



**Zoomlion
QUY70 crawler crane
Technical introduction**

**TECHNICAL UPGRADE
BY PVE CRANES**



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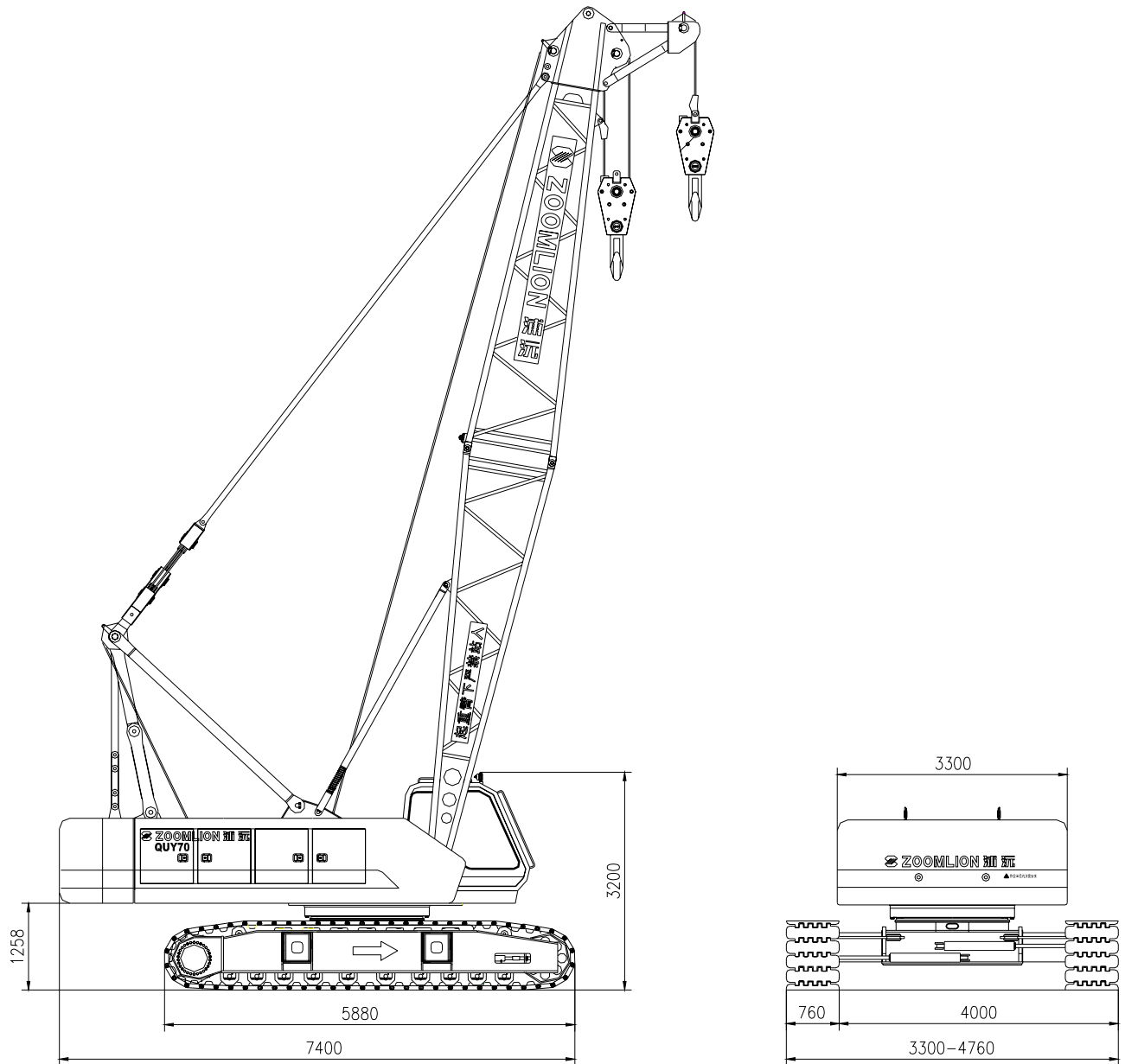
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1. Overall dimensions and weight

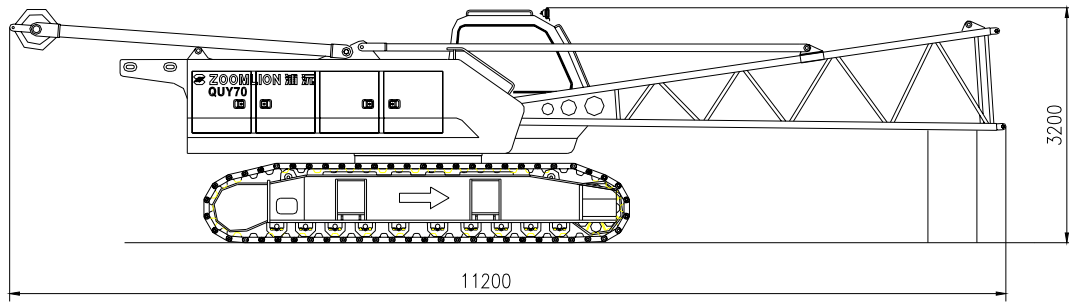
1.1 Main machine overall dimensions



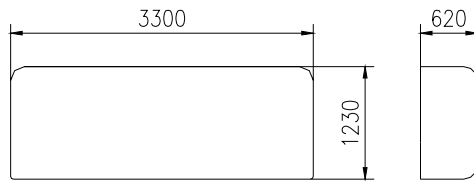
- Max. lifting capacity: 70t
- Working weight with basic boom: 50t
- Boom length: 12~57m
- Max length of boom +. fixed jib: 42+18m



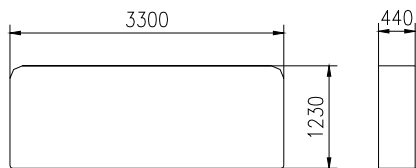
1.2 . Main transportation parts overall dimensions and weight Main machine transportation weight 39.5t



Counterweight I: 10t



Counterweight II: 10t





2. Technical description

2.1 Boom frame system

Lattice type structure, high strength pipe

Boom

Boom length: 12~57m

Boom adjustable added boom section length: 3m、6m、9m

Fixed jib

Fixed jib length: 6~18m

Fixed jib adjustable added jib section length: 6m

Max. length of boom + fixed jib: 42+18m

2.2 Mechanism

Main hoisting mechanism

It includes axial inner plunger hydraulic motor, balance valve, reducer, normally-closed brake, clutch, wire rope, etc. . It can be controlled separately.

Wire rope is special non-rotation wire rope with 20mm diameter.

Main hoisting mechanism is double speed type and has two lifting speeds, which can increase working efficiency.

Auxiliary hoisting mechanism

It includes axial inner plunger hydraulic motor, balance valve, reducer, normally-closed brake, wire rope, etc. . It can be controlled separately.

Wire rope is special non-rotation wire rope with 20mm diameter.

Auxiliary hoisting mechanism is double speed type and has two lifting speeds, which can increase working efficiency.

Derricking mechanism

It includes axial inner plunger hydraulic motor, balance valve, reducer, normally-closed brake, pulley block, wire rope, etc. . It can be controlled separately.

Wire rope is special non-rotation wire rope with 20mm diameter.

Derricking mechanism has ratchet self lock protection mechanism which can prevent derricking winch hook from sliding because of long time parking.

Slewing mechanism

It includes axial inner plunger hydraulic motor, gear reducer, slewing brake valve, brake, pinion and slewing ring, etc. , and it drives the slewing ring to realize full slewing through the pinion, also realize the slewing function of the superstructure.

It adopts inner mesh slewing ring and slewing reducer which have strong bearing capacity and high accuracy, thus can ensure stable, accurate slewing.

It can realize 0~2.4r/min stepless speed adjustment.

It can be locked by two mechanical lock devices in front of the slewing table.

Travelling mechanism

It adopts double motor, double reducer type. Hydraulic motors and balance valve are all imported from German. The travelling of two tracks are controlled by two sets of control levers. The travelling mechanism can realize straight line travelling, single side steering, differential steering, steering in the same place, travelling with load, etc, which have high mobility and flexibility.

travelling speed: 0~1.35km/h (on level, solid ground, 20m boom without the load)

gradeability: 30%

track tension: control by hydraulic jack, it is rapid, convenient and reliable.



Gantry mechanism

It includes gantry, gantry pendant plate, self assembling & disassembling pendant plate, etc. . When assembling or disassembling (or change work site), the whole vehicle rotate the gantry backward to connect pendant plate, assemble / disassemble the counterweight.
The gantry is placed horizontally at the back of the slewing table during transportation.

Counterweight and its assembling & disassembling mechanism

It includes two pieces counterweight, counterweight installation pins, fixed chains, etc. . It can realize self assembling and disassembling of the counterweight.

Track telescoping mechanism

Track telescoping and control mechanism includes outrigger, horizontal cylinder, track, pedant plate, inserting pin, etc. . Track telescoping control valve brake is fitted at the right front of the frame, there are control levers below the panel, each horizontal cylinder can do telescoping motion separately.

2.3 System

Hydraulic system

It includes main pump, control valve, hydraulic motor, hydraulic oil tank, cooler, etc. . It adopts world advanced pump control system, the main parts are pump, motor, control circuit and main circuit, which are with high efficiency, energy saving, high reliability and long life time.
Main hydraulic pump: domestic plunger pump, driven by the engine
Auxiliary mechanism oil source : gear pump
Main control valve: pilot electro-hydraulic control valve
Main circuit control way: variable main pump + main change valve are all controlled by the lever.
Hydraulic oil tank capacity :700L
Cooler: AL radiator, with electric drive fan

Electric system

24v DC, negative ground, two 195 AH batteries
The whole vehicle electric mainly includes power, engine starting , engine extinguishing, indicator, alarm, illumination, fan, wiper, horn, lifting height limit, hydraulic oil cooling fan, digital monitor, PLC controller, engine pre-heat device, safety device, etc. , which ensure safe working and good working environment for the crane. The whole vehicle adopts CAN bus that can connect engine, PLC controller and digital display together effectively, and also has trouble detection and automatic diagnosis function.

Power system

Weichai Cummins engine, 6 cylinder in line, supercharge, water cool engine
Rated power / rotating speed: 175kW / 2200 r/min
Fuel tank : 300L, ensure sufficient working time for the engine.
Displacement standard : confirm to GB3847—1999 and the 2nd stage of GB17691—2001

Concentration display system

11 inch big screen LCD monitor with several language display can display all kinds of working condition signals collected by PLC controller, includes engine rotation speed, water temperature, fuel pressure, hydraulic pump pressure, pressure of main motors, working condition of main machine, etc. . The monitor can control the working condition in real time, the system can send yellow warning or red warning when abnormal condition occurs during operation.

2.4 Safety device

Moment limiter

It includes torque monitor and digital LCD monitor. When single lifting torque reaches 90% of rated



torque, the alarm is on and buzzer sounds, the operation of the crane stops automatically when the torque reaches the rated value to prevent the crawler crane from accident because of overloading during construction, which can ensure normal and safe operation of the crane.

Following data can be displayed in the digital LCD monitor.

- torque ratio
- boom elevation angle
- boom length
- working radius
- actual hook load
- permissible lifting load
- Max. permissible lifting height

Overflow valve in the hydraulic system

It can prevent abnormal high pressure in the circuit to avoid damage of the hydraulic oil pump and the motor, also can prevent the system from overloading condition.

Height limit device

It can prevent the accident because of the hook lifted too much.

Angle indicator

Boom angle display is set lower back of the bottom boom section (i.e right side of the operator's cab), the driver can see the boom angle clearly in the operator's cab.

Working boom limit position warning protection system

It can ensure the crane boom frame operated in safe scope.

Whole vehicle horizontal sensor

It ensures normal horizontal working angle of the whole vehicle.

Hook lock device

It can prevent the load from sliding down.

Derricking winch ratchet lock mechanism

It can prevent the derricking from sliding because of long time parking.

2.5 Operator's cab

The operator's cab adopts full steel structure with toughened glass on four sides; top glass and front window glass have two layers. Inside, there are right ante-vanna, adjustable seats, wiper, electric control lever, moment monitor, digital display, all kinds of switch auxiliary remote control box assy, air conditioner, fan, illuminator, radio cassette (CD player, mps player, vehicle DVD), cigarette igniter, extinguisher, etc. . The operator's cab is with wide vision and big space.

2.6 Hook

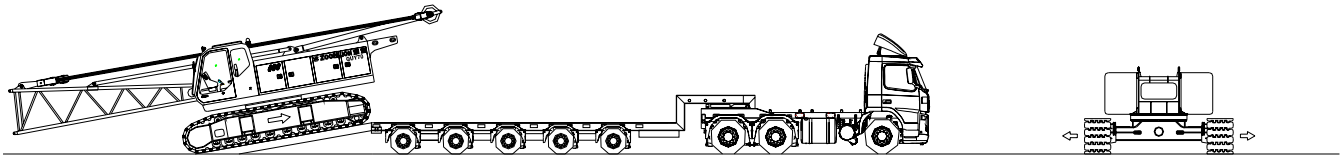
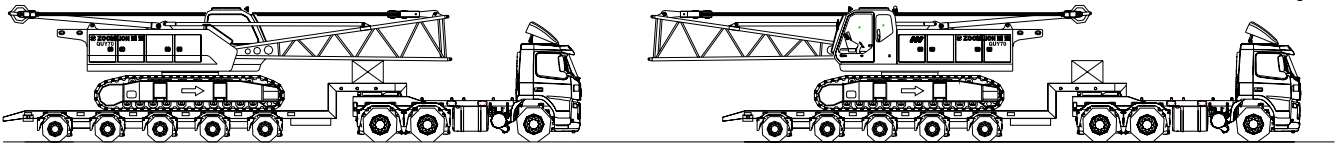
70t hook: with 6 pulleys

30t hook: with 2 pulleys for option

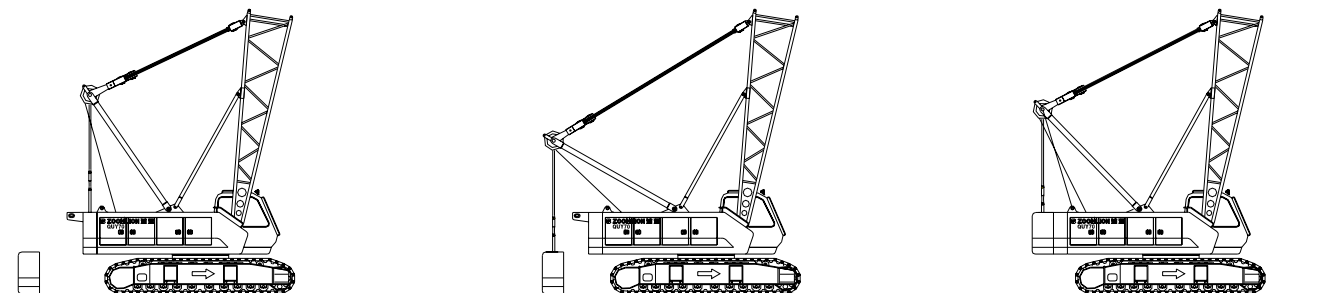
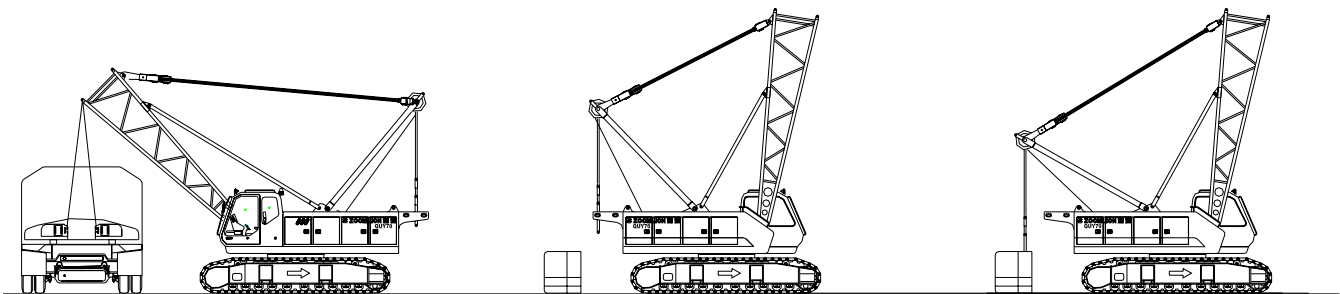


3. Self assembling & disassembling function

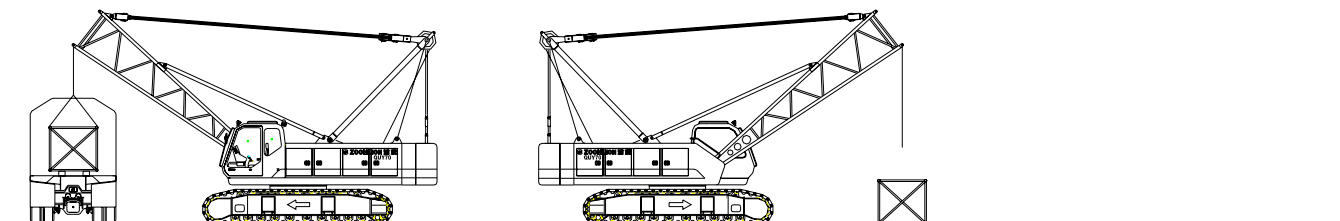
(Set assembling & disassembling procedures of fixed jib condition as example.)



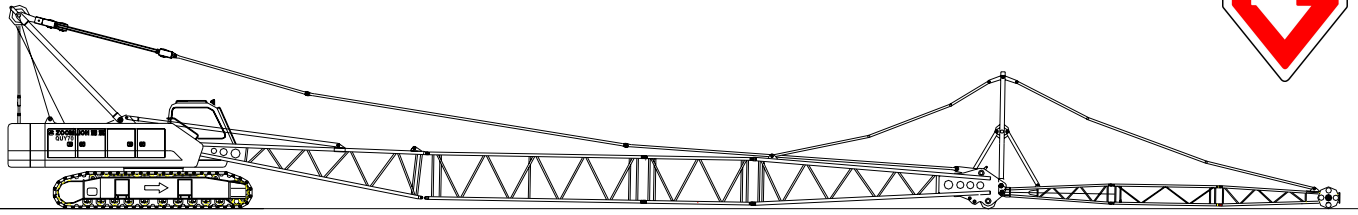
Discharge the main machine



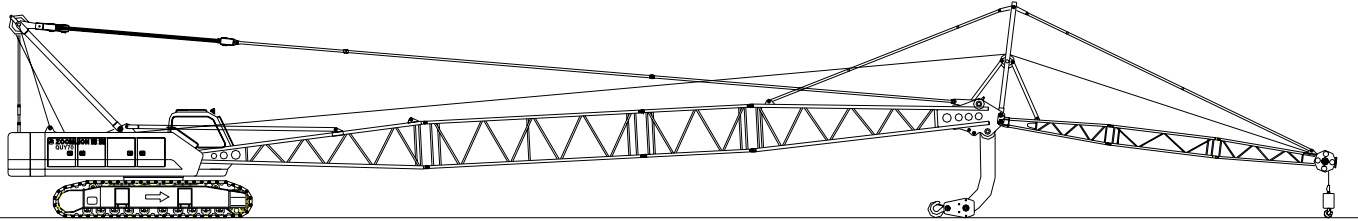
Discharge and assemble the counterweight



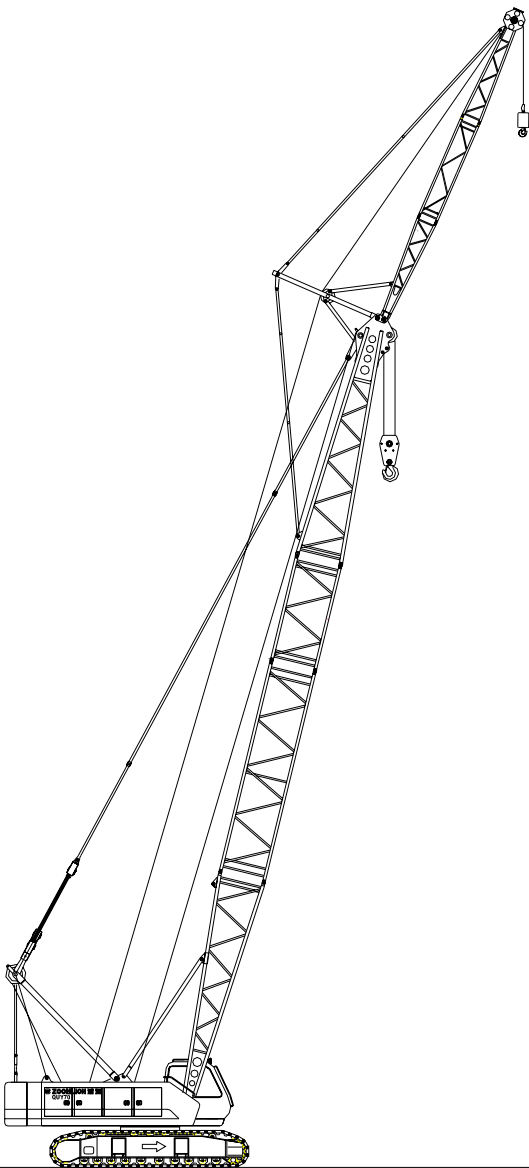
Discharge the boom frame



Assembling of boom frame and pedant plate



Lift the boom frame



Working condition



4. Lifting performance

4.1 Boom lifting characteristics

Boom lifting height characteristics curve

