Zoomlion QUY 70

70 Ton Crawler Crane

Technical Data Brochure

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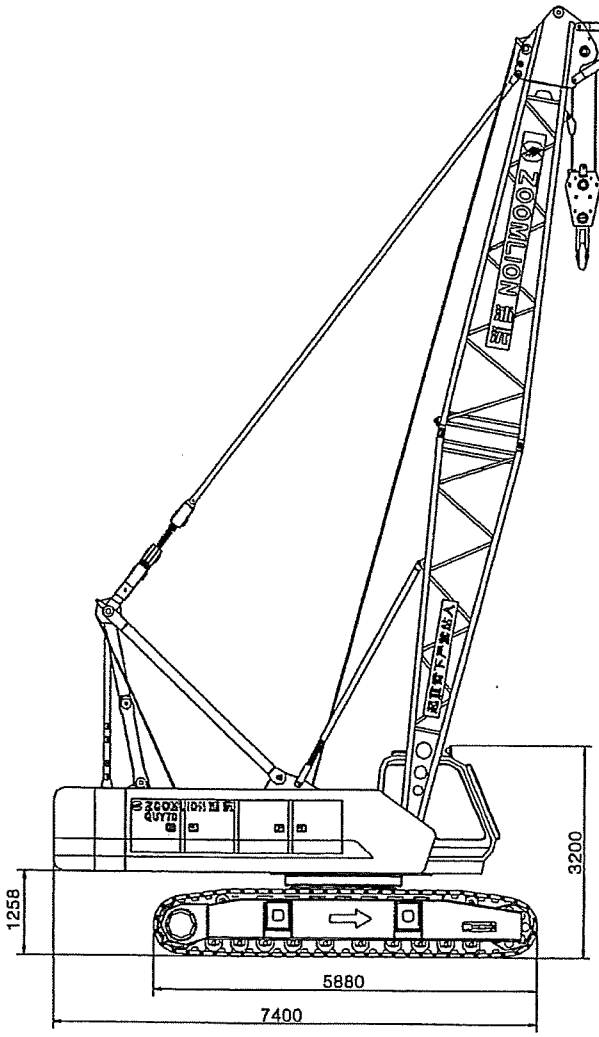
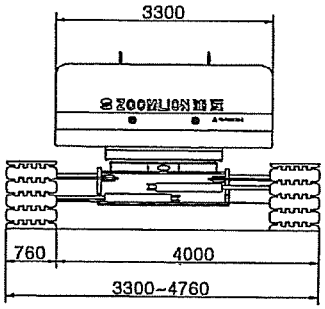
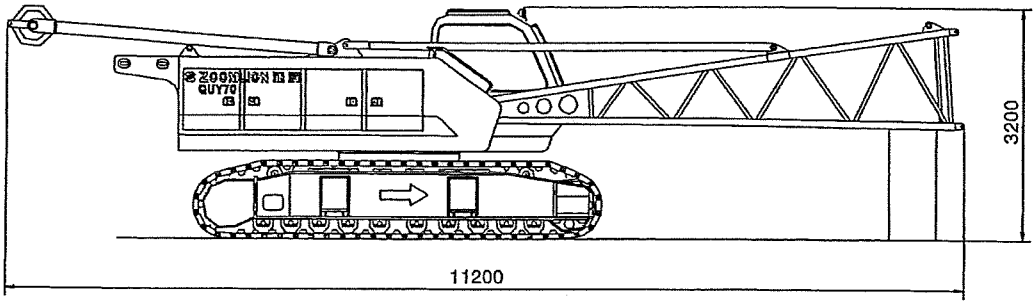
1 outline dimension of complete vehicle



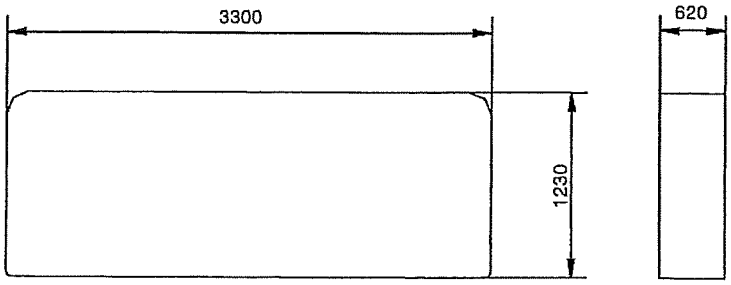


8 Outline dimension and weight of main transport components

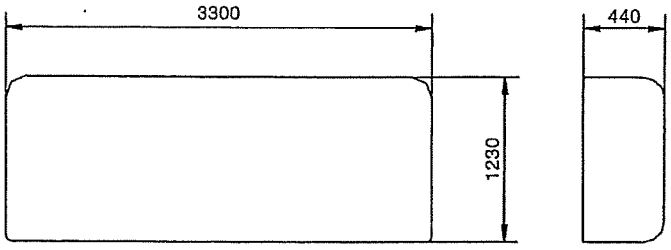
Transport weight of main frame: 39.5t



Counterweight Ⅰ: 10t



Counterweight Ⅱ: 10t



4 Technical instruction

1 Boom system

It is lattice structure and made of domestic high-strength tubular product

Main boom

Main boom length:12~57m

Adjusting lengthened boom section length for main boom: 3m, 6m, or 9m

2 mechanism

Mechanical mechanism

It consists of axial concealed plunger hydraulic motor, balanced valve, reducer, normally closed brake and wire rope. It is independent of other mechanisms to be operated.

It is two-speed type, having two different lifting speeds, which can improve working efficiency.

Auxiliary hoist mechanism

It consists of axial concealed plunger hydraulic motor, balance valve, reducer, normally closed brake and wire rope. It is independent of other mechanisms to be operated .

It is two-speed type, having two different lifting speeds, which can improve working efficiency.

Boom luffing mechanism

It consists of axial concealed plunger hydraulic motor, balance valve, reducer, normally closed brake, pulley block and wire rope. It is independent of other mechanisms to be operated.

It is also equipped with ratchet self-locking protecting mechanism which can prevent luffing gear from slipping because of long time parking.

Slewing gear

It consists of axial concealed plunger hydraulic motor, gear reducer, slewing brake valve, brake, pinion gear and slewing ring. The superstructure can realize 360° slewing via slewing ring which is driven by pinion gear.

The mechanism adopts internal-geared slewing ring and slewing reducer. Its great carrying capacity and high accuracy ensure the stability and accuracy of slewing.

Slewing can realize stepless-speed regulation varying from 0 to 2.4r/min.

The slewing gear can be locked by two mechanical locking devices in the front of the slewing table.

Traveling mechanism

Traveling mechanism adopts double-motor and double-reducer. Hydraulic motor and balanced valve are all imported from Germany. Two sets of control levers respectively control two tracks' traveling to realize straight-line traveling, one-sided steering, differential steering, spot turn and traveling with load etc. and then ensure the crawler crane have great mobility and flexibility.

Traveling speed: 0~ 1.35km/h(when ground is level and firm and main boom length is 20m without load).

Gradeability: 30%.

Tension degree of track can be changed by jack. It is very quick, convenient and reliable.

Mast mechanism

It consists of mast, pendant plate of mast, self-assembly/dismantling pendant plate etc.. it is used for self-assembly/dismantling of the crane. Before doing this work, the mast should be turned back to connect the pendant plate and disassemble and assemble the counterweight.

When the crane is traveling, the mast is laid flat on the rear side of slewing table.

Counterweight and its assembly/dismantling mechanism

It consists of two pieces of counterweight, mounting pin of counterweight, fixing bolt etc... QUY70 crawler crane can realize self-assembly/dismantling of counterweigh.

Track telescoping mechanism

Track telescoping and operating mechanism consists of outriggers, horizontal cylinders, track, pendant plate, and inserted pin etc··· The telescoping of outriggers can be carried out by operating the control lever in the straight front of the vehicle frame.

3 System

Hydraulic system

Hydraulic system consists of main pump, control valve, hydraulic motor, hydraulic oil tank and condenser etc...

Hydraulic system adopts advanced pump control system in the world and its main components such as motor are all imported and have advantages of high efficiency, energy-saving, high reliability and long service life.

Main hydraulic pump: domestic plunger pump, driven by engine.

Oil source of auxiliary mechanism: gear pump.

Main control valve: pilot electrohydraulic control valve

Control method of main loop: the variable quantity of variable main pump+ main reversing valve, both controlled by the two operating handles.

Hydraulic oil tank capacity: 700L.

Cooler: aluminium radiator with electric fan.

Electrical system

This system with 24V DC and earth negative, has two 195 AH accumulators.

Electric appliance of complete vehicle mainly include power, engine start, engine shutdown, indicator lamp, annunciator, illumination, fan, wiper, horn, lifting height limiter, hydraulic oil cooling fan, digitized display, PLC controller, preheating device for engine and safety equipment etc. , which ensure safe operation and excellent working environment of the crane. The complete vehicle adopts CAN-bus technology, which connects the engine, PLC controller and digitized display efficiently, and has trouble detecting and self-diagnosis function.

Power system

Weichai engine, in-line six cylinder, supercharge, water-cooling engine

Rated power/rotational speed: 175kw/2200r/min

Fuel tank capacity: is 300L which ensures that the working hour of engine is long enough.

Emission standard: meets the requirement of GB3847-1999 and GB17691-2001 stage II.

It can select to assemble imported CUMMINS engine QSB6.7-C205, America.

Centralized Display System

11 inch large LCD intercalates Multilanguage display and can centralized display kinds of working condition signals collected by PLC controller, including rotational speed of engine, water temperature, fuel oil pressure, hydraulic pump pressure, main motor pressure and main frame working level circs etc. it can monitor working states in real time and give a yellow or red warning when the working state of crane is abnormal.

4 Safety equipment

Load moment limiter

It consists of load moment display and digital LCD. When actual load moment reaches 90% of rated moment, the warning lamp is on and the buzzer alarms; when it nearly reaches the rated load moment, the crane stops working automatically to prevent accidents occur during operation because of overload and ensure normal and safe work.

Digital LCD displays following data:

Moment ratio

Elevation angle of main boom

Main boom length

Working radius

Actual load

Permissible lifting load

Max. permissible lifting height

Overflow valves of hydraulic system

It can restrain the abnormal high pressure in loop to prevent hydraulic oil pump and hydraulic motor from damage and prevent hydraulic system from overload.

Hoisting limiter

Prevent hook from excessive lifting and avoid accidents occurring.

Boom angle indicator

It is mounted at the lower rear side of foot section (namely the right side of operator' s cab). The driver can observe the elevation angle of boom clearly from the cab.

Limit position alarm system for actuating arm

The system can ensure that the actuating arm angle is within the specified range.

Level sensor of the complete vehicle

Detect the level state of the complete vehicle.

Anti-unhook device

Prevent load fall off from the hook when lifting.

Ratchet locking mechanism of luffing gear

Prevent luffing gear from sliding down because of long time parking.

Overwind and overrelease protection device for wire rope

Anemoscope

5 operator's cab

It adopts all-steel structure. The four sides are all made of hardened glass, and the roof and the front window are furnished with laminated glass. It is equipped with right sun visor, adjustable seat, wiper, electric control lever, load moment display, digitized displayer, auxiliary remote-control box operation assembly of switches, air conditioner, electric fan, illumination lamp, radio, cigarette lighter, fire extinguisher etc. inside. It also supplies wide vision and spacious and comfortable inner room for operator.

6 hook

Following types of hook can be selected to assemble:

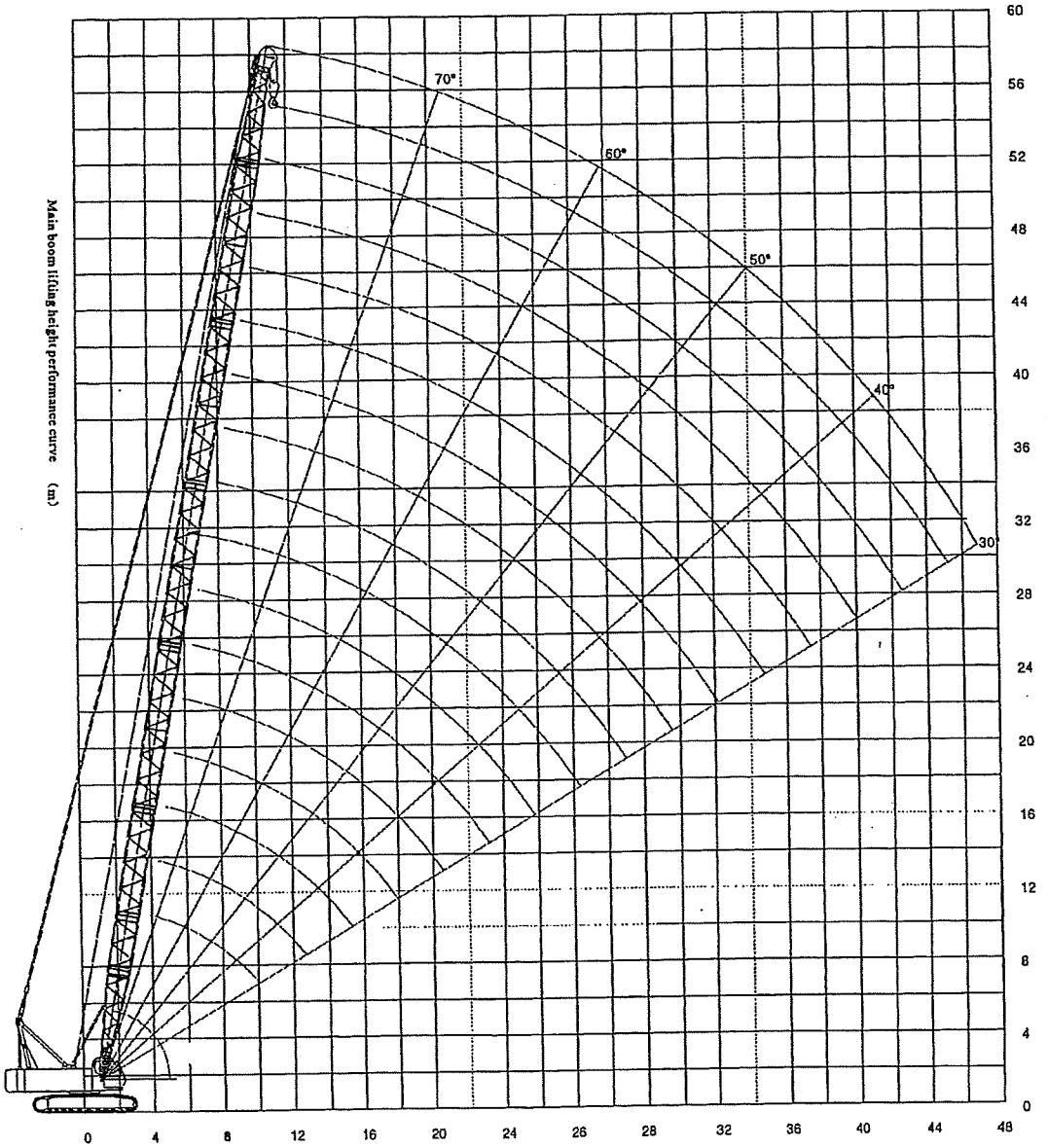
70t main hook: assembled 6 sheaves

30t hook: assembled 2 sheaves

6t hook: without sheave

1 Main boom lifting performance

Main boom liting height curve



2.1 Main Technical Specifications

Item			Value	Remarks
Max. lifting capacity Radius		t m	70 3.8	
Deadweight with basic boom		t	60	
Boom length		m	12~57	
+			+	
Max. speed of single rope on the hoist drum	Main winch	m/min	120	The 4th layer on hoist drum
	Auxiliary winch	m/min	120	The 4th layer on hoist drum
	Derrick winch	m/min	45	The 4th layer on derrick drum
Slewing speed		rpm	0~2.4	
Travel speed		km/h	0~1.35	
Gradient		%	30	
Ground pressure		MPa	0.074	
Overall dimensions L W H		m	12.4×3.3×3.2	Includes A-frame and botton boom section

Engine	Weichai	Rated power/rotational speed kW/r/min	175/2200	
		Max. torque/rotational speed Nm/ r/min	1000/1400~1600	
		Emisson Standard	EU Stage II or EU Stage III	
	Cummins	Rated power/rotational speed kW/r/min	153/1800	
		Max. torque/rotational speed Nm/ r/min	929/1300	
		Emisson Standard	TIER 3	
Crawler gauge ground contact length track width mm			4000 5032 760 (extended) 2540 5032 760 (retracted)	
Noise		Ambient noise level during operating dB	= 107	
		Noise level in operator's cab during operating dB	= 85	

2.2 Rated lifting Capacity Table

⚠ **EXPLANATION:** Units in the lifting capacity table are shown in ton, the sign of "*/*" indicates "lifting load / radius".

2.2.1Lifting Capacity Table of Boom

Unit: t

Boom length (m)											
Radius (m)	12	15	18	21	24	27	30	33	36	39	Radius (m)
3.8	70										3.8
4	65	65	58.2/4.1	51.2/4.6							4
5	53.6	52.3	51	49.8	44.2/5.2	37/5.7					5
6	40.5	40.1	39.3	38.5	37.7	36.9	34/6.2	30.4/6.7			6
7	32.1	32	31.8	31.2	30.6	30.1	29.5	28.9	27.1/7.3	24.3/7.8	7
8	26.6	26.5	26.4	26.2	25.8	25.3	24.8	24.3	23.9	23.4	8
9	22.6	22.5	22.4	22.3	22.2	21.8	21.4	21	20.6	20.2	9
10	19.7	19.5	19.4	19.3	19.2	19.1	18.7	18.4	18	17.7	10
12		15.4	15.3	15.1	15	14.9	14.8	14.6	14.3	14	12
14		12.6	12.5	12.4	12.2	12.1	12	11.9	11.7	11.5	14
16			10.5	10.4	10.2	10.1	10	9.9	9.8	9.6	16
19				8.3	8.1	8	7.9	7.8	7.6	7.5	19
20					7.6	7.5	7.3	7.2	7.1	7	20
22					6.7	6.5	6.4	6.3	6.2	6	22
24						5.8	5.7	5.5	5.4	5.3	24
26							5	4.9	4.8	4.6	26
28								4.4	4.2	4.1	28
29								4.1	4	3.9	29
30									3.8	3.6	30
32									3.4	3.2	32
34										2.9	34

Boom length (m)							
Radius (m)	42	45	48	51	54	57	Radius (m)
8	21.9/8.3	19.9/8.8					8
9	19.8	19.4	18.1/9.3	14.6/9.9			9
10	17.3	17	16.6	14.6	14.6/10.4	13.7/10.9	10
12	13.7	13.5	13.2	13.3	13.1	12.8	12
14	11.3	11	10.8	10.9	10.7	10.5	14
16	9.5	9.2	9	9.1	8.9	8.7	16
19	7.4	7.3	7.7	7	6.9	6.8	19
20	6.8	6.7	7.1	6.5	6.3	6.2	20
22	5.9	5.8	6.6	5.5	5.4	5.3	22
24	5.1	5	5.7	4.8	4.6	4.5	24
26	4.5	4.4	4.9	4.1	4	3.9	26
28	4	3.9	4.3	3.6	3.5	3.3	28
29	3.7	3.6	3.7	3.4	3.2	3.1	29
30	3.5	3.4	3.5	3.1	3	2.9	30
32	3.1	3	3.3	2.7	2.6	2.5	32
34	2.8	2.6	2.9	2.4	2.3	2.1	34
36	2.5	2.3	2.5	2.1	1.9	1.8	36
37	2.3	2.2	2.2	1.9	1.8	1.7	37
38		2.1	2.1	1.8	1.7	1.5	38
39		1.9	1.9	1.7	1.5	1.4	39
40			1.8	1.6	1.4	1.3	40
42			1.7	1.3	1.2	1.1	42