



SANY

Quality Changes the World



SANY SHIP-TO-SHORE CONTAINER 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 STS

Achieving Professional Quality

P1

Core technology
Excellent performance

Multi-function slewing and anti-slag technology
Energy recycling technology
Intelligent control on spreader track
High-speed trolley traversing

P3

Advanced technology
Constant elevation

Advanced design
Top manufacturing technique
Strict test and detection system
Experienced manufacturing and technology storage

P5

Comfortable operation
Extraordinary enjoyment

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

P7

Exquisite details
Brilliant highlights

Girder with double beam structure
Brake with double disc
Full digital AC frequency control system
Coating and anti-erosion under SIS

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 Ship-to-Shore Container Crane, which brings you high working efficiency and hearty security.

Multi-function slewing and anti-slag technology

Advanced hydraulic control technology is applied to cut off the power of control system when there is a snag during the hoisting. The hydraulic valve will be open and the oil cylinder will unload immediately to avoid destroy to the crane or the cabin.

This system also integrates the slewing of spreader. It replaces a slewing device on the head of apron girder, thus decreasing the wheel load and increasing the stability of crane.

Energy recycling technology

Advanced active rectifier technology is applied to reclaim the potential energy from the load descending and mechanism brake. Pollution to the grid from the ultra harmonic is suppressed to increase the power factor and control the operation cost.

Intelligent control on spreader track

The best route of spreader is worked out based on the position of encoder and the stored track of spreader. This technology not only ensures safe movement of spreader but also improves the working efficiency.

High-speed traversing of trolley

Movement of the spreader is driven by the high-speed traversing of trolley on the rails of girders between the sea side and shore side. The trolley is composed of trolley assembly, driving mechanism, reeving steel rope, and protection devices. The speed of trolley traversing may reach 240m/min, which is very efficient in handling containers.

Soft and intelligent landing of containers onto the truck

The position of container landing onto the truck is controlled by the laser positioning system mounted on the girder, which is especially applicable to the office automation on the quayside.

Automatic positioning and locking of spreader

Intelligent deceleration technology and detection protection devices are applied to adjust the deceleration duration and position dynamically during the landing of spreader onto the container. This helps decrease the crush to the crane and increase its service life.

Malfunction Automatic Detection and Real-time Display of Data Technology

Working conditions of the crane are all displayed on the CMS interface, on which malfunctions can also be alarmed and diagnosed. Running condition of the crane will be recorded into this system to provide basis and help for maintenance.



High-speed traversing of trolley



Hydraulic protection against snag

Advanced technology Constant elevation

CAE design

A CAE design system based on multi-platforms is self-developed by Sany, in which parameterized driving, optimized analysis, emulative analysis, simulative test, and simulative assembly can be carried out.

- ▶ Improving designing efficiency and shorten designing period for the rapidest delivery;
- ▶ Improving designing quality and decreasing designing error for the best quality;
- ▶ Accumulating designing experience for constant improvement and better products.

Modularity of parts

Based on the universality of STS parts, we have integrated over 400 hundred modules including hoisting mechanism, raising/lowering mechanism, tractive mechanism for trolley, trolley assembly, gantry mechanism, steel structure, functional parts, general parts, accessories for M-room, etc.

Top manufacturing technique

Sany Ship-to-shore Container Crane applies high-strength full-welding steel structure conforming to AWS. Every key welding seam has been through 100% nondestructive inspection to withstand strict test.

Pre-assembly validation and integrate assembly promote preciseness and reliability, as well as shorten the assembly cycle.

Advanced test and detection system

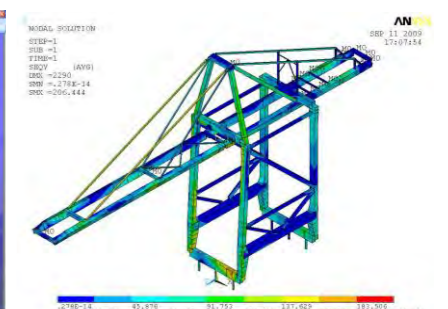
Our professional test teams, with high responsible spirit on science, strictly test the performance and quality of every product. Numerous tests including fatigue, vibration, control, and power consumption are included, with parameters of stress strain, pressure, displacement, speed, acceleration, torque,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

Experienced manufacturing and technology storage

Sany has delivered numerous ship-to-shore container cranes, all of which are greatly acclaimed by customers in and abroad. For your customized need, Sany has developed STS of various loading capacity, 65t-65m, 50.8t-55m, 40t-40m for instance. Based on his comprehensive technology storage, Sany would always provide excellent STS rapidly on your need.



CAE design



FEA drawing for the horizontal apron girder



Integrate assembly



Overload test of the complete crane

Comfortable operation Extraordinary enjoyment

Superior inclusive view from the cab

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 STS 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 STS 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.



■ Cab



■ Console



■ Damping suspension seat



Exquisite details Brilliant highlights

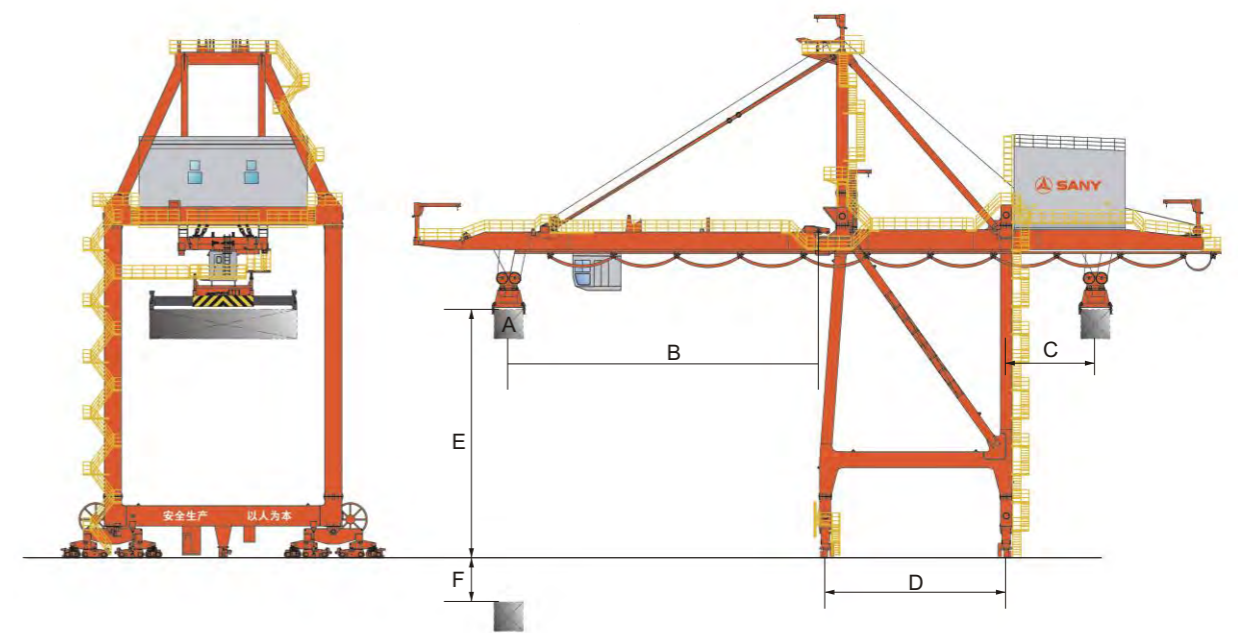
- Double beam structure is applied for the girder, inside which there set the track girder. On the track girder there laid the trolley rail with no seam. Mounting preciseness of the trolley rail conforms to the FEA regulations.
- Braking devices of the high-speed brake are set on the two ends, which not only ensures stable braking in normal condition but also provides strong braking torque in sudden gust.
- A safety support is set to prevent the trolley frame from falling once the wheels or axles break. Joints of the trolley rail are Z-shaped for small crush to the rail.
- The M-room is elegant with appropriate layout in it and splendid decoration on the wall. Advanced coating technique is applied on the outer surface of the M-room.
- Sany STS is driven by a full digital frequency control system whose recycled energy can be reclaimed to the grid. The transducer applies speed closed loop vector control.
- Applied with integrate coating technology, Sany STS conforms to the SIS to prevent erosion from salt spray and ocean climate.
- The telescopic chain of spreader is made of imported metal material with vibration protection and stretching capacity. Imported proximity sensor limit switches are applied on the twistlocks and the lifting pins for sensitive and reliable induction of the limit.
- Sany STS is configured with the most advanced gantry mechanism in the world up to now. It consists of upper, middle, and low equalizers and is connected with pin shafts. Bogies are mounted for the travelling of gantry. All the structures ensure the equalized force on each wheels and the stable travelling. Now the gantry of Sany STS has been modularized into 8-wheel, 10-wheel, and 12-wheel types for different allowed wheel loads on different ports.
- On the driven wheels of gantry there mounted wheel clamps with electric linkage locks, which helps avoid sliding of the STS once there is a hurricane.





Parameters

Items		Parameters
Rated hoisting capacity under spreader (A)		35~80t
Outreach (B)		25~70m
Backreach (C)		8~28 m
Span (D)		16~42m
Hoisting height	Above rail (E)	10~45m
	Below rail (F)	12~18m
Hoisting speed	Full load	40~90m/min
	Empty load	70~150m/min
Trolley traversing speed		120~300m/min
Gantry traveling speed		25~60m/min
Max. raising/lowering angle		80°



Sany Ship-to-shore Container Crane

Genuine configuration Testified quality

Parts	Items	Recommended brands	Advantages	Highlight
Mechanical structure	Motor	ABB/SIEMENS/Jiangte/YASKAWA/FUJI	Imported brand, high quality	★
	Steel rope	DSR/Guizhou wire rope/Juli/Shinko	Imported brand, high quality	
	Drum	Weilong/Changzhou GT/Heyuan Gangli	Inverter drive, reliable quality	★
	Reducer	SEW/Flender/Taixing/Mairde	Imported brand, high quality	★
	Brake	Huawu /Bubenzler	Famous brand, industry preferred	
	Coupling	Weilong /Bubenzler	Famous brand, industry preferred	
	Buffer	Liaoning Qingyuan/OLEO	Domestic brand, reliable quality	
	Spreader	SANY/BROMMA/ELME/RAM	Self-developed by sany, reliable quality	★
	Steel	Bao steel/XISC/WISCO	Domestic brand, reliable quality	
	Lubrication system	Qidong Dele /LINCOLN	Famous brand, industry preferred	
	Wheel clamp	SIBRE/Hillmar/ Huawu	International famous brand, high quality	
	Rail clamp/ Rail anchor	Hillmar/Shanghai Gang'an/Hugang	International famous brand, high quality	
Cab	Heyuan Gangli/Yager	International top brand		
Power	Power supply	Cable reel/Trolley conductor	Industry mainstream	★
Electric system	Electric control integration	SANY /Guide/HITE	Self-developed by sany, reliable quality	★
	PLC	SIEMENS/OMRON	Imported brand, high quality	
	Transducer	ABB/YASKWA/SIEMENS	Imported brand, high quality	
	Low voltage electric elements	ABB/SCHNEIDER	Famous brand for port machinery industry preferred	★
	Cable (general)	Shanghai Nanyang/Jiangsu Shangshang	Famous brand for port machinery industry preferred	★
	Cable (spreader)	PRYSMAIN/TRATOS	Imported brand, high quality	★
	LCMS/RCMS	SANY	Intelligent management and diagnose	★
	High-voltage device	ABB/CEEG	Famous brand, industry preferred	
	Illumination devices	PHILIPS/OSRAM/ Hagongda/Watran	International top brand	
	Master joystick	S+B	Famous brand, excellent quality	
	Master switch	S+B	Famous brand, excellent quality	★
Festoon system	Hugang /Wuxi Yongda	Famous brand, industry preferred		
Coating	Painting	HEMPEL/Kailin/International	Famous brand, industry preferred	



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.





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