check if the barcode is clearly printed and its consistency with incoming glass barcode. After the busbar code is printed, detect whether the barcode is crooked or damaged

Specifications

Item	Value
Compatible module size	width: 990-1450(mm); length: 1640-2550(mm)
Power requirement	AC380V±5%, 3P+1N+1PE, 16A, 50/60Hz
Power	5kW
Air pressure	0.5-0.7(MPa)
Dimension(L×W×H)	4200*2200*2100(mm)
Weight	about 2500kg

AUTO STRING
TAPING



Features

- The overall structure consists of a glass alignment, a taping system, a vacuum system, and etc.
- The servo motor drive drives the tape mechanism, high speed and high precision.
- Multi-point support, free adjustment of roller position, avoid faked sticker.
- Wheel-disc type tape head, improve efficiency.
- The taping system uses a lead screw to drive the tape on the suction cup to press down. The sponge suction up can increase the buffer to avoid rigid contact and reduce the probability of chip fragmentation and cracking.

Functionality

- Module positioning accuracy: ±1mm
- Tape change time: ≤60s
- Taping positioning accuracy: ±2mm
- Fragment rate: ≤0.05%
- Operation mode: Auto/Manual
- Noise level: ≤60dB
- HMI: Chinese/English mode
- Change over time: Existing version of the system, One-button switch 5min/ person , New version 20min/ person
- Integrated rotating head, vacuum stability; Can be replaced as a whole (replacement time < 10min); Using sleeve type sucker, no glue, fast disassembly.
- Yield: >99.95%

Specifications

Item	Value
Model	SC-AT30-CS-01
Compatible module size	length: 1640-2550(mm); width: 980-1450(mm)
Cycle time	Cycle time ≤16s (36 points, 4 heads, including infeed and outfeed time)
Air pressure	0.6-0.8(MPa)
Power	9.2kW
Alignment method	four sides alignment
Tape length	standard length 12/16/18/20/22/25mm
Tape width	5-10mm (Other lengths/widths can be customized)
Tape specification	inner diameter Φ77±1mm, external diameter ≤Φ200mm
Dimension(LxWxH)	3350*3550*1750(mm)

AUTO ICB LEAD BENDING



Features

- Compatibility with multiple module sizes alongside fast change-over servo alignment system.
- A reliable vision system for detecting the status of incoming material, guiding positioning process and inspecting finished products.
- Auto ICB lead bending, Teflon patch or tape placement. (choose either of them as needed) and backsheet barcode attaching.
- The motion unit is driven by servo motor with high speed, high precision, stable and reliable.
- The three leads bound simultaneously in 14 seconds, effective and efficient.
- Flexible contact between servo control and products ensures sound safety standards.
- Over 99.5% of yield rate in taping and bar code labelling that s stable and reliable and labor-saving.

Functionality

- Normal, half-cell, MBB fragmentation rate: ≤0.04%
- Compatible cell specifications: 60 half-cell/72 half-cell/MBB half-cell
- High temperature cloth changing frequency: ≥11 hours/time
- Vision system: incoming material inspection, guiding positioning, final product inspection
- Visual accuracy: ≤±0.1mm
- Conveying direction: horizontal conveying
- Mechanical positioning: servo or cylinder alignment
- Utilization rate: >99%
- Ambient temperature: 15℃-30℃
- Environmental humidity: 5%-75% (no dewfall)

Specifications

Item	Value
Compatible glass size	Long side: 1600-2500(mm), Short side: 900-1500(mm)
Cycle time	≤16s
Power	≤7.5kW
Power requirement	AC380V±5%, 3P+1N+1PE, 20A, 50/60Hz
Air pressure	0.6-0.8(MPa)
Air consumption	200L/min
Noise	≤75dB
Weight	2500kg
Dimension(L×W×H)	3700*2200*2100(mm)

AUTO EDGE TAPING



Features

- The whole structure is composed of transmission unit, four-side alignment, lifting platform, servo screw, tape sealing servo module, vacuum system and so on.
- The servo motor and the module combine to drive the edge banding mechanism to seal the edge, the speed is fast and the precision is high.
- The sealing system includes tape fixing mechanism, tape sealing andpasting mechanism, sealing mechanism, flattening mechanism, cutting mechanism, etc.
- The roller of tape and flattening mechanism adopts polyurethane flexible material to prevent the rigid material from contacting the glass and to avoid the probability of cell chips and cracks.

Functionality

- Module positioning accuracy: ±1mm
- Tape change time: ≤30s/roll
- Cycle time: ≤23s
- Change over time: 60cell<-->72cell one button switch normal<-->half-cell <10min/1 person
- Taping effect: no fold, no bubble, no crack
- Operation mode: Auto/Manual
- Noise level: ≤60dB
- HMI: Chinese/English mode
- Yield: >99%

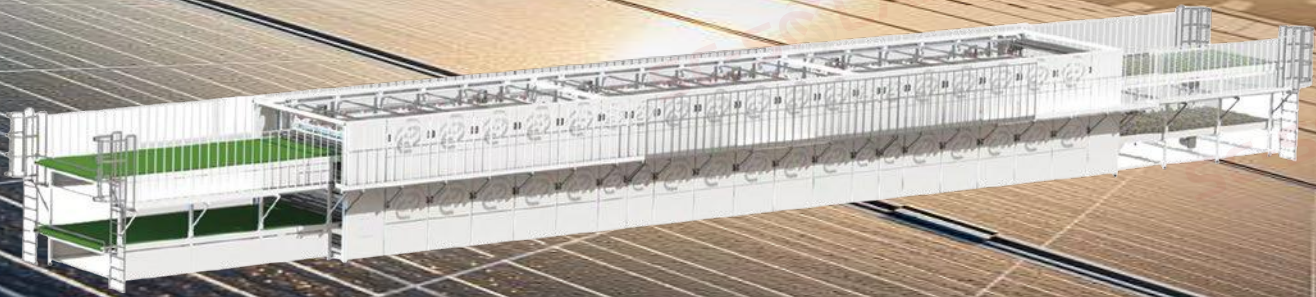
Specifications

Item	Value
Model	SC-ES28-DG-01
Compatible size	length: 1650-2550(mm); width: 990-1450(mm)
Cycle time	≤14s
Alignment	Four-sided alignment
Tape length	500m-1000m
Tape specification	width: 25-40(mm); thickness: 0.06-0.10(mm)
Tape roll specification	inner diameter Φ77±1mm; external diameter ≤Φ330mm
Operation pressure	0.5-0.7(MPa)
Power requirement	≤6.5kW
Maximun dimension(LxWxH)	3810*2720*1950(mm)

LAMINATOR

The main model includes single-layer& single-chamber/double-chamber/three-chamber laminator, double-laye & double-chamber/three-chamber laminator, three-layer & single-chamber/ double-chamber/three-chamber laminator etc., it can be customized according to customer requirements.

Laminator heating method: oil heating and electric heating, other sizes as per customer requirements will be customized.



Single-layer& double-chamber Laminator



Double-layer& double-chamber Laminator



Three-layer& double-chamber Laminator

Functionality

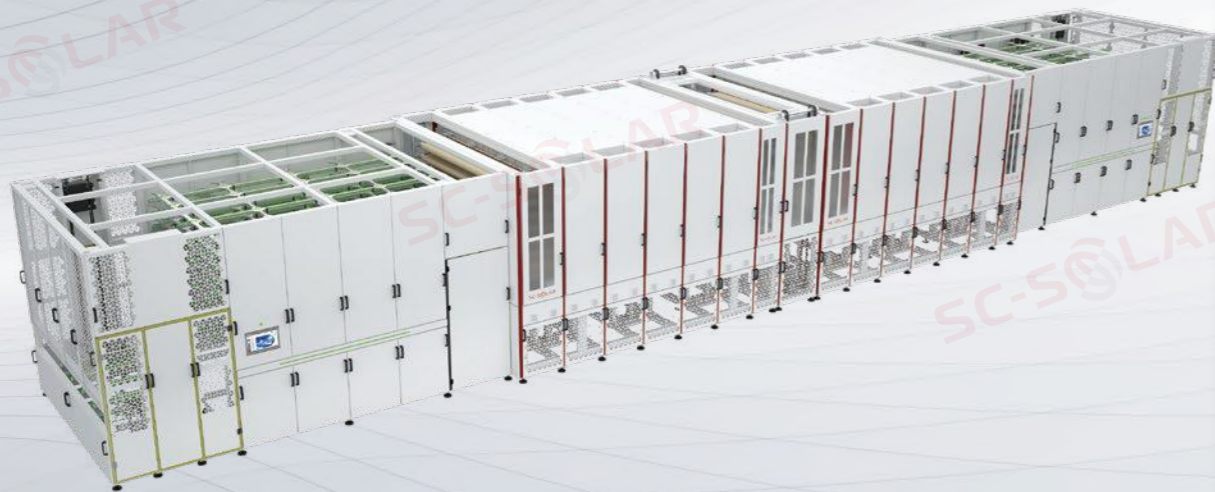
- Easy operation
- Excellent temperature uniformity
- More stable and reliable performance
- Power saving, clean, environmental protection
- Higher configuration, high yield



Specifications

Model	2700mm*8700mm		2700mm*9400mm		2700mm*10000mm	
	OL	EL	OL	EL	OL	EL
Heating method	Oil heating	Electric heating	Oil heating	Electric heating	Oil heating	Electric heating
Working temperature	RT-180℃		RT-180℃		RT-180℃	
Temperature uniformity	±1.5℃		±1.5℃		±1.5℃	
Temperature accuracy	±1℃		±1℃		±1℃	
Transmission accuracy	±3mm		±3mm		±3mm	
Yield	99.99%		99.99%		99.99%	
Working noise	≤80dB		≤80dB		≤80dB	

- Small footprint
- low energy consumption
- Fault self-adjustment
- High production capacity
- 5G information control management system
- Reduced personnel costs

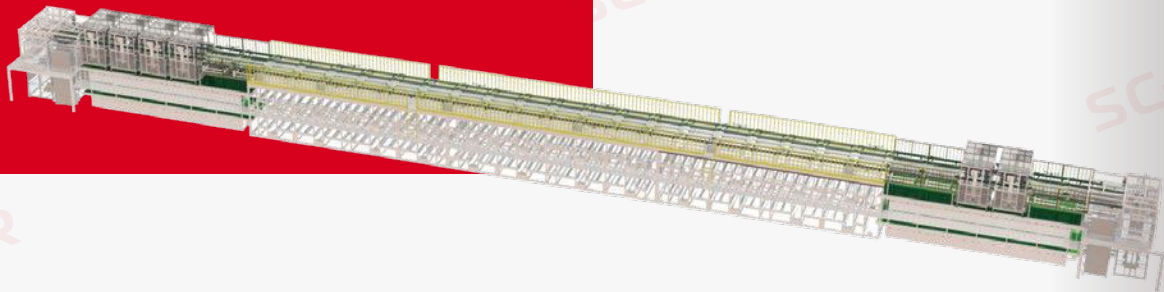


FULLY AUTOMATIC ELECTROMAGNETIC HEATING MULTI-LAYER LAMINATOR

Features

- 8-layer chamber (effective lamination area 2820mm*4320mm, 182/210 module 1 pressure 24)
- Temperature stratified control, upper and lower chamber temperature equal electric heating system. The temperature rise rate PID is adjusted in real time, and the temperature rise rate adjustment range is 1.0°C-2.0°C/min
- Vacuum stratified control; The vacuum time is compressed to 180s
- Independent transmission positioning, servo drive
- Hydraulic lifting system + linear guide auxiliary mechanism
- Retractable stack is adopted for unloading and liquid cooling technology is adopted for module cooling to improve cooling efficiency. The cooling speed is adjustable, and the temperature drops to below 40° in 5 minutes
- The loading adopts the retractable stack, the integrated structure design of the lift module normalization +8 layer position module normalization, the input accuracy is higher, and the servo plus linear guide rail is stable and efficient
- Multi-layer laminator size: 25000mm*3950mm*4150mm
- Full dynamic digital MES control system, 50 "MES data display

PICK&PLACE SYSTEM
FOR LAMINATE FRAME



Features

- The overall structure consists of the frame taking, the frame placing, the frame lifting, the return transmission unit, the four-side normalization and the feeding buffer unit.
- The combination of servo motor and module drives the Z-axis of the lamination frame to rise and fall, and the horizontal transplanting is driven by servo motor and synchronous belt, with high speed and high precision.
- The frame lifting part includes suction cup unit, frame lifting mechanism, etc., which can effectively solve the problem of EVA sticking to the frame after lamination and ensure efficient frame removal.
- The backflow transmission unit adopts the adjustable 5 belt conveyor on both sides and sets the normalization every 3 sections to ensure the smooth movement of the laminated frames, and the platform is set on the top of the laminator for easy maintenance.
- The feeding and buffering unit adopts multiple sets of first-in-last-out stacking mechanisms to meet the storage and entry and exit of more laminated frames, ensure continuous material supply, and achieve efficient frame placement.

Functionality

- The frame placement is correct and accurate, and the positioning accuracy of the pick-and-place frame $\leq 2\text{mm}$
- Cycle time: $\leq 22\text{s}$
- Pick and place frame effect: accurate positioning, no sticking frame, no cracking
- Change over time: $\leq 20\text{min}/1\text{ person}$
- Operation mode: Auto+Manual
- Noise level: $\leq 60\text{dB}$
- HMI: Chinese and English mode
- Yield: $> 98\%$

Specifications

Item	Value
Compatible module size	length: 1650-2520(mm); width: 990-1450(mm)
Cycle time	$\leq 22\text{s}$
Alignment method	Four-sided alignment
The number of stacking layers per set	≥ 10
The number of palletizing layers per set	≥ 60
Air pressure	0.5-0.7(MPa)
Power	13kW
Dimension(L×W×H)	54630*6000*5650(mm) (refer to laminator specifications)

G2G EDGE TAPE
REMOVER



Features

- The overall structure is composed of conveying unit, four side alignment, servo lifting, vacuum system, tape tearing, waste collection and other mechanisms.
- The servo motor and the module combine to drive tape tearing mechanism to tear the tape, the speed is fast and the precision is high.
- Tape ripping module includes tape fixing mechanism, tape starting mechanism, tape tearing mechanism, tape winding mechanism, tape returning mechanism and so on.
- The whole action of tape tearing adopts servo torque control, which effectively prevents the tape from fracturing in the middle. Wrap the waste tape into a ball for easy cleaning.

Functionality

- Module positioning accuracy: $\pm 1\text{mm}$
- Waste cleaning time: 1800-2000(pcs)
- Cycle Time: $\leq 18\text{s}$
- Change over time: $< 10\text{min}$
- Tape tearing effect: no residue, no scratches, no adhesion
- Operation mode: Auto/Manual
- Noise level: $< 70\text{dB}$
- HMI: Chinese/English mode
- Yield: $\geq 98\%$

Specifications

Item	Value
Compatible module size	length: 1700-2550(mm); width: 990-1450(mm)
Feeding mode	LEL
Compatible module waveform range	0-5(mm)
Compatible module thickness	4-10(mm)
Tape specification	width: 30-40(mm); thickness: 0.06-0.10(mm)
Applicable edge type	Full edge double glass module, the length of tape head at the end is $\geq 50\text{mm}$
Equipment power	$< 8\text{kW}$
Power requirement	380V, 50Hz, AC $\pm 5\%$
CDA	0.6-0.8 (MPa); 300L/min
Dimension(L×W×H)	4200*2500*2100(mm)

AUTO TRIMMING



Features

- Servo motor drives module transmission, linear guide to ensure accurate and stable operation.
- Four edges cutting at the same time, the four corners adopt jacked suction cup structure.
- The blade adopts quick change structure, easy to replace.
- The blade adopts arc edge to cut clean, second trimming blade adopt straight blade to cut clean.
- The cut surface is smooth after trimming, which will not cause damage to the glass.

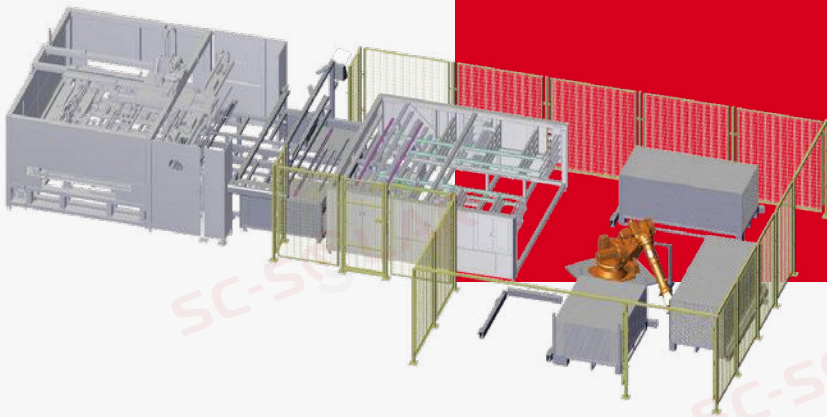
Functionality

- Alignment blocking: one side block, two sides alignment
- Tailing mode: electric roller clamp tailing
- Tape change time: ≤180s
- Cycle time: ≤23s
- Change over time: ≤20min
- Fragment rate: ≤0.05%
- Operation mode: Auto/ Manual
- Noise level: ≤60dB
- HMI: Chinese/ English mode
- Yield: >98.5%

Specifications

Item	Value
Model	SC-TR25-K8-01
Compatible module size	length: 1640-2550(mm); width: 950-1450(mm)
Cycle time	Vertical ≤19s, horizontal ≤16s
Air pressure	0.6-0.8(MPa)
Power	≤2.2kW
Dimension(LxWxH)	3200*2210*1620(mm)

AUTO FRAME LOADER



Features

- Realize automatic detection, grasping, feeding and dividing of the frame;
- Realize unmanned feeding, refueling without stopping, etc;
- Can meet the different requirements of frames, strong compatibility;
- Visual inspection, pick out defective products;
- Cache 70 sets of frames to meet the non-stop refueling;
- Can be manual refueling, compatible with AGV car automatic refueling.

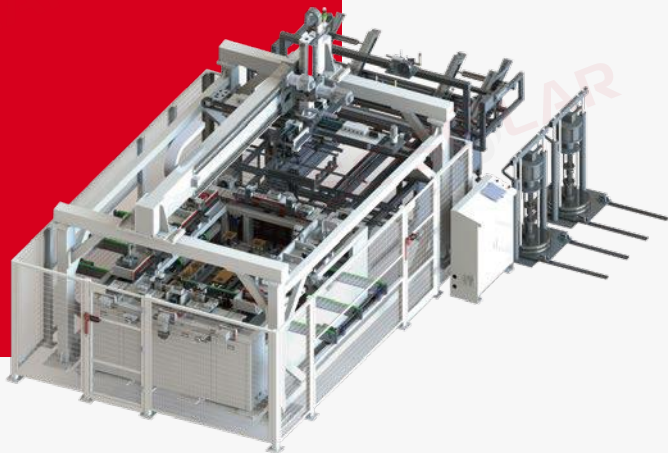
Functionality

- Guided by the visual system, the machine can automatically clamp the frame.
- Under normal circumstances, 8 frames can be gripped at one time, and if there is a big gap between them, the frames can be captured several times in ways that reduce manual intervention.
- The visual system is designed to detect NG frames.
- The machine with buffer capacity of 70 sets of frames has the potential to feed 4 frames at one time to facilitate next work station.
- This equipment promises to make the assembly line more automated, thus laying the groundwork for the ongoing unmanned factory.

Specifications

Item	Value
Long frame	1650-2520(mm)
Short frame	990-1450(mm)
Cycle time	≤16s
Compatible B-side frame size	30-35(mm)
Power requirement	AC380V±5%, 3P+1N+1PE, 20A, 50/60Hz
Power	15kW
Air pressure	0.6-0.8(MPa)
Noise	≤70dB
Dimension(L×W×H)	6000*5000*4000(mm)
Weight	about 2500kg

FRAMING MACHINE



Features

- The aluminum frame is manually placed on the glue dispensing platform, the platform automatically moves, the glue is automatically dispensed, and the equipment runs smoothly.
- Configure the frame silo(the frame hopper does not drop), the Graco pump and the PCF system.
- The rubberizing system runs smoothly and the glue is evenly distributed.
- With a three-stage speed glue machine, the three-stage speed can be set separately.
- The frame machine adopts frame mechanism higher than the conveyor, the frame can be placed in advance to improve cycle time.
- The capturing frame is clamped by pneumatic fingers, which is compatible with no C-side frame.
- The long and short sides are driven by servo + screw, and the Angle of the short side can reach 2T.
- The contact surface of aluminum frame and framing machine is > 90%, no glue overflow on the front of the edges and corners, no damage to the frame film, it can adapt to the frame without film.
- The frame bottom plate and the side baffle with 40Cr/SKD11 material for surface polishing. After quenching, the hardness is required to be above 55.

Functionality

- Module corner misalignment accuracy: ≤0.3mm
- Accuracy: long and short sides ±1mm, diagonal≤1.5mm;head, middle and tail deviation of long and short sides ±1mm
- Evenly overflowing glue: pass rate>98%
- Alignment method: servo alignment + cylinder alignment
- Leakage hole displacement: ≤0.5mm
- Conner gap: ≤0.3mm
- Change over time: ≤2H
- Operation mode: Auto/ Manual
- Noise level: ≤60dB
- HMI: Chinese/ English mode

Specifications

Item	Value
Model	SC-FM150-SN-01
Compatible module size	length: 1640-2450(mm); width: 980-1450(mm)
Cycle time	≤20s
Air pressure	0.6-0.8(MPa)
Power	10kW
Dimension(LxWxH)	7800*4000*3600(mm)

FOUR-CORNER CLEANING SYSTEM



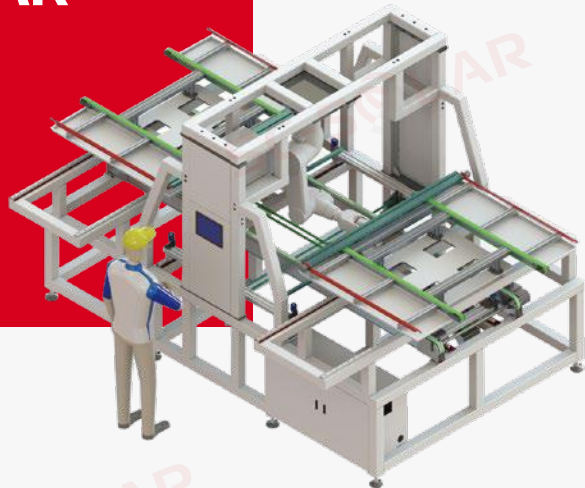
Features

- Suitable for all mainstream module types.
- Utilizes blowing and non-woven fabric cleaning for a cleaner surface.
- Stable equipment with a compact layout.
- Operates with a flexible servo system.
- High degree of standardization and modularization, type-changing more convenient.
- Optional components compliant with UL/CE standards.

Specifications

Item	Value
Compatible module type	Glass-back sheet/G2G/Half-cell/Shingling
Compatible module size	Length: 1800-2500(mm); Width: 900-1350(mm)
Cleaning method	Blowing + Non-woven fabric
Cycle time	14s
Dimension(LxWxH)	2800*4000*2000(mm)
Weight	1800kg
Transportation height	950±50mm
Utilization rate	98% (VDI 3423)
Noise	≤ 75dB
Power requirement	AC 3 phase, 380V/N/PE, 50Hz, 10KVA
CDA	0.4-0.6(MPa), one drop, 400L/min
Change time	10min
PLC	Inovance
HMI	Inovance
Material	90g 35-40mm non-woven fabric

AUTO SUPPORT BAR PLACING



Features

- The overall structure is composed of a module alignment and conveying unit, a support bar storage and feeding unit, and a manipulator placement system.
- The modules can be in and out at the same time, improving cycle time.
- Double feeding system to increase the storage quantity of support bars.
- Touch screen interface, switch module specifications, manual operation, alarm information and other parameter settings.

Functionality

- Module positioning accuracy: $\pm 1\text{mm}$ (the positioning is normalized without vibration)
- Storage quantity of support bars: 200pcs
- Compatible with double support bar modules

Specifications

Item	Value
Compatible module size	length: 1650-2550(mm); width: 980-1650(mm)
Cycle time	$\leq 18\text{s}$
Air pressure	0.5-0.7(MPa)
Air consumption	400L/min
Power	5kW
Dimension(L×W×H)	3400*2570*2300(mm)
Weight	1800kg

AUTO SUPPORT BAR INSTALLATION MACHINE



Features

- The overall structure is composed of a module alignment conveying unit, a support bar positioning mechanism, an automatic screwing system, etc.
- The screw machine is driven by servo, automatic switching; to ensure that the modules can be in and out at the same time, improving cycle time.
- Touch screen interface, switch module specifications, manual operation, alarm information and other parameter settings.
- The camera takes a picture to locate the screw position, and the manipulator places the support bars and aligns the position of the mounting hole.
- With screw discharge detection, screw sliding detection, screw floating lock detection.

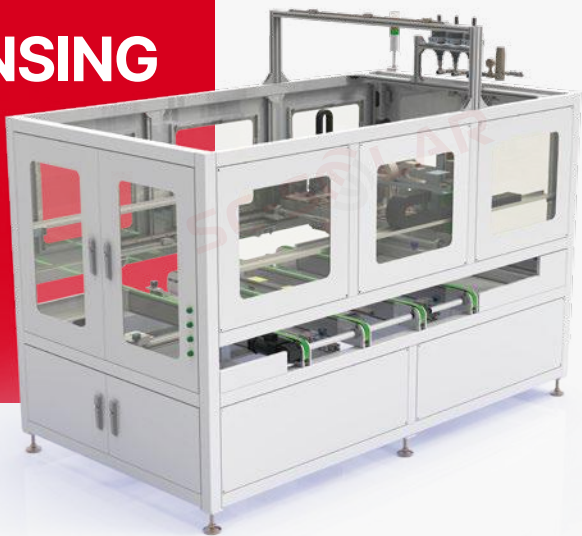
Functionality

- Module positioning accuracy: $\pm 1\text{mm}$
- Torque requirements: $11.5 \pm 1.5\text{Kgf.cm}$ (ST3.5*32mm)
- Compatible with double support bar modules
- Replenish screw without stop

Specifications

Item	Value
Compatible module size	length: 1650-2550(mm); width: 980-1450(mm)
Cycle time	$\leq 18\text{s}$
Air pressure	0.5-0.7(MPa)
Air consumption	400L/min
Power	5kW
Dimension(L×W×H)	3100*3750*1900(mm)
Weight	2000kg

BACKSHEET DISPENSING MACHINE



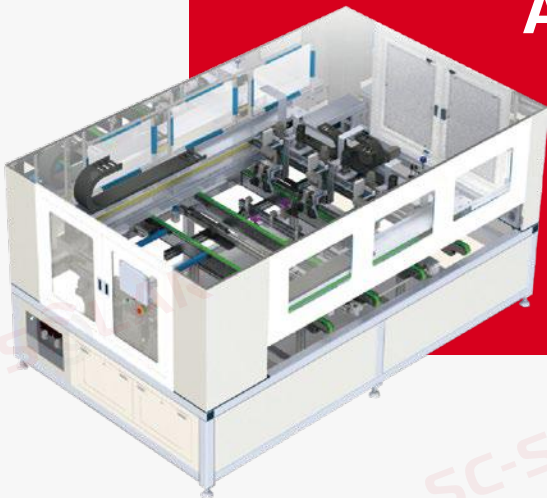
Features

- The Backsheet Dispensing Machine meets the requirements for modules of general length and width specifications.
- Lead positioning method: Mechanical positioning.
- The main frame structure is made of steel, sturdy and reliable.
- The equipment operates at high speed with precise, stable, and reliable positioning accuracy.
- The equipment is fully automatically controlled, requiring no manual intervention during operation.
- Module type switching and alignment can be achieved with one-button operation, directly calling the program.

Specifications

Item	Value
Compatible module type	Glass-back sheet/G2G/Half-cell/Shingling
Compatible module size	Length: 1650-2520(mm); Width: 990-1450(mm)
Cycle time	≤14s
Accuracy	Mounting Positioning accuracy≤±0.2mm Repeatable mounting accuracy≤±0.05mm
Dimension(L×W×H)	3300*1800*2600(mm)
Weight	2100kg
Transportation height	950±50mm
Installation yield	≥99.9%
Utilization rate	≥99.9%
Noise	≤ 60dB
Power requirement	AC380V±5%, 3P+1N+1PE, 25A, 50/60Hz
CDA	0.6-0.8(MPa), one drop, 300L/min
Power	10kW
Environmental temperature	-20~50℃
Environmental humidity	5%-75%(no dewfall)
PLC	Inovance
HMI	Inovance

AUTO ICB LEAD PICKING UP



Features

- Compatible with a variety of specifications and module sizes, servo correction system, convenient and quick to change the model.
- The motion unit is driven by a servo motor, with fast speed, high positioning accuracy, stability and reliability.
- Realize automatic pick lead, take high temperature cloth or tear tape (two options).
- The three leads are operated at the same time, the cycle time is 18s, very fast and efficient.
- The servo control is in flexible contact with the product, high security.
- Optional high-temperature cloth automatic stacking function, save worry and effort.

Functionality

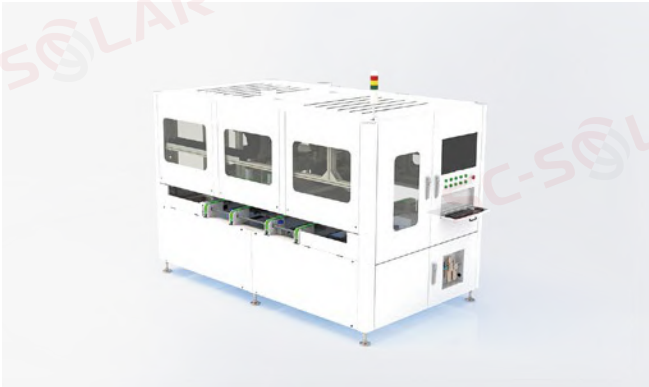
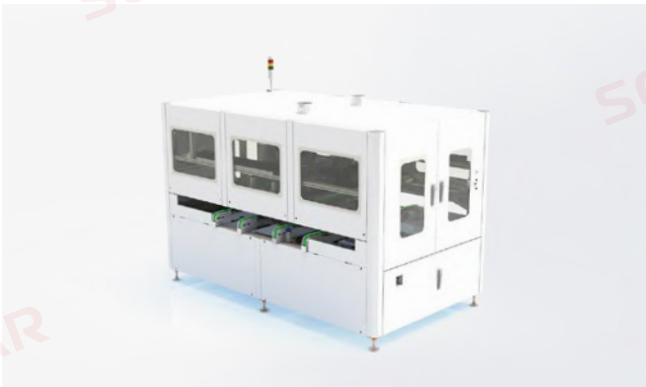
- Fragmentation rate of normal, half-cell, MBB: ≤0.04%
- Compatible cell specifications: 60 half-cell / 72 half-cell / MBB half-cell
- High temperature cloth changing frequency: ≥11 hours/time
- Conveying direction: horizontal conveying
- Mechanical positioning: servo correction
- Utilization rate: ≥98%
- Noise level: ≤75dB
- Environmental humidity: 5%-75% (no dewfall)
- Ambient temperature: 15℃-30℃

Specifications

Item	Value
Compatible size	length 1600-2500(mm); width 900-1500(mm)
Cycle time	≤16s
Power	≤5.5kW
Power supply	AC380V±5%, 3P+1N+1PE, 20A, 50/60Hz
Pressure	0.6-0.8(MPa)
Gas consumption	200L/min
Weight	2000kg
Dimensions(L×W×H)	3600*2200*1900(mm)



J-BOX LASER SOLDERING MACHINE



Features

- The soldering machine docks with other equipment, allowing for automatic loading and unloading of products.
- The equipment utilizes XYZ gantry moving mechanism with automatic servo correction, adaptable to position deviations of different J-boxes.
- The equipment utilizes visual guidance to automatically adapt to variations in the positions and angular deviations of J-boxes and lead wires.
- The equipment utilizes servo-controlled three-group wire pressing mechanisms, capable of independently flattening lead wires.
- The equipment employs a laser soldering module to rapidly move and weld lead wires at various points simultaneously.
- The equipment operates fully automatically, without the need for human intervention during operation.
- The equipment uses a visual and temperature sensing module to automatically assess welding quality.

Specifications

Item	Value
Compatible Module type	Glass-back sheet/G2G/Half-cell/Shingling
Compatible module size	Length: 1600-2550(mm); Width: 900-1450(mm)
Cycle time	16s
Dimension(L×W×H)	3200*1800*2000(mm)
Weight	2200kg
Transportation height	950±50mm
Utilization rate	95% (VDI 3423)
Noise	Max 75dB
Power requirement	AC 3 phase, 380V/N/PE, 50Hz, 15KVA
CDA	0.4-0.6(MPa), one drop, 400L/min
Cooling method	Water cooling
Change time	1h
PLC	Inovance

J- BOX AUTOMATIC MOUNTING MACHINE



Features

- Suitable for all current mainly module types. Can base on different panel type and cell spacing to install different J-Box.
 - High speed, stability and compact layout.
- Simple and flexible operation with using removable teach pendant.
 - High degree of standardization and modularity, compatible with various J-Boxes.

Specifications

Item	Value
Compatible module type	Glass-back sheet/G2G/Half-cell/Shingling
Compatible module size	length: 1600-2500(mm); width:900-1400(mm)
Material feeding method	Positive & Negative Electrode Frame Incoming / Intermediate Shaker Incoming
J-Box grabbing method	Clamping jaw
Cycle time	14s
Dimension(L×W×H)	4940*2000*2500(mm)
Weight	4t
Transportation height	950±50 mm
Utilization rate	95% (VDI 3423)
Noise	≤75dB
Power requirement	AC 3 phase, 380V/N/PE, 50Hz, 20KVA
CDA	0.4-0.6 Mpa, one drop, 400l/min
Change time	1h
PLC	Inovance
HMI	Inovance

J-BOX DETECTION MACHINE



Features

- The overall structure consists of convey unit, lead chamber, detector imaging system, etc.
- Servo feed, automatic switching, ensure that the modules can be feed in/out at the same time, save cycle time.
- The modules are automatically transmitted to the equipment, the detector automatically performs visual detection.
- Use touch screen interface to set the parameters such as module specifications, manual operation and alarm information.

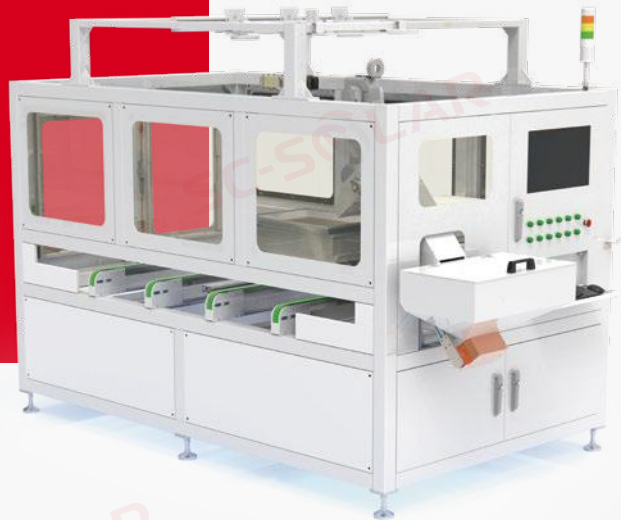
Functionality

- Cycle time: ≤16s
- Available working hours: >23h/day
- Active rate: ≥99%
- Streamline speed: 800-1200mm/s (can be adjusted)
- Junction box welding mode: resistance tin welding
- One-time pass rate: > 99.95%
- Switching time: ≤1min

Specifications

Item	Value
Compatible module size	length: 1650-2520(mm); width: 900-1400(mm)
Light tube type	Microfocal spot closed tube
Power	90kV
Current	0.05-0.7(mA)
Imaging area	157*157(mm)
Spatial resolution	3.2LP/MM
Lead chamber radiation	<1uSv/Hr
Detection mode	Straight shot, multi-point detection (points≤3)
Acquisition time	0.5s
Equipment transfer height	950±30mm

J-BOX COVER
INSTALLATION
MACHINE



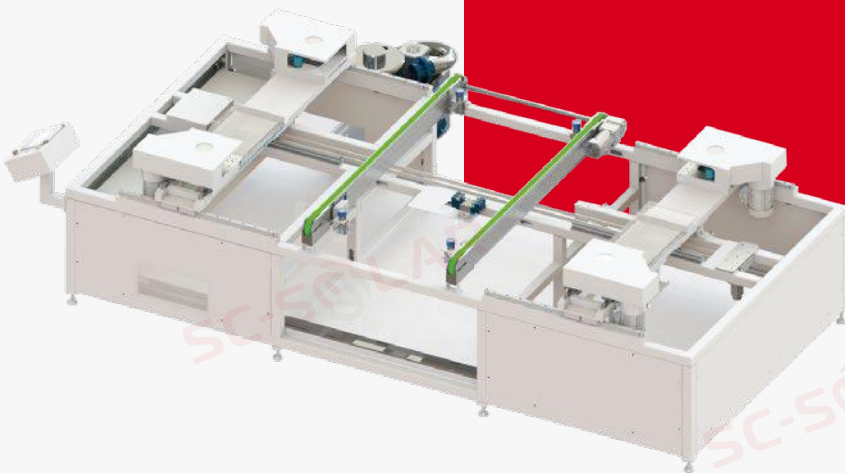
Features

- Compact layout, can be integrated into existing production lines.
- Compatible with various common types of J-boxes such as single and triple J-boxes, with convenient type switching.
- Optional adhesive curing inspection function.
- Incorporates standard quality inspection functions after cover closing.
- Large buffer capacity for cover storage, easy loading.
- Optional components that meet UL/CE standards.

Specifications

Item	Value		
Compatible module type	Single J-box	Half-cell, G2G triple J-box	Shingling
Compatible module size	length: 1600-2500(mm); width: 900-1400(mm)		
Cycle time	14s		
Number of J-box cover caches	≥4h		
J-box cover feeding method	Vibration feeder		
Pre-sealing Adhesive Inspection Function	Curing quality & potting quality		
Dimension(L×W×H)	3000 x 1800 x 2450 (mm)		
Weight	2000kg		
Transportation height	950±30mm		
Feeding method	LEL		
Utilization rate	95% (VDI 3423)		
Noise	Max 70dB		
Power requirement	AC 3 phase, 380V/N/PE, 50Hz, 15KVA		
CDA	0.4-0.6(MPa), one drop, 400L/min		
Change time	2h		
PLC	Inovance		

AUTO
FILING
MACHINE



Features

- Servo motor and synchronous belt drive, linear guide to ensure accurate and smooth operation.
- Automatic control of equipment, operation process without personnel intervention.
- Sand belt fast change structure, quick and convenient replacement.
- The four corners are filed at the same time, and the four corners are driven by the motor.
- Smooth section after filing corners, will not cause damage to the glass.

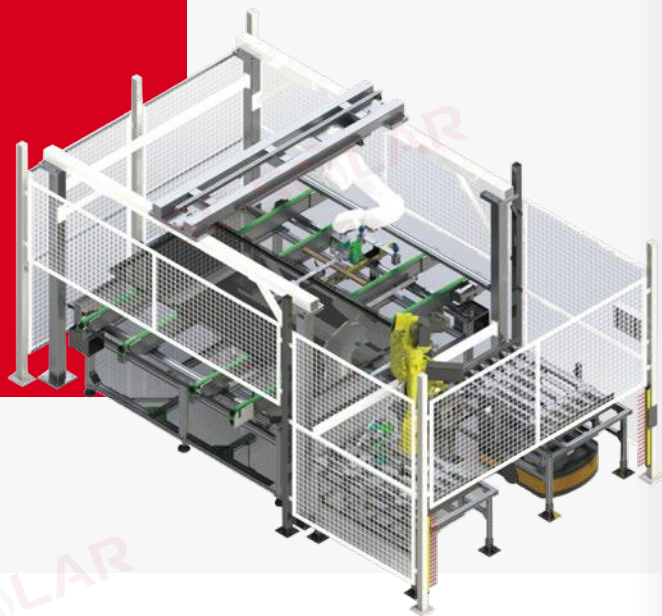
Functionality

- Change time: ≤10min
- Sand belt service cycle: ≥30000 times
- Accuracy: ±1mm
- Noise: ≤80dB

Specifications

Item	Value
Compatible module size	length: 1700-2550(mm); width: 990-1450(mm)
Feeding mode	LEL
Compatible module waveform range	0-5(mm)
Compatible module thickness	4-10(mm)
Tape specification	width: 30-40(mm); thickness: 0.06-0.10(mm)
Applicable edge type	Full edge double glass module, the length of tape head at the end is ≥50mm
Equipment power	<8kW
Power requirement	380V, 50Hz, AC±5%
CDA	0.6-0.8 (MPa), 300L/min
Dimension(L×W×H)	4200*2500*2100(mm)

TEST
JIG LOADER



HD camera capture
Visual positioning analysis
Auto crawl and install

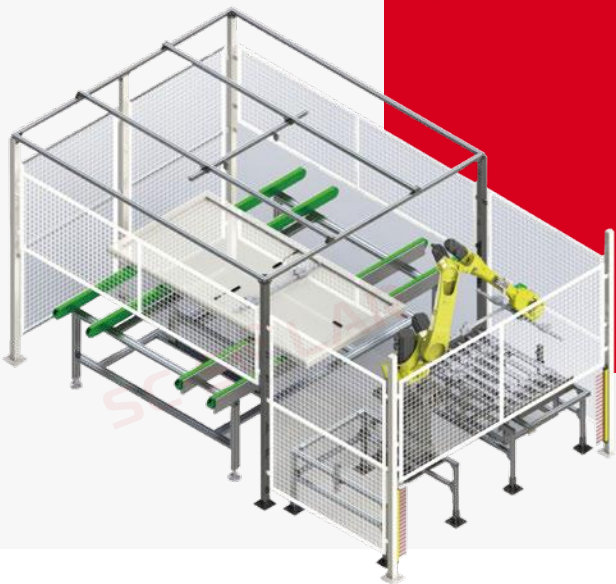


Incoming > Mechanical positioning > Location crawling > Vision localization > Install the plug > Complete

Specifications

Item	Value	Item	Value
Compatible size	L:1640-2500(mm); S: 900-1450(mm)	Power	10kW
Compatible version	Compatible with all conventional, half-cell, single glass and double glass module (Maximum size of 210mm)	Voltage	380V 50Hz
Cycle time	≤20s/pcs	Pressure	0.5-0.8(MPa)
Rotation method	Compatible with manual,AGV,return line	Tube size	Φ12mm
Compatible wire length	300mm-1700mm (customizable)	Air consumption	4L/min
Positioning accuracy	±0.2mm	Equipment size(L×W×H)	4600*2850*2500(mm)

TEST
JIG UNLOADER



HD camera capture
Visual positioning analysis
High-speed calculation
execution



Incoming > Vision localization > Disassemble the lead > Demolished > Rotation

Specifications

Item	Value	Item	Value
Compatible size	L:1640-2500(mm); S: 900-1450(mm)	Power	7kW
Compatible version	Compatible with all conventional, half-cell, single glass and double glass module (Maximum size of 210mm)	Voltage	380V 50Hz
Cycle time	≤20s/pcs	Pressure	0.5-0.8(MPa)
Rotation method	Compatible with manual,AGV,return line	Tube size	Φ12mm
Compatible wire length	300mm-1700mm (customizable)	Air consumption	2L/min
Positioning accuracy	±0.2mm	Equipment size(L×W×H)	4600*2850*2500(mm)

AUTO LABELING



Features

- The overall structure consists of transportation correction, suction labeling, labeling, and vacuum system.
- Servo motor drives the labeling mechanism, high speed and high precision.
- The suction and labeling system is delivered by a screw and timing belt. Accurate and fast suction and labeling. A compression spring for buffering when labeling.
- Rolling the bar code and brand name with the roller to ensure that bar code and brand name are firmly attached to the module.

Functionality

- Module positioning accuracy: ±1mm
- Cycle time: ≤23s
- Alignment: four side alignment
- Label position deviation: ±1mm
- Change over time: <3min
- Fragment rate: ≤0.05%
- Operation mode: Auto/ Manual
- Noise level: ≤60dB
- HMI: Chinese/ English mode
- Yield: >98.5%

Specifications

Item	Value
Model	SC-AL26-CS-01
Compatible module size	length: 1640-2400(mm); width: 950-1400(mm)
Cycle time	≤23s
Air pressure	0.5-0.7(MPa)
Power	2.5kW
Dimension(LxWxH)	3400*2100*1700(mm)

AUTO CORNER PROTECTOR INSERTING



Features

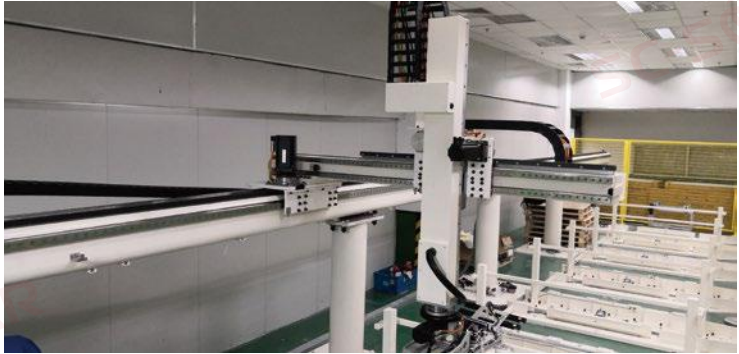
- The overall structure consists of alignment and conveyor unit, a corner protector inserting system and vacuum system.
- Touch screen interface for changing module specifications, manual operation type, alarm information and other parameter setting.
- Servo feeding automatic switching, to ensure module entering and exiting, saves cycle time.
- Paper protector inserts automatically and then folds along the crases.

Functionality

- Module positioning accuracy: ±1mm
- Alignment: four side alignment
- Change over time: 60cell<-->72cell one button switch Normal<-->half-cut module<30min/1person
- Change paper protector time: ≤180s
- Operation mode: Auto/ Manual
- Noise level: ≤60dB
- HMI: Chinese/ English mode

Specifications

Item	Value
Model	SC-CG25-CS-01
Module size	length: 1650-2550(mm); width: 990-1450(mm)
Cycle time	≤20s
Operation pressure	0.5-0.7(MPa)
Power requirement	8kW
Maximun dimension(LxWxH)	4150*1860*2000(mm)
Weight	2800kg
Frame	30-45(mm)
Protector material	tri-wall corrugated paper, kraft paper
Protector thickness	corrugated paper 1±0.2(mm), kraft paper 0.3-0.5(mm)
Protector storage number	≤500pcs



Features

- Compatible for all types of palletizing for solar module, (horizontal/vertical)
- Vertical packing of conventional frame components and double glass components can be completed in combination with the design of component carton.
- High speed, stable, compact.
- Controlled by a robot controller which makes the programming easy and flexible.
- High degree of standardization and modularization, modular expansion can be realized by adding 2&3 axes.

Functionality

- UL/CE standard parts
- Gripper changing tools
- Floating mechanism inside the gripper
- Quality check
- Module flipping tools

Specifications

Item	SCI-VP140-S	SCI-VP140-D
Module type	normal/double-glass/half-cut/shingling	
Compatible size	length: 1600-2500(mm); width: 900-1400(mm)	
Palletizing type	horizontal/vertical	
Module picking type	suction cup	
Cycle time	16s	
Number of bins	<6	<12
Footprint(LxWxH)	15000*4500*4800(mm)	25000*4500*4800(mm)
Weight	10500kg	21000kg
Transportation height	950±50 mm	
Technical availability	95% (VDI 3423)	
Noise level	Max 70dB	
Power requirement	AC 3 phase, 380V/N/PE, 50Hz, 20kVA	
CDA	0.4-0.6(MPa), one drop, 600L/min	
Change over time	1 h	
PLC	Inovance	
HMI	Inovance	

MODULE VERTICAL
PALLETIZING SYSTEM



PHOTOVOLTAIC
SMART CARRIER

Flexible and adaptable, it can be equipped with a variety of equipment such as photovoltaic baskets. The compact size of the car has no turning radius and can be deployed quickly without the need to rebuild the factory. Automatic charging, multiple security protection, safe and fast.



Server system

Flexible movement and quick response



Visual system

Automatic obstacle avoidance, safe and reliable



Dispatch system

Can be connected to the ERP system, the scheduling system automatically calculates the path, and runs ultra-efficiently

Specifications		
Basic information	Dimensions	940*650*250 (mm)
	Body weight	135kg
	Electric display	LCD
	Control system	Han Xin System
Carrying information	Load	600kg
	Forward speed	1.5m/s
Operational information	Navigation method	Laser
	Walking direction	Two-wheel differential
	Minimum turning radius	Spin
	Obstacle detection range	0-8000mm
Precision	Positioning accuracy	±2mm
	Navigation accuracy	±5mm
Battery information	Charging method	Automatic online charging/ manual charging
	Charging time	4h(10A)&2h(20A)
	Operation hours	8h
Drive mode	Motor type	Servo motor
	Output power	2x400W
Other	Security system	Laser obstacle avoidance, safe touch
	Alarm form	Audible alarm



INTELLIGENT LOGISTICS
- STACKING AGV

3D natural navigation, super-environmental adaptability, extended double fork, more suitable for the photovoltaic industry. Automated stacking AGV replaces traditional forklifts with fewer people, more safety and greater efficiency.



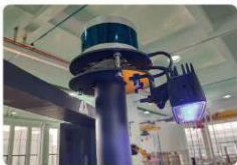
UI

Real-time display of information, keep abreast of equipment health.



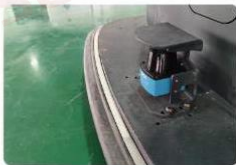
Lifting mechanism

Load capacity up to 1000kg, lift height up to 1.6m.



Visual system

Based on radar secondary positioning, the overall positioning accuracy can reach 10mm.



Radar system

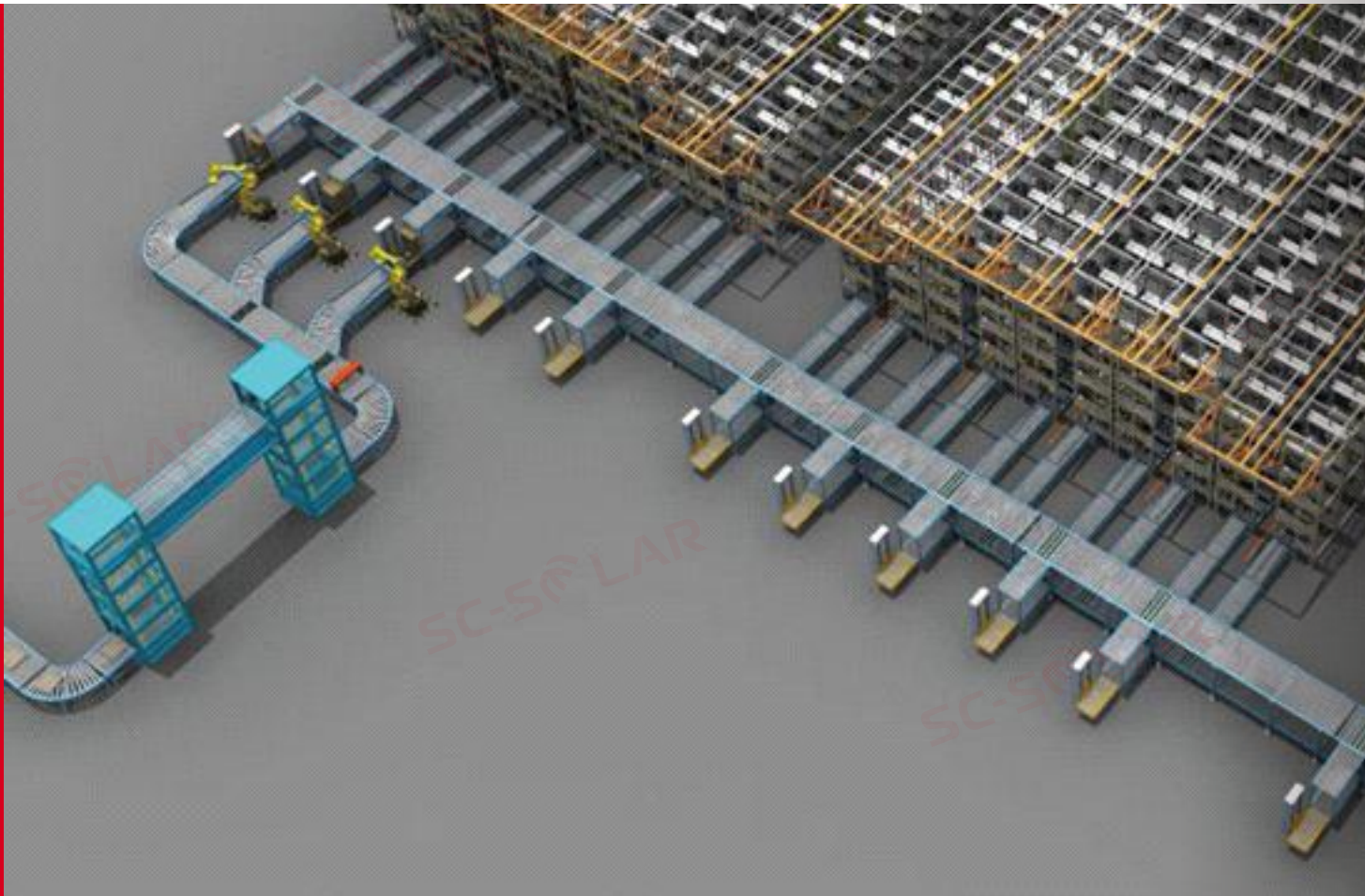
Omnidirectional radar, using natural navigation, no need to adjust infrastructure, with high environmental adaptability.



Dispatch system

Can be connected to the ERP system, the scheduling system automatically calculates the path, and runs ultra-efficiently.

Specifications		
Basic information	Dimensions	2095*990*2175 (mm)
	Body weight	850kg
	Electric display	LCD
	Control system	Han Xin System
Carrying information	Load	1500kg
	Forward speed	1.2m/s
Operational information	Lift height	1.6m
	Navigation method	Laser
	Walking direction	Two-wheel drive
	Minimum turning radius	1630mm
Precision	Obstacle detection range	0-8000mm
	Positioning accuracy	±2mm
Battery information	Navigation accuracy	±5mm
	Charging method	Automatic online charging/ manual charging
	Charging time	4h(10A)&2h(20A)
Drive mode	Operation hours	8h
	Motor type	AC motor
Other	Output power	1.5kW
	Security system	Laser obstacle avoidance, safe touch
	Alarm form	Audible alarm



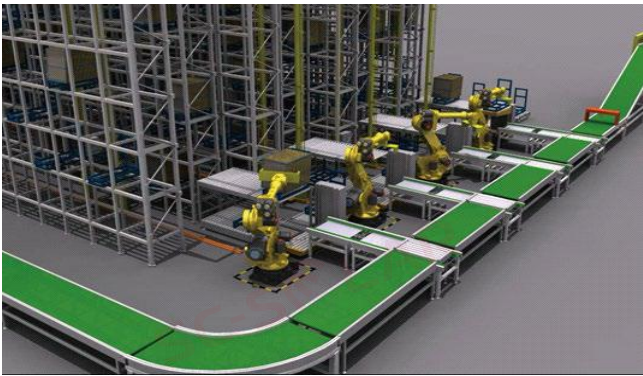
Features

- Standardized design;
- Dvanced mechanical and electrical configuration, high reliability of equipment;
- Multiple mechanical, electrical safety protection and operation interlocking measures with high safety factor;
- Adopt international famous brand geared motors;
- Vertical and mobile direction adopts laser absolute addressing mode;
- Information transmission uses infrared optical communication (or wireless communication);
- Adopting programmable controllers of internationally renowned brands;
- It has the shape detection and weight detection of the cargo unit;
- Pipe or flexible sliding contact power supply;
- Can be combined with various logistics equipment in the surrounding to from a complete automated logistics storage system;
- The system can achieve maintenance, manual, single automatic and linkage control mode.

STEROSCOPIC WAREHOUSE SYSTEM

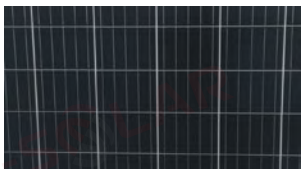
Auto three-dimensional intelligent storage, is a system realized via collaboration of auto storage devices with computer management system.High-layer rationalization, storage and fetch automation, and operation simplification to be realized fo 3-D Storage.

On customers' requirements and conditions to customize and designen an high efficient, energy-saving, economical and practical 3-D Warehouse.



MODULE APPEARANCE
AUTO DETECTION SYSTEM

Compatible PV Module Type



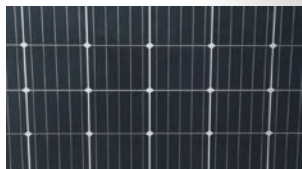
▲ Double-glass Multi Cell



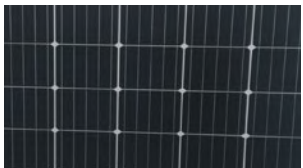
▲ Mono Full Cell



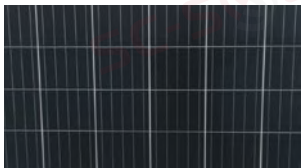
▲ Mono Half Cell



▲ PERC Mono Cell



▲ Double-glass Mono Cell



▲ Multi Full Cell



▲ Multi Half Cell

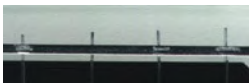


▲ Back Of PV Module

What are we inspecting ?



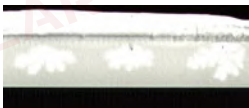
◀ EVA glue overflow



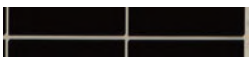
◀ Overlong welding strip



◀ Dirt



◀ Bubble



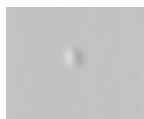
◀ Abnormal of cluster spacing



▲ Laceration



▲ Dirt



▲ Pits



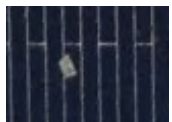
▲ Swelling



▲ Scratches



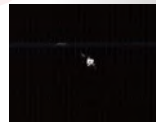
▲ Broken Cell



▲ Foreign matter



▲ Scratches



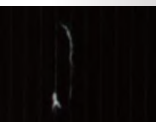
▲ Tin dross



▲ Cracks



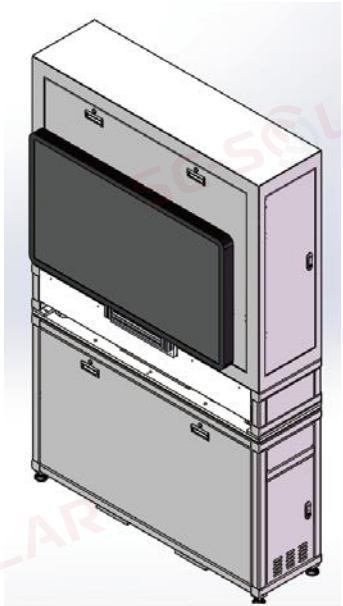
▲ Missing Corner



▲ Bubble

Features

- Real-time on-line detection improves the efficiency of production detection and greatly reduces the labor cost of the pipeline.
- Automatic identification and judgment of defects, automatic alarm and upload detection data.
- Automatic Bar Code Recognition; Adapt to various types of PV module, automatic identification and labeling of conventional PV module, unconventional PV module.
- Fast product changing-over; Adapt to small yield and diverse PVmodule.
- Autonomous learning function, while testing while learning; not only can improve the accuracy of current product types, but also learn new product types.
- Connect with ERP system to realize remote management of testing equipment.

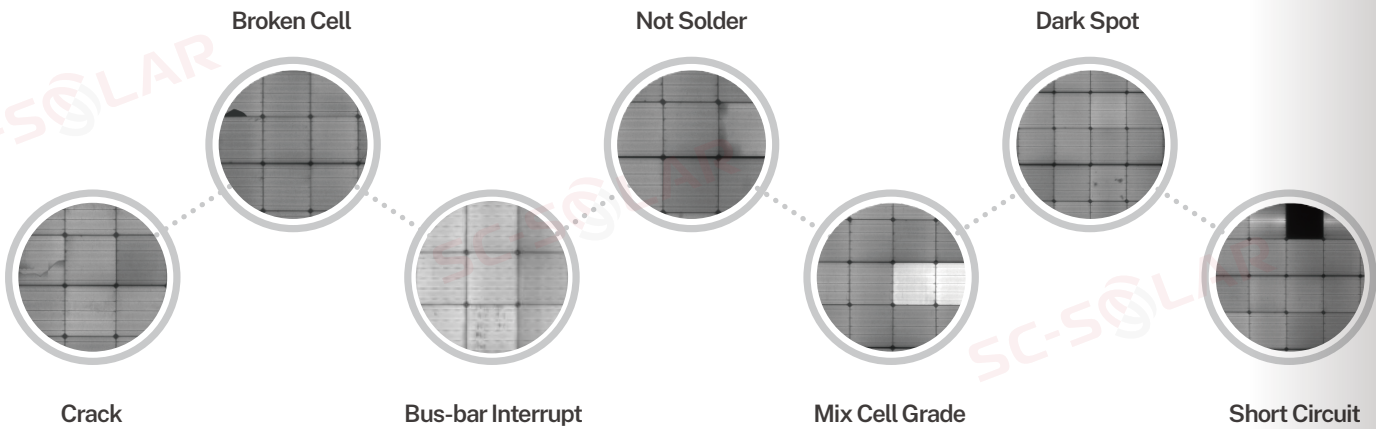


Specifications

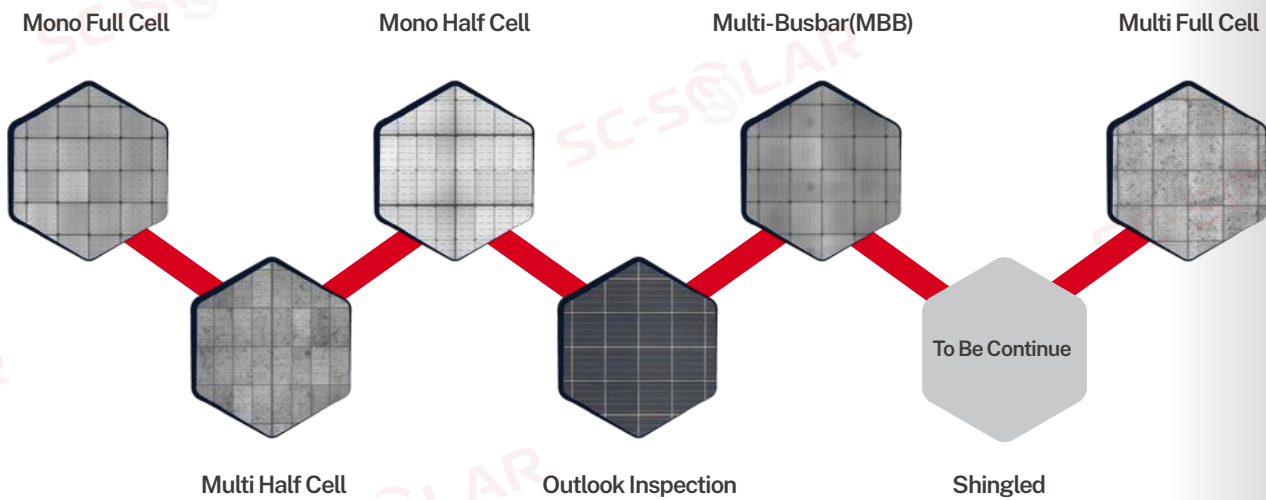
Product model	HDC-MI900	HDC-MIL901
Module type	Mono、Multi cell(60、72)、Double-glass、Half cell、 PERC Mono cell	
Detection region	Type of defect	
Back of PV Module	Pits	
	Swelling	
	Laceration	
	Scratches	
	Dirt	
Cell	Bubble	
	Broken Cell	
	Scratches Cell	
	Abnormal of cell and cluster spacing	
	Overlong welding strip	
	Tin dross; Tin wire	
	Insect	
Other regions	Bubble	
	EVA white EVA fold	
	Dirt	
Detection mode	Front + Back (Only Front)	
Camera	High-end Color line scan+black and white line scan	
Light source	High-end customized light source	
Defect judgment method	Automatic	
Display	55 inch large screen display	
Size	2m*1m	
Frame	No	
Entry mode	Short edge entry	
Speed	18m/s	
Detection time	Max 25s	
Assembly Line	No	Yes
Dimension(mm)	1450*400*2400(LxWxH)	1450*4600*2400(LxWxH)
Weight(kg)	450	500
Power Cabinet Dimension(mm)	300*750*1100(LxWxH)	
Power Supply	AC220V/50Hz/16A	
Power	2.2kW	2.7kW
Additional Features	Identify barcode; Defect statistics; Automatic alarm function	

EL AUTO IMAGE RECOGNITION SYSTEM

What are we inspecting ?



Compatible Cell Type



Fast Ramping Time for New Product

Multi-Busbar, Shingled, Bi-facial & ect. product welding point detection
Automatic detection of abnormal occurrence points by String EL function and reduction of searching period of on monitor



Lean on Manpower for Manual Detection & Rework

With string EL AI, defective strings can be repaired beforehand and therefore reduces workload at the panel repair station



Reduced Loss of Cell

Automatic String EL Detection can avoid massive defect WIP occurrences from Stringer to Pre-Lamination EL, it can prevent massive detect string produced by stringer



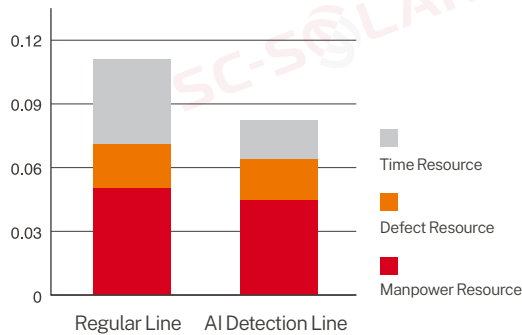
Yield of Quality Improve

With standardized of detection protocol, Pre & Post Lamination module EL automatic detection can reduced human dependent factor which cause miss detection due to fatigue for long operation can improve yield.



Fast Change-over Time

Multiple type product market demand is becoming more and more obvious, the core role of rapid positioning and intelligent judgment in solving abnormal situations is to help customers stop worrying about hidden cracks in virtual welding

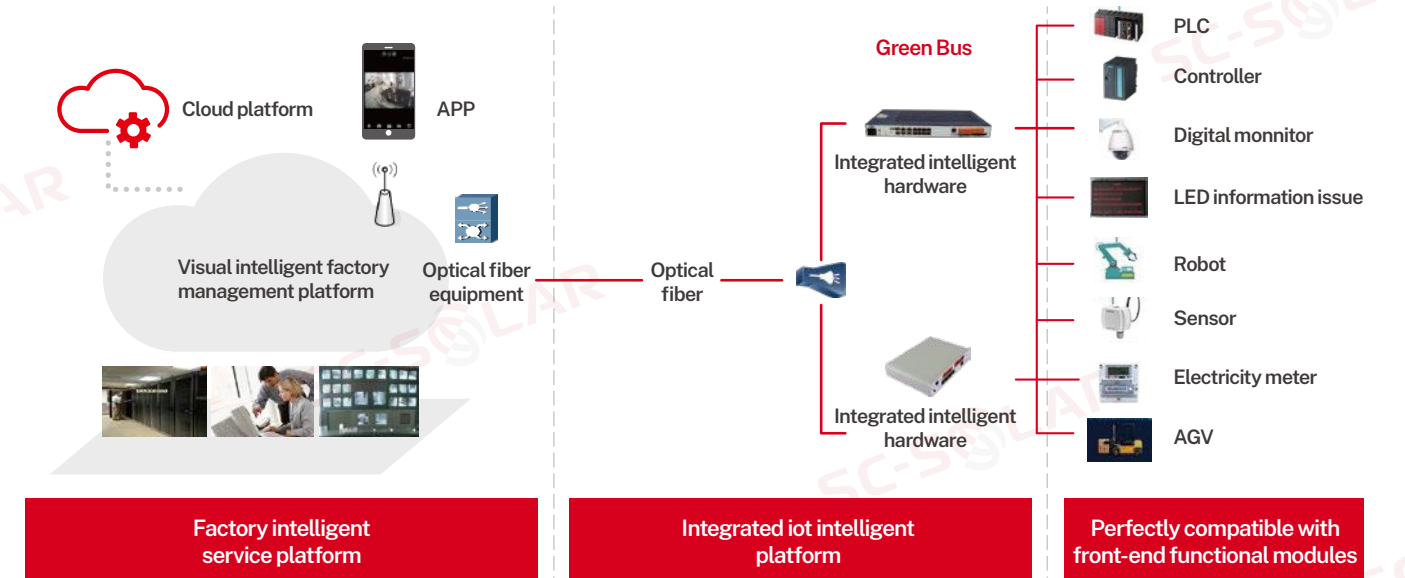


Comparisons of AI Detection before and after of Multi-Busbar

Single Line KPI	Original	AI Detection
Daily Module Output (piece)	1800	2330
Reach Full Product Capacity (day)	5	2
Module Rework Rate (%)	18.2	507
Module Rework Manpower (pax)	12	4
String Rework Rate (%)	4.3	308
String Rework Manpower (pax)	5	5
Defect Rate (%)	0.32	0.28
Stringer Daily Downtime (h)	1.87	1.15
String Down Grade Rate (%)	0.15	0.05
Annual revenue generation(10K RMB)		354

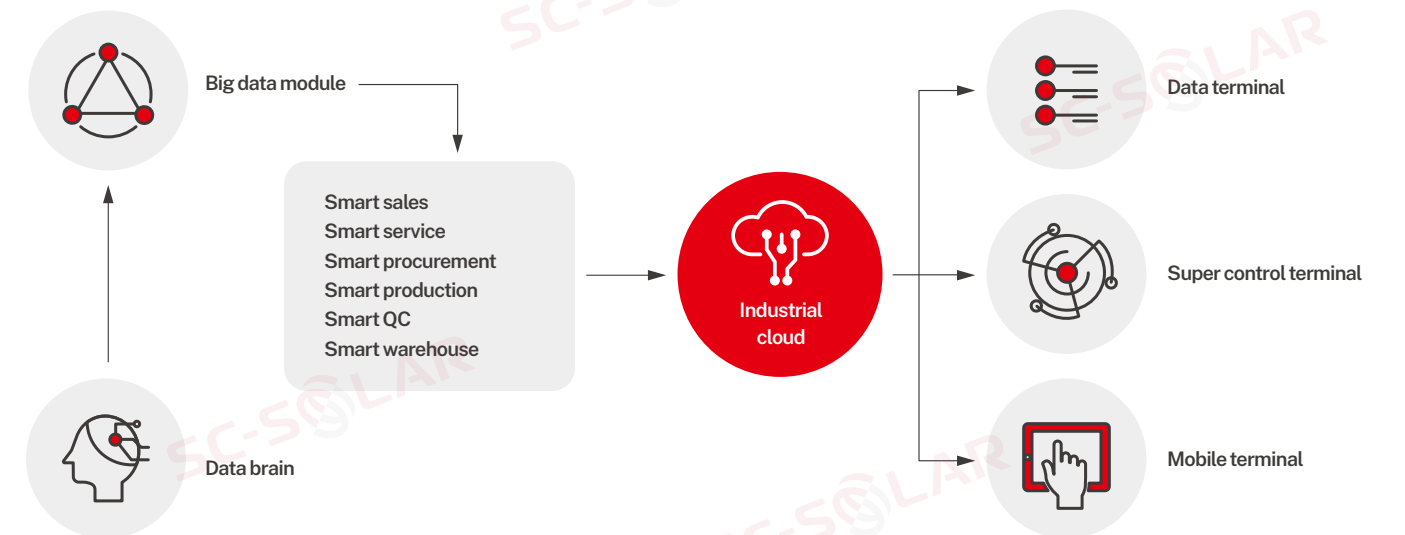
SMART FACTORY MANAGEMENT SYSTEM

Smart factory-industrial Internet of things

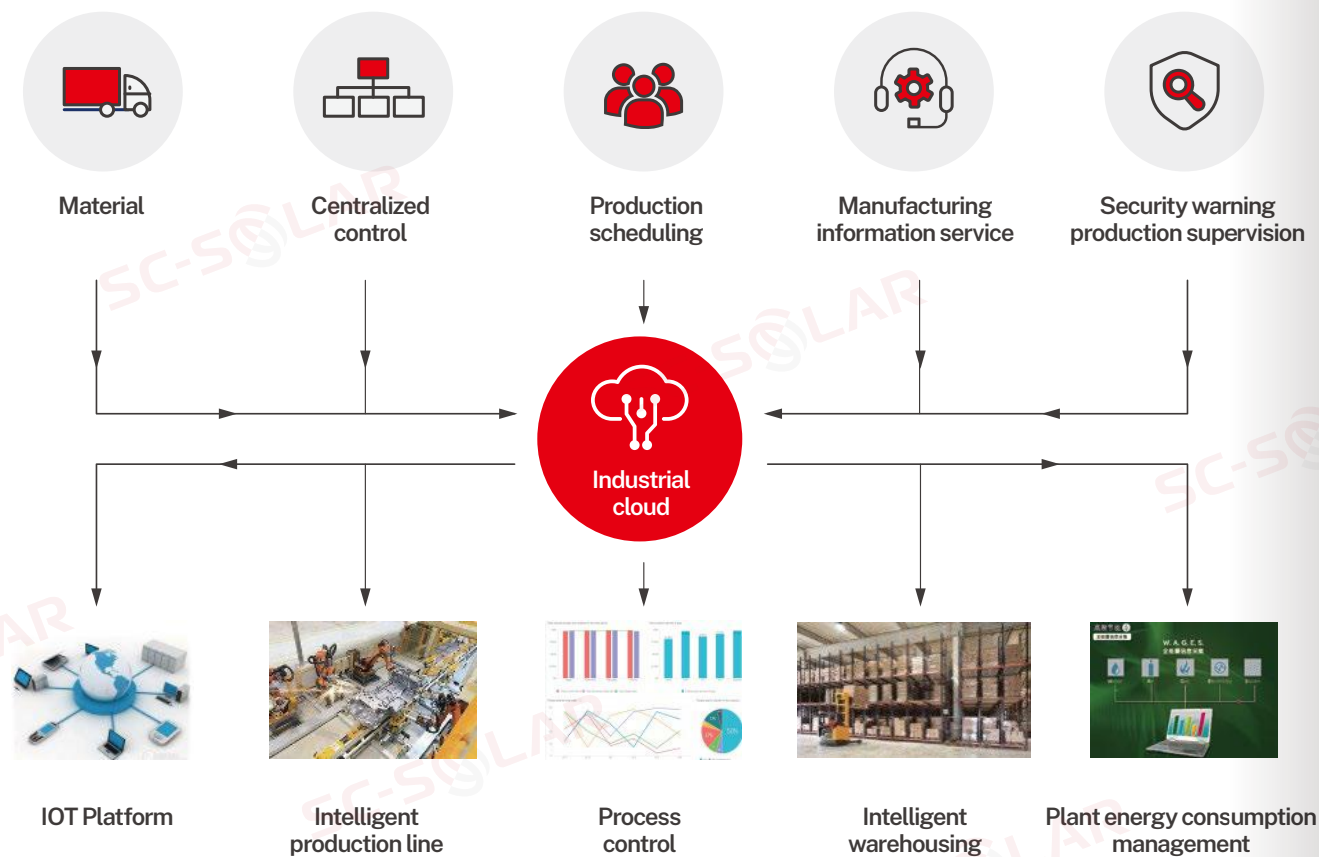


Intelligent perception and cloud architecture control system as the core means of production control, Industrial iot technology, the application of sensor network technology in the supply chain system, based on Intelligent sensor, intelligent equipment, realize automatic data collection, production Intelligent monitoring, automatic control of the whole production process, and provide foundation support for the production process optimization.

Smart factory-industrial big data



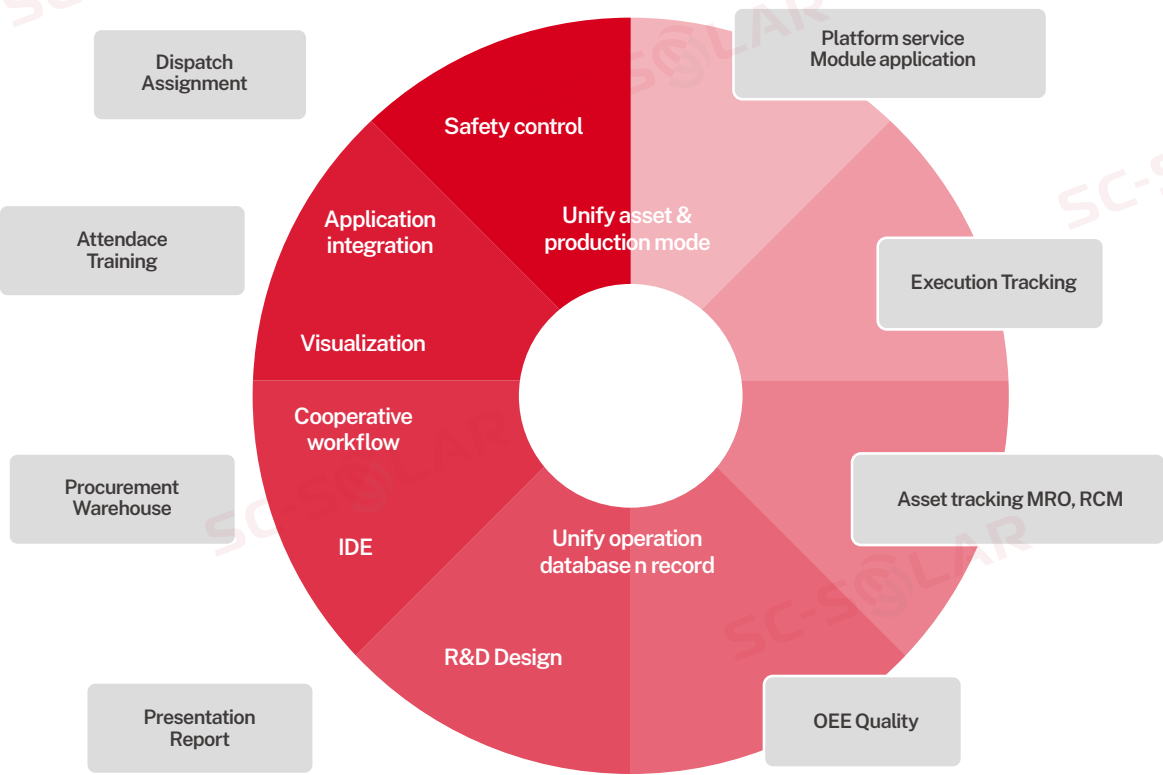
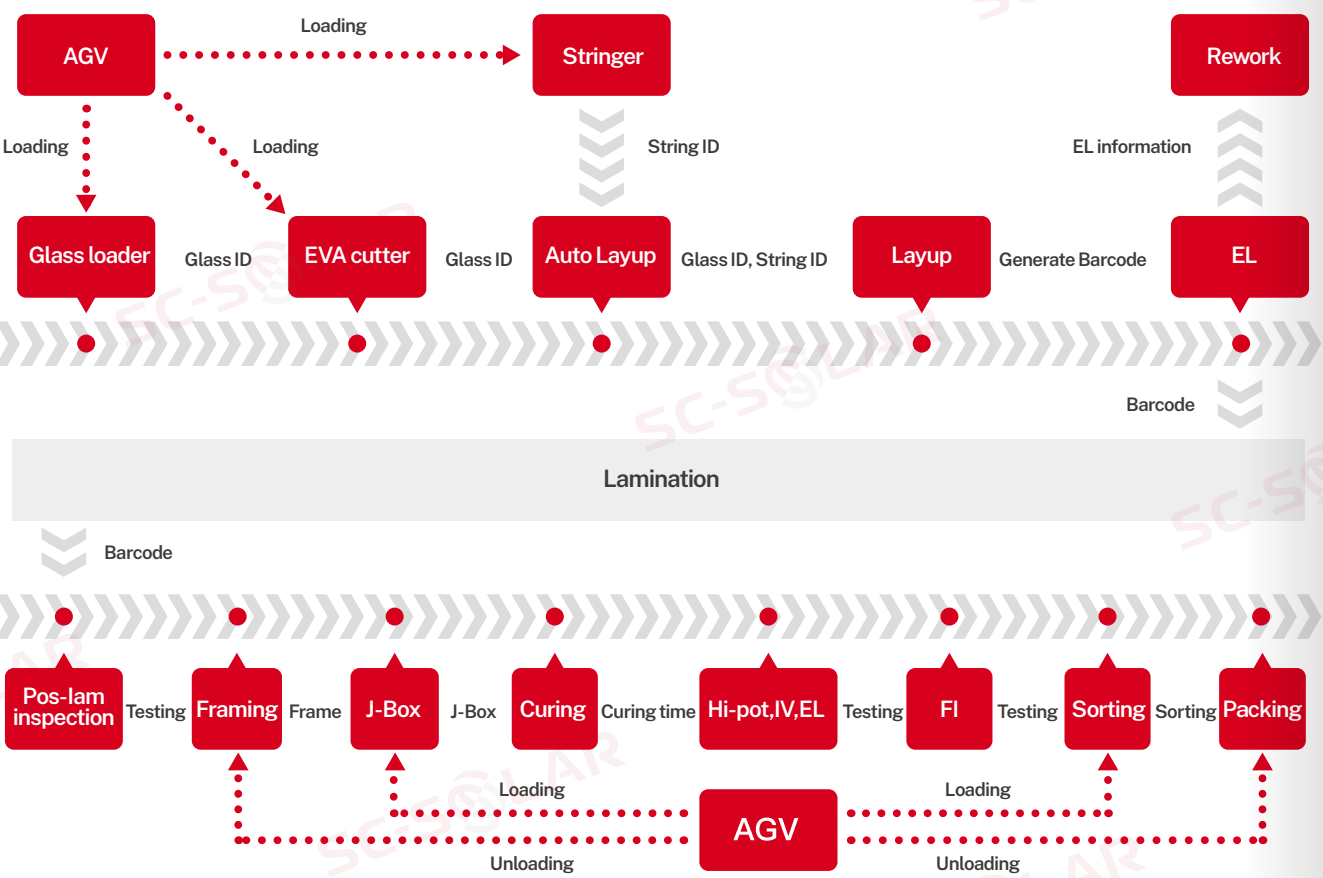
Applications of industrial big data synchronize the acquisition, management, and calling of data from enterprises and external. Through intelligent analysis methods, such as statistical analysis, feature extraction, association mining, pattern recognition and deep learning etc, realize cognition and prediction of activity data. The analysis data is transmitted to "enterprise data cloud" and "industrial big data cloud" through the real-time transmission interface of the two platforms, and all data is released to the "enterprise Internet and interactive portal" through the cloud platform.



SMART FACTORY-MES

- Improve the formulation and adjustment of production plan
- Improve the quality control in the production process
- Speed up the feedback speed of production plan execution
- Greatly improve the real-time data reporting capabilities of enterprises
- Improve equipment management
- Eliminate the information island in the enterprise, realize the information sharing within the enterprise

Smart Factory -MES Main Control Site



Manufacturing execution	System integration interface management	Products in process management	Material management	Report
	Equipment data integration interface	Quality management PSC		Equipment management
PV module equipment automation	Stringer data collection	Laminator data collection	Material traceability	Smart sorting
	EL data collection	Equipment status monitoring		

MES Features

- Integration: Highly integrated system and equipment, software driver device
- Information center: MES system two-way communication, provide production activity information of whole supply chain, seamless connect ERP, avoid information island, real-time large screen monitor board.
- Traceability: Full life cycle product traceability, full life cycle equipment traceability
- Real-time: MES collects and processes data and information in real time