



Quality Changes the World



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# SANY RAIL-MOUNTED CONTAINER GANTRY CRANE

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# 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 RMG

## Achieving Professional Quality

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### P1

Core technology  
Excellent performance

High-performance frequency conversion driving system  
Rectifying system of gantry travelling  
Independent frequency conversion anti-sway technology  
Auto-tracking and auto-hoisting system

### P3

Advanced technology  
Constant elevation

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

### P5

Comfortable operation  
Extraordinary enjoyment

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

### P7

Exquisite details  
Brilliant highlights

Gantry traveling and trolley traversing mechanisms  
Gantry mechanism with drives on 4 angles  
Wind-protection anchoring system  
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 Rail-mounted Container Gantry Crane, which brings you high working efficiency and hearty security.

### Auto-tracking and auto-hoisting system

Based on the data stored from the mechanism positions and the containers on the yard, the mechanisms are controlled to move automatically following the optimized track. It not only ensures safe working but also helps improve the working efficiency.

### 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 anti-sway motors are applied to control the output torque of each anti-sway rope, and anti-sway of the spreader is bidirectional. The spreader can be moved horizontally or longitudinally without moving the complete crane, which helps improve the hoisting efficiency greatly.

### Soft landing of spreader onto the container

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.

### 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.

### Rectification of gantry travelling

The deflection of frame to the rail is constantly measured, based on which the transducer adjusts the speed of driving motors on the two sides. Deflection of the frame will be rectified to prevent rail gnawing of gantry. Abrasion between the wheels and the rail will be decreased 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.

### High performance frequency conversion driving system

Specialized heavy-load frequency conversion devices and advanced control algorithm are applied for stable movement in low speed and high torque, as well as flexible acceleration/deceleration of the mechanisms.

### Elegant shape

SRMG integrates advanced industrial design concept for its compact structure, appropriate layout, and elegant shape. It stands for Sany image and leaves a stable, clear, and luxurious impression.

# 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

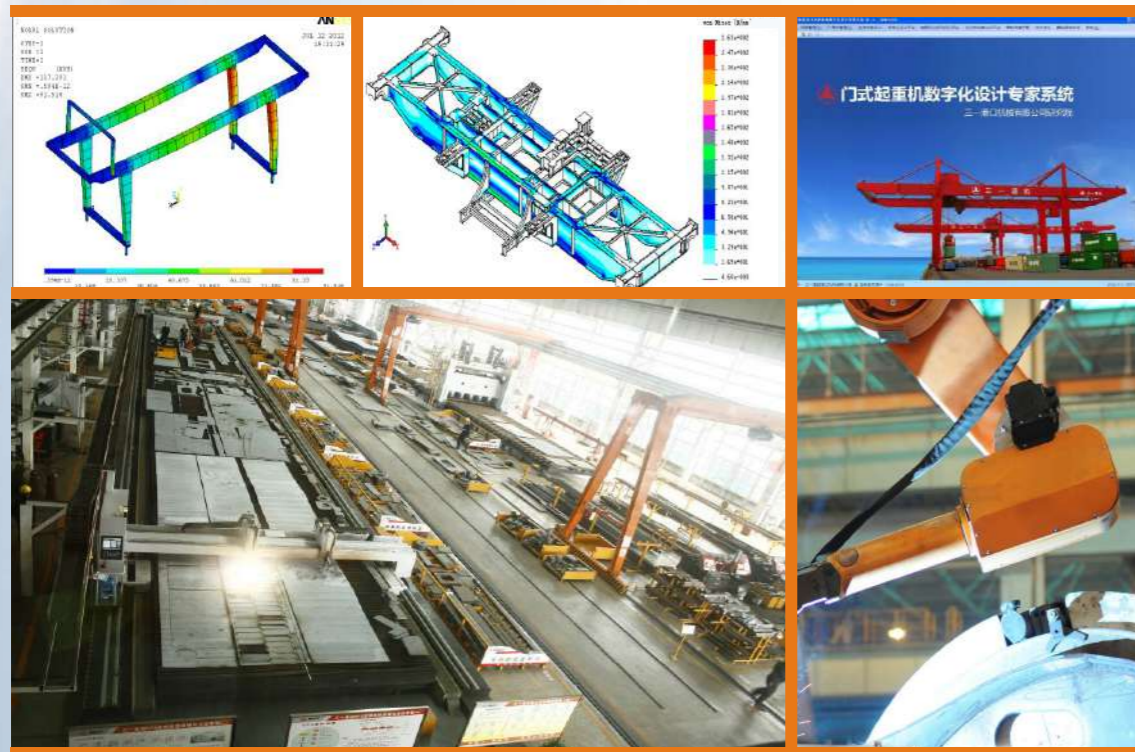
CAE system and EB electric system are combined; parameterization is applied to shorten the design cycle; FEA analysis, kinematics and dynamics simulation calculation are applied to simulate the test and assembly. All the intelligent systems contribute to the appropriate structure, excellent performance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

## Scientific manufacturing technique

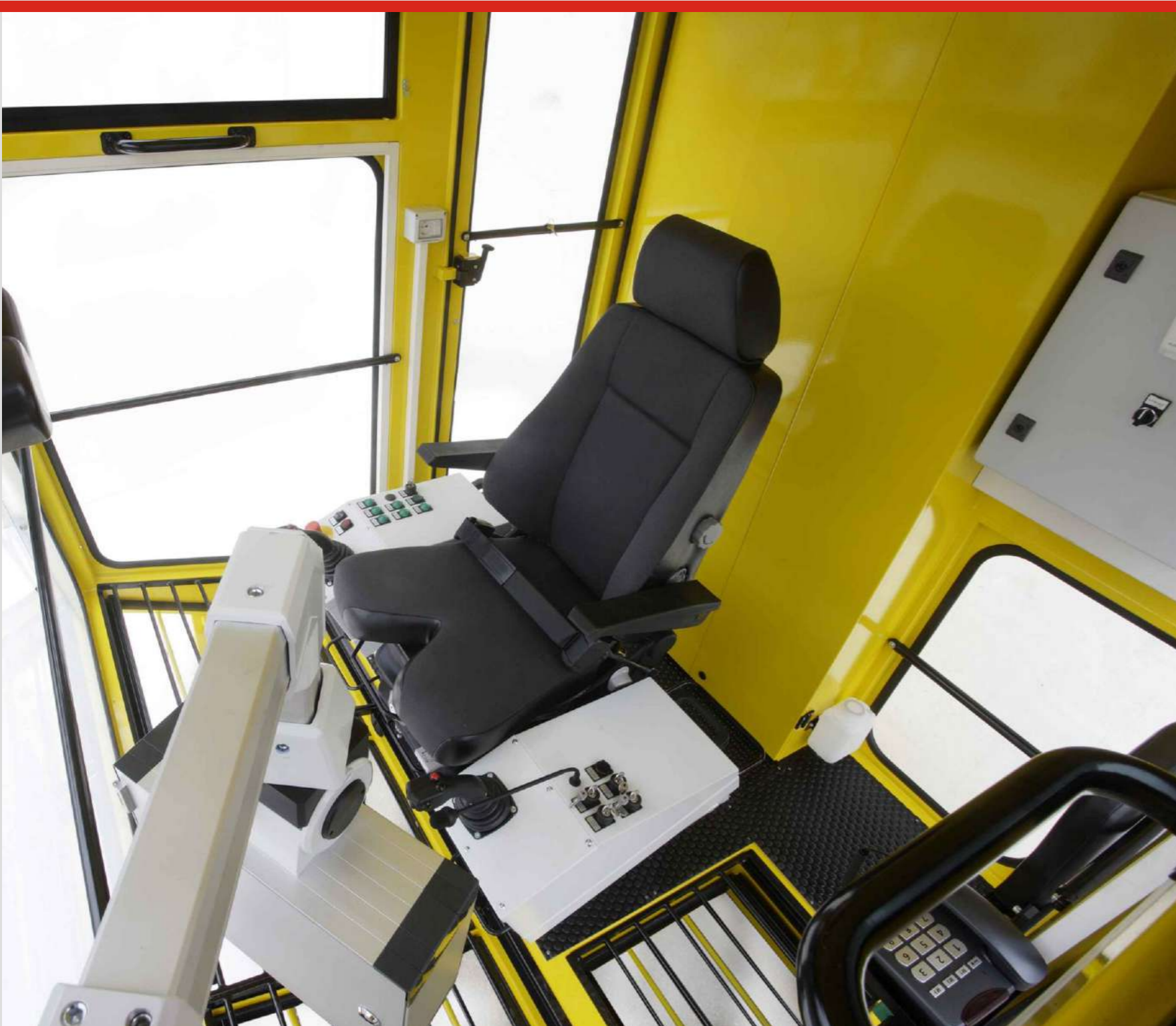
- ▶ Design and manufacturing of our structures all conform to the AWS. Automatic laser tracking pulse welding is applied and every welding seam is strictly tested for its reliability.
- ▶ High precision numerical control horizontal double boring and milling center provides precise processing to all the hinge holes, thus ensuring the precise machining and long service life of all the mechanical parts.
- ▶ Coating of SRMG strictly conforms to the SIS. Advanced coating equipments and techniques are applied to prevent erosion from salt spray and ocean climate.
- ▶ Delivery of SRMG 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



Cab



Damping suspension seat

### 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 SRMG 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.

## Exquisite details Brilliant highlights

### Gantry mechanism with drives on 4 angles

4 driving motors distributed at 4 angles instead of traditional 2 motors mounted on one axial is applied, which is more appropriate in designing, stable in transmission, and efficient in working.

### Gantry travelling and trolley traversing mechanisms

- Driving device of the crane is integrated by motors, reducers, and brakes, which is clear in structure and efficient in maintenance.
- The supporting shafts of balance beam and the wheels are all forged, which have long service life.
- Centralized lubrication device can be used for the gantry and trolley systems, which is convenient and efficient in maintenance.

### Gantry frame

- Based on our strict fatigue calculation, benchmark life of the structures is 2 million effective cycles.
- Stairs are set in the outriggers and repair holes are set on the girder for more convenient maintenance.
- The outreach and backreach, as well as the span can be designed for your customized need.
- Elegant handrails and skid-proof steps are mounted for climbing up/down the girder.

### Wind-protection anchoring system

- 2 sets of independent anchoring devices against horizontal force, 4 sets of wind protection ropes against overturning torque, and 4 sets of rail anchors or wheel clamps against gust are mounted to keep the crane stable.
- Other wind protection devices including electric wedge, wheel clamp, rail clamp, and rail brake can be your option.



### Electric system

- Electric control elements of famous brands and advanced frequency conversion control technology are integrated in the electric system of SRMG.
- Comprehensive protection, complete devices, and logic program ensure the safe and reliable operation, and help avoid collision or overload during travelling and hoisting.

### Environment friendly and energy saving

- The spreader is designed to be light in weight in order to decrease the hoisting load.
- The travelling motors and the wheels are connected directly through the transmission shafts, which is compact in structure, efficient in transmission, and economic in energy consumption.
- E-room for the gantry travelling is separated from the trolley, which helps decrease the load on the trolley.

With complete series and various models for option, SRMG 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 SRMG is established.

Your SRMG 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.



## Parameters

Series		
Rated hoisting capacity under spreader		35t, 40t, 41t
Span		20~45m
Hoisting height		9.5~21.2m
Hoisting speed	Full load	15~40m/min
	Empty load	30~80m/min
Gantry traveling speed	Full load	20~80m/min
	Empty load	30~100m/min
Trolley traversing speed		50~100m/min
Power supply		Cable reel or trolley conductor
Voltage		380V or 10kV

## Standard model-SRMG5540S

Parameters for standard model			
	Work grade		A7
Dimension	Length	m	63
	Height	m	24.6
	Width	m	30
	Hoisting capacity under spreader	t	41
	Max. hoisting height	m	18.2
	Effective overhang	m	7.5/7.5
	Span	m	40
	Base	m	16
	Max. wheel load	kN	250
Hoisting speed	Full load	m/min	20
	Empty load	m/min	40
	Acceleration duration, full load	s	≤3
	Acceleration duration, empty load	s	≤5
Trolley traversing speed	Full load	m/min	80
	Empty load	m/min	100
	Acceleration/deceleration duration	s	≤8
Gantry travelling speed	Full load	m/min	50
	Empty load	m/min	50
	Acceleration/deceleration duration	s	≤8
Spreader	Slewing angle of spreader	degree	±5
Power supply	Power supply for trolley		Cable festoon
	Power supply of the crane		Cable reel
	Voltage	V	380
	Frequency	HZ	50



# 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	Imported brand, high quality	
	Cable reel	SANY/Wampfler/Changkai	Self-developed by sany, reliable quality	★
	Reducer	SEW/Flender/Sumitomo	Imported brand, high quality	★
	Brake	Bubzenr/ Huawu/Jingu	Famous brand, industry preferred	
	Coupling	Bubzenr/ Weilong	Famous brand, industry preferred	
	Spreader	SANY/BROMMA/ELME/RAM	Industry preferred, reliable and durable	★
	Steel	Bao steel/XISC/WISCO	Famous brand, industry preferred	
	Lubrication system	LINCOLN/ Qidong Dele	Famous brand, industry preferred	
	Wheel clamp	Sibre/Hillmar/ Huawu	International famous brand, industry preferred	
	Rail clamp /Rail anchor	Hillmar/ Shanghai Gang'an/Hugang	International famous brand, high quality	
	Seat in cab	Grammer	International top brand	★

Parts	Items	Recommended brands	Advantages	Highlight
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	★
	Power	Power supply	Trolley conductor/Cable reel	Industry mainstream
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.*

