

ZOOMLION

ZOOMLION ZCT600V532

TELESCOPIC CRAWLER CRANE

TECHNICAL SPECIFICATIONS

ZCT600V532/27Y

Zoomlion Heavy Industry Science and Technology Co. Ltd

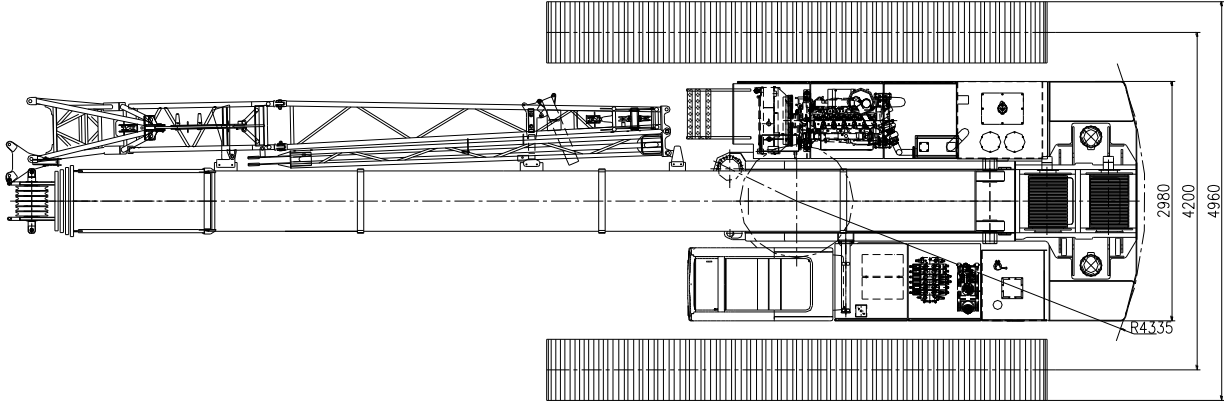
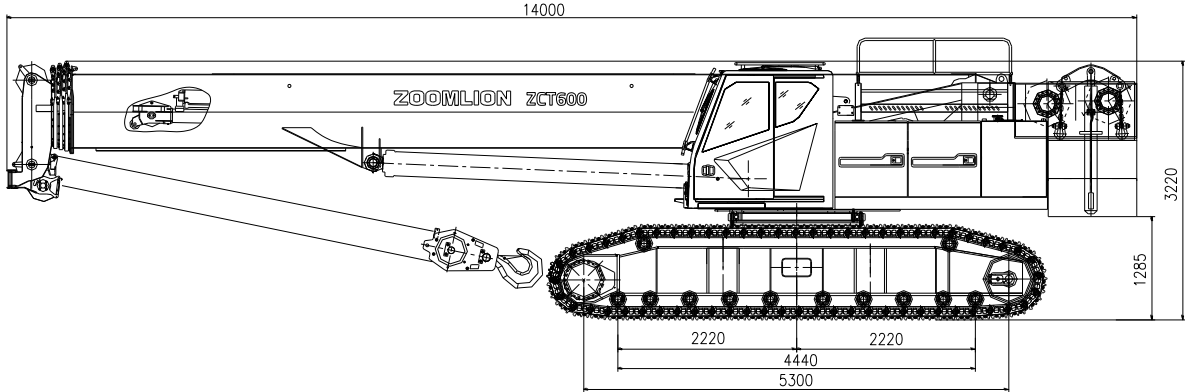
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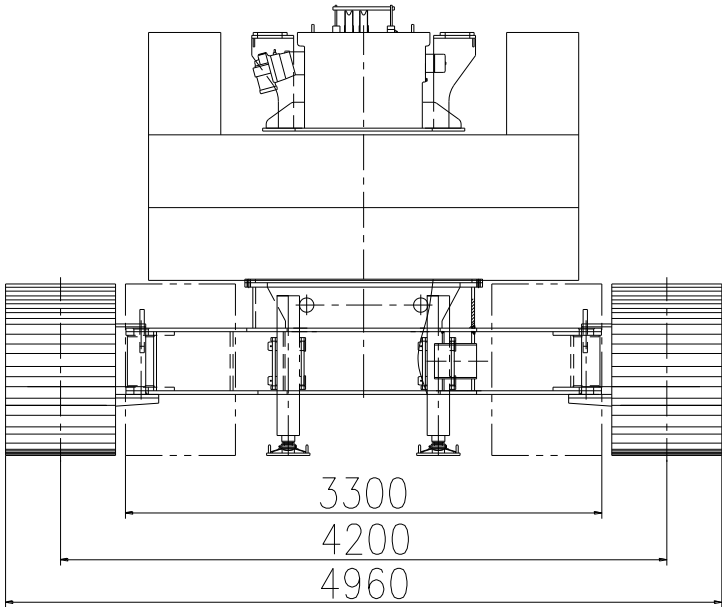
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1. Overall dimensions and main technical parameters

1.1. Overall dimensions



Rear view



1. 2. Main technical parameters

Table – Main technical parameters

Item	Unit	Value	Remarks
Max. lifting capacity	t	60	
Max. lifting moment	t×m	225	
Max. lifting moment at max. boom length	t×m	122	
Main boom length	m	11.9-46	
Jib length	m	7.5-12.8	
Max. length of main boom with the jib	m	58.8	
Main boom angle	°	-2-80	
Jib offset	°	0, 15, 30	
Max. single rope speed of the main hoisting winch	m/min	135	Unloaded, the 4th drum layer
Max. single rope speed of the auxiliary hoisting winch.	m/min	135	Unloaded, the 4th drum layer
Boom derricking up time	s	50	
Boom telescoping out time	s	120	
Slewing speed	rpm	0-2	
Traveling speed	km/h	2.7 (unloaded)/1.5 (fully loaded)	
Max. gradeability	%	45	
Ground pressure	MPa	0.065	
Deadweight	t	62.5	With the main hook installed
Counterweight	t	20 t	
Overall dimensions (L × W × H)	mm	14000×3300 (4960) × 3220	
Engine	Model	WP6G210E330	Weichai Power Co., Ltd.
	Rated power / rotational speed	kW/rpm	154/2200
	Max. output torque / rotational speed	Nm/rpm	860/1500
	Exhaust emission	/	Chinese National Stage III for non-road vehicles

Distance between track center × crawler contact length × crawler width		mm	2540 × 5300 × 760	Crawler carrier retracted
		mm	4200 × 5300 × 760	Crawler carrier extended
Noise	Noise level outside the operator's cab during operation	dB	≤ 107	
	Noise level in the operator's cab during operation	dB	≤ 85	

Note:

1. The single rope speed of the winch, slewing speed and traveling speed vary with the load.
2. The ground pressure is an average value, and the actual maximum ground pressure should be determined according to actual lifting conditions.

1. 3. **Main technical features**

⊕ High work efficiency

The crane is capable of multiple compound movements.

Single rope speed on the outmost layer of the hoisting winch 1 is 135 m/min.

⊕ Optimization of transportation, assembly and dismantling

The four counterweight plates, whose weight is 8 t, 8 t, 2 t and 2 t respectively, can be installed conveniently by a counterweight handler.

The crawler carriers can be extended and retracted, and the maximum transport width of the crane is 3.3 m.

1. 4. **Main boom and telescoping mechanism**

The box-shaped main boom consists of 5 U-type boom sections made of low-alloy high-strength steel plate, providing the boom with excellent bending-resistance capacity, super load bearing capacity, light deadweight, large lateral stiffness and low end deflection. The main boom head adopts a new plate-type structure with an imbedded sliding block, contributing to a larger connecting ratio between boom sections. A series of optimized design greatly decrease the deadweight of the boom and provide a more evenly distributed stress onto the boom to avoid partial distortion. Furthermore, the boom has good guidance quality and adjustability.

The telescopic boom sections are telescoped in / out via two telescoping cylinders and two sets of boom extension / retraction rope. The telescoping cylinder I drives the telescopic boom section 2 to telescope in / out, while the telescoping cylinder II drives the telescopic boom section 3. The boom section 4 and 5 are telescoped in / out simultaneously together with the boom extension / retraction rope. This compact design makes the crane work reliably. Each cylinder is fitted with a balance valve.

1. 5. **Jib**

The jib is consisted of two jib sections: one section is a square lattice section, while the other is a triangular lattice one secured parallel onto the first section through pins.

There are two jib lengths, i.e. 7.5 m and 12.8 m. The jib section I is hinged to the head of the top boom section through pins. The jib can be installed at one of the three offsets onto the main boom, i.e. 0°, 15° and 30°. Change of the offsets is realized conveniently through a rotary shaft and sliding groove.

1. 6. **Hoisting mechanism**

It consists of a main hoist mechanism and an auxiliary hoist mechanism.

The two hoist mechanisms are driven by an axial plunger hydraulic motor with a 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.

The auxiliary hoist winch is of same model of the main winch, and both of them adopt a variable motor. The main winch is installed with an lower limit switch which gives alarm when there are only 3 wraps of wire rope left on the drum.

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

Specifications for high-tensile torsion resistant hoist rope:

Diameter: $\varnothing 17.0$ mm

Strength grade: 1870 N/mm²

Length of main hoist rope: 230 m

Length of auxiliary hoist rope: 140 m

1. 7. Slewing mechanism

Via the planetary gear reducer, the axial plunger hydraulic motor of constant displacement drives the pinion gear on the output shaft to rotate the toothed ring of the slewing bearing fixed on chassis frame, providing a 360° unlimited slewing range.

The free swing function decreases lateral pulling force from a load to the boom.

☛ Slewing bearing

Single-row ball, four-point contact, externally geared

☛ Slewing braking

The crane is installed with a hydraulically controlled normally-closed brake, and is capable of conducting controllable free swing operation.

☛ Slewing speed

The highest slewing speed is 2 rpm.

1. 8. Engine

Engine model: Weichai power WP6G210E330 diesel engine

Type: six-cylinder in-line, intercooling turbine diesel engine

Displacement: 6.75L

Rated power: 154 kW/2200rpm

Max. torque: 860 N·m/1500rpm

Fuel tank capacity: 570L

1. 9. Hydraulic system

The crane adopts a series-connected hydraulic system with hydraulic pilot proportional control. The high-speed hydraulic motor drives the planet reducer to realize movements of the mechanisms.

The system has such advantages as high efficiency, energy-saving, smooth and safe simultaneous movements.

The oil cooler for hydraulic system: a radiator driven by high-power hydraulic motor, 40 kW

Hydraulic oil tank capacity: 770 L

1. 10. Electrical system

24 Volt DC, negative ground, two batteries of 200AH each.

The electrical system of the crane includes the power supply, engine start, engine shutdown, indicator lights, warning devices, illumination devices, fan, wiper, horn, hoisting limiter, hydraulic oil cooling fan, concentrated display panel, load moment limiter, safety devices etc. which not only ensure safe operation of the crane but also provide a good working environment.

1. 11. Counterweight

A tray-type assembly structure is adopted for the counterweight system. The counterweight plates are stacked up, and locked by the hydraulic oil cylinder.

The counterweight is 2.98 m wide, which is easy for transportation.

The movable counterweight consists of four counterweight plates, i.e. a counterweight base plate (8 t), a middle plate (8 t) and two side plates (2 t each); whose total weight is 20 t.

1. 12. Operator's cab

The spacious and full-closed cab is equipped with a safety windshield glass, an adjustable seat with armrest and headrest, an intermittent wiper and a window water injector, and covered with soft interior materials.

A cab tilting mechanism is installed in the crane, which can tilt the cab upward by a max. 20 degrees approximately.

☛ Control boxes

The control boxes on both side of the cab are installed with various electrical switches and an emergency stop button, etc. They can be adjusted with the operator's seat.

☛ Joystick and travel gear pedal

The hydraulic joystick installed with a universal joint pin controls the movements of the hoisting winches 1 and 2, slewing mechanism and derricking winch.

Travel gear pedals with hand levers: control the movements of left and right travel gears.

The crane movement can be performed independently and simultaneously.

✦ Air conditioning

Adopts a standard heating and cooling air conditioning system, and optimizes air duct and air outlet.

1. 13. Crane undercarriage

✦ Traveling power

Both left and right crawler carriers are fitted with an independent hydraulic driving system. Each hydraulic driving system has a hydraulic motor, which can drive the drive sprocket via a planet reducer.

The operator can use the joystick or travel gear pedal to control traveling movements, such as traveling straight ahead / backwards, turning with a crawler, differential steering and turning on spot.

✦ Traveling brake

The travel gear can be braked via the spring on the traveling motor, which is controlled by a balance valve.

✦ Crawler carrier extending & retracting mechanism

Crawler carriers are extended and retracted via two hydraulic cylinders.

- Crawler carrier extended:

Distance between track centers: 4200 mm

- Crawler carrier retracted:

Distance between track centers: 2540 mm

✦ Track roller

A maintenance-free, sealed structure

✦ Shoe track

A excavator shoe track; its width: 760mm.

✦ Traveling speed

The highest traveling speed is 2.7 km/h when the crane is unloaded and 1.5 km/h when the crane is fully loaded.

1. 14. Safety devices

Many safety devices, including mechanical, electronic or hydraulic ones, are fitted on the crane to ensure safe operations.

⊗ Load moment limiter

The load moment limiter can automatically detect a main boom angle and lifting load, and provide feedback of these data to the operator according to actual lifting situation.

When the normal operating range of the crane is exceeded, the load moment limiter will send out an alarm and limit current movement.

7.0-inch LCD screen can show the following data: moment ratio, main boom angle, main boom length, working radius, actual load, and permissible lifting load, etc.

⊗ Hoisting limit switch

A hoisting limit switch with a limit switch weight is installed on the top of the main boom section. It is used to prevent the hook from being lifted to the upper limit position. When the hook reaches the upper limit position, the limit switch is triggered and sends a signal to the crane's electrical system, which will cut off further lifting of the hook and trigger visual and acoustic alarms in the cab through a buzzer and an alarm indicator.

⊗ Lowering limit switch

When there are only three wraps of wire rope left on the drum, the lowering limit switch will be triggered, the buzzer will ring, the warning light on the screen will flash and the crane movement "reel off winch" will be cut off.

⊗ Slewing locking device

It adopts both electrical and mechanical locking, generally used to fix the relative position between the superstructure and undercarriage during transportation, so as to avoid accidental misoperation.

⊗ Safety catch

A device to protect the lifted load from falling off from the hook

⊗ Anemometer (optional)

An electronic wind speed sensor to indicate actual wind speed at the boom/jib head to the crane operator

⊗ Rear-view mirror

Located in the left front of the cab, and near the handrail in the right hood

⊛ Overflow valves in hydraulic system

The overflow valve fitted in the hydraulic system can restrain pressure in oil circuits from rising irregularly, thus protecting such hydraulic elements as the hydraulic oil pump and hydraulic motor against damage and the hydraulic system from being overloaded.

⊛ Emergency stop button

It allows the engine to be shut down and all movements to be stopped in an emergency situation.

⊛ Tricolor warning light

The warning light, by illuminating in red, yellow or green color, can indicate different loading status.

- Green color – the load ratio is less than 90%
- Yellow color – the load ratio is between 90% and 100%
- Red color – the load ratio has exceeded 100% and the crane is overloaded.

⊛ Slewing alarm

An acoustic alarm will be sent out during slewing movements.

⊛ Traveling alarm

An acoustic alarm will be sent out during traveling movements.

⊛ Video monitoring system

A camera and a visual monitoring system .They respectively monitor working conditions of the crane's hoisting winches and the blind spots at the right side of the crane.

2. **Work conditions and points for attention**

2.1. **Working environment**

1. Working environment temperature should be -20°C to 40°C, and elevation of a work site generally should not exceed 1000m.
2. In-service wind speed should not exceed 8.3 m/s.
3. The ground should be flat and solid, and its gradient should not exceed 1%. Its load-bearing capacity should exceed the maximum ground pressure in current boom configuration.

2.2. **About loads**

1. The value in the lifting capacity tables includes the weight of wire rope and other load handling devices, thus the actual weight of the load should be less than the value.
2. The value in the lifting capacity tables is obtained in such work condition that the crane works on flat and solid ground, and the load is considered to be suspended freely.
3. The blank area where there is no capacity listed in the lifting capacity tables is a non-work area and the crane is not allowed to work in such area.