INDUSTRIALIZE ARCHITECTURE

PREFABRICATED COMPONENTS COMPLETE SET OF EQUIPMENT

SANY CONSTRUCTION TECHNOLOGY CO., LTD.

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Official account of PCTEAM on WeChat

Official account of PCTEAM on TikTok

SANY CONSTRUCTION TECHNOLOGY CO., LTD.

About

SANY Group

Founded in 1989, SANY Group has become a multi-national company that is pursuing the vision of "building first-class enterprises, fostering first-class talents, and making first -class contributions to society". Since its establishment, SANY is striving to build a global brand and become an industry leading equipment manufacturer.

SANY's core businesses are design, manufacturing, sales, and support of heavy-duty engineering equipment, covering a full spectrum of products including concrete machinery (pump trucks, mixer trucks, trailer pumps, batching plants), earthmoving machinery (excavators, loaders), hoisting machinery (wheel cranes, crawler cranes, tower cranes), road machinery (soil compactors, motor graders, pavers), piling machinery (rotary drilling rigs), port machinery (container gantry cranes, mobile port machines), petroleum drilling machinery, mining machinery (mining trucks, roadheaders), wind harness system, prefabricated equipment and new photovoltaic power station.

Through the acquisition of Putzmeister, a leading German concrete machinery manufacturer, SANY concrete machinery has ranked No. 1 globally for 17 years consecutively. In earthmoving equipment, the sales revenue of SANY excavators exceeded 3 billion USD and continues to grow rapidly. SANY's mining machinery, piling machinery, hoisting machinery, port machinery and dump trucks all lead in export sales in China.

In 2022, SANY's overseas sales set a record-high, exceeding 6 billion USD. At the same time, SANY Heavy Industry was recognized as one of the "50 Smartest Companies" by MIT Technology Review. SANY Group was selected as the "Best Employer" by Forbes and was named one of the "Most Admired Chinese Companies" by Fortune for the twelfth consecutive year.In addition, Mr. Liang Wengen, Chairman of SANY Group, was listed as one of "China's 50 Most Influential Business Leaders" in 2022 by Fortune.

SANY Group operates 13 manufacturing complexes located in China, U.S.A., Germany, India, Brazil and Indonesia. Our sales and service network covers over 150 countries and regions. SANY Group has three listed companies: SANY Heavy Industry and SANY Renewable Energy, listed in Shanghai Stock Exchange, SANY International Development Ltd., listed in Hong Kong Stock Exchange.

Sticking to our mission "Quality Changes the World", SANY invests about 5% of its annual revenue on R&D. In terms of technology development, SANY has applied for a total of 13,694 patents, in which 10,613 has been awarded. There are three state post-doc research hubs, two national enterprise technical centers, and one state-approved testing center in SANY.

Founded in 2016, PCTEAM is positioned as a digital technology platform for industrializing architecture with intelligent equipment and core technologies. It is committed to industrializing architecture and making construction easier in the world.

Derived from SANY Group's global strength as a construction machinery brand, intelligent manufacturing experience and industrial internet advantages, we provide key technologies and related standards, intelligent equipment and digital plants, software platforms and sharing models for industrializing architecture.

In 2008, SANY officially marched into the PC industry, and became one of the earliest Chinese companies engaged in research on construction industrialization technology and prefabricated building systems. To date, SANY Construction Industry become the largest PC equipment supplier offering the most complete categories
in China.

Company History

1989

Starts from scratch

Liang Wengen, Tang Xiuguo, Mao Zhongwu and Yuan Jinhua founded Hunan Lianyuan Welding Material Factory in Lianyuan, Hunan province.

1994

Advances into heavy machinery industry

Hunan Lianyuan Welding Material Factory is officially renamed to Hunan SANY Group Co., Ltd. and its headquarters officially moves to Changsha.

2003

A listed company

SANY Heavy Industry is successfully listed on the Shanghai Stock Exchange.
SANY Heavy Machinery Co., Ltd. is founded, focusing on excavators and oil drilling machinery.

2011

Recognized in a leading publication

SANY Heavy Industry enters the FT Global 500 ranking of the world's largest companies.

2014

Industrialize architecture

2014,In construction industrialization became thekey sector of SANY GroupthisPOlnyear, experimental factorywithefloor area of more than 20hsuccessfullym wascompletedChangsha in Build our own installationand service teams coveringthe country.

2016

PCTEAM was officially established

PCTEAM held more than 50% of the market share for complete set of PC equipment, and sold more than 400 PC production lines nationwide and across the world.

2019

RPCTEAM officially released SPCS v3.0

PCTEAM has launched the '5231' hardcore technology, which includes five types of equipment, two construction standards, three types of industrial software, and one construction industry internet platform.

2022

Intelligent construction

PCTEAM officially launches a comprehensive solution for intelligent construction



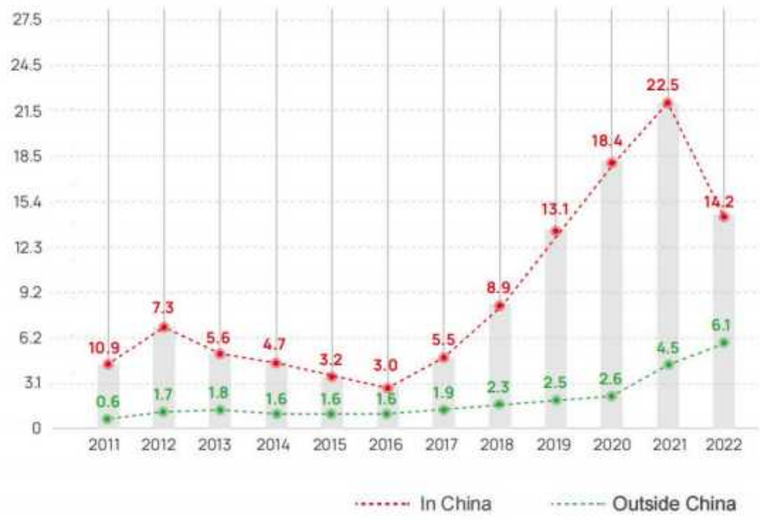



INDUSTRIAL LAYOUT

As a leading original equipment manufacturer of construction and mining machinery, renewable energy system, and cloud service provider, SANY expands international footprints with 13+ industrial bases and 150+ offices and dealership networks around the globe, supporting our customers to fulfill their commitments.

Sales Revenue of SANY Group from 2011 to 2022

(in billion U.S. dollars)



25
Manufacturing Facilities

100+
Offices

400+
Dealers

4
R&D Centers

8000+
Suppliers

150+
Sales Regions & Countries

13+
Industry Parks

100+
Member Companies

GLOBAL PARTNERS

SANY has established a sales network in more than 150 countries worldwide and has partnered with more than 400 dealers and subsidiaries. Together with its global partners, SANY is dedicated to offering better products and services to its global customers under one of the company's strategies - Globalization.

ENTERPRISE HONOR

>National Industry Base for Prefabricated Construction

>Research Center for Integrated Construction Engineering Technology of New Architecture Industrialization

>National Base for Residential Industrialization

>Group member unit of the Construction Robot Professional Committee of China Association of Automation

> Vice president unit of China Prefabrication Industry Alliance

>Vice president unit of the Architecture Industrialization Branch of China Association for Engineering Construction Standardization

> Five-star After-sales Service Certificate

>BIM Talent Training Center

>High-tech Enterprise

>Grade-3 Enterprise of Safe Production Standardization

> Little Giant Enterprise in Hunan Province

>Prefabricated Construction Industry Base in Hunan Province

>National Enterprise with Intellectual Property Advantage

>Excellent Enterprise in Prefabricated Construction Industry in Hunan Province in 2018

BRAND ADVANTAGES

NATIONAL TOP R&D STRENGTH

SANY invests about 7% of its sales revenue in R & D each year. It owns national technology development center and post-doctoral working station. The number of patent applications filed by it ranks No.1 in the industry. The company won five national technology awards successively. It is not only a National Housing Industrial Base, National Prefabricated Building Demonstration Industry Base, and New Building Industrialization Integrated Construction Engineering Technology R & D Center certified by the Ministry of Housing and Urban-Rural Development, but also initiated the Hunan Province Industrialization Alliance, and founded the sole and only BIM Talent Training Center in Central China through in-depth cooperation with Nemetschek Group.

1

SANY GROUP QUALITY GUARANTEE

2

SANY Group is a global leading equipment manufacturer, China's No.1 and global No.3 largest construction machinery manufacturer, and also the world largest concrete machinery manufacturer. In 2015, it was evaluated as the first batch of pilot demonstration enterprises of Intelligent Manufacturing in China by the Ministry of Industry and Information Technology.

INTELLIGENT MANUFACTURING LEAN PRODUCTION

The PC production line equipment of SANY is introduced with the global most advanced lean manufacturing, and implemented with 6σ quality control standards. Each process step gives constant improvement beyond your expectations.

3

GLOBAL FOOTPRINT OF MARKETING SERVICES

4

The business of SANY covers more than 160 countries/regions around the world.

EXCLUSIVE TRAINING

SANY provides total training in production, operation and marketing.

5

CUSTOMER FOREMOST

6

The installation team and service engineers owned by SANY offer professional guidance on installation to improve the delivery and customer satisfaction.


SANY
QUALITY CHANGES THE WORLD
PRODUCT

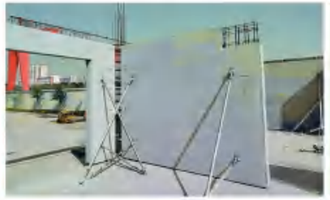
COMPONENTS PRODUCED BY SANY PC PRODUCTION LINE

The PC production line of SANY can meet the requirements for production of components e.g.

01 HALF SLAB FLOOR

02 SOLID WALL

03 DOUBLE WALL



04 HOLLOW COLUMN

05 PRESTRESS SLAB FLOOR

06 OTHER PC ELEMENTS

TYPES OF PRODUCTION LINE

HALF SLAB FLOOR PRODUCTION LINE

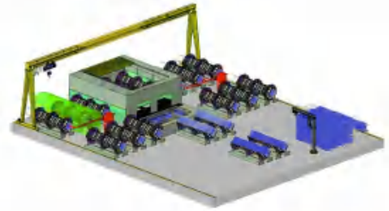
Abundant Features, Efficient Operation, Reliable Stability, Data-Driven Intelligence

SOLID WALL PRODUCTION LINE

The PC production line of SANY can meet the requirements for production of components e.g. floor slab, facade element, double wall ,solid wall, partition wall, filigree slab,

DOUBLE WALL PRODUCTION LINE

Empowering SPCS for Efficiency, Speediness, and Savings through Platform-Enabled Digitization, Model-Driven Production, and Intelligent O&M Management

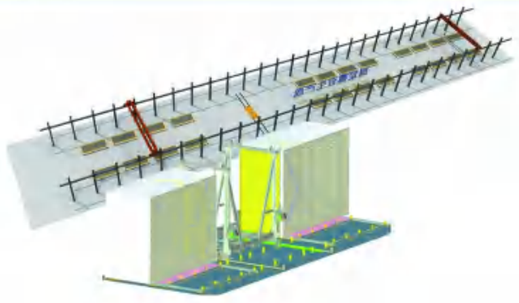


HOLLOW COLUM FLOOR PRODUCTION LINE

Data-Driven, Intelligently Scheduled Production Line for Prestressed Component

PRESTRESS SLAB FLOOR PRODUCTION LINE

Achieving Core Equipment Breakthroughs, Employing Flexible Production Technology, and Conquering Cost Challenges



FIXED MOLD PRODUCTION LINE

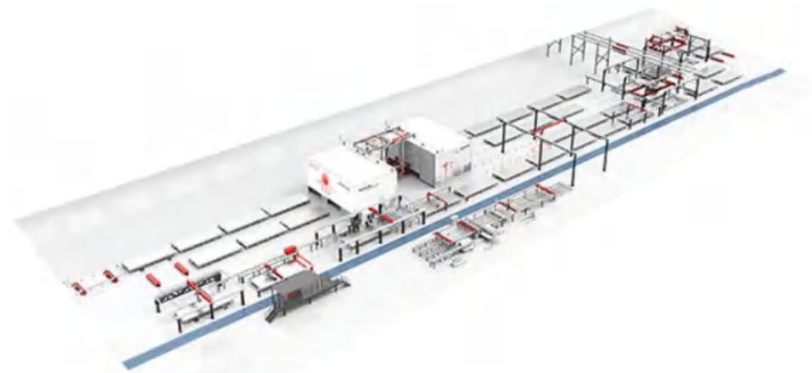
Key processes are enhanced for increased efficiency, adapting flexibly to requirements.

MODULAR PRODUCTION LINE

A daily output of 50m3 requires just 600m2 of space, eliminating dependency on large sites.

Digital Production Line for SPCS Double Layer Wall

Empowering SPCS for Efficiency, Speediness, and Savings through Platform-Enabled Digitization, Model-Driven Production, and Intelligent O&M Management

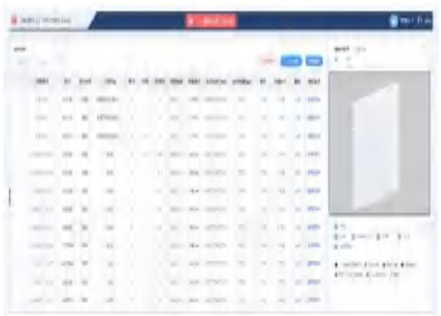


- **Online Collaboration: The PCTEAM Cloud Platform offers online collaboration by digitally integrating the design, production, and construction stages, enhancing overall operational efficiency by 30%.**
- **Model-Driven Production: Data from mainstream BIM software models such as PKPM, PlanBar, CAD, etc. are utilized to directly drive production, reducing standard labor requirements by 40%**
- **State-of-the-Art Equipment: Shearing-edge, complete PC equipment with optimal process layouts offers a 30% reduction in the standard production cycle time.**
- **Holistic Empowerment: Integrated solutions fully empower all aspects from the platform, equipment, to operation.**
- **Intelligent O&M: Full lifecycle management of components, digital cockpit, and C-end interconnectivity.**

Types of Main Production Components

SPCS Cavity External Walls and Internal Partition Walls

Core Equipment



- **PCTEAM Cloud Platform/SPCI Series Industrial Software**

- **Robotic Shuttering and Deshuttering System**

- **Plotter**

- **Intelligent Concrete Scheduling and Distribution & Vibration System**

- **High-precision Overturning Machine**

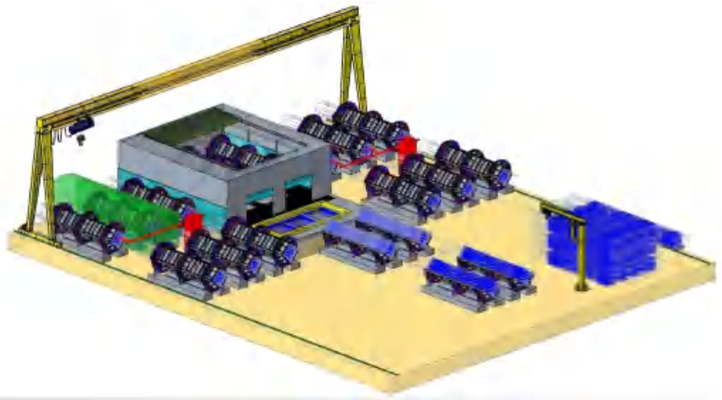
- **Efficient Stacking and Curing System**

Product Parameters

1	Mold Platform Specifications	9×4m (preferred)
2	Maximum Capacity	65,000m³ (double shift, including cavities)
3	Operating Cycle Time	15min (standard cavity walls)
4	Number of Operators	16 people (Standard configuration)
5	Rated Load Capacity	20T (mold platform + components)

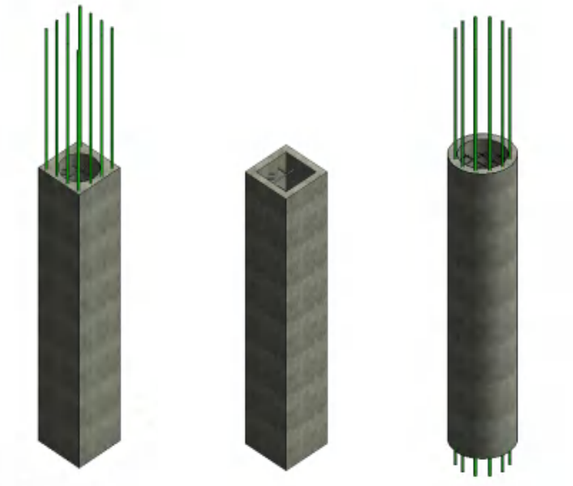
Flexible Production Line for Hollow Core Column

Achieving Core Equipment Breakthroughs, Employing Flexible Production Technology, and Conquering Cost Challenges



- **Flexible Molds: The innovated flexibly adjustable molds tackle the high sharing costs associated with traditional molds, offering potential savings of RMB 300-400 per mold.**
- **Precise Cost Control: Accurate material distribution and energy-efficient internal cavity curing substantially lower production costs while adhering to green and low-carbon practices.**
- **Holistic Empowerment: Integrated solutions fully empower both equipment and process aspects, paving the way for customers' rapid success.**
- **Shared Mindset: Standardized design of molds and equipment supports platform leasing and sharing business models, expanding business possibilities.**

Types of Main Production Components



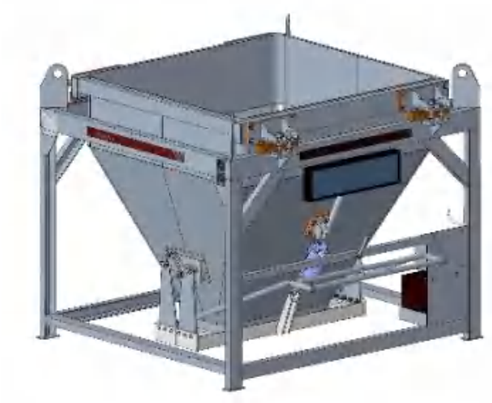
Outer Square and Inner Circular Type | **Outer Square and Inner Square Type** | **Outer Circular and Inner Circular Type**

Structural Types of Hollow Core Column

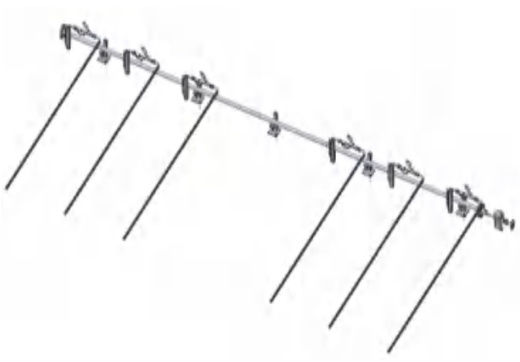
Core Equipment

- **Flexible Adjustable Molds**

- **Standard Centrifuge**



- **Precision Material Distributor**



- **Internal Cavity Curing System**

Product Parameters

1	Cross-Section Types	Square and rectangular cross-sections
2	Cross-Section Scope	400-800mm / 700-1000mm
3	Cross-Section Versatility	A single mold can accommodate a maximum of 13/10 different cross-sections (with an adjustable modulus of 100mm).
4	Mold Length	4800mm / 6000mm
5	Maximum Capacity	13,000m³ (Standard configuration, double shift, including cavities)

Half Slab and Wall Panel Integrated Production Line

Abundant Features, Efficient Operation, Reliable Stability, Data-Driven Intelligence

- **Abundant Features: Equipped with a wide range of equipment, this machine is suitable for producing various components such as walls, columns, beams, and slabs.**
- **Efficient Operation: The stacking machine operates with cycle times as short as 6min, eliminating production bottlenecks on the production line.**
- **Reliable Stability: Built on SANY's robust capabilities and enriched with vast experiential data from a significant market presence, the product continually scales new heights in stability.**
- **High Cost-Efficiency: Under lighter loads, it allows for substantial simplification of the foundation, enabling rapid deployment and swift profit realization.**
- **Data-Driven Intelligence: Production capacity is driven by data and vision, featuring intelligent central control scheduling and full lifecycle component management.**

Types of Main Production Components

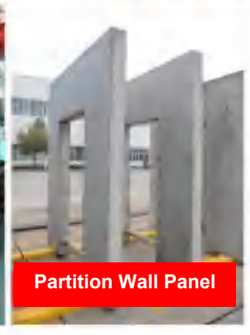
Various panel components

cladding panels

A/C Panel

half slab

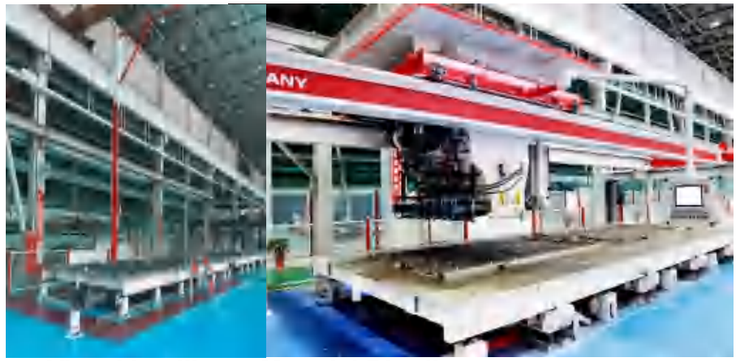
external wall rebound



Partition Wall Panel

Core Equipment

- **Plotter**



- **Visual Intelligent Material Distributor**

- **Intelligent Stacking and Curing System**

- **Intelligent Central Control**

Product Parameters

1	Mold Platform Specifications	Customized
2	Component Types	Laminated panels, internal wall panels, external wall panels, beams, columns, A/C panels, etc.
2	Maximum Capacity	36,000/65,000m³ (double shift, laminated panels/wall panels)
3	Standard Cycle Time	6/20min (laminated panels/wall panels)
4	Rated Load	15/25T (mold platform + components, laminated panels/wall panels)

Modular Production Line

A daily output of 50m³ requires just 600m² of space, eliminating dependency on large sites.

Quick-Simple Type

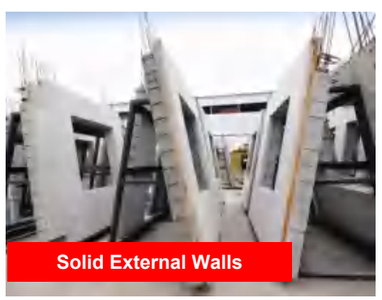
Assembly Line Type

- Minimized Site Footprint: This significantly reduces space requirements, eliminating the need for plants and lowering investment costs.
- Versatile Applications: It is adaptable for various scenarios, including mixing plant accompaniment, project advance bases, and assembly line capacity enhancements.
- Mobile Expansion: It features a steel structure platform with simple foundations, making it ideal for quick relocation or modular expansion.
- Integrated Functionality: Vibration, stacking, curing, and circulation functions are combined into one integrated machine, well-equipped with all core capabilities.
- Online Collaboration: Streamlined management of business process data is coupled with online collaboration.

Types of Main Production Components

Laminated Floor Slabs

Laminated Beams and Columns



Solid External Walls

Solid Internal Partition Walls

A/C Panel

Core Equipment

- **Foundation-Free Curing Kiln**

- **Top-Opening Ground Rail-Mounted Stacker**

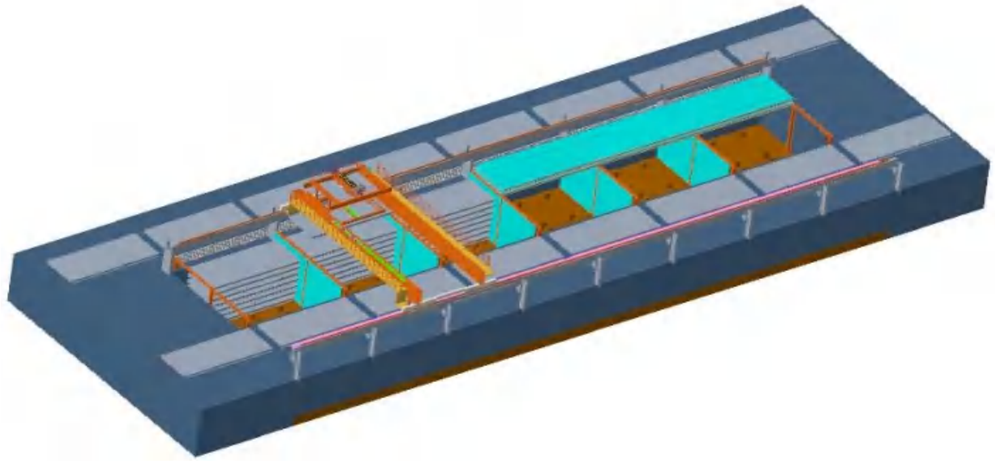
- **Circulation Workstation**

Product Parameters

1	Standard configuration	Quick-simple type ×2 or assembly line type ×1
2	Footprint	600㎡
3	Layout Form	Indoor layout/outdoor layout
4	Production Method	Segmented flow line operation (centralized preparation + centralized material distribution)
5	Maximum Capacity	15,000m³ (single shift, laminated panels)

Production Line for Stacking Mold Platforms

Cost-effective stacking and curing approaches slash investment costs by 30%.



- **Exceptional Cost Efficiency: The stacking and curing system offers a cost-effective solution, slashing investment costs by 30%.**
- **Flexible Configurations: We offer personalized options for both ground and pit stacking, with a variety of curing methods to choose from.**
- **Reduced Footprint: The stacking layer heights are adjustable, designed to meet various production requirements while maximizing space utilization.**
- **Precision Positioning: A combination of laser and mechanical stop position controls ensure precise positioning and stable reliability.**

Core Equipment

- **Stacking Machine and Stacking Mold Platform**

- **Stacking Curing Kiln**

Product Parameters

1	Mold Platform Specifications	Customized
2	Stacking Cycle Time	8min
3	Positioning Method	Laser + mechanical
4	Rated Load Capacity	20T (mold platform + components)
5	Operation Mode	Single-step automation + visual interface

Types of Main Production Components

Solid External Walls

Solid Internal Partition Walls

Laminated Floor Slabs

Beams and Columns

Stairs

Balconies

Bay Windows

Production Line for Fixed Mold Platforms

Key processes are enhanced for increased efficiency, adapting flexibly to requirements.

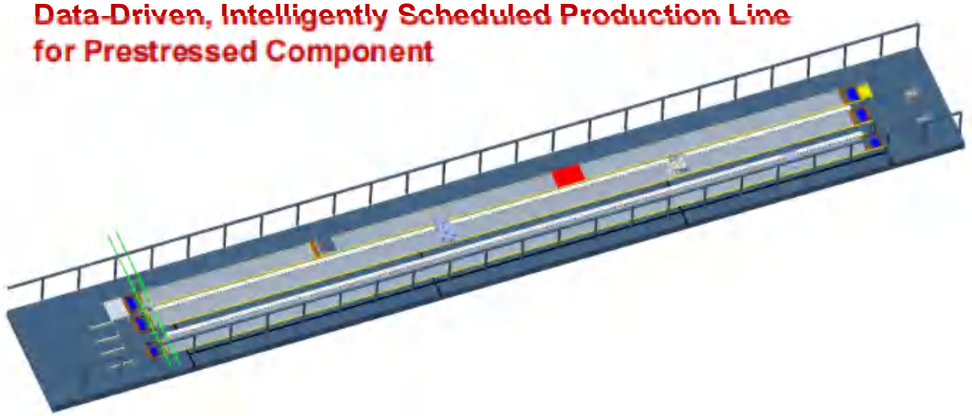
- **Universal Material Distribution: The material distributors span wide areas, autonomously distributing materials across the entire region.**
- **Three-dimensional Transportation: Three-dimensional concrete transportation allows for flexible positioning of conveyors and hoppers both up and down.**
- **Composite Mold Platform: The mold platforms are designed for self-vibration and self-curing, streamlining the production of components in a single workstation.**
- **Customized Design: The expert design team caters to customers' unique, non-standard customization needs.**

Product Parameters

1	Mold Platform Specifications	Fixed type, customized
2	Placing mode	Semi-gantry/gantry/crane type, wide-span material distribution, flexible concrete transportation method
3	Curing Method	Integrated steam pipeline + mobile cover (customized)
4	Vibration Method	Integrated high-frequency vibrator (customized)

Production Line for Prestressed Components

Data-Driven, Intelligently Scheduled Production Line for Prestressed Component



- Intelligent Production Scheduling: Online collaboration of design data, efficient data integration, and one-click scheduling
- Data-Driven Automation: Data-driven, automated material distribution, automated vibration, seamless replenishment, and automated rebar cutting
- Intelligent Scheduling: Intelligent equipment scheduling, complete tensioning, rolling production, and efficient operation
- Energy-Efficient Curing: Integrated curing arrangement, precise temperature control, and independent control of zones
- Centralized Control: Digital cockpit for lifecycle management of components

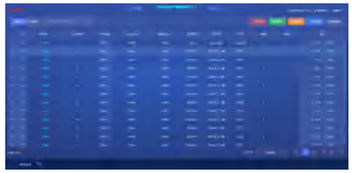
Types of Main Production Components

Prestressed Floor Slabs

Core Equipment

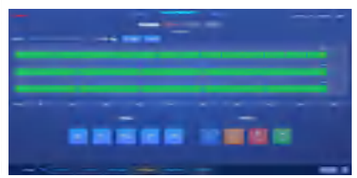
- Intelligent Production Line for Prestressed Component

- Integrated Material Distribution and Vibration Machine



- Intelligent Replenishment Hopper

- Lateral-Moving Complete Tension Machine



- YMES Production Management System for Prestressed Components

Product Parameters

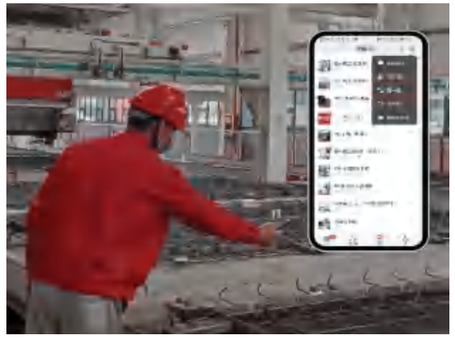
1	Operating Width	2100 / 3000 / 3500 / 4200 mm
2	Operating Length	The standard section length is 12m, and the total length is customized according to customer requirements.
3	Production Capacity	Mold flipping 2 times/day
4	Number of Operators	20 people (Standard configuration)
5	Intelligent Advantages	Graphics/form data-driven, on-line equipment condition monitoring, and intelligent scheduling

PCM Component Management Application - Factory End

The production management system for PC component manufacturers enables full lifecycle management of component fabrication, aiding in digital transformation of manufacturers. Grounded in a “One Code Per Item” management philosophy, the system records and tracks every phase of project orders, component production, inventory, and shipment. This ensures a controlled production process, visibility of delivery progress, and traceability of component information.

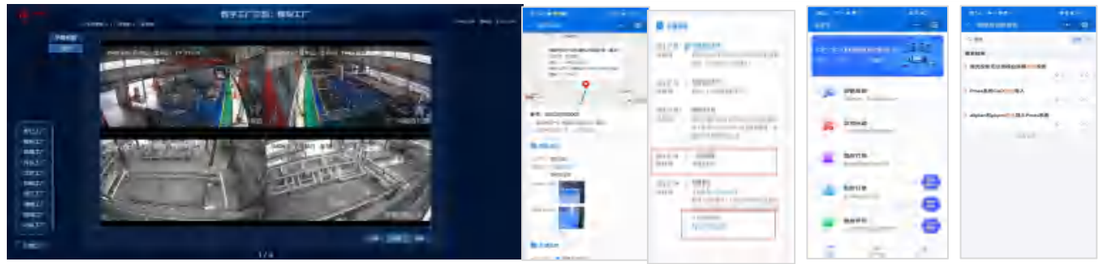
- **One Code per Item: Utilizing a “One Code per Item” management approach, this system links digital and physical components through tagging, achieving a virtual-real synchronization. It supports digital delivery to facilitate simulated and emulated processes both in factory production and on-site installation.**
- **Full Process Integration: The system integrates with design software N/P/R, allowing one-click import of design results. It also links with the industrial software SPCI, streamlining production task distribution directly to the production line and driving equipment operations. Moreover, it ensures production is demand-driven through collaboration with the construction site.**
- **Schedule-Driven Production: Production is schedule-driven, with quality control in place to verify processes. It ensures prompt feedback to management about production status, upholding the rigor of both the production schedule and product quality. Through the production management module, PCM empowers factory managers with robust control over both production schedules and product quality.**
- **Automated Reporting: Built on essential operational data, the system automates data consolidation, minimizing data delays to seconds. It equips key personnel in production operations with intuitive and efficient production management dashboards.**

Graphic Introduction to Software

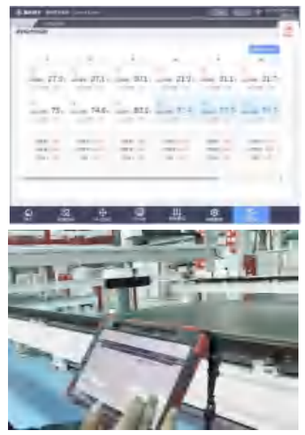


Digital Cockpit System and Data Services

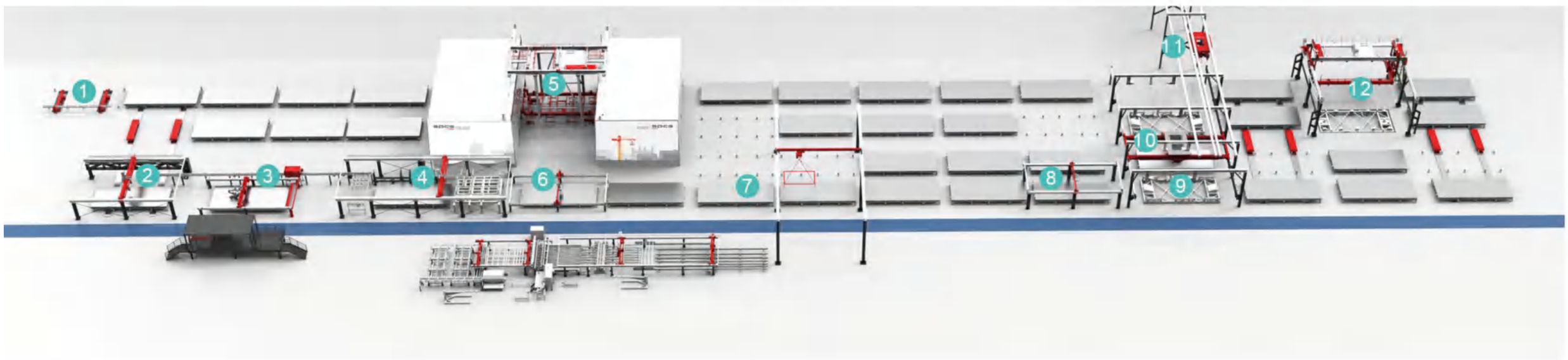
Digital large screen, three-actualities (site, object, reality) system, C-end connectivity, intelligent O&M

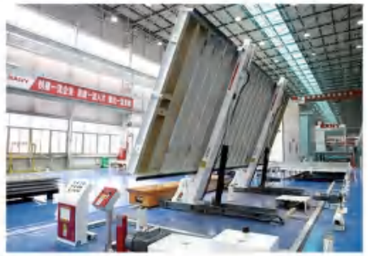


- **Digital Cockpit and Large Screen Services**
- **Digital Three-Actualities System**
- **Predictive Maintenance System**
- **C-End Digital Mini-Program Services**



RICH EXPERIENCE AND QUALITY ASSURANCE





1 Tilting machine

2 Mold recovery robot

3 Mold placement robots

4 Placing mold robots

9 Composite vibrator

11 Concrete transport trolley

5 Stacker crane and Curing kiln

6 Marking and oiling machine

7 Pallet

8 Visual quality detection system

10 material distribution machine

12 Overturning machine

Introduction of SANY PC Production Line Equipment

IT Integrated Solution

As the core of SANY PC production line, IT Integrated Solution provide digital solutions in modules and steps facing different business backgrounds and conditions of the PC factory. It consists of two systems: SPCI system which Equipment online and data-driven equipment module , and SPCM system which business online and data-driven business module.

SPCI system including SPCI-PMES——PC production line management system, and SPCI-CPTS——concrete production transportation management system. It achieves the seamless control of equipment.

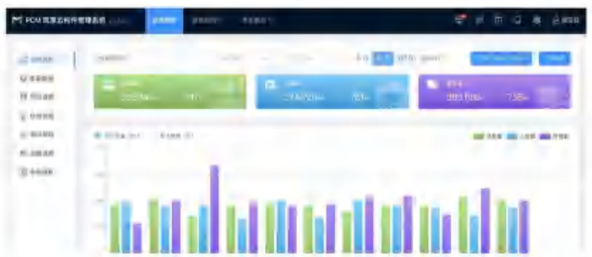
SPCM completes the three-level system connection of enterprise operation, factory operation and production execution. It achieves real time data sharing of five core link: orders, Technology, manufacturing, warehousing and shipping.

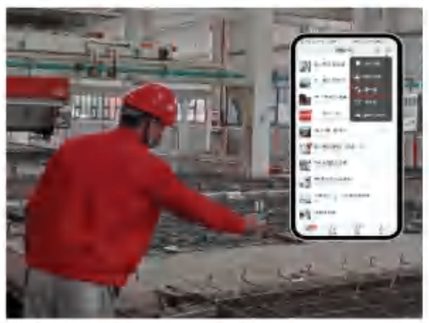
PCM Component Management Application - Factory End

The production management system for PC component manufacturers enables full lifecycle management of component fabrication, aiding in digital transformation of manufacturers. Grounded in a "One Code Per Item" management philosophy, the system records and tracks every phase of project orders, component production, inventory, and shipment. This ensures a controlled production process, visibility of delivery progress, and traceability of component information.

- One Code per Item: Utilizing a "One Code per Item" management approach, this system links digital and physical components through tagging, achieving a virtual-real synchronization. It supports digital delivery to facilitate simulated and emulated processes both in factory production and on-site installation.
- Full Process Integration: The system integrates with design software N/P/R, allowing one-click import of design results. It also links with the industrial software SPCI, streamlining production task distribution directly to the production line and driving equipment operations. Moreover, it ensures production is demand-driven through collaboration with the construction site.
- Schedule-Driven Production: Production is schedule-driven, with quality control in place to verify processes. It ensures prompt feedback to management about production status, upholding the rigor of both the production schedule and product quality. Through the production management module, PCM empowers factory managers with robust control over both production schedules and product quality.
- Automated Reporting: Built on essential operational data, the system automates data consolidation, minimizing data delays to seconds. It equips key personnel in production operations with intuitive and efficient production management dashboards.

Graphic Introduction to Software





Digital Cockpit System and Data Services

Digital large screen, three-actualities (site, object, reality) system, C-end connectivity, intelligent O&M

- Digital Cockpit and Large Screen Services
- Digital Three-Actualities System
- Predictive Maintenance System
- C-End Digital Mini-Program Services

Mold platen circulation system

The system consists of pallet, Pallet Transporter, idle wheel, drive wheel, and station sensing device.

02

All the pallets in this system are automated by MES and some distributed control mode. The equipment information interacts quickly and the operation is safe and reliable. It pioneers synchronous flow method, and enables less labor, high efficiency, multiple control methods, and more convenient operation.

Pallet: working platform for producing prefabricated parts. The length and width can be customized, and four anti-collision buffers are equipped. The structure is sturdy and durable, with maximum bearing capacity up to 650Kg. Finite element optimization design is adopted, featuring strong anti-fatigue performance during vibration and erection, less deformation, and longer service life.


Pallet

Pallet Transporter:Servo motor drive is used, which features high positioning accuracy; SANY SYMC controller is used, which features high synchronization between two machines, with accuracy error ≤3%; MES system control automatically completes the orbital change operation, featuring stable performance, convenient and safe operation, anti-collision function, and better safety and reliability.


Pallet Transporter

Idle wheel and driving wheel :The idle wheel, the driving wheel and the station sensing device constitute a circulating system of the flow line to ensure smooth circulation of the mold platen.

The idle wheel consists of support frame, support shaft, and idle wheel.The driving wheel mainly consists of driving motor base, adjusting mechanism, driving motor, and friction wheel. SANY special wear-resistant rubber wheels offer greater friction, good wear resistance, long service life, and adjustable height. Ordinary driving wheels, high temperature and humidity resistant driving wheels, and driving wheels with brakes are set according to different stations. The parking station is equipped with driving wheels with brakes so that the mold platen is parked more accurately.


Driving wheel

Station sensing device:Each station on the production line is equipped with station sensing device to detect position and speed of mold platen and realize automatic stop, start and speed change of each station.


Station sensing device

Mold platen pre-treatment system

03

Including cleaning machine, spraying machine, plotter, plotting-spraying integrated machine.

Cleaning machine

It removes and cleans the debris remaining on the surface of pallet after demolding. The double roller brush easily cleans the concrete residue and dust on the pallet with higher cleaning efficiency. Vacuum cleaner is equipped to effectively control the leakage of flying dust; the electrical and mechanical double protection design is typically used for lifting system, featuring high level of operational safety; collecting hopper is equipped to collect and easily transfer residues.

Spraying machine

It can spray the release agent evenly and quickly on the surface of pallet. When the pallet goes by, the mold release agent is automatically sprayed to atomize the paint. A wide oil recovery hopper is equipped to facilitate recycling. The entire equipment can achieve automatic operation through the controller.

plotter

The air compressor is controlled through software program to spray the scribing liquid on the pallet according to the program requirements, and provides accurate installation dimensions for the next station.The travel drive system features high travel accuracy and good reliability by using international famous motors and reducers;Component information is pushed directly by the PMS system without requiring manual programming.

plotter-spraying integrated machine

Plotting-spraying integrated machine combines the functions of plotter and spraying machine , saving space and improving efficiency.

Automatic molding system

Including multi-function shuttering robot, andRecovery and Cleaning System for Side Forms.

Multi-function shuttering robot: The first robot in demolding/molding in the PC field, which integrates the functions of demolding/molding, conveying and cleaning of edge molds, cleaning of mold platen, scribing, forming, and edge mold storehouse management. It greatly improves the operating efficiency and product quality, reduces the number of workers and labor intensity, and takes a great stride forward in the intelligent field of PC equipment.

Recovery and Cleaning System for Side Forms:

- Continuous Driving: After being fed by manipulator or manually, the side forms will be driven and conveyed continuously in a linear manner.
- Cleaning and Spraying: The surface of side forms will be cleaned automatically by the rolling brush, on which the release agent will be atomized and sprayed then.
- Modular Design: The modular design is adopted to satisfy different site and layout requirements.
- Swinging and Buffering: The side forms at the tail will be swung transversely to allow ready access for the manipulator, thus improving the efficiency.

04

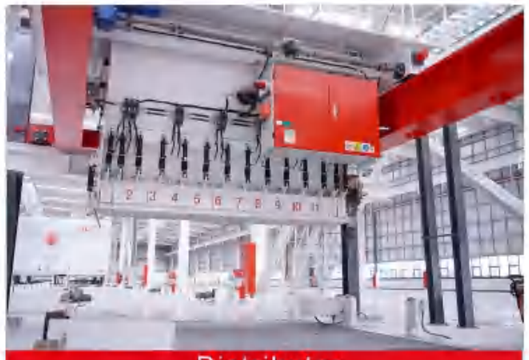
Placing and vibrating system

05

The system consists of high-speed concrete conveyor, distributor, and low-noise vibrator.

High-speed concrete conveyor

Used for concrete conveying from batching plant to spreader. Variable frequency adaptive drive realizes high speed and high efficiency; seamlessly connects the batch plant and production line for fully automated operation; and provides a hand-held wireless remote control for easier maintenance operations. Shock-absorbing tires are equipped to ensure smooth running and low noise; the system is equipped with anti-collision parking mechanism, overload protection and other devices, which can ensure stable performance and smooth operation of the equipment.



Distributor

The concrete transported by the conveyor can be evenly poured into the mold through distributor. The spread or screw mode can be configured according to the type and nature of concrete. Through integrated CAD & Allplan interface, the system can analyze customer component drawings automatically. Distributor places intelligently and flawlessly according to the system. The feeding can realize easy control, suitable for concrete with different slumps. Weighing system is equipped and real-time data display is achieved with minimum error.

Low-noise vibrator

Vibrate and compact the poured concrete, eliminate the air bubbles, and ensure the uniform distribution of aggregate inside the concrete.The unique vibration isolation design is made to effectively isolate the excitation force from being transmitted to the ground.The vibration system adopts zero-amplitude start, zero-amplitude stop, induced vibration, and adjustable amplitude. The system can effectively solve problems of spallation, internal heterogeneity, formation of air pockets, and inconsistent density during the forming process of components.The combined frequency-divided automatic vibration mode enables selection of different combined vibration modes according to the structural form, thickness, and slump of the concrete to ensure that each different component receives the most uniform vibration and compactness.

Surface treatment system

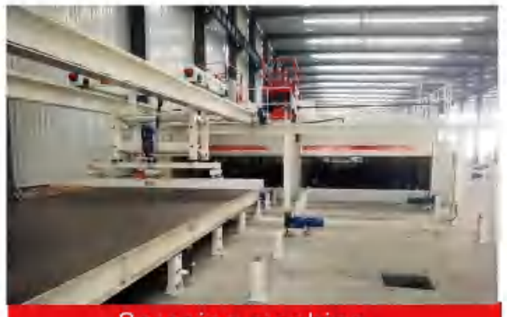
The system includes smoothing machine, roughing machine and scraping machine.

Smoothing machine

Used to smooth and polish the surface after component pre-curing. The height of troweling plate is adjustable to meet the production needs of prefabricated boards of different thicknesses; the horizontal and vertical travel speed can be adjusted by frequency conversion to ensure smooth operation.

roughing machine

Mainly used for roughening the surface of floor slabs. The blade has an automatic obstacle avoiding function; the power is powered by an electric pusher (power-off self-locking), and the roughening depth can be controlled.



Scraping machine

Used for vibrating and tamping the secondary-placed concrete to make it compact, and meanwhile the upper surface is smoothed by vibrating and rubbing rod.The front-to-back rubbing method can be applied to a variety of plate types; two-stage shock absorption is adopted, and rubber shock-absorbing block and rubber pad jointly absorb the vibration, effectively solving the vibration problem between the rubbing rod and the rubbing mechanism. The operation method uses dual mode of fixed operation interface and wireless remote control.

Double wall production system

07

The system consists of overturning machine and vibrator(ramshackle)

Overturning machine

Realize turnover of PC component and pallet by 180°, used to produce double wall with thickness of 200～500mm. SYMC controller independently developed by SANY is used and can be connected with PMS system to realize automatic mold clamping. Good stability and accurate positioning in turnover, traveling and lifting can be realized by using frequency conversion controller. The upper and lower mold platens are positioned and centered with wedge-shaped grooves, and have high accuracy for mold clamping.

Vibrator(ramshackle)

Used for double wall production line, vibrating and compacting the poured concrete, eliminating the air bubbles inside the concrete and using the overturning equipment in combination. Horizontal low frequency vibration is used to tightly combine the concrete and reinforced mesh. The mold platen is used for precise positioning, the mold platen is fixed with pin, and the four vibration units are driven for stable work.

Curing system

The system includes curing chamber and stacker.

curing chamber:The MES system realizes paperless record of the temperature and humidity conditions on real-time basis and performs monitoring and automatic adjustment. Partition insulation is performed between each column inside the chamber body, and temperature and humidity are monitored separately. Steam heating and humidification, and forced air circulation in the chamber are used so that the hot and cold air fully interact to ensure constant temperature and humidity, and temperature difference ≤5℃. The requirements for curing components up to 450 mm high can be satisfied.

Stacker: The stacker has the function of fully automatic storage and removal of the pallet. The lateral movement of trolley adopts servo and rack-and-pinion drive technology for precise positioning. The lifting of cart uses the hoisting machinery synchronization technology for height mechanical positioning. Interaction with PMS system is enabled to realize automatic assignment of bin positions.

08

Deshuttering system

09

Tilting machine

When a component attains the deshuttering strength, and the side form is removed, the component can be lifted out of warehouse by the tilting machine.

Double cylinders are used to hydraulically lift the pallet for deshuttering, and the hydraulic frequency conversion is synchronized to ensure the rollover synchronization.

Unique safety fixing method of front claw and rear jacking can effectively prevent the workpiece from turning over during standing to ensure safety of man and machine;

SYMC controller independently developed by SANY is used to make the operation process simple and highly reliable.

CORE ADVANTAGES OF SANY PC PRODUCTION LINE

INTELLIGENT FACTORY

High integration and automatic matching of PC production lines, PC batch plant and rebar equipment have been realized for the first time in China, and digitally-driven production has been truly achieved. The equipment goes online, runs automatically at specified rate, and monitors the production, shipment and installation of components. Big data analysis on daily, monthly, and annual orders, capacity and costs through the system can help decisions made by operators.

ENERGY SAVING AND ENVIRONMENTAL PROTECTION

Energy-saving and environmental protection functions can be found in most equipment, such as: curing insulation between each column inside the curing chamber, steam heating and humidification, forced air circulation in the chamber to ensure constant temperature and humidity, and temperature difference ≤ 5°C. The energy use is maximized. The cleaning machine is typically equipped with vacuum cleaner to effectively control the leakage of flying dust. Collecting hopper is typically equipped to collect and easily transfer residues. The batch plant is environment-friendly constructed. The main building is equipped with efficient forced dust collector to control the forced dust removal according to timing sequence. The powder tank is equipped with an environment-friendly bag dust collector, which receives desirable dust collection effect and is easy to maintain.

TIME-SAVING AND EFFICIENT

The continuous and automatic running of PC production line greatly improves production efficiency and substantially reduces the workloads of production operators. Multi-functions are integrated into one, e.g. demolding/molding robots and rebar equipment, saving factory floor space and station operation time. The program controls the intelligent material distribution to realize the materials distribution flawlessly according to the drawing. Full-automatic loading and unloading mold platen function; using compound motion and anti-shake technology, positions are automatically allocated by the MES system, and the servo system is used for lateral movement for precise positioning. The optimal scheduling and distribution of the concrete multi-production line are achieved through the linkage control and optimal scheduling of the batch plant, torpedo tank and spreader,.

HARDCORE R&D

The R&D team of Sany Construction Industry constitute 50% of the total number of staffs, of which more than 80% are graduates with master's degree or higher. More than 500 applications for construction industrialization-related technology patents have been completed, and many technologies for research, development and production of complete sets of PC equipment are the first of its kind in China. Our research and development results have helped customers improve production efficiency greatly, enhance production safety and support capabilities, and reduce production operations staff significantly. In December 2018, the concrete structure superimposed construction technology completed and participated by Sany Construction Industry. passed the evaluation of scientific and technological achievements and reached the level of "international advanced, international leading".

QUALITY PLATFORM

Sany Construction Industry has signed strategic cooperation agreements with China National Institute of Construction Standards, Nemetschek Group, Germany, and China State Construction Engineering Corporation, etc., analyzed the drawings of the prefabricated components of the building and directly driven the production of PC equipment through the IT platform of production line.

INSTALLATION AND SERVICE

SANY has established a number of its own installation teams to provide efficient and professional installation. Coupled with the unique IT service technology and R&D service team, Sany Construction Industry has created a new era of value chain service featuring carrier-class service resources and zero distance efficient service!

Specialized Transport Vehicle for Prefabricated Components

There is no need for crane operations, enabling a single individual to complete the loading and unloading process in less than 5min each time.

High Return
- Intelligent feeding
- Return on investment within six months
- Less investment needed for lifting equipment

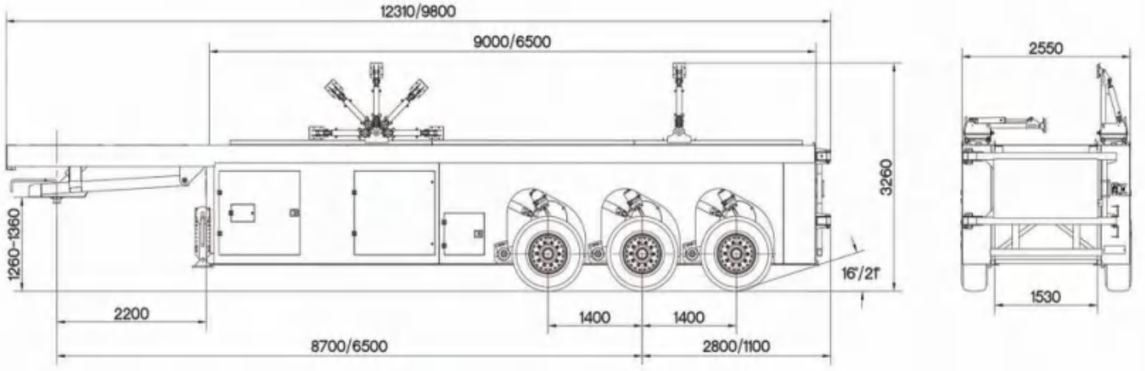
High Efficiency
- Effortless loading and unloading
- Fast fixation
- Time, labor, and manpower savings

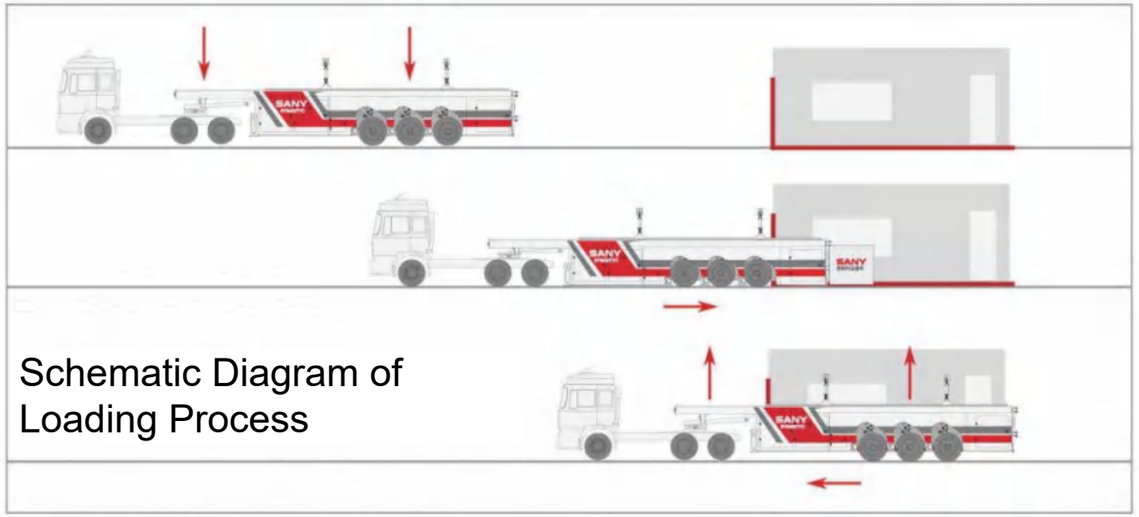
Superior Maneuverability
- Off-road capability for diverse terrains
- Long and short model options
- Vehicle height adjustable to road conditions

Safety and Reliability
- Low center of gravity and balanced design of left and right axles for anti-tip safety
- Adaptive shock absorption, ABS system equipped
- Full container protection, minimal component damage

Product Parameters

1	**Product Model**	**SY9401TYC (Standard Version)**	**SY9402TYC (Short Axle Version)**
2	**Semi-trailer Gross Weight**	40000 kg	40000 kg
3	**Semi-trailer Curb Weight**	10500 kg	9000kg
4	**Payload**	29500 kg	31000kg
5	**Saddle Load Capacity**	16000 kg	16000 kg
6	**Traction Pin Type**	90#	90#
7	**Overall Dimensions (L/W/H)**	12310/2550/3260mm	9800/2550/3260mm
8	**Cargo Area (L/W)**	9000/1530mm	6500/1530mm
9	**Traction Pin Clearance Height**	1260-1360 mm	1260-1360 mm
10	**Tire Specifications**	φ385/65 R22.5	φ385/65 R22.5
11	**Number of Fixtures**	2 pairs in standard configuration	2 pairs in standard configuration
12	**Customized Pallet Quantity (L/W/H 9.5×1.5×3m)**	Quantity customized according to customer requirements	Quantity customized according to customer requirements





PC special batch plant

Small volume measurement with higher accuracy

1.High-precision feeding

2.Intelligent measurement

3.Three-speed measurement mode

4.High-performance controller SYMC

Wrapped slurry method mixing and single / double discharge ports with higher efficiency

1.Low foam and more even mix during mixing. Compression-resisting strength is 13% higher than that of one-step mixing method.

2.Single/double discharge port meets the needs of different PC production lines.

Forced dust removal is more environment-friendly

1.The main building is equipped with an efficient forced dust collector.

2.The powder tank is equipped with environmental protection bag dust collector.

3.Adapt to installation in the factory building.

Intelligent management gives more convenience

1.The control center is set in the PC central control room,centralized control and management, and more convenient control.

2.All-oriented fault diagnosis technology is adopted. The operation interface provides real-time detailed fault display.

3.The remote diagnosis function of the system

Lower energy consumption due to technological transformation

1.Intelligent energy saving. With intelligent process control, the equipment efficiency can be fully utilized so that idling can be avoided and operating energy consumption is reduced by 10%.

2.Gravity-type discharge.

3.Queue production supports continuous production of different task orders and different mix ratios.

4.The wear-resistant parts of the main engine are independently developed by SANY according to the concrete mixing conditions. The material uses high chromium-carbon ratio. Meanwhile, rare elements are added to improve the structure and refine the grains.

5.The special shaft end sealing system can automatically compensate and reliably seal.

6.Horizontal main engine cutting technology (patented technology).

Worry-free Service

1 Consultancy on factory construction

2 Technological design

3 Professional guidance on installation

4 Production training

5 Talent fostering

Consultancy on factory construction

1.New park planning

2.Renovation of old factory building

3.Large-scale project planning

Technological design

1.Design services

2.Free benefits

Professional guidance on installation

1.Skilled workers with superb skills

2.Tools of superior quality

3.Installation manual

Production training

1.Theoretical training

2.Practical operation

3.Factory resident services during component

Talent fostering

Building platform for industry personnel training and communication, and support transportation operation and management personnel to support the prefabrication

SERVICE

SERVICE

Comprehensive service level leads the industry for five years.Accessory supply and service skills are kept at optimum level. Zero distance with customers and services are achieved using information technology.

Service concept

Do everything for customers, and create customer value.

Service Commitment

Your choice of SANY represents lifelong freedom from worries.

Service target

Exceed customer expectations, surpass industry benchmarks.

Service advantage

Set new benchmark in the value chain service era.

CASES

中国建筑 · 中国交建 · 中国电建 · 中国二十二冶集团有限公司

中建八局 · 中建三局 · 和天下 · 陕西建工集团总公司

中国铁建 · 中交第三航务工程局有限公司 · 中原建筑 · 华润

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CCCC Third Harbor Engineering Co., Ltd.

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China Eigth Construction

China Eigth Construction

Ren Ming Factory

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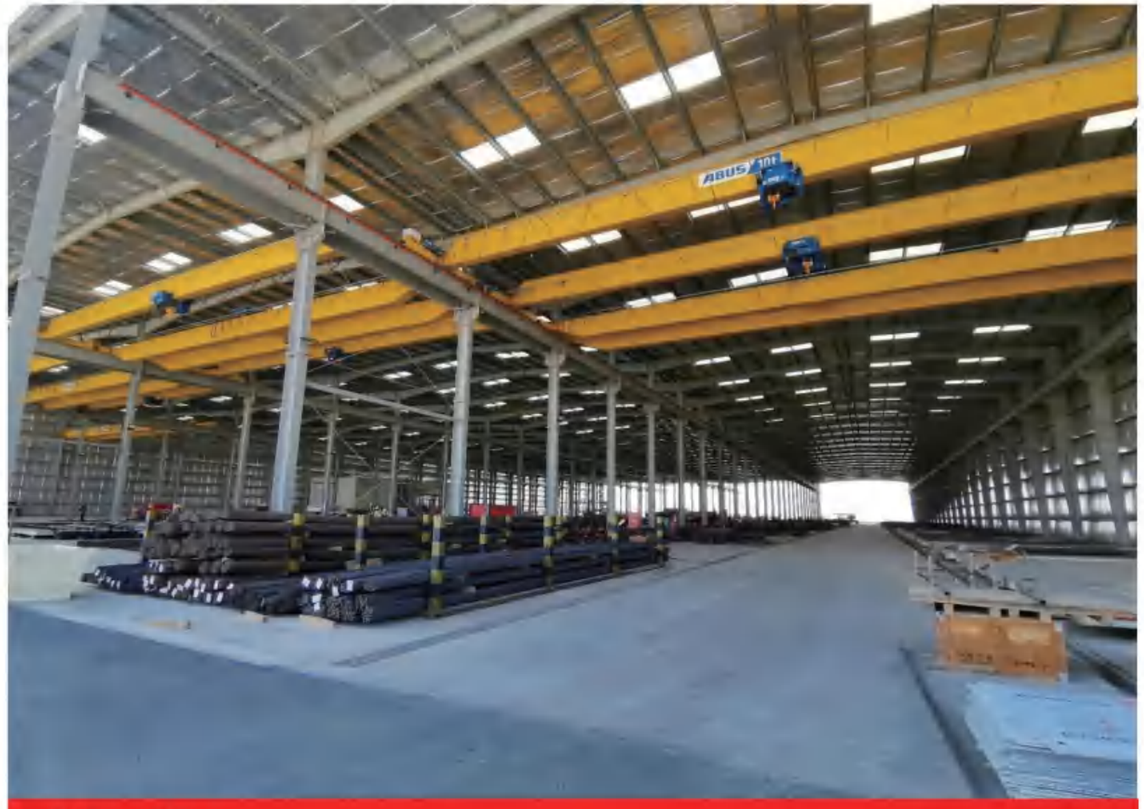

Factory in Saudi

China Construction Industry

Factory in Malysia

Jilin Construction

Fengda

Chongqing Construction Engineering

Fortification assembly

Shandong Ronghua

CASES

Jiasheng Wancheng

Anhui Hailong

Hebei Construction

Thank you for reviewing

We hope that you can trust and choose our production line through the products we present. Not all our products are presented in the manual. If you are interested, please scan the QR code below, or visit Sany Construction Industry website (www.sanypce.com) for more information.