



**Quality Changes the World**

**SANY GROUP CO., LTD.**

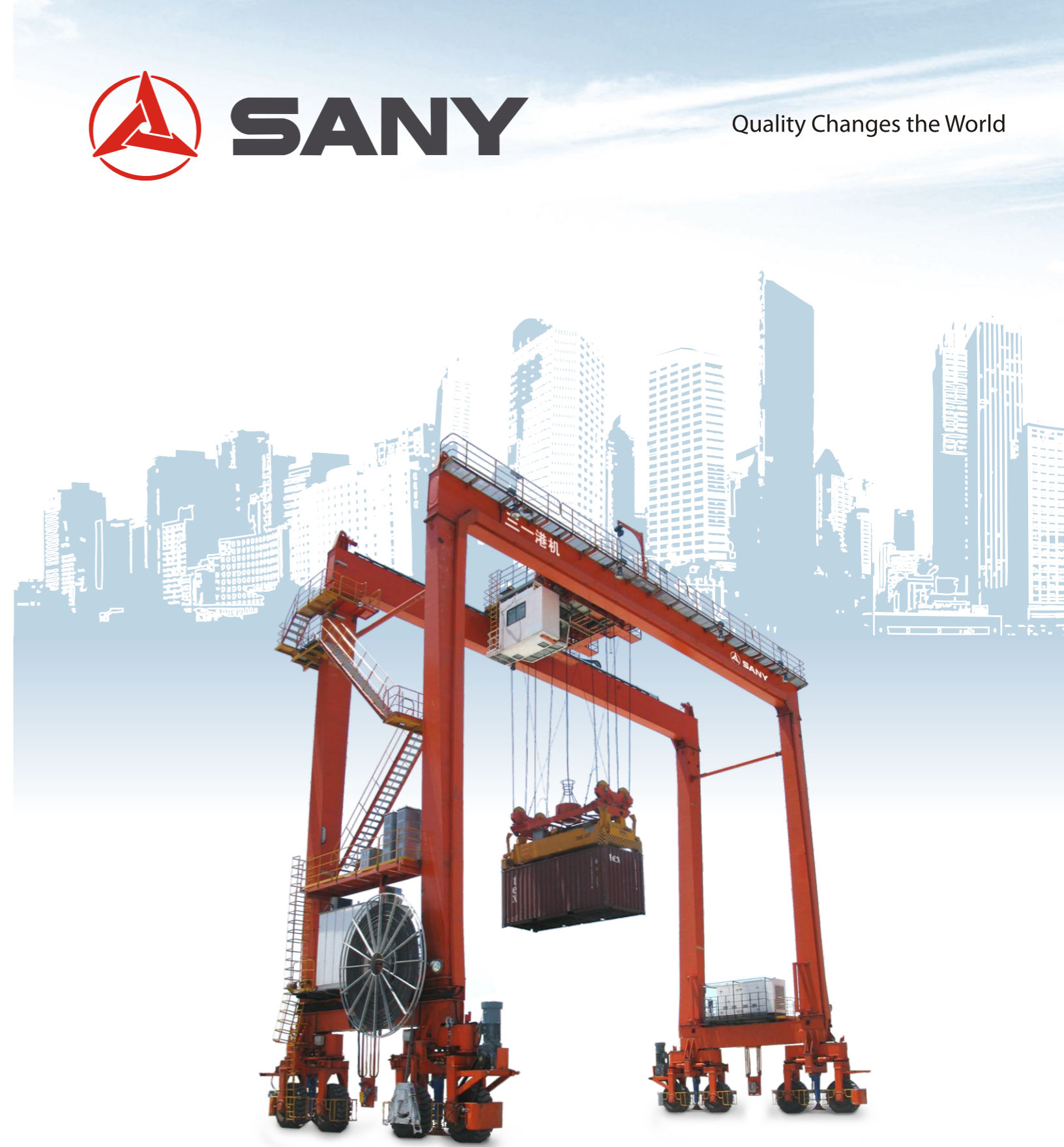
Address: SANY Industrial Park, Economic and Technological Development Zone, Changsha, Hunan, China

Service Hotline: +0086-4006-098-318

E-mail: [crd@sany.com.cn](mailto:crd@sany.com.cn)

For more information, please visit: [www.sanygroup.com](http://www.sanygroup.com)

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**SANY RUBBER TYRE CONTAINER GANTRY CRANE**

# ENTERPRISE OVERVIEW

Boasting over 65,000 staff, Sany Group established 5 industry parks in Shanghai, Beijing, Shenyang, Kunshan, and Changsha, and 4 overseas R&D and manufacturing bases in India, America, Germany, and Brazil. Products from Sany span the world.

As one of the wholly-owned subsidiaries of Sany Group, Sany Port Machinery Company covers port machinery, engineering ship, and offshore equipment. 16 types of port machinery and engineering ships in over 150 specifications can be provided: reach stacker, container handler, forklift truck, tyre crane, unload truck, ship-to-shore container crane, harbor portal crane, rail-mounted portal crane, rubber tyre portal crane, mobile harbor crane, and concrete mixer vessel, etc. As the pioneer in this industry, Sany Port Machinery Company proves itself with the largest capacity, most diverse series, and the most advanced technology.

**R&D** With comprehensive R&D and testing centers, over 300 national patents, in which over 200 are licensed, Sany designs its products based on 3D modeling and in concept of parameterization and modularity.

**Manufacture** Relying on the largest intelligent manufacturing system in Asia and integrating the leading technology and strict manufacturing concept from China and Germany, Sany ensures top quality of every product with constant perfection of processing and parts.

**Service** Boasting 7,500 all over the world, Sany provides you with specific data on after-sales service, definite service standard and compensation proof, and the chain system covering the whole life of product, ensuring you smooth enjoyment throughout the operation.



# SANY RTG Achieving Professional Quality

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## P1

Core technology  
Excellent performance

Hybrid drive and energy recycle system  
Full electric gantry jacking patented technology  
Independent frequency conversion anti-sway technology  
GCP&IEM remote monitoring and diagnosing

## P3

Advanced technology  
Constant elevation

Elite R&D team  
Top design platform  
Advanced manufacturing technique  
Strict test and detection system

## P5

Comfortable operation  
Extraordinary enjoyment

Superior inclusive view  
Centralized joystick  
High-resolution monitor  
Damping suspension seat

## P7

Exquisite details  
Brilliant highlights

Gantry mechanism with drives on 4 angles  
Hoisting mechanism with double drums  
Trolley drive with eccentric sleeve  
Electric system

## P9

Parameters

## P13

After-sales service

## P11

Genuine configuration  
Testified quality

Mechanical structure  
Power equipment  
Electric system  
Coating and painting

## Core technology Excellent performance

Numerous leading technologies promote the outstanding performance of SANY Rubber-tyre Container Gantry Crane, which brings you high working efficiency and hearty security.

### Hybrid drive and energy recycle system

During normal work, the crane is electricity-driven, and energy from load descending and mechanism brake is recycled to the power grid. During yard-turning, the crane is driven by auxiliary diesel generator unit of low power, which helps save energy greatly.

### GCP&IEM remote monitoring and diagnosing

Real-time global monitoring of the crane can be realized on our GCP&IEM system. Through this system, you could grasp the crane status on the Internet; your engineers could provide technological support to the operation or maintenance personnel, which helps shorten the stopping time caused by malfunctions; and functions including data collection and analysis, remote monitoring, malfunction diagnose, installation management, working condition monitoring, and data storage are also integrated.

### Independent frequency conversion anti-sway system

Data including weight of load, hoisting height, length of anti-sway steel rope are analyzed with moment balance loading algorithm. Four frequency conversion driven servo-motors are applied to control the output torque of each anti-sway rope, and swing of the spreader is decreased to lower than 200mm after 2.5 swing cycles. The spreader can be moved horizontally, longitudinally, or slewed without moving the complete crane, which helps improve the hoisting efficiency greatly.

### Dynamic reactive compensation and harmonic suppression

Fast filter low voltage power capacitor combined compensation is applied to monitor the reactive power in loading. Split phase dynamic compensation will be active and the power factor will be at least 0.95, thus voltage fluctuation caused by reactive power variation will be suppressed. The harmonic suppression reactor is used to eliminate the harmonic and decrease the influence to the grid. Reactive compensation and harmonic suppression play an important role in decreasing the energy consumption, prolonging the service life of crane, and maintaining the grid stability.

### Full electric gantry jacking technology

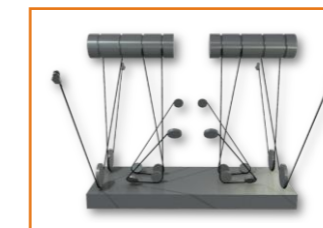
Jacking device of the gantry is driven by electric pushrod, which decreases the abrasion between tyre and ground. Hydraulic system is avoided for convenient maintenance.

### Rectifying system of gantry travelling

Deviation of the gantry can be calculated by the controller based on the fluctuation of azimuth. Direction of the gantry is constantly rectified for safe travelling. Precision of this system will control the horizontal deviation within  $\pm 40\text{mm}$ .

### Hinged steel structure

The partial stress is decreased and the dynamic stiffness in gantry direction is increased. This structure also contributes to decreasing deadweight of the crane. General models whose loading capacities are about 40 ton from Sany are usually lighter than 145 ton, which is 15% lighter than the average level in this industry.



Anti-sway system



Gantry jacking technology



Hinged structure

## Advanced technology Constant elevation

### Elite R&D team

Our elite team, consisting of ten experts and over three hundreds engineers, covers all the areas of mechanics, electrics, hydraulics, CAE, technics, commerce, and service. The IPD management system helps us keep inclusive communication with customers from bidding until delivery. High efficiency and excellent quality will be your deepest impression to our products and service.

### Top design platform

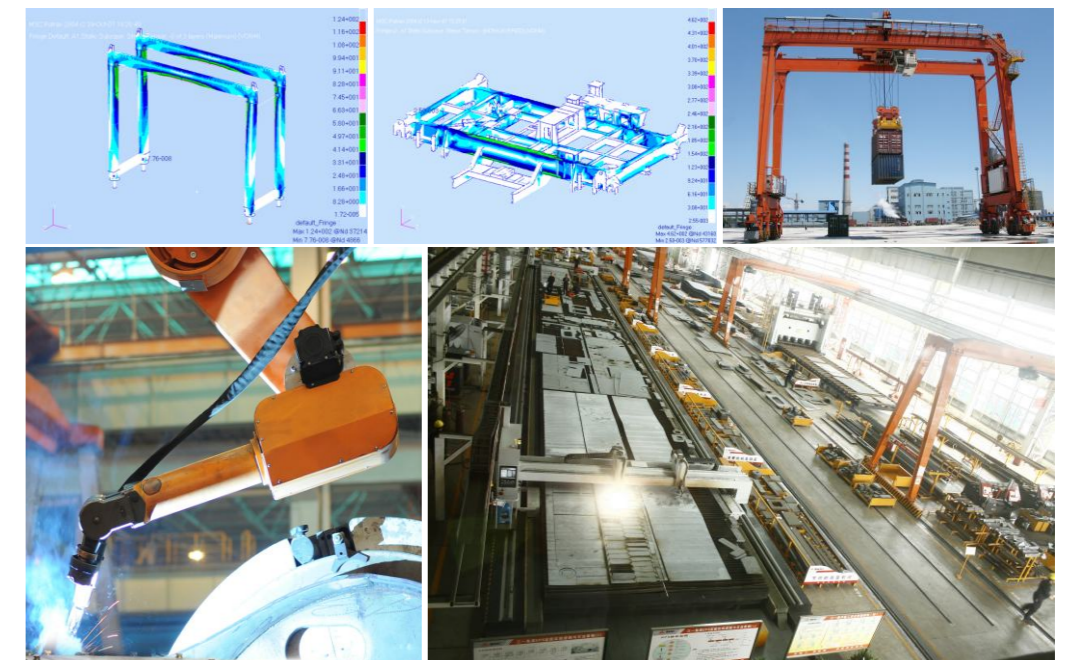
CAE system and EB electric system are combined; parameterization is applied to shorten the design cycle; FEA analysis, kinematics and dynamics simulation calculation are applied to simulate the test and assembly. All the intelligent systems contribute to the appropriate structure, excellent performance and reliable quality of the crane.

### Scientific manufacturing technique

- ▶ Design and manufacturing of our structures all conform to the AWS. Automatic laser tracking pulse welding is applied and every welding seam is strictly tested for its reliability.
- ▶ High precision numerical control horizontal double boring and milling center provides precise processing to all the hinge holes, thus ensuring the precise machining and long service life of all the mechanical parts.
- ▶ Coating of SRTG strictly conforms to the SIS. Advanced coating equipments and techniques are applied to prevent erosion from salt spray and ocean climate.
- ▶ Delivery of SRTG after assembled can be your option, which helps decrease the assembly on site, ensure the assembling quality, and shorten the delivery period.

### Advanced test and detection system

Our professional test teams, with high responsible spirit on science, strictly test the performance and quality of every product. Numerous tests including fatigue, vibration, control, and power consumption are included, with parameters of stress strain, pressure, displacement, speed, acceleration, torque, and power, etc. being set. Only after the product has passed all these tests can it be mass produced and launched.





## Comfortable operation Extraordinary enjoyment

### Superior inclusive view from the cab

The humanized cab with elegant shape and open view eases tension and fatigue of the operator to promote working efficiency.

### Centralized joystick

German S+B joystick with perfect ergonomics design is configured to ensure precise control and convenient operation.

### Centralized console

The elegant console with appropriate layout and ergonomics design contributes to the convenient operation and fatigue ease of the operator.

### High-resolution touch screen

The 10.1 inch high-resolution touch screen, compared with the traditional 5.7 inch one, provides better vision for the checking of working condition and power status.

### Damping suspension seat

The damping suspension seat configured on SRTG holds the operator appropriately to relieve his fatigue. It is comfortable, ventilating, and adjustable, providing safe and easy working environment.

### Multi-function air-conditioner

With the functions of anti-fog, defrosting, and ventilating, available for round-the-clock work, the air-conditioner configured on SMQG is especially applicable to the severe climate on port.

### Sound-absorbing and denoising

The cab made of green denoising and sound-insulating materials provides comfortable working environment for the operator.

### Radio in the cab

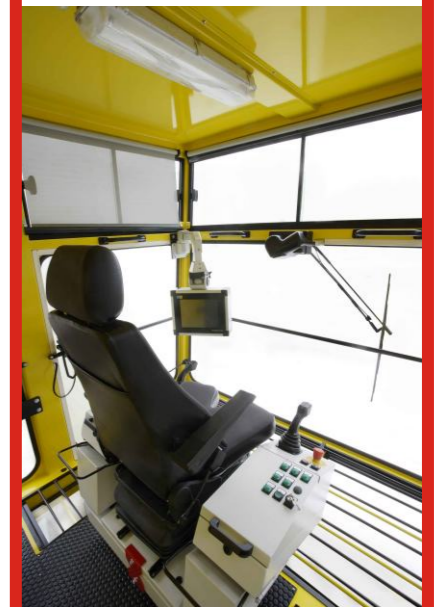
New experience of MP3 player helps relieve the operator's fatigue during work intervals.



Interface of CMS management system



Cab



Damping suspension seat

## Exquisite details Brilliant highlights

### Gantry traveling mechanism

- ◆ Independent driving on 4 angles is applied for stable traveling. Crush from starting, acceleration, or deceleration is decreased for long service life of the tyres and comfortable operation.
- ◆ 16 wheels are set for the gantry mechanism, which decreases the wheel load.
- ◆ Wear-resistant engineering tyres are applied for the gantry. Direction of the tyre tread is not parallel to tyre outer periphery so as to reduce resistance during the tyre steering. SRTG has instability preventing equipment if one tyre flats or explodes.

### Hoisting mechanism

- ◆ Double drums are mounted horizontally to prevent disorder of steel rope.
- ◆ Imported reducers are configured. No pulley is distributed on the trolley to decrease maintenance and increase service life of the steel rope.
- ◆ The hoisting mechanism is controlled by frequency conversion driving, which decreases the crush from starting or brake.

### Trolley mechanism

- ◆ Eccentric sleeve structure is applied on the trolley wheels, which helps adjust the straightness of wheel movement. This structure, combined with the lateral guiding device, ensures no rail gnawing during the trolley traversing.
- ◆ The rack and pinion drive mechanism is fitted to prevent sliding of trolley mechanism. This driving mechanism is characterized by appropriate structure, efficient working, and stable transmission.

### Sunk platform on the girder

- ◆ Sunk platform is designed on the girder for protecting the personnel walking on the platform.

### Electric system

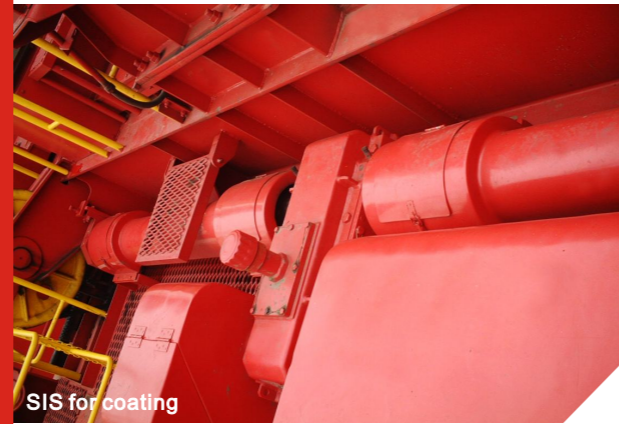
- ◆ Its control system self-developed by SANY integrates advanced control technology and electric control elements of famous brands, which is safe, stable, and reliable.
- ◆ Comprehensive protection, complete devices, and logic program ensure the safe and reliable operation, and help avoid collision or overload during traveling.



Gear rack driving of trolley



Electric control cabinet



SIS for coating



Cable reel



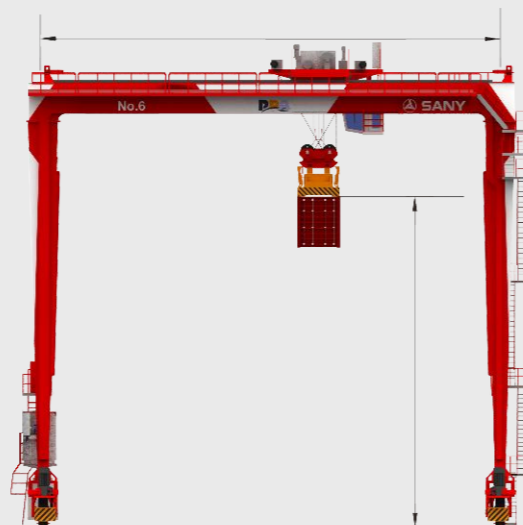
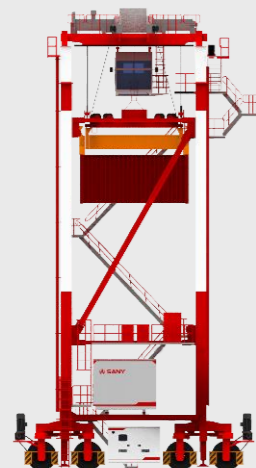
Gantry mechanism



## SANY RUBBER TYRE CONTAINER GANTRY CRANE

With complete series and various models for option, SRTG is applicable to different conditions on different ports and yards. Based on the characteristics of ports, as well as the need and technique of loading/unloading we studied from numerous ports in and abroad, one standard models of SRTG is established.

Your SRTG can also be customized based on the practical condition on your ports or yards. Design of the standard models is combined with our modularity, which helps shorten the designing and manufacturing periods. Sany is dedicated to providing you with the most appropriate products in the shortest period.



Contour of Sany Rubber-tyre Container Gantry Crane

## Parameters

		Series
Rated hoisting capacity under spreader		41t, 50t, 61t, 65t
Span		23.47m、26.4m or based on the yard
Hoisting height		18.2~26.4m
Hoisting speed	Full load	20~30m/min
	Empty load	40~60m/min
Gantry travelling speed	Full load	30~50m/min
	Empty load	90~150m/min
Trolley traversing speed		70m/min
Power supply		Diesel generator unit, cable reel + auxiliary diesel generator unit, trolley conductor + auxiliary diesel generator unit, battery + auxiliary diesel generator unit

## Standard model-SRTG5223S

Parameters for standard model			
	Work grade		A7
Dimension	Length	m	26.5
	Height	m	26.3
	Width	m	15.2
	Hoisting capacity under spreader	t	41
	Max. hoisting height	m	18.2
	Span	m	23.47
	Base	m	9.5
	Max. wheel load	kN	320
Hoisting speed	Full load	m/min	23
	Empty load	m/min	46
	Acceleration duration,full load	s	2
	Acceleration duration,empty load	s	4
Trolley traversing speed	Full load	m/min	50
	Empty load	m/min	130
	Acceleration deceleration duration	s	8
Gantry travelling speed	Full load	m/min	70
	Empty load	m/min	70
	Acceleration/deceleration duration	s	4
Spreader	Anti-sway of spreader		Standard configuration
	Spreader translation (horizontal, longitudinal)	mm	± 250
	Slewing angle of spreader	degree	± 5
Power supply	Voltage	V	380
	Frequency	HZ	50
	Power supply		Diesel engine



# Genuine configuration Testified quality

Parts	Items	Recommended brands	Advantages	Highlight
Mechanical structure	Motor	ABB/SIEMENS/YASKAWA/Jiangte/Nanyang	Top brand, high quality	★
	Steel rope	Diepa/Vero/SHINKO/Guizhou wire rope/Xianyang Baoshi	Famous brand, high quality	
	Drum	SANY/Wampfler/Changkai	Self-developed by Sany, reliable quality	★
	Reducer	SEW/Flender/Sumitomo	Imported brand, high quality	★
	Brake	Bubenza/ Huawu/Jingu	Famous brand, industry preferred	
	Coupling	Bubenza/ Weilong	Famous brand, industry preferred	
	Spreader	SANY/BROMMA/ELME/RAM	Self-developed by Sany, reliable quality	★
	Steel	Bao steel/XISC/WISCO	Domestic brand, reliable quality	
	Lubrication system	LINCOLN/ Qidong Dele	Famous brand, industry preferred	
	Seat in cab	Grammer	International top brand	★
Power	Diesel engine unit	Cummins+Stamford CAT+Stamford	Imported brand, high quality	
	Power supply	Diesel generator unit	Industry preferred in energy saving and environment friendly	★
		Cable reel + auxiliary diesel generator unit		
		Trolley conductor + auxiliary diesel generator unit		
Battery + auxiliary diesel generator unit				
Electric system	Electric control integration	SANY	Stable, reliable, intelligent, safe and energy-saving	★
	PLC	ABB/SIEMENS/OMRON	Imported brand, high quality	
	Transducer	ABB/YASKAWA/SIEMENS	Imported brand, high quality	
	Low voltage electric elements	ABB/SCHNEIDER	Imported brand, high quality	★
	Cable (general)	IGUS/KABEL/Shanghai Nanyang/Jiangsu Shangshang	Famous brand, industry preferred	★
	Cable (spreader)	PRYSMAIN/TRATOS	Imported brand, high quality	★
	LCMS/RCMS/GPS	SANY	Intelligent management and diagnose	★
	Power compensation device	Hoteam/Mingtai	Domestic brand, energy saving	★
	Illumination devices	PHILIPS/OSRAM/Hagongda/Watran	International top brand	
Master joystick	S+B	International top brand	★	
Coating	Painting	HEMPEL/Kailin/International	Domestic brand, reliable quality	



## Service Network/Parts warehouses

- Parts warehouses
- ▲ Service Network



# 311 Service Commitment

**3** Sany waives labour charge for customer services within 3000 working hours or 18 months, whichever comes earlier.

**1** Sany engineers will arrive at customer's place on time as required. All common malfunctions will be treated in one day.

**1** Common parts will be delivered to customer in one day:  
 Provided that the customer's country/region is covered by Sany's spare parts network;  
 Parts will be delivered to customer in first-tier cities in one day, and in second-tier cities in two days.

Failure to meet the above, Sany promises to give a compensation of 50 USD for 0-3 hours' delay; a compensation of 100 USD for 3-6 hours' delay and so forth. However, the total compensation will not exceed 1000 USD.

*Always with you wherever you are.*

