



ZOOMLION QY25V TRUCK CRANE

TECHNICAL SPECIFICATIONS

QY25V431.1Y/27Y

ZOOMLION HEAVY INDUSTRY SCIENCE & TECHNOLOGY CO., LTD.

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TECHNICAL SPECIFICATIONS

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1. Product characteristics

ZOOMLION QY25V truck crane, which integrates our many years' experience in designing and manufacturing mobile cranes with internationally advanced technology, is a new-generation and high-performance product developed to meet the market demands. Its performances such as lifting height, main boom length, working speed and lifting capacity have achieved advanced international level.

This product is a truck crane of full range slewing function and 3 telescopic boom sections which are controlled manually. The crane adopts self-manufactured 3-axle special purpose chassis with full-cab on the right (6×4 drive), providing wide vision and simple decoration. The engine complies with the National Stage III emission standard.

The adopted latest directional control valve, quadruple pump system and safety devices such as relief valve, balance valves, hydraulic locks and brake valves ensure that each executive mechanism makes full use of its working capability, prevent the accidents caused by oil line overload and oil pipe ruptures and greatly improve the working reliability and safety.

The safety devices such as load moment limiter, and the complete lighting system fitted in the crane ensure your safety during operation and are convenient for night work.

This crane has a novel style which makes it beautiful in figure, in form and in color.

2. Specifications, complete vehicle

2.1 Product model

Model in auto industry: QY25V

2.2 Technical data

Item		Value	Remarks
Working performance	Max. rated lifting capacity kg	25000	
	Max. load moment of basic boom kN.m	980	
	Max. load moment of Max. length boom kN.m	573	
	Max. lifting height of basic boom m	11.5	
	Max. lifting height of main boom m	33.8	These parameters do not include deflection of boom and jib.
	Max. lifting height of jib m	41.6	
Working speeds	Max. hoist rope speed (Main winch) m/min	115	At 4 th layer
	Max. hoist rope speed (Auxiliary winch) m/min	100	At 2 nd layer
	Boom derricking up time s	40	
	Boom telescoping out time s	66.5	
	Slewing speed r/min	0 - 2	
Driving	Max. driving speed km/h	78	
	Max. gradeability %	37	
	Min. turning diameter m	≤22	
	Min. ground clearance mm	220	
	Limits for exhaust pollutants and smoke	Conform to related standard	Comply with GB3847-2005, GB 17691-2005 (National stage III)
	Oil consumption per hundred kilometer L	35	
Weight	Deadweight in driving condition kg	30000	
	Complete vehicle kerb mass kg	29870	
	Front axle load kg	6800	
	Rear axle load kg	23200	
Dimension	Overall dimensions (L×W×H) mm	12900×2500×3780	
	Longitudinal distance between outriggers m	5.36	
	Transversal distance between outriggers m	completely extended: 6.10 m intermediately extended: 4.20 m	
	Main boom length m	10.5 - 33.3	
	Main boom angle °	-2 - 80	
	Jib length m	8.65, 13.55	
	Offset °	5, 17, 30	

2.3 Rated lifting capacity table

This crane is provided with 3 sheets of rated lifting capacity tables. The operator should select proper rated lifting load referring to resp. lifting capacity table according to actual working condition. For detailed values refer to Table 2-1 to Table 2-3.

Table 2-1

Unit: Metric kg

Working radius (m)	Main boom (m)					
	Outriggers completely extended, over side and over rear					
	10.5	14.9	19.5	24.1	28.7	33.3
3.0	25000	17000				
3.5	25000	17000	16000			
4.0	24000	17000	16000			
4.5	22000	17000	16000	11000		
5.0	20000	17000	16000	10800		
5.5	17900	17000	15200	10500	8000	
6.0	16300	16500	14200	10200	8000	
6.5	14900	15200	13200	9800	8000	
7.0	13300	13700	12300	9300	8000	7000
7.5	11900	12300	11600	9000	8000	7000
8.0	10500	11000	11000	8500	7400	6500
9.0	8500	9000	9300	7800	6800	6000
10.0		7500	7800	7200	6300	5500
11.0		6300	6600	6550	5800	5000
12.0		5300	5600	5700	5400	4600
13.0			4800	4950	5000	4200
14.0			4100	4300	4450	4000
15.0			3600	3750	3900	3900
16.0			3100	3300	3400	3500
18.0				2600	2700	2800
20.0				2000	2100	2200
22.0				1650	1700	1800
24.0					1300	1400
26.0					1000	1100
28.0						850

Table 2-2

Unit: Metric kg

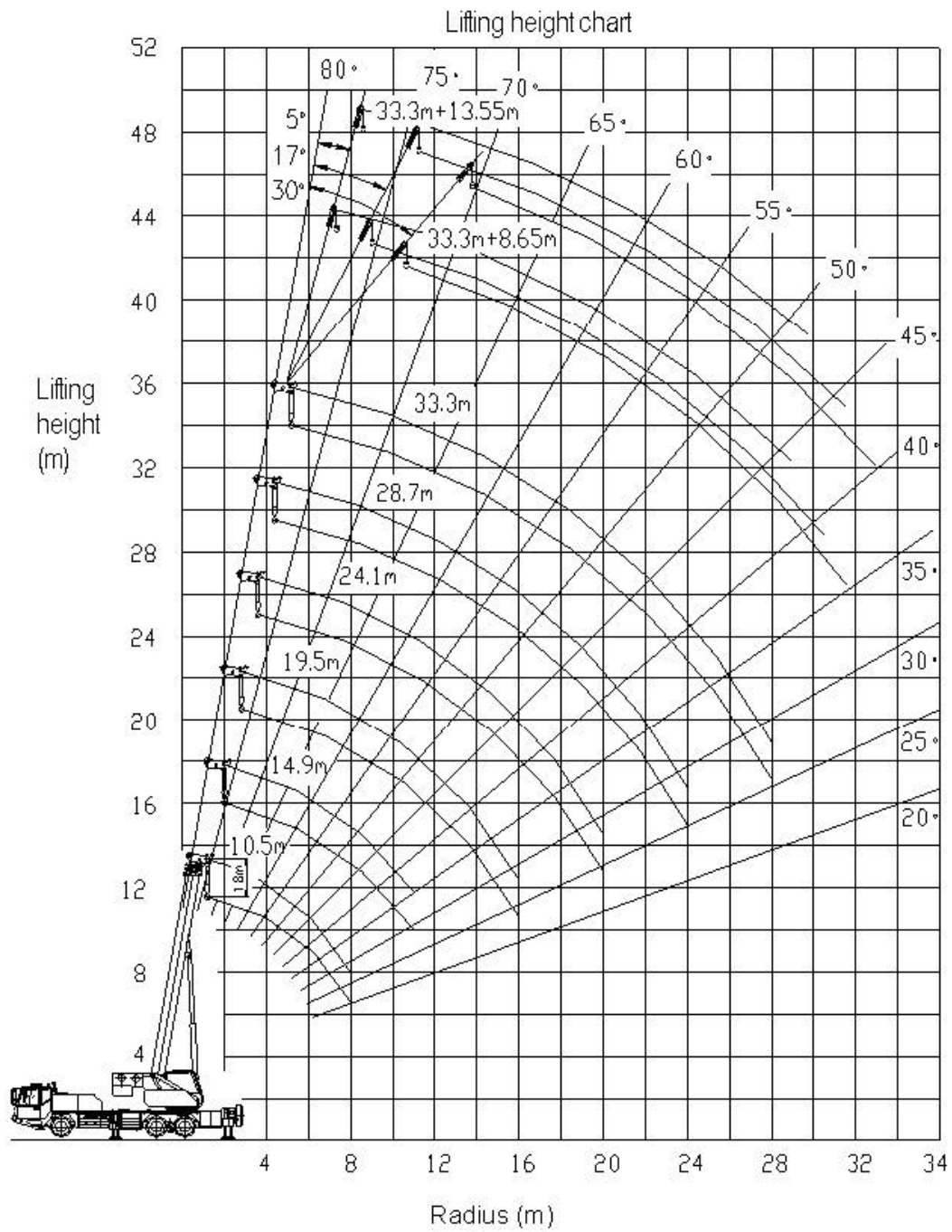
Working radius (m)	Main boom (m)					
	Outriggers intermediately extended, over side and over rear					
	10.5	14.9	19.5	24.1	28.7	33.3
3.0	25000	17000				
3.5	22000	17000	16000			
4.0	20000	17000	16000			
4.5	18000	17000	16000	11000		
5.0	14000	15000	15000	10800		
5.5	11800	12000	12800	10500	8000	
6.0	9800	10000	10800	10200	8000	
6.5	8300	9000	9100	9200	8000	
7.0	7100	7800	8000	8200	8000	7000
7.5	6000	6800	7000	7200	7500	7000
8.0	5200	6000	6200	6300	6500	6300
9.0		4800	5000	5200	5300	5400
10.0		3800	4000	4200	4300	4300
11.0		3000	3200	3500	3600	3700
12.0			2800	2900	3000	3100
13.0			2200	2500	2600	2600
14.0			2000	2200	2200	2200
15.0			1600	1700	1800	1800
16.0			1200	1500	1600	1600
18.0				1200	1200	1200
20.0					800	900
22.0						600

Table 2-3

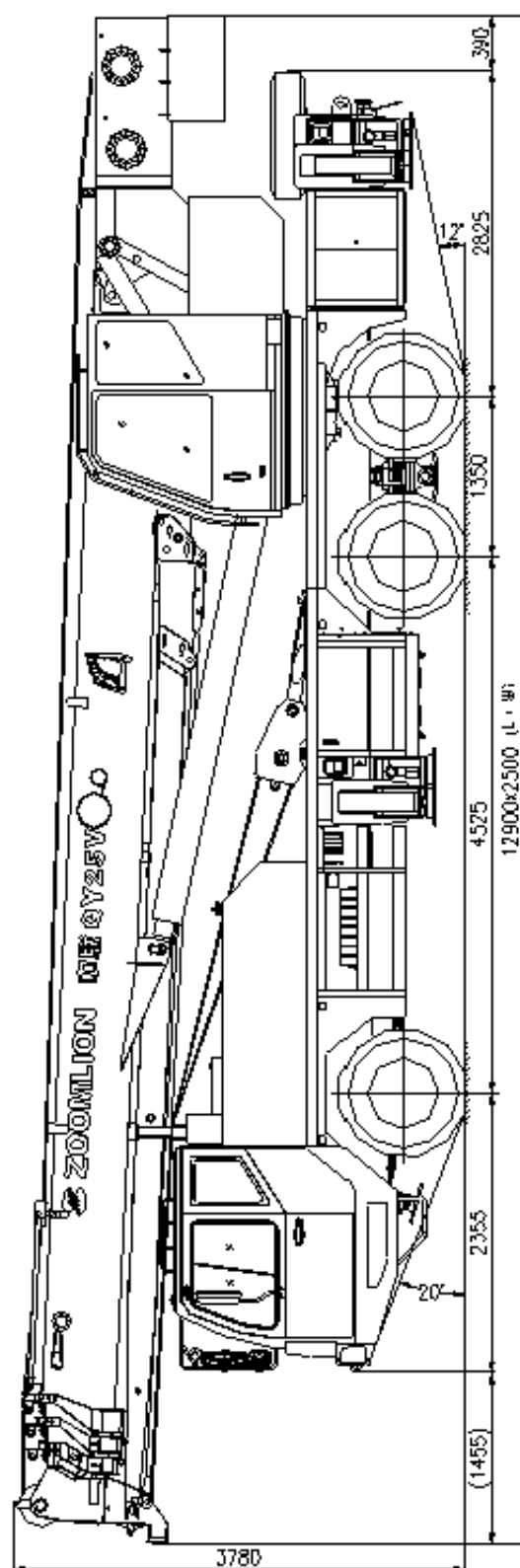
Unit: Metric kg

Main boom angle (°)	Main boom + Jib (m)					
	Outriggers completely extended					
	33.3+8.65			33.3+13.55		
	5°	17°	30°	5°	17°	30°
	over side and over rear	over side and over rear	over side and over rear	over side and over rear	over side and over rear	over side and over rear
80	3000	2200	1600	2000	1300	900
78	3000	2200	1600	2000	1300	900
76	3000	2200	1600	1850	1240	900
74	2750	2050	1550	1680	1150	850
72	2500	1900	1500	1500	1060	810
70	2300	1800	1450	1360	970	770
68	2150	1700	1400	1250	910	740
66	2000	1600	1320	1150	850	700
64	1850	1500	1250	1060	790	670
62	1700	1400	1200	980	740	640
60	1600	1350	1150	900	700	600
58	1480	1250	1080	830	670	570
56	1280	1120	1020	770	640	550
54	1080	1000	980	720	600	530
52	900	810	800	660	570	520
50	750	700	670	570	520	500
45	470	450	430			

2.4 Lifting height chart



2.5 Overall view (unit: Metric mm)



3. Specifications, superstructure

3.1 Main boom and telescoping mechanism

The hexagon and box-shaped main boom consists of 4 boom sections made of low-alloy and high-strength steel, providing the boom with excellent load bearing capacity, light deadweight, large lateral stiffness and small end deflection. Self-created support structure of sliding block and optimized design have the stress on the boom evenly distributed. Thus, boom deformation caused by uneven stress distribution will never occur. Furthermore, the boom has good guidance quality and adjustability.

The boom telescopic sections are telescoped in /out via 1 telescopic cylinder and synchronizing boom extension / retraction wire rope. This compact design makes the crane work reliably. Each cylinder is fitted with a balance valve.

3.2 Jib

It consists of two jib sections and is folded under the main boom when it is not used and can be installed and removed by inserted pins.

Jib section can be assembled below an angle of 5°, 17° or 30° to the telescopic boom according to your needs. The offset can be conveniently changed via the pins and pull bracket.

Jib section 2, box-shaped, can be pulled out from jib section 1.

3.3 Slewing table

Single ribbed plate structured and optimized slewing table, makes the arrangement of articulated points of main boom and derricking mechanism more reasonable. It also has a distinctive structure and beautiful appearance. The engine hood is designed ergonomically.

3.4 Rooster sheave

It is secured at the outside of the top boom section head when it is not used. It can be rotated around the shaft and inserted into the boom head when it is used. This option is set up for rapid hoists over the boom head to improve the working efficiency when the loads are light.

3.5 Derricking mechanism

1 front-mounted hydraulic cylinder with balance valve provides the boom with smooth derricking movements from -2° to 80°.

3.6 Slewing mechanism

Via the planetary gear reducer, the axial plunger hydraulic motor drives the pinion gear on the output shaft to rotate the toothed ring of slewing ring fixed on chassis frame, providing superstructure with 360° unlimited slewing. The slewing mechanism is of controllable and aligning functions, which can make the load be aligned automatically during operation. Slewing cushion valve and normally-closed brake can ensure stable and reliable slewing operation of the crane. 4-point ball-type slewing ring ensures the slewing table with super-strong load bearing capability and long service life.

3.7 Hoist mechanism

It consists of main and auxiliary hoist mechanisms. The hydraulic motor drives the grooved drum to lift and lower the hook via planetary gear reducer. A brake is fitted between the motor and reducer. The main winch and auxiliary winch can work independently or simultaneously. Models of main and auxiliary winch reducers and motors are the same. Also, the main and auxiliary winches are driven by variable displacement motors. The main winch is also equipped with a lowering limit switch. The built-in two-stage planetary gear reducer has such advantages as compact structure, light deadweight and high reliability.

Specifications of high-tensile torsion resistant hoist rope:

Diameter: $\phi 17.0\text{mm}$

Strength grade: 1870N/mm^2 , 1910N/mm^2 , 1960N/mm^2

Main hoist rope length: 160m

Auxiliary hoist rope length: 95m

3.8 Main and auxiliary hooks

Rotatable main hook: 25t, with 4 pulleys, press nipple and hook safety device

Rotatable auxiliary hook (1 reeving): 3 t, with and hook safety device

3.9 Operator's cab

It is of steel-structure welded with front-mounted instrument console and adjustable seat with headrest. It is equipped with control levers, windshield wiper, washing system, optional air conditioning and heater. The arrangement provides spacious operating space, reasonable arrangement, human-based design, convenient and safe operation

3.10 Outriggers

H-type outriggers in box-shaped structure are welded by low-alloy and high-strength steel. After

simulation design by PRO-E and actual-used calculation, the outriggers are of good sectional performance and strong load bearing capacity. The horizontal sliding beam is extended / retracted with the horizontal cylinder. Large outrigger span ensures stability of the crane. The outrigger pad is mounted at the bottom of vertical cylinder and can be pushed or pulled horizontally. When the outriggers are completely extended or retracted, they can be locked with retaining pins. The outrigger control levers, which are manual controlled, are installed on both sides of chassis frame and can be operated simultaneously or independently. Each vertical cylinder is equipped with a two-way hydraulic lock to ensure stable and reliable operation of the crane.

The 5th outrigger is installed beneath the driver's cab. When the 5th outrigger is set up, the crane can realize full range slewing operation.

3.11 Hydraulic system

It is an open hydraulic system. The 5 manual-operated control levers are used for controlling the slewing, telescoping, derricking and main hoist and auxiliary hoist mechanism respectively. The adopted anti-pollution bite-type fitting ensures the high reliability and cleanliness of hydraulic system. The main power element is the quadruple pump. Among which, two pumps work together to supply hydraulic oil for main hoist mechanism, auxiliary hoist mechanism, derricking mechanism and telescoping mechanism; the third pump supplies hydraulic oil for chassis hydraulic system, slewing mechanism and air conditioning fitted in the operator's cab; and the minimum pump supplies stable hydraulic oil for the control oil lines.

The outrigger control valves are new-type manual multiple directional control valves to control the horizontal and vertical cylinders' movements. Each of them is fitted with a pressure limiting valve, thus, can prevent the piston rods of horizontal cylinders from bending. They can be operated independently or simultaneously on both sides of the vehicle.

3.12 Electrical system

Single wire system, negative grounded, 24 Volt DC.

The electrical system of the superstructure includes the devices such as battery master switch, ignition starter switch, engine off button, control light "Power source", warning light "Main / auxiliary winch approaching upper limit", warning light "Main / auxiliary winch approaching lower limit", warning light "The 5th outrigger pressure too high", hoisting limit switch, lowering limit switch, overload protection device, illumination, fan, windshield wiper, horn, oil cooler fan and air conditioning etc., ensuring safe operation and providing good working environment.

In an emergency, press the red emergency-off switch to cut off the power supply so as to ensure the safety of operation.

3.13 Safety devices

This crane is equipped with an automatic load moment limiter whose display and warning

devices are fitted in the operator's cab.

When the actual load approaches 90% of the rated one, the warning light will light up and buzzer will send out acoustic warning.

When the actual load reaches 100% of the rated one, the load moment limiter will send out a stop signal automatically and will cut off all dangerous crane movements via superstructure control circuit and control mechanism.

The basic parameters, such as moment ratio, boom angle, boom length, working radius, actual lifting capacity and rated lifting capacity will be displayed on the digital LCD.

This crane is also equipped with the following safety devices to ensure safety of the crane.

- a) Boom angle indicator
- b) Hoisting limit switch
- c) Hook safety device
- d) Lowering limit switch
- e) The 5th outrigger overpressure protection device
- f) Two-way hydraulic lock
- g) Balance valve
- h) Relief valve

3.14 Air conditioning

The air conditioning special for vehicle is optional.

4 Specifications, chassis

Chassis	Engine	Model	WP10.270
		Rated power kW/r/min	199/2200
		Max. output torque N.m/r/min	1100/1200 - 1600
		Manufacturer	Weichai Power Co., Ltd.
	Model		ZLJ5325
	Type		II
	Code		ZLJ5325V3.3Y
	Limits for exhaust pollutants and smoke		GB3847-2005,GB17691-2005 (National stage III)
	Manufacturer		Zoomlion Heavy Industry Science & Technology Co., Ltd.

For detailed information, please refer to the *Technical Specifications, Special Purpose Chassis for Truck Crane*.

Appendix

Table of main purchased parts and manufacturers

No.	Description	Manufacturer	Remarks
1	Main valve	Changde Zoomlion Heavy Industry Science & Technology Hydraulic Co., Ltd.	
2	Main pump	Xuzhou Keyuan Hydraulic Co., Ltd. Tongshan County Branch Company	
		Wuxi Interpump Weifu Hydraulics Co., Ltd.	
		Jinan Hydraulic Pump Co., Ltd.	
3	Winch motor	Avic Liyuan Hydraulic Co., Ltd.	
		Beijing Huade Hydraulic Industrial Co., Ltd.	
		Shanghai Electric Hydraulic and Pneumatic Co., Ltd. Hydraulic Pump Factory	
4	Winch reducer	Xuzhou Keyuan Hydraulic Co., Ltd. Tongshan County Branch Company	
		Bosch Rexroth (Beijing) Hydraulic Co., Ltd.	
		Shanghai Wanhui Mechanical Manufacture Co., Ltd.	
5	Slewing motor	Shanghai Electric Hydraulic and Pneumatic Co., Ltd. Hydraulic Pump Factory	
		Shanghai Wanhui Mechanical Manufacture Co., Ltd.	
		Gansu Province Linxia Hydraulic Pressure Factory	
6	Slewing reducer	Shanghai Wanhui Mechanical Manufacture Co., Ltd.	
		Xuzhou Keyuan Hydraulic Co., Ltd. Tongshan County Branch Company	
		Bosch Rexroth (Beijing) Hydraulic Co., Ltd.	
7	Slewing ring	Xuzhou Rothe Erde Slewing Ring Co., Ltd.	
		Yantai Haoyang Mechanical Co., Ltd.	
8	Telescopic cylinder	Hunan Teli Hydraulic Co., Ltd.	
		Chengdu Cheng Cylinder Hydraulic Equipment Manufacture Co., Ltd.	
9	Derricking cylinder	Hunan Teli Hydraulic Co., Ltd.	
		Chengdu Cheng Cylinder Hydraulic Equipment Manufacture Co., Ltd.	
10	Horizontal cylinder	Hunan Teli Hydraulic Co., Ltd.	

No.	Description	Manufacturer	Remarks
		Zhangjiakou Changcheng Hydraulic Oil Cylinder Co., Ltd.	
11	Vertical cylinder	Hunan Teli Hydraulic Co., Ltd.	
		Zhangjiakou Changcheng Hydraulic Oil Cylinder Co., Ltd.	
12	Balance valve – telescoping mechanism	Changde Zoomlion Heavy Industry Science & Technology Hydraulic Co., Ltd.	
		Ningbo Jiangbei Yuzhou Hydraulic Equipment Factory	
13	Balance valve – derricking mechanism	Changde Zoomlion Heavy Industry Science & Technology Hydraulic Co., Ltd.	
		Ningbo Jiangbei Yuzhou Hydraulic Equipment Factory	
14	Balance valve – hoist mechanism	Changde Zoomlion Heavy Industry Science & Technology Hydraulic Co., Ltd.	
		Ningbo Jiangbei Yuzhou Hydraulic Equipment Factory	
15	Wire rope	Hubei Fuxing Science and Technology Co., Ltd.	
		Juli Sling Co., Ltd.	
		Jiangsu Safety Steel Rope Co., Ltd.	
		Wuxi Universal Steel Rope Co., Ltd.	
		Xianyang Baoshi Steel Pipe and Steel Rope Co., Ltd.	
16	Hook	Shangdong Hong Ruida Mechanical Co., Ltd.	
		Xuzhou Da Changshi Construction Mechanical Co., Ltd.	
		Changsha Lanying Industry Co., Ltd.	
17	Load moment limiter	Changsha Huade Science and Technology Development Co., Ltd.	
18	Operator's cab assy.	Hubei Qixing Vehicle-Body Limited Company	
		Shenzhou Automobile Internal Ornament Co., Ltd.	
		Hunan Changsha Flat Head Automobile Body Manufacture Factory	

Note: The equipment fitted in the crane is subject to change due to product design or other reasons. Therefore, the above table is for reference only.