

**PIONEER OF SOLAR
INDUSTRY INTELLIGENT
EQUIPMENT MANUFACTURER**

光伏行业智能装备制造领导者



COMPANY PROFILE

公司简介

秦皇岛晟成自动化设备有限公司成立于2019年3月，注册资本2000万元，是苏州晟成光伏设备有限公司下属子公司，主营产品是太阳能光伏组件封装设备-层压机，是集研发、制造、销售、售后服务于一体的高新技术企业。公司员工达600余人，其中生产一线382人、售后服务143人，研发人员占比超过20%。公司拥有雄厚的技术实力和先进的生产工艺，在高端设备智能制造领域拥有先进技术优势。

秦皇岛晟成新厂区建设项目被评为河北省重点建设工程项目，总投资8.5亿元，分两期建设。其中一期项目总建筑面积29115.32m²，于2021年12月竣工并投产，月产能达90台，可满足多个订单同时进行；二期项目总建筑面积62080.84m²，预计2024年12月竣工投产，届时综合月产能达260台。已成为太阳能光伏组件封装设备-层压机国内规模最大的生产基地，为客户提供更加稳定可靠的供货保障。

公司始终以科技创新为动力，以铸造精品为追求，产品出货量连年提升，已实现市场占有率第一的成绩。产品远销北美洲、欧洲、亚洲等全球20多个国家和地区，产品质量获得客户的一致好评和认可。

Qinhuangdao Shengcheng Automation Equipment Co., Ltd. was founded in March, 2019 with registered capital of 20 million yuan, is a subsidiary company of SC SOLAR. Its main product is solar PV module packaging equipment-laminator. It is a comprehensive high-tech enterprise dedicated to R&D, manufacturing, sales and after-sales service. The company has over 600 personnels, including 382 personnels on the production line and 143 personnels in after-sales service, with R&D personnel accounting for over 20%. The company has strong technical strength and advanced production processes, and has advanced technological advantages in the field of intelligent manufacturing of high-end equipment.

Qinhuangdao Shengcheng Automation Equipment Co., Ltd. new plant project foundation is assessed as Hebei province key construction project, with investment 850 million RMB, which will be implemented with 2 phases. The total construction area for phase one is 29115.32m², was running in business in Dec, 2021, the laminator stable minimum output is 90 sets per month, could meet the multi-demand manufacturing at same time; the total construction area for phase two is 62080.84m², estimated running in business in Dec, 2024. At that time, the comprehensive monthly production capacity would reach 260 sets per month. Our company has become the largest production base for solar PV module packaging equipment - laminator in China, providing customers with more stable and reliable supply guarantee.

The company always takes technological innovation as the driving force and production of high-quality products as the pursuit. The product shipment volume has been increasing year by year, achieving the first place in market share. The products are exported to more than 20 countries and regions around the world, including North America, Europe, and Asia, and the quality of the products has received unanimous praise and recognition from our customers.



公司资质

The R&D team of Qinhuangdao Shengcheng has exceeded 100 people, possessing over 100 invention patents, more than 100 utility model patents, and over 30 software copyrights. It has obtained qualifications such as High tech enterprise, Hebei province science and technology small and medium Enterprise, Hebei province Innovative small and medium-size Enterprise, Hebei province SRDI medium-size Enterprise and Hebei province SRD Demonstrate Enterprise, Hebei province Industrial Enterprise A level research institute, Qinhuangdao Enterprise Technology Center, Qinhuangdao Industrial Design Center, etc. Additionally, it has received funding support for industrial design achievement transformation projects from Hebei Province for two consecutive years. The company has passed the ISO9001 quality management system certification, and its products have obtained CE, TUV, ETL, and other certifications, with the product quality widely recognized by customers.

技术团队

Own an experienced and mature technical team, specializing in the research and development of laminator for more than 10 years.



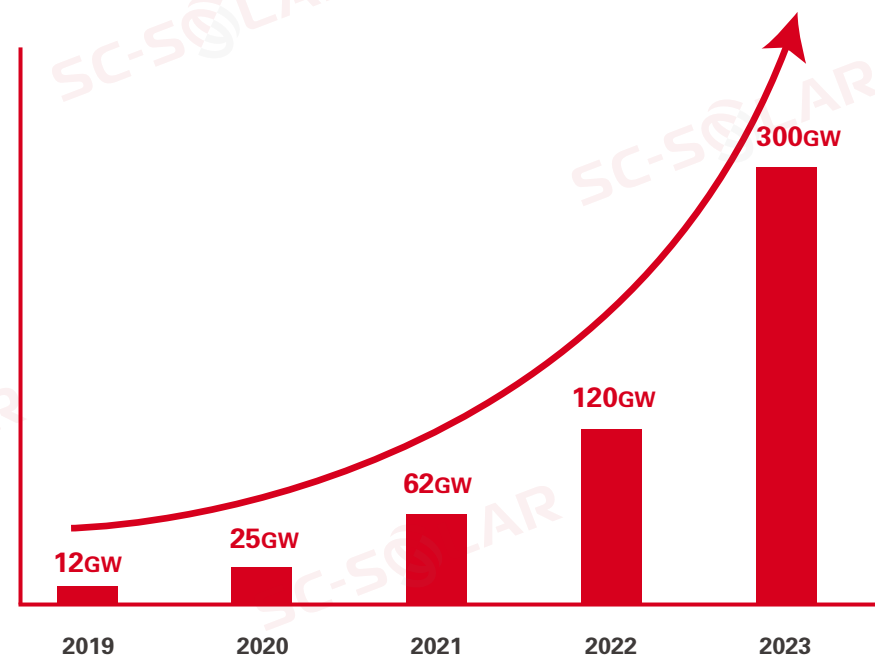
PRIMARY CUSTOMER

主要客户群体



FIVE YEARS ANNUAL INSTALLATION BASE

近5年装机量走势图



PROJECT DISTRIBUTION

项目全球分布





秦皇岛晟成层压机采用模块化设计, 每一个腔体均是一个独立的单元, 可以独立控制。并可根据客户需求, 自由组合层压机配置。

Qinhuangdao SC SOLAR laminator adopts modular design, each stage is an independent unit, can be controlled independently, and can free combination according to customer requirements.

CONTENTS

目录

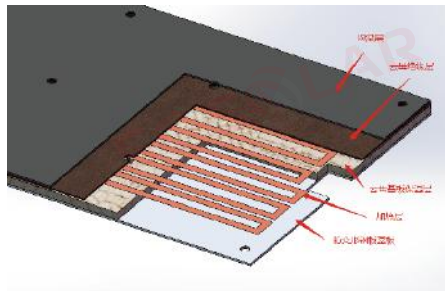
01	电加热层压机 Electric Heating Laminator	9
02	油加热层压机 Oil Heating Laminator	11
03	单层层压机系列 Single Layer Laminator Series	13
04	双层和三层层压机系列 Double & Triple Layer Laminator Series	15
05	全自动堆栈式多层层压机系列 Fully Auto Stacking Multi Layer Laminator Series	17
06	进料台 Loading Stage	19
07	出料台 Unloading Stage	20
08	售后服务 Aftersale Service	21

ELECTRIC HEATING LAMINATOR

电加热层压机

- 双重节能：加热元件直接与加热板接触，热转化效率高；同时厂区设施节能。
Double energy saving: heating element contact with heating plate directly, to ensure the high heat conversion efficiency; energy saving of plant facilities
- 节省占地面积 Floor area saving

研发设计亮点 The Highlights of R&D Design



b. 电加热板采用复合结构。由基板、绝缘保温层、加热层、绝缘层、均温层等组成，复合加热板优势：

- 控温精度高
- 温度均匀性高
- 抗化学腐蚀性能优异
- 最高加热200°C
- 绝缘耐压性能高
- 阻燃效果好，安全性高
- 抗静电感应能力强

加热设计 Heating design

a. 电加热板基本原理：采用将均温加热元件贴敷于加热钢板下表面的方式，进行加热。加热元件优点：

The basic principle of the electric heating plate: adopts install the heating element on the lower surface of the heating steel plate for heating.

- 自身温度均匀性能够达到 $\pm 1.5^{\circ}\text{C}$ Temperature uniformity: $\pm 1.5^{\circ}\text{C}$
- 绝缘耐压特性，使用安全性高 Better insulativity and more safety
- 使用寿命长 Longer lifetime

The electric heating plate adopts a composite structure. It is composed of a substrate, an insulating layer, a heating layer, an insulating layer, and a temperature equalizing layer.

- High temperature control accuracy
- High temperature uniformity
- Excellent chemical resistance
- Maximum heating 200°C
- High insulation and withstand voltage performance
- Good flame retardant effect, safe and reliable
- Anti-static induction



导热设计 Thermal conductivity

采用均温导热膜 Adopt homogeneous thermal conductivity film

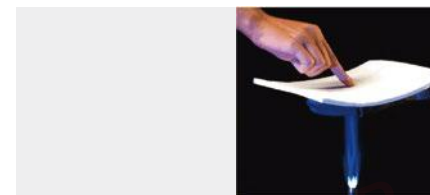
- 导热系数为1000 -1900W/m.k.
Thermal conductivity is 1000 -1900W/m.k.
- 导热速度快，均热性能强
Fast heat conduction, strong heat soaking performance
- 具有一定的弹性和塑性
Good elasticity and plasticity



保温设计 Thermal insulation design

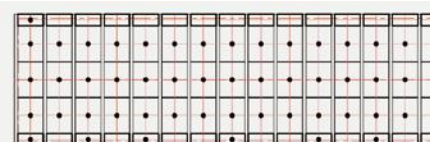
采用导热系数低、机械强度高的硅酸铝材质的隔热材料。
Adopt aluminum silicate material which performance is low thermal conductivity and high mechanical strength for heat insulation.

- 导热系数：0.02-0.03W/m.k
Thermal conductivity: 0.02-0.03W/m.k
- 保温绝热、耐热持久
Heat insulation and heat resistance
- 隔热效果优于传统隔热材料2-5倍
The heat insulation effect is 2-5 times better than traditional heat insulation materials



温控设计 Temperature control design

- 加热板分区
The heating plate is divided into several small areas
- 采用PLC模块控温
Adopt PLC temperature control
- 采用三相设计，确保整机在升温及控温阶段均为三相平衡状态
Adopt three-phase design to ensure that the whole machine is in three-phase balance state in heating and temperature control stage



OIL HEATING LAMINATOR

油加热层压机

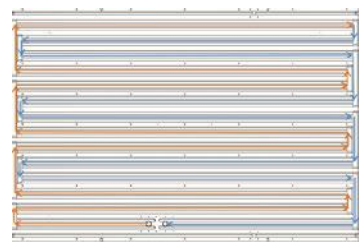
- 投入成本低 Lower investment
- 维修方便 Easy maintenance

油加热层压机经过多年的应用与实践的经验积累，技术的改良与沉淀，已成为一款性能成熟稳定的产品。

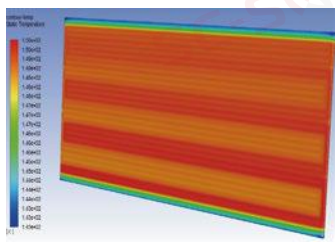
Oil heating laminator has become a mature and stable product after many years of experience in application and practice, technical improvement and precipitation.



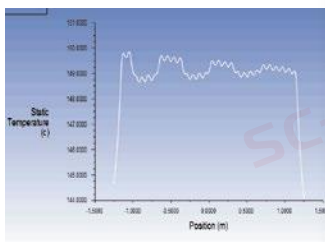
研发设计亮点 The Highlights of R&D Design



双油路设计
Double oil circuit design



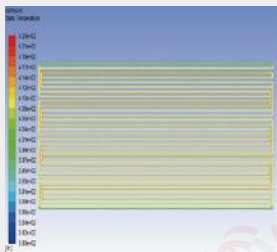
加热板温度分布情况
Temperature distribution of heating plate



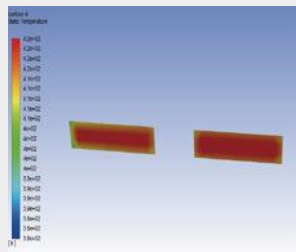
加热板表面温度分布曲线
Temperature distribution curve of heating plate surface

- 热传递稳定
- 温度均匀性好
- 采用智能PID自整定技术,智能化程度高，更节能
- Stable heat transfer
- Excellent temperature uniformity
- Adopt Intelligent PID self-tuning technology, high degree of intelligence, more energy saving

- 在保温良好的条件下，加热板在达到热稳定后，加热器进出口温度相差不大。
Under the condition of good insulation, the temperature difference between inlet and outlet of the tubing is small after the heating plate reaches thermal stability.

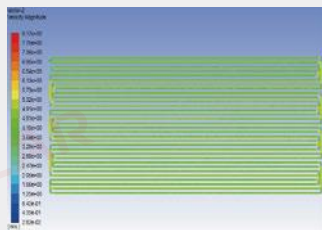


油路温度分布情况图
Oil pipe temperature distribution

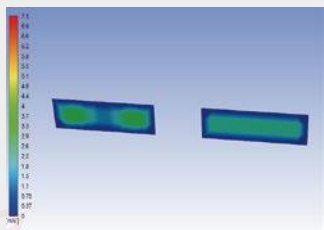


进出口温度分布情况
Temperature distribution of inlet and out let of oil pipe

- 通过对进出口进行分析，得出最优的流动速度
Obtain the optimal flow velocity by analyzing the temperature of inlet and outlet



油路流速分布情况图
Diagram of oil flow



进出口速度分布情况图
Oil speed in inlet and outlet

技术参数 Specifications

设备型号 Model	2700mm*8700mm		2700mm*9400mm		2700mm*10000mm	
	OL	EL	OL	EL	OL	EL
加热方式 Heating Melthod	油加热 Oil heating	电加热 Electric heating	油加热 Oil heating	电加热 Electric heating	油加热 Oil heating	电加热 Electric heating
作业温度 Working Temperature	室温RT~180℃		室温RT~180℃		室温RT~180℃	
温度均匀性 Temperature Uniformity	±1.5℃		±1.5℃		±1.5℃	
温度精度 Temperature Accuracy	±1℃		±1℃		±1℃	
传输精度 Transmission Accuracy	±3mm		±3mm		±3mm	
成品良率 Yield	99.99%		99.99%		99.99%	
噪声值 Noise	≤80dB		≤80dB		≤80dB	

SINGLE LAYER LAMINATOR SERIES

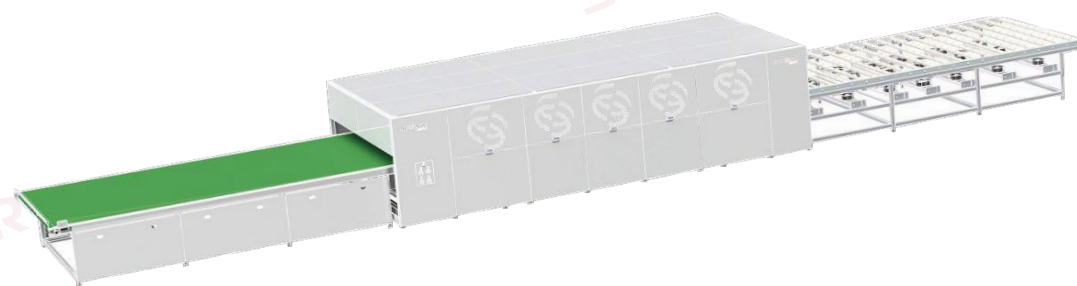
单层层压机系列

层压面积可定制：长度2200mm-12000mm，宽度2200mm-2800mm；兼容常规、双玻、半片、MBB、叠瓦等组件，可与流水线对接。

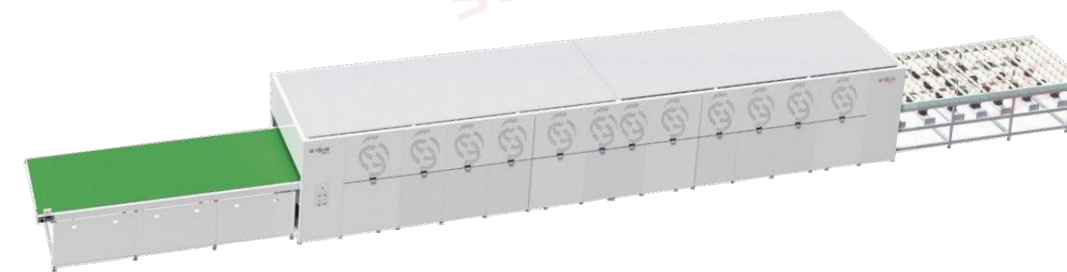
Effective laminating size L: 2200-12000mm W: 2200-2800mm. Compatible with glass-backsheet, G2G, half-cell, MBB, shingling modules, can be connected with assembly line.

产品特点 Product Feature

- 维修保养便捷
Easy to repair and maintain
- 适应性强
Strong adaptability
- 升级空间大
Large upgrade space



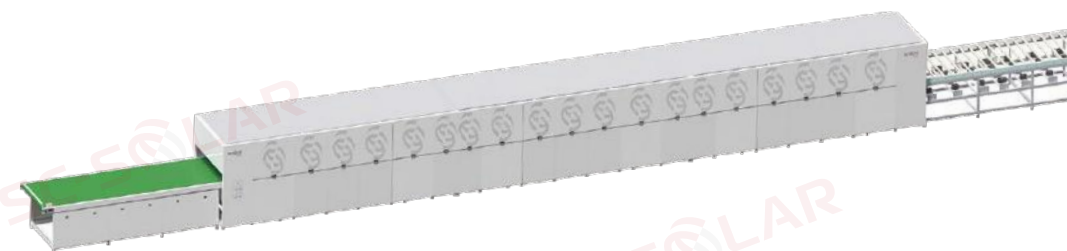
单层单腔层压机
Single-layer& Single-chamber Laminator



单层双腔层压机
Single-layer & Double-chamber Laminator



单层双腔独立水冷层压机
Single-layer& Double-chamber & Independent cooling Laminator



单层三腔层压机
Single-layer & Triple-chamber Laminator

DOUBLE & TRIPLE LAYER LAMINATOR SERIES

双层和三层层压机系列

层压面积可定制：长度2200mm-12000mm，宽度2200mm-2800mm；兼容常规、双玻、半片、MBB、叠瓦等组件，可与流水线对接。

Effective laminating size L: 2200-12000mm W: 2200-2800mm. Compatible with glass-backsheet, G2G, half-cell, MBB, shingling modules, can be connected with assembly line.

产品特点 Product Feature

- 兼容性强 High compatibility
- 人工成本低 Low labor cost
- 独立运行 Independent operation
- 性价比高 High cost performance
- 节省空间 Save space
- 智能化程度高 High intelligence



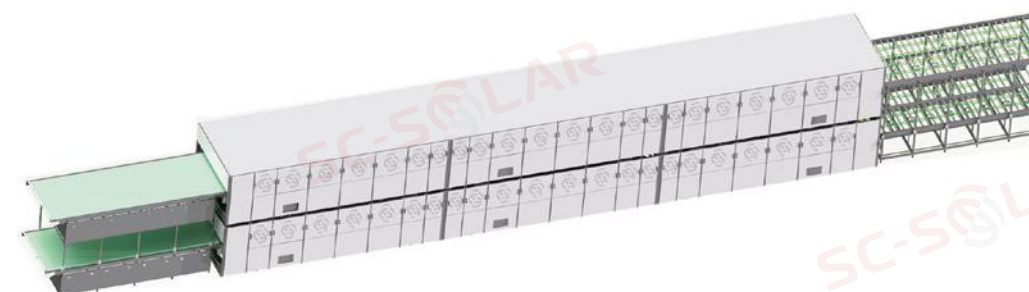
双层单腔层压机
Double-layer & Single-chamber Laminator



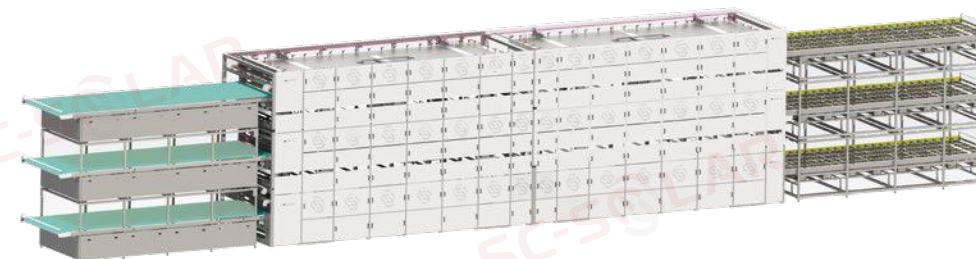
双层双腔层压机
Double-layer & Double-chamber Laminator



双层双腔独立水冷层压机
Double-layer & Double-chamber & Independent cooling Laminator



双层三腔层压机
Double-layer & Triple-chamber Laminator



三层双腔层压机
Triple-layer & Double-chamber Laminator

FULLY AUTOMATIC ELECTROMAGNETIC HEATING MULTI-LAYER LAMINATOR

全自动电磁加热多层层压机

六大优势

- 小空间
- 超低的组件工艺能耗
- 故障自我整定修复，可及时下达至设备人员
- 大产能
- 5G信息化控制管理系统
- 人员成本降低

Six major advantages

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

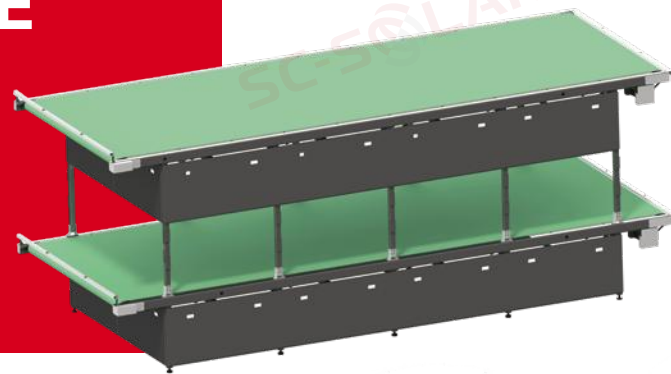


功能描述 Features

- 8层腔室（有效层压面积2820mm*4320mm，182/210组件一压24）
8-layer chamber (effective lamination area 2820mm*4320mm, 182/210 module 1 pressure 24)
- 温度分层控制，上下室均温电加热系统。升温速率PID实时调节，升温速率调节范围1.0℃-2.0℃/min
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℃-2.0℃/min
- 真空分层控制；抽真空时间压缩至180s
Vacuum stratified control; The vacuum time is compressed to 180s
- 独立传输定位，伺服驱动
Independent transmission positioning, servo drive
- 液压升降系统+直线导轨辅助机构
Hydraulic lifting system + linear guide auxiliary mechanism
- 出料采用伸缩式堆栈，组件冷却方式采用液冷技术，提高冷却效率；降温速度可调，5分钟内降温至40℃以下
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
- 进料采用伸缩式堆栈，与流水线对接升降机组件归正+8层层位组件归正一体化结构设计，输入精度更高，伺服加直线导轨运行稳定高效
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
- 多层层压机整机尺寸：25000mm*3950mm*4150mm
Multi-layer laminator size: 25000mm*3950mm*4150mm
- 全动态数字MES控制系统，50寸MES数据显示器
Full dynamic digital MES control system, 50" MES data display

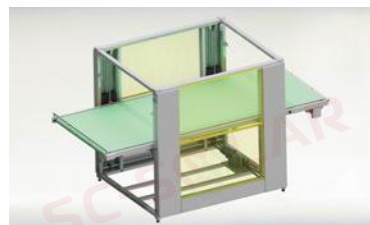
LOADING STAGE

进料台



层压机进料台可依据客户要求及客户工厂条件，随意定制，任意组合。主要类型有：固定传输料台、升降传输料台、升降堆栈传输料台、固定堆栈传输料台。

The loading stage can be customized flexibly according to customer requirements and factory conditions. The main type includes fixed type, chain lifting type, stack type, fixed stack type loading stages.



升降传输进料台
Lifting Loading Stage



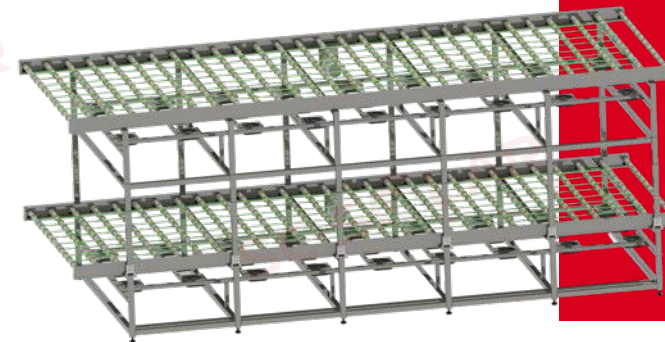
升降堆栈传输进料台
Stack Loading Stage



固定堆栈传输进料台
Fixed Stack Loading Stage

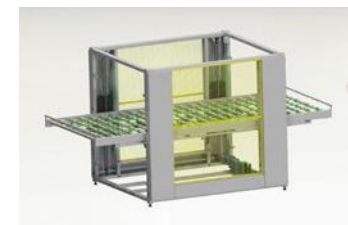
UNLOADING STAGE

出料台



层压机出料台可依据客户要求及客户工厂条件，随意定制，任意组合。主要类型有：固定传输出料台、升降传输出料台、升降堆栈传输出料台、固定堆栈传输出料台。

The unloading stage can be customized flexibly according to customer requirements and factory conditions. The main types includes fixed type, chain lifting type, stack type, fixed stack type unloading stages.



升降传输出料台
Lifting Unloading Stage



升降堆栈传输出料台
Stack Unloading Stage



固定堆栈传输出料台
Fixed Stack Unloading Stage

HIGH-EFFICIENCY SERVICE TEAM

高效服务团队

SALES MANAGER
/ DIRECTOR

销售经理

12Hrs

PROJECT MANAGER

项目经理

4Hrs

FIELD ENGINEER

现场工程师

2Hrs

GENERAL MANAGER

总经理

24Hrs

SC-SOLAR

AFTERSALE SERVICE

售后服务

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