

Table 125 Rated capacity chart with boom and jib

Unit: t

Boom angle (°)	Boom (m) + jib (m), outriggers fully extended, 18.3t (2.7t + 15.6t moved backward)											
	60.5+10.4			60.5+17.5			66.0+10.4			66.0+17.5		
	0°	15°	30°	0°	15°	30°	0°	15°	30°	0°	15°	30°
82	6.5	5.5	5.0	4.0	3.2	2.5	5.4	4.4	4.0	3.6	2.8	2.3
80	6.5	5.5	5.0	4.0	3.0	2.4	5.1	4.2	3.9	3.4	2.6	2.2
78	6.5	5.5	5.0	3.8	2.8	2.3	4.8	4.0	3.8	3.2	2.4	2.1
76	5.9	5.0	4.6	3.6	2.6	2.2	4.5	3.8	3.6	3.0	2.3	2.0
74	5.4	4.6	4.3	3.3	2.5	2.1	<u>4.2</u>	3.6	3.4	2.8	2.2	1.9
72	<u>5.0</u>	<u>4.3</u>	4.0	3.1	2.4	2.05	3.9	<u>3.4</u>	<u>3.2</u>	2.6	2.1	1.8
70	4.4	4.0	<u>3.7</u>	2.9	2.3	2.0	3.5	3.2	3.0	<u>2.4</u>	2.0	1.7
68	3.8	3.5	3.3	2.7	2.2	1.9	2.9	2.7	2.5	2.2	<u>1.9</u>	1.6
66	3.2	3.0	2.8	<u>2.5</u>	2.1	1.85	2.4	2.2	2.1	2.0	1.8	<u>1.5</u>
64	2.7	2.5	2.4	2.2	<u>2.0</u>	<u>1.8</u>	1.9	1.8	1.7	1.6	1.4	1.3
62	2.2	2.1	2.0	1.9	1.7	1.6	1.5	1.4	1.3	1.3	1.1	1.0
60	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.0	1.0	0.9	0.8
58	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.85	0.8			
56	1.2	1.1	1.0	1.0	0.9	0.8						
54	0.9	0.85	0.8									
52												
50												
48												
46												
44												
42												
40												
Reeving	1											
Hook	8t											

Table 126 Rated capacity chart with boom and jib

Unit: t

Boom angle (°)	Boom (m) + jib (m), outriggers fully extended, 18.3t											
	60.5+10.4			60.5+17.5			66.0+10.4			66.0+17.5		
	0°	15°	30°	0°	15°	30°	0°	15°	30°	0°	15°	30°
82	6.5	5.5	5.0	4.0	3.2	2.5	5.4	4.4	4.0	3.6	2.8	2.3
80	6.5	5.5	5.0	4.0	3.0	2.4	5.1	4.2	3.9	3.4	2.6	2.2
78	6.5	5.5	5.0	3.8	2.8	2.3	4.8	4.0	3.8	3.2	2.4	2.1
76	5.9	5.0	4.6	3.6	2.6	2.2	4.5	3.8	3.6	3.0	2.3	2.0
74	<u>5.4</u>	4.6	4.3	3.3	2.5	2.1	<u>4.2</u>	<u>3.6</u>	<u>3.4</u>	2.8	2.2	1.9
72	4.8	<u>4.2</u>	<u>4.0</u>	3.1	2.4	2.05	3.8	3.4	3.2	2.6	2.1	1.8
70	4.1	3.7	3.5	2.9	2.3	2.0	3.2	2.9	2.7	<u>2.4</u>	2.0	1.7
68	3.5	3.2	3.0	<u>2.7</u>	2.2	1.9	2.6	2.4	2.3	2.1	<u>1.8</u>	<u>1.6</u>
66	2.9	2.7	2.5	2.4	<u>2.1</u>	<u>1.8</u>	2.1	2.0	1.9	1.7	1.5	1.4
64	2.4	2.3	2.1	2.0	1.8	1.6	1.7	1.6	1.5	1.4	1.2	1.1
62	2.0	1.9	1.7	1.6	1.5	1.3	1.3	1.2	1.1	1.1	0.9	0.8
60	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.85	0.9		
58	1.3	1.2	1.1	1.0	0.9	0.8						
56	1.0	0.9	0.85	0.8								
54												
52												
50												
48												
46												
44												
42												
40												
Reeving	1											
Hook	8t											

Table 127 Rated capacity chart with boom and jib

Unit: t

Boom angle (°)	Boom (m) + jib (m), outriggers fully extended, 15.8t (2.7t + 13.1t moved backward)											
	60.5+10.4			60.5+17.5			66.0+10.4			66.0+17.5		
	0°	15°	30°	0°	15°	30°	0°	15°	30°	0°	15°	30°
82	6.5	5.5	5.0	4.0	3.2	2.5	5.4	4.4	4.0	3.6	2.8	2.3
80	6.5	5.5	5.0	4.0	3.0	2.4	5.1	4.2	3.9	3.4	2.6	2.2
78	6.5	5.5	5.0	3.8	2.8	2.3	4.8	4.0	3.8	3.2	2.4	2.1
76	5.9	5.0	4.6	3.6	2.6	2.2	<u>4.5</u>	3.8	3.6	3.0	2.3	2.0
74	<u>5.4</u>	<u>4.6</u>	4.3	3.3	2.5	2.1	4.2	<u>3.6</u>	<u>3.4</u>	2.8	2.2	1.9
72	4.7	4.3	<u>4.0</u>	3.1	2.4	2.05	3.7	3.4	3.2	<u>2.6</u>	2.1	1.8
70	4.0	3.6	3.4	2.9	2.3	2.0	3.1	2.8	2.7	2.4	<u>2.0</u>	1.7
68	3.4	3.1	2.9	<u>2.7</u>	2.2	1.9	2.5	2.3	2.3	2.1	1.8	<u>1.6</u>
66	2.8	2.6	2.4	2.3	<u>2.0</u>	<u>1.8</u>	2.0	1.9	1.8	1.7	1.5	1.4
64	2.3	2.1	2.0	1.9	1.7	1.6	1.6	1.5	1.4	1.3	1.2	1.1
62	1.9	1.7	1.6	1.6	1.4	1.3	1.2	1.1	1.0	1.0	0.9	0.8
60	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.85	0.8			
58	1.2	1.1	1.0	0.9	0.85	0.8						
56	0.9	0.85	0.8									
54												
52												
50												
48												
46												
44												
42												
40												
Reeving	1											
Hook	8t											

Table 128 Rated capacity chart with boom and jib

Unit: t

Boom angle (°)	Boom (m) + jib (m), outriggers fully extended, 15.8t counterweight											
	60.5+10.4			60.5+17.5			66.0+10.4			66.0+17.5		
	0°	15°	30°	0°	15°	30°	0°	15°	30°	0°	15°	30°
82	6.5	5.5	5.0	4.0	3.2	2.5	5.4	4.4	4.0	3.6	2.8	2.3
80	6.5	5.5	5.0	4.0	3.0	2.4	5.1	4.2	3.9	3.4	2.6	2.2
78	6.5	5.5	5.0	3.8	2.8	2.3	4.8	4.0	3.8	3.2	2.4	2.1
76	<u>5.9</u>	5.0	4.6	3.6	2.6	2.2	<u>4.5</u>	<u>3.8</u>	<u>3.6</u>	3.0	2.3	2.0
74	<u>5.3</u>	<u>4.6</u>	<u>4.3</u>	3.3	2.5	2.1	4.2	3.6	3.4	2.8	2.2	1.9
72	4.5	4.0	3.8	3.1	2.4	2.05	3.5	3.1	2.9	<u>2.6</u>	2.1	1.8
70	3.7	3.4	3.2	<u>2.9</u>	2.3	2.0	2.9	2.6	2.4	2.3	<u>2.0</u>	<u>1.7</u>
68	3.1	2.8	2.7	2.5	<u>2.2</u>	<u>1.9</u>	2.3	2.1	2.0	1.9	1.6	1.5
66	2.6	2.4	2.2	2.1	1.8	1.7	1.8	1.7	1.6	1.5	1.3	1.2
64	2.1	1.9	1.8	1.7	1.5	1.4	1.4	1.3	1.2	1.2	1.0	0.9
62	1.7	1.55	1.5	1.4	1.2	1.1	1.0	0.95	0.9	0.9		
60	1.3	1.2	1.15	1.1	1.0	0.9						
58	1.0	0.9	0.85	0.8								
56												
54												
52												
50												
48												
46												
44												
42												
40												
Reeving	1											
Hook	8t											

Table 129 Rated capacity chart with boom and jib

Unit: t

Boom angle (°)	Boom (m) +jib (m), outriggers fully extended, 9.1t (2.7t + 6.4t moved backward)											
	60.5+10.4			60.5+17.5			66.0+10.4			66.0+17.5		
	0°	15°	30°	0°	15°	30°	0°	15°	30°	0°	15°	30°
82	6.5	5.5	5.0	4.0	3.2	2.5	5.4	4.4	4.0	3.6	2.8	2.3
80	<u>6.5</u>	5.5	5.0	4.0	3.0	2.4	<u>5.1</u>	<u>4.2</u>	<u>3.9</u>	3.4	2.6	2.2
78	6.5	<u>5.5</u>	<u>5.0</u>	3.8	2.8	2.3	4.8	4.0	3.8	3.2	2.4	2.1
76	5.4	4.7	4.3	3.6	2.6	2.2	4.2	3.8	3.4	<u>3.0</u>	2.3	2.0
74	4.4	3.9	3.6	<u>3.3</u>	2.5	2.1	3.4	3.1	2.8	2.7	<u>2.2</u>	<u>1.9</u>
72	3.6	3.2	3.0	2.9	<u>2.3</u>	<u>2.0</u>	2.7	2.4	2.2	2.2	1.9	1.6
70	2.9	2.6	2.4	2.4	2.0	1.8	2.1	1.9	1.7	1.7	1.5	1.3
68	2.3	2.1	1.9	1.9	1.6	1.4	1.6	1.4	1.3	1.3	1.1	1.0
66	1.7	1.6	1.5	1.4	1.2	1.1	1.1	1.0	0.9	0.9	0.8	
64	1.3	1.2	1.1	1.0	0.9	0.8						
62	0.9	0.85	0.8									
60												
58												
56												
54												
52												
50												
48												
46												
44												
42												
40												
Reeving	1											
Hook	8t											

Table 130 Rated capacity chart with boom and jib

Unit: t

Boom angle (°)	Boom (m) + jib (m), outriggers fully extended, 9.1t counterweight											
	60.5+10.4			60.5+17.5			66.0+10.4			66.0+17.5		
	0°	15°	30°	0°	15°	30°	0°	15°	30°	0°	15°	30°
82	6.5	5.5	5.0	4.0	3.2	2.5	5.4	4.4	4.0	3.6	2.8	2.3
80	<u>6.5</u>	5.5	5.0	4.0	3.0	2.4	<u>5.1</u>	<u>4.2</u>	<u>3.9</u>	3.4	2.6	2.2
78	6.3	<u>5.5</u>	<u>4.8</u>	3.8	2.8	2.3	4.8	4.0	3.8	3.2	2.4	2.1
76	5.2	4.5	4.2	3.6	2.6	2.2	4.1	3.7	3.3	<u>3.0</u>	2.3	2.0
74	4.3	3.8	3.5	<u>3.3</u>	2.5	2.1	3.3	2.9	2.7	2.6	<u>2.1</u>	<u>1.9</u>
72	3.5	3.1	2.9	2.8	<u>2.3</u>	<u>2.0</u>	2.6	2.3	2.1	2.1	1.8	1.5
70	2.8	2.5	2.3	2.3	1.9	1.7	2.0	1.8	1.6	1.6	1.4	1.2
68	2.2	2.0	1.8	1.8	1.5	1.3	1.4	1.3	1.2	1.2	1.0	0.9
66	1.6	1.5	1.4	1.3	1.1	1.0	1.0	0.9	0.8	0.85		
64	1.2	1.1	1.0	0.95	0.85	0.8						
62	0.8											
60												
58												
56												
54												
52												
50												
48												
46												
44												
42												
40												
Reeving	1											
Hook	8t											

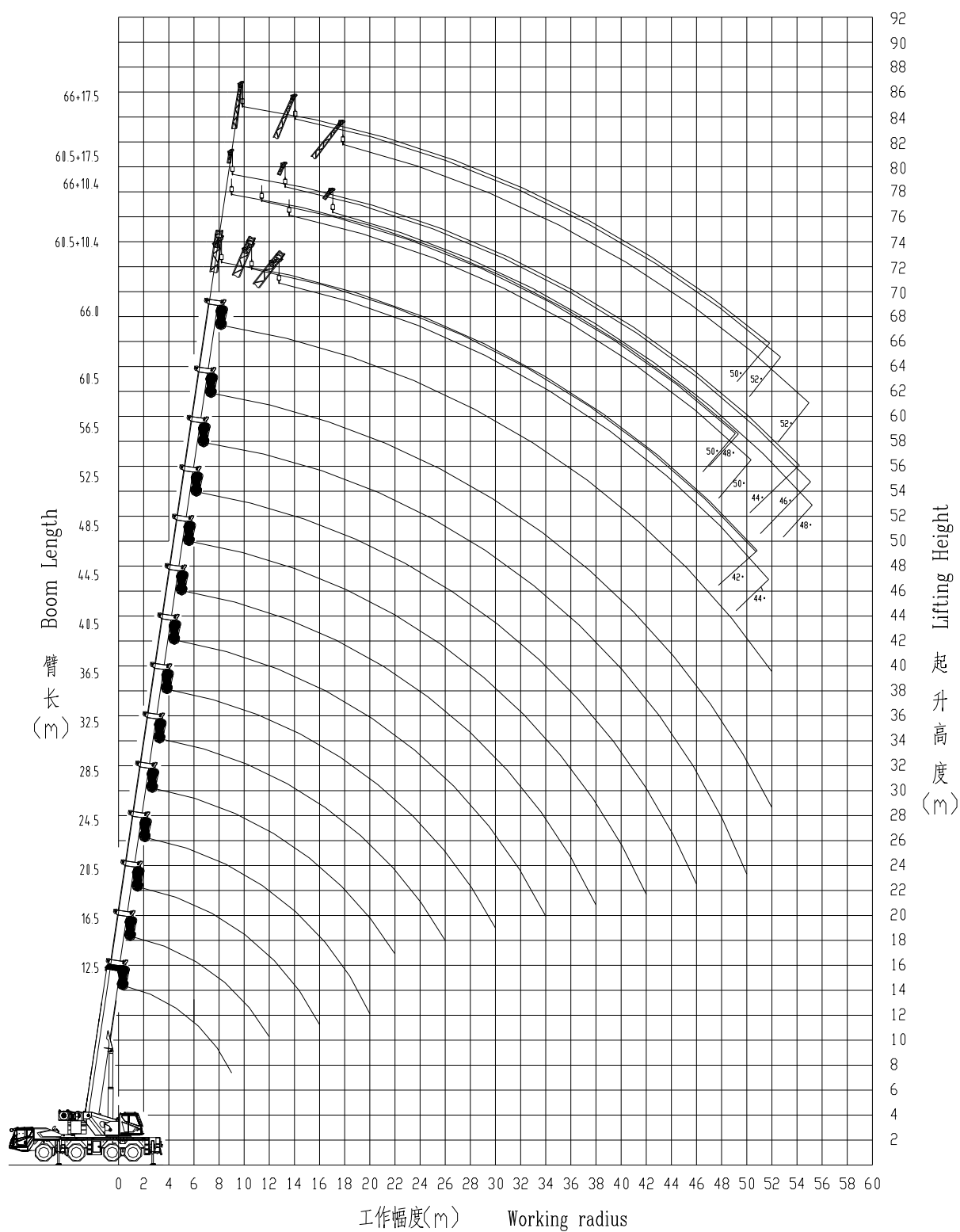
Table 131 Rated capacity chart with boom and jib

Unit: t

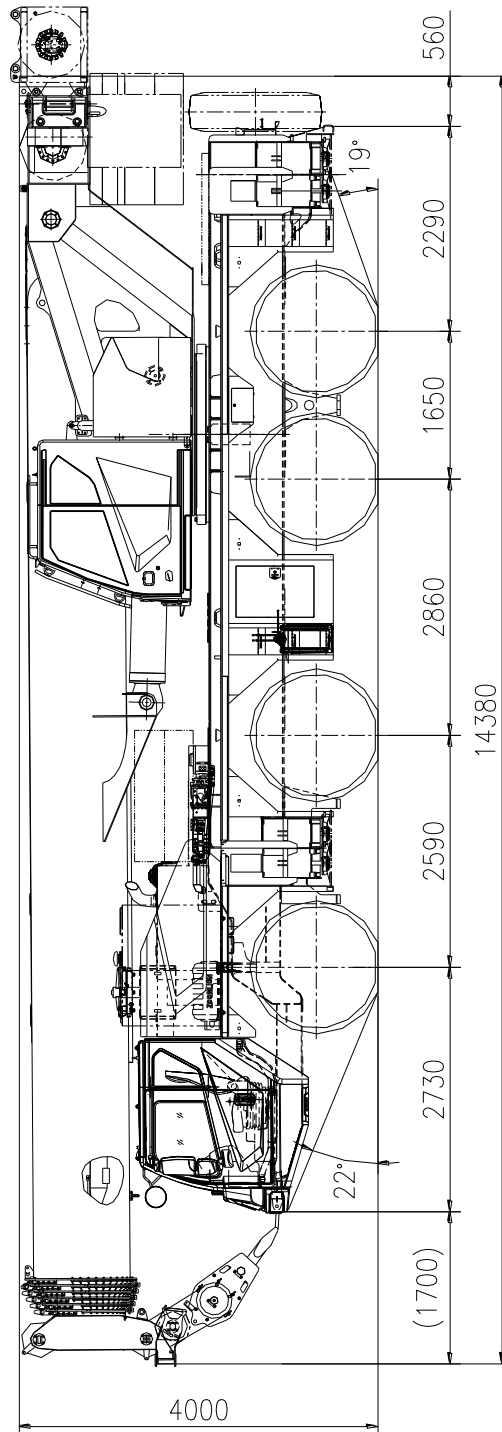
Boom angle (°)	Boom (m) +jib (m), outriggers fully extended, 2.7t counterweight											
	60.5+10.4			60.5+17.5			66.0+10.4			66.0+17.5		
	0°	15°	30°	0°	15°	30°	0°	15°	30°	0°	15°	30°
82	<u>6.5</u>	<u>5.5</u>	<u>5.0</u>	4.0	3.2	2.5	5.4	4.4	4.0	3.6	2.8	2.3
80	6.0	5.0	4.7	4.0	3.0	2.4	4.7	4.2	3.5	<u>3.4</u>	2.6	2.2
78	5.2	4.5	3.8	<u>3.6</u>	2.8	2.3	4.0	3.4	3.0	3.0	<u>2.3</u>	<u>2.0</u>
76	4.0	3.5	3.0	3.0	<u>2.6</u>	<u>2.1</u>	3.0	2.6	2.3	2.3	1.9	1.6
74	3.1	2.7	2.4	2.4	1.9	1.7	2.2	1.9	1.7	1.8	1.4	1.2
72	2.3	2.0	1.8	1.8	1.5	1.3	1.5	1.3	1.2	1.3	1.0	0.8
70	1.6	1.4	1.3	1.3	1.1	1.0	1.0	0.85	0.8	0.8		
68	1.1	1.0	0.9	0.9								
66												
64												
62												
60												
58												
56												
54												
52												
50												
48												
46												
44												
42												
40												
Reeving	1											
Hook	8t											

2.4 Lifting height chart

起升高度曲线 Lifting height curve



2.5 Overall view (Unit: Metric mm)



3 Components, superstructure

3.1 Boom and telescoping mechanism

The boom consists of 7 oval boom sections made of $\delta s=960\text{MPa}$ high strength structural steel, providing the boom with excellent bending-resistance capacity, super load bearing capacity, light deadweight, large lateral stiffness and small end deflection. The boom head adopts new plate-type structure, realizing larger lapping ratio between boom sections, and matching with embedded sliding blocks. A series of optimized design have the deadweight of the boom greatly decreased and the stress on the boom evenly distributed to avoid partial distortion. Furthermore, the boom has good guidance quality and adjustability. .

The telescopic boom sections are telescoped in / out via the single-cylinder pinning mechanism with interlocking device, which can realize mechanical interlock and telescoping in order.

3.2 Jib

It consists of two jib sections. They are folded on the side of boom when not used and can be installed and removed by inserted pins.

The two jib sections are of a reducing and lattice structure.

Jib section 1 is articulated on the head of top boom section with pins and can be assembled below an angle of 0° , 15° or 30° to the telescopic boom according to your needs. The angle can be conveniently changed via the pins and pull bracket.

Jib length:

Jib section 1: 10.4 m

Jib section 1 + jib section 2: 17.5 m

3.3 Slewing platform

Single ribbed plate structured and optimized slewing platform made from high-strength steel plate makes the layout of articulated points of boom and derricking mechanism more reasonable. It also has a novel style and beautiful figure.

The engine hood is of a human-based layout.

An interlocking mechanism is installed at the front end, so as to prevent the superstructure from rotating during crane travelling process.

3.4 Rooster sheave

It is secured at the outside of the boom head when it is not used. It can be rotated around the shaft and pinned onto 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 safety balance valve provides the boom with smooth derricking movements from -1° to 83° .

3.6 Slewing mechanism

There are two reducers installed in the slewing mechanism. Via the planetary gear reducer, the axial plunger hydraulic motor drives the pinion gear on the output shaft to rotate the exterior

toothed ring of slewing ring fixed on chassis frame, providing superstructure with 360° unlimited slewing.

The slewing mechanism is of controllable aligning function, 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 contact ball-type slewing ring ensures the slewing platform with super-strong load bearing capability and long service life.

3.7 Hoist mechanism

It consists of main and auxiliary hoist mechanisms (the auxiliary winch is optional).

The two hoist mechanisms are driven by hydraulic variable motor with built-in planetary gear reducer to lift or lower the hook. A brake is fitted between the motor and reducer.

The two winch mechanisms can be controlled independently and also can carry out simultaneous movements.

Models of main and auxiliary winch reducers are the same.

Main and auxiliary winch adopt variable pumps.

The lowering limit switch is fitted on the main winch.

The built-in planetary reducer is of compact structure, light deadweight and high reliability.

Specifications for high-tensile torsion resistant hoist rope:

Diameter: $\phi 20.0$ mm

Strength grade: 1960 N/mm²

Length of main hoist rope: 310 m

Length of auxiliary hoist rope: 220 m

3.8 Main and auxiliary hooks

Main hook: 60 t, with 5 pulleys, installed with a mounting lug at the end of the wire rope and an anti-slipping and anti-rotation hook latch

Auxiliary hook (1 reeving): 8 t, installed with an anti-twist and anti-slipping hook latch

Optional: 35t single hook, with 3 pulleys; 60t anchor hook, 70t/80t single hook, with 6 pulleys; 90t anchor hook with 7 pulleys.

3.9 Operator's cab

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

A cab tilting mechanism is a standard configuration which can tilt the cab by maximum 20 degrees.

3.10 Outriggers

H-type outriggers, which are in box-shaped structure and welded of low-alloy and high-strength steel plate, are of good sectional performance and strong load bearing capability via finite element analysis and simulated design.

One-section horizontal outrigger beam can be extended and retracted with a horizontal cylinder and a set of outrigger extension / retraction rope.

After the outriggers are fully extended or retracted, the outrigger pads can be locked with retaining pins.

Manual outrigger control levers are fitted on both sides of the vehicle for controlling the outriggers to extend or retract simultaneously or independently. Each vertical cylinder is equipped with a two-way hydraulic lock to ensure stable and reliable operation of the crane.

In addition, the crane also can work with outriggers intermediately extended for narrow area operation.

3.11 Hydraulic system

The superstructure hydraulic system is controlled in the electro-hydraulic proportional way through the integrated load moment limiter. The hydraulic system is an open-type variable system with small hydraulic losses, high working efficiency, fine movements, stable and reliable operations and stepless speed adjustment.

A counterweight handler is installed to ensure sound starting and braking performance and high reliability.

3.12 Electrical system

Double-wire system, 24 Volt DC.

The electrical system consists of superstructure electrical system and chassis electrical system.

The electrical system of superstructure includes the devices such as warning light "Main / auxiliary winch approaching upper limit", warning light "Main / auxiliary winch approaching lower limit", hoisting limit switch, lowering limit switch, overload protection device, emergency off switch etc., ensuring safe operation and providing good working environment.

The electrical system of chassis includes the USB / SD / MP3 player, air conditioning and heater etc, ensuring the safety driving performance and providing comfortable driving environment.

3.13 Safety devices

This crane is equipped with an automatic load moment limiter whose display and warning devices are all fitted in operator's cab.

If the actual load reaches 90% of the rated one, the warning light lights up and the buzzer sends out slow acoustic warning.

If the actual load approaches 100% of the rated one, the warning light lights up, the buzzer sends out fast acoustic warning and all dangerous movements are switched off.

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

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

- a) Hoisting limit switch
- b) Hook safety device
- c) Lowering limit switch
- d) Two-way hydraulic lock
- e) Balance valve
- f) Relief valve
- g) Wireless remote counterweight controller

3.14 Air conditioning and heater

The operator's cab is equipped with special air conditioning and heater for vehicle.

3.15 Counterweight

The weight of the under-slung movable counterweight is 31.3 t in total (with two optional 4.5 t side counterweight plates). Different combinations can be selected based on work need.

The counterweight system consists of one 1t fixed counterweight plate, one 2.7t auxiliary counterweight plate, one 3t upper movable counterweight plate, one 2.5t middle movable

counterweight plate I, one 6.7 t middle counterweight plate II, one 6.4t lower counterweight plate, and two $4.5 \times 2 = 9$ t side counterweight plates, which are 31.3t in total.

3.16 Travelling status

Travelling status 1: the total mass of the whole crane is 48t. The crane is installed with the main hook and 1t fixed counterweight plate, and without the jib and auxiliary hook. The single axle load is 12t and the crane can drive at the highest speed of 80km/h.

Travelling status 2: the total mass of the whole crane is 58t. The crane is installed with the main hook, rooster sheave, outrigger pads, 1t fixed counterweight, jib, 2.7 t auxiliary counterweight, and 6.4t lower movable counterweight. The single axle load is 14.5t and the crane can drive at the highest speed of 70km/h.

Travelling status 3: the total mass of the whole crane is 66t. The crane is installed with the main hook, 1t fixed counterweight, jib, 2.7 t auxiliary counterweight, 6.4t lower movable counterweight, 2.5t middle counterweight plate I, and 6.7t middle counterweight plate II. The single axle load is 16.5t and the crane can drive at the highest speed of 30km/h.

4 Specifications, chassis

Chassis	Engine	Model	WP12.460E50
		Rated power kW/r/min	338/1900
		Max. output torque N.m/r/min	2110/1000-1400
		Manufacturer	Wiechai Power Co., Ltd.
	Model		ZLJ5480JQZV5
	Type		Class II
	Code		ZLJ5480JQZV5
	Limits for exhaust pollutants and smoke		Comply with Euro V emission standard
	Manufacturer		Zoomlion Heavy Industry Science & Technology Co., Ltd.

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

Appendix

Table – Main purchased parts and manufacturers

Ser. No.	Description	Manufacturer	Remarks
1	Main valve	Changde Zoomlion Hydraulic Co., Ltd.	
2	Plunger pump (variable pump)	Hi-tech Hydraulic Co., Ltd.	
		Liyuan Hydraulic (Suzhou) Co., Ltd.	
	Dual gear pumps	Hefei Wanye Hydraulic Co., Ltd.	
3	Winch motor	Hi-tech Hydraulic Co., Ltd.	
4	Winch reducer	Zhuzhou Gear Co., Ltd.	
		Taian Taishan Fusheng Gear Co., Ltd.	
5	Slewing motor	Avic Liyuan Hydraulic Co., Ltd.	
		Beijing Huade Hydraulic Industry Co., Ltd.	
		Hi-tech Hydraulic Co., Ltd.	
6	Slewing reducer	Zhuzhou Gear Co., Ltd.	
		Taian Taishan Fusheng Gear Co., Ltd.	
7	Slewing ring	Yantai Haoyang Mechanical Co., Ltd.	
8	Telescopic cylinder	Hunan Teli Hydraulic Co., Ltd.	
9	Derricking cylinder	Hunan Teli Hydraulic Co., Ltd.	
10	Horizontal cylinder	Hunan Teli Hydraulic Co., Ltd.	
11	Vertical cylinder	Hubei Jiaheng Technology Co., Ltd.	
		Hunan Teli Hydraulic Co., Ltd.	
12	Balance valve – telescoping mechanism	Hubei Jiaheng Technology Co., Ltd.	
		Hunan Teli Hydraulic Co., Ltd.	
13	Balance valve – derricking mechanism	Changde Zoomlion Heavy Industry Science & Technology Hydraulic Co., Ltd.	
14	Balance valve – hoist mechanism	Changde Zoomlion Heavy Industry Science & Technology Hydraulic Co., Ltd.	
15	Wire rope	Shanghai Junwei Sling Co., Ltd.	
16	Hook	Zhuzhou Ruijue Railway Accessory Co., Ltd.	
17	Load moment limiter	Zoomlion Electrical Appliance Company	
18	Operator's cab assy.	Yangzhou Shenzhou Vehicle Interior Decorative Parts Ltd., Co.	

Note:

The equipment fitted in the crane is subject to changes due to design improvements or other reasons. Therefore, the above table is for reference only.