



Quality Changes the World

 **SANY MARINE HEAVY
INDUSTRY CO., LTD.**

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SANY Technology, World Quality

PORTAL SLEWING CRANE

Contents

目录



P04
SANY Marine Heavy Industry

P06
Intelligent & efficient

P08
Safe & reliable

P10
**Energy-saving &
environmentally friendly**

P12
Technical parameters

P14
Manufacturing & delivery

P16
Construction cases

P18
Worry-free aftersales service

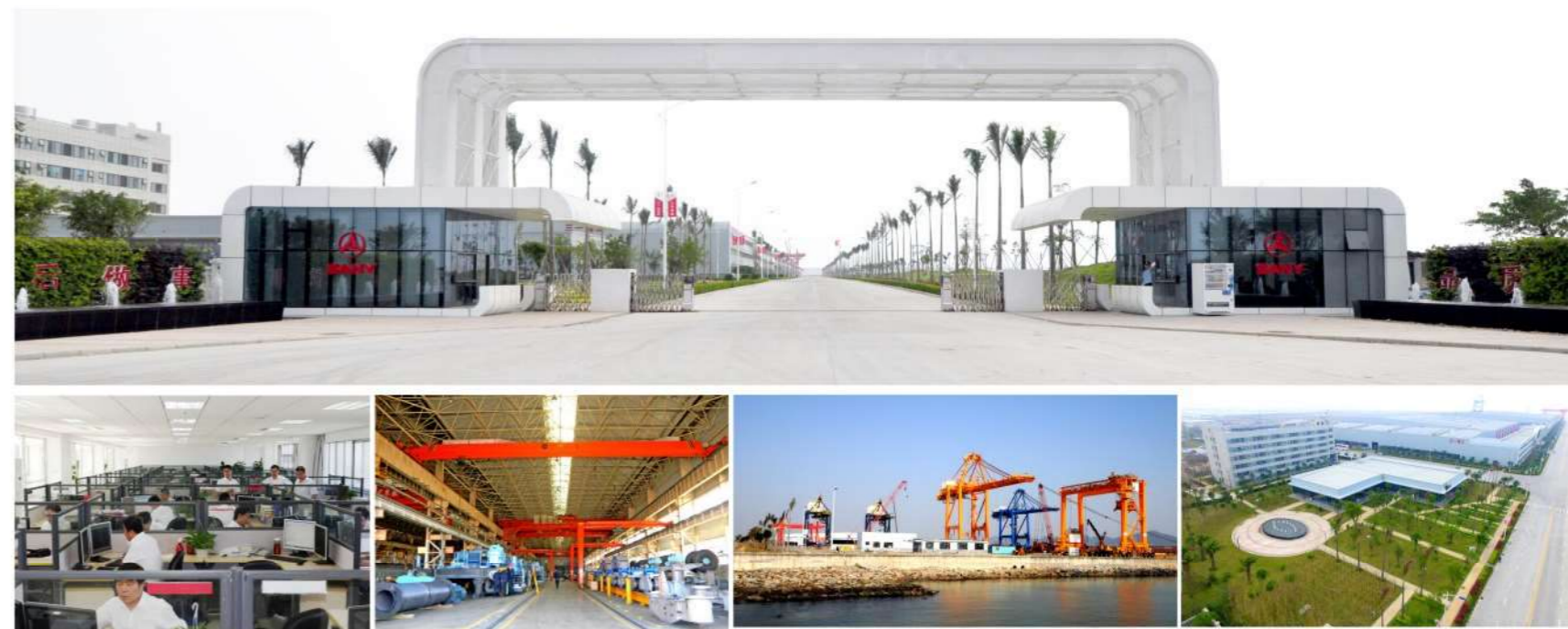


ENTERPRISE OVERVIEW

Sany Marine Heavy Industry Co., Ltd is the subsidiary of Sany International. It is now located on the west shore of Zhujiang River with a manufacturing base of 6000 acres and a 3.5km offshore line with many berths. Sany Marine aims at building a modern transportation and marine equipment industrial park with estimated sales turnover of 30 billion RMB.

The first phase with an area of 800 acres had been finished and started to manufacture since May 2015 and the products include port machinery, engineering ships and ocean equipment. Currently we have reach stacker, container handler, forklift truck, port tyred crane, STS, RMG, RTG, portal slewing crane, MHC and so on, altogether 16 series and 150 types of products. In the future, a lot of national big strategic equipment will be manufactured here. Sany Marine will insist on persistent innovation, focusing more on green energy, digitalization and intelligence. Sany Marine will keep the pace, focus on energy saving and automation, and promote "automation technology in harbor and port, engineering equipment on deck and energy equipment over ocean". It is our mission to provide the best quality products and service so as to contribute greater to the mankind.

Driven by the enterprise mission of "quality changes the world", SANY Marine Heavy Industry Co., Ltd attaches great importance to process, punctuality and automation. We monitor dynamic display of all the production process, logistics, value flow and pattern; we keep improving in quality manufacturing and won many awards both from home and abroad. Now we are cooperating with a batch of top terminal operators globally.



INTELLIGENT & EFFICIENT

1 Full automatic tracking for spreader slewing

Slewing angle of the crane is recorded in real-time by encoder. And position of the slewing motor is sent to the spreader by real-time control and intelligent compensation algorithm. The spreader will move in the same angle speed in opposite to counteract the angle of crane slewing. In this way, the container will be kept parallel with the shoreline for automatic tracking.

2 Grab track recording

Data of the grab in one or more cycle (wire rope lowering distance, slewing angle, luffing angle, wire rope lowering distance, acc. and dec. time, etc.). Acc. and dec. time are optimized based on the recorded data for the grab to repeat the movement automatically. Point-to-point operation is mainly for grab.



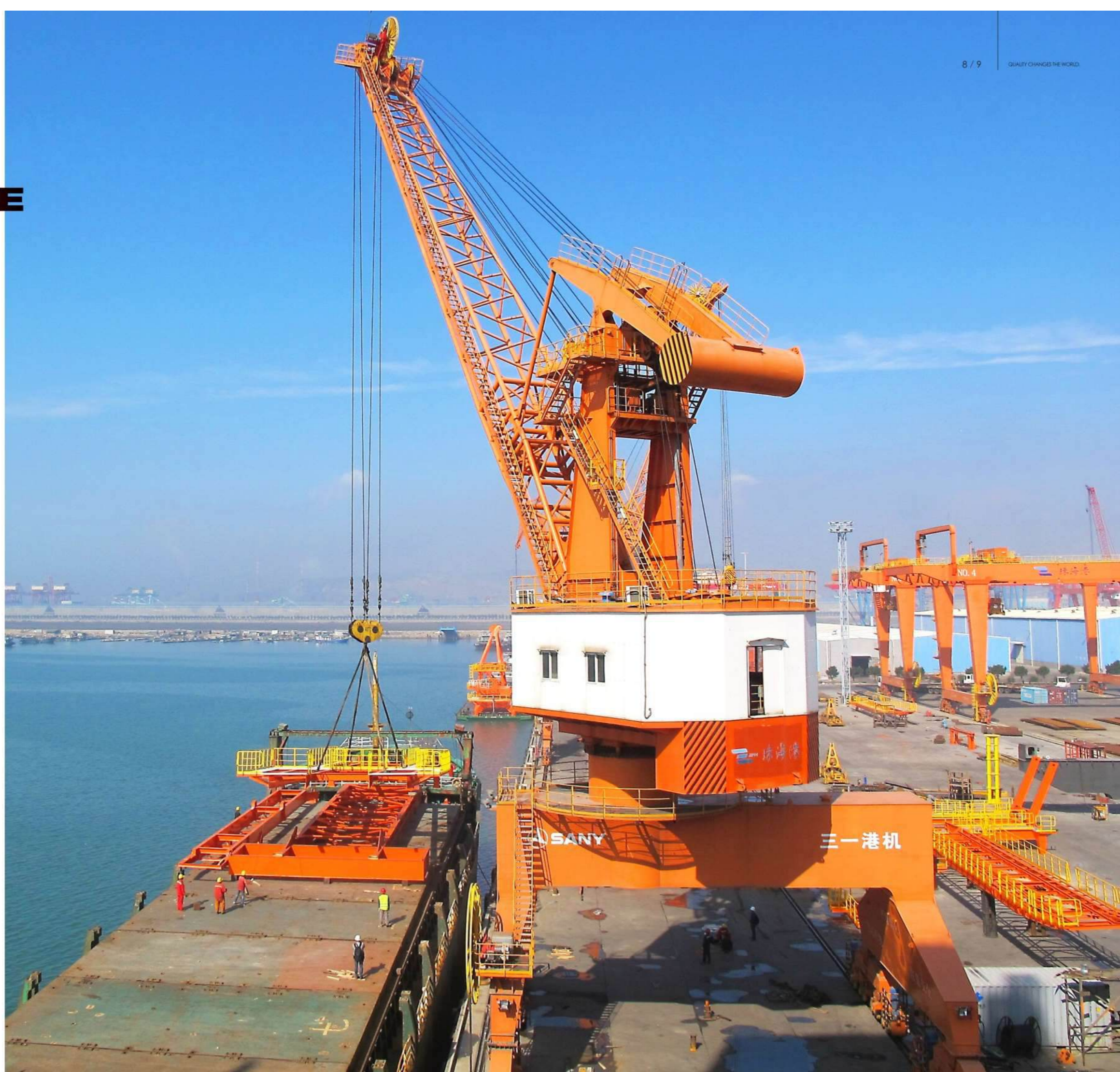
SAFE & RELIABLE

1 Over hoisting prevention for hook

When the hook is lifted to the limit height, control relays enable control box on the buzzer alarm. Ascending motion stops and only descending is allowed. This device protects the lifting mechanism effectively, ensuring high efficiency safe protection.

2 Speed protection for hoisting mechanism

Traditional speed protection mode is over speed switch. Actually, when the speed is out of control, the lifting mechanism runs fast and will bring obvious crush to the crane even if the brake clamps in a short time. So acceleration of hoisting points are calculated and sub protection is set for our crane to predict the over speed trend. Hardware over speed switch is applied for double protection.



ENERGY-SAVING, ENVIRONMENT-FRIENDLY

Power factor reached more than **0.9**

the amount of harmonics has greatly decreased, and energy saving effect is obvious

1 Energy Recycling technology

Active inverter technology is applied to transfer the stored dynamic power and potential power into electricity and be recycled to the grid. At the same time, it can resist the pollution to grid from higher harmonic voltage, thus increasing the power factor of the equipment.

2 Intelligent low voltage capacitor compensation

Full automatic resonance eliminating reactive power compensation device is configured to achieve the average power factor above 0.9 or more, which improves electricity efficiency and reduces wire consumption.



TECHNICAL PARAMETERS



General portal slewing crane

Mature technologies are integrated and common faults are analyzed for stable system, low fault rate, and efficient operation. Radius for 16t crane can be 30m and 33m, radius for 25t crane can be 35m, and radius for 40t crane can be 30m, 37m, 40m, and 43m.



Optional range	SMQG series with double link jib system			SMQG series with single boom system		
Rated hoisting capacity(t)	16t	25t	40t	40t	45t	80t
Radius(m)	30, 33, 35, 37	30, 35, 36, 37	30, 35, 37, 39, 40, 43	11~30, 12~35	9.5~26, 12~33, 12~35, 13~38	13~38
Rail span(m)	10.5, 12, 16	10.5, 12, 16	10.5, 12, 16	10.5, 16	10.5, 16	16
Hoisting speed(m/min)	60	55	50	25	25	28
Luffing speed(m/min)	50	50	50	25	25	35
Slewing speed(r/min)	1.0~1.5	1.0~1.3	1.0~1.2	0.8~1.0	0.8~1.0	0.6~1.2
Gantry speed(m/min)	26	26	26	26	26	25

Standard models	MQG1630S	MQG1633S	MQG2535S	MQG4030S	MQG4037S	MQG4040S	MQG4043S	MQB4535S		
Rated hoisting capacity(t)	Hook	16	16/25	25/40	40	40	40	40	45/50	
	Grab	16	16	25	40	40	40	40	25	
Radius(m)	/	9.5-30	9.5-33	9.5-35	9.5-30	11-37	12-40	12-43	12-35	
Wheel base(m)	/	10.5	10.5	10.5	10.5	12	12	12	10.5	
Rail span(m)	/	10.5	10.5	10.5	10.5	12	12	12	10.5	
Slewing diameter(m)	/	≤7.5	≤8	≤8.5	≤8.5	≤9	≤9	≤9	≤8	
Hoisting height under hook(m)	Above rail	Hook	25	30	30	30	30	30	30	24
		Grab	/	20	20	20	20	20	20	20
	Below rail	Hook/Grab	15	15	20	15	20	20	20	15
Wheel load(KN)	/	250	250	300	300	350	350	350	350	
Hoisting speed(m/min)	Hook	35	30	35	35	35	30	30	25	
	Grab	/	50	50	50	50	50	50	40	
Gantry speed(m/min)	/	26	26	26	26	26	26	26	26	
Slewing speed(m/min)	/	1.5	1.5	1.2	1.2	1.2	1.2	0.8/1.0	1.2/1.0	
Luffing speed(m/min)	/	50	50	50	50	50	50	50	50	

Remark: Due to the persistent innovation of technology, partial parameters may be varied. Apart from the parameters above, we have more bespoke parameters, so welcome for your consultation.

1 The preparation process

Complete processing equipment for steel pretreatment, cutting, bevel cutting, bending forming and other material processing are applied to provide a powerful guarantee on welding quality.

2 The welding process

As the launching of the first semi-automatic welding assembly line for heavy port machinery, the box beam welding cycle has been shortened by 15%. By applying semi-automatic car welding of H-beam, the welding cycle of stay bar system and M-house base has been shortened by over 30%. Large structures including boom and girder can be welded complete in the factory, and the UT qualification rate is over 99%.

3 The coating & preassembly

As the launching of new industrial park, super-large parts blasting, component painting, and assembling can be processed in the factory. We have ended the past era of outdoor processing to guarantee the production cycle and product quality.

4 Delivery cycle

The whole delivery cycle of portal slewing crane (from receiving order to delivery status) is above average in the industry. The manufacture cycle (from material preparation to delivery status) is currently shortened by 60 days than previously.

MANUFACTURING & DELIVERY



CONSTRUCTION CASES



December, 2015

MALAYSIA

2 units of Portal cranes were delivered in June, 2015 to Malaysia. Rated hoisting capacity under grab is 40t, rated hoisting capacity under hook is 35t, and max. radius is 38m.



August, 2012

ZHANJIANG

8 units of portal cranes were delivered to Zhanjiang Port in 2012. Rated hoisting capacity is 25t, rail span is 10.5m, and hoisting speed is 20m/min. Average running hour of these cranes reaches 14 hours and they are now in good performance.



October, 2014

HUANGSHI

1 unit of portal crane was delivered to Huangshi Port in 2011. Rated hoisting capacity is 35t, rail span is 10.5m, hoisting speed is 55m/min. This crane is now used to handle metal, mineral ore, construction material, steel, fertilizer and other cargo.



August, 2015

Zhuhai

Zhuhai Port purchased 8 units of portal cranes, who are now used to handle container and bulk cargo. Rated hoisting capacity 120t, rail span is 16m, hoisting speed is 28m/min.



April, 2011

YIXING

4 units of portal cranes were delivered to Yixing in 2011. Rated hoisting capacity is 40t, max. radius is 30m, rail span is 10.5m, hoisting speed is 42m/min. This crane is now used to handle bulk cargo in the terminal.

SERVICE



Quality Changes the World Service Creates value



After-sales Service Hotline:

4008 87 8318

Consultation/Complaints Hotline:

4008 87 9318



Service Concept

All for customers, creating value for customers.

Service Strategy

Build unparalleled service; realize "First Brand of Global Service" of Port Machinery.

Service Advantages

SANY has offices in over 200 countries and regions, with 30 agents in China, about 50 repair factories and 6S stores, over 3000 elite service engineers, 1000 offices and parts warehouse accommodating 100,000 kinds of parts worth more than RMB 600 million. We also have highly efficient logistics system by air, sea and land, which can transport genuine parts at any time.

Industry leading Enterprise Control Center (ECC): running for more than ten years, the ECC, as the industry initiative, is worth over RMB 30 million. It can realize real-time supervision and remote precision troubleshooting. With information promoting industrialization, it innovatively created SANY's service system of "Unity of man and heaven, synergy among 1st, 2nd and 3rd levels".

GCP, GPS and CSM system: customers can learn the working conditions & key work parameters through SANY's global portal and realize remote supervision. The system also supports parts and service search, providing convenient all-round equipment supervision.

