

## **QY70K- I Truck Crane Highlights**

1. Full dimension flat-head cab for chassis, all covered walking surface, double H-type outriggers and a fifth jack are available, as well as 360° ° operation of boom, power system with various options.
2. It has the longest boom compared to the same class crane boom. Five-section boom of oval cross-section with special sliders, aligning device and high-tension steel plates contribute to smooth telescoping, reliable alignment, light boom weight and strong lifting capacity.
3. Bi-part jib, comprising one lattice section and one box section.
4. Double cylinder plus ropes for boom telescoping. Thick cable and bearing are imported parts and have reliable performance.
5. Hydraulic transmission for both superstructure and chassis. Each mechanism speed can be regulated steplessly, so smooth movement and easy operation can be gained.
6. Main and auxiliary winch systems can get oil supplied by single pump or double pump. The high efficiency motor of variable displacement has the features of lower speed with heavy load and higher speed with light load.
7. Slewing system with planetary reducer and constant closed-type brake has free sliding function. Straight-tooth slewing bearing activated by a motor and a buffer valve fitted in the hydraulic system contribute to free sliding and reliable inching control.
8. Founding counterweight suspended highly in the rear of the machine makes more space for slewing operation (standard counterweight of 4t +optional counterweight of 1t).
9. Equipped with perfect safety devices: load moment indicator (LMI), hoist limit switch, outrigger pinning device and electric level gauge. And illuminators facilitate night operations.
10. Streamlined integrated operator's cab with full view, equipped with air-conditioner, roll-up sun shield, shock-absorbing adjustable seat, and soundproof and heat insulation.
11. Lower center of gravity, good stability, high travel speed and manoeuvrability facilitate fast job site transfer.
12. Excellent welding technology for structural members. Welding robot with advance process used for key welding make reliable quality products.

## QY70K- I Truck Crane Technical Specifications

Telescoping truck crane model: QY70K- I

Maximum rated lifting capacity: 70t

### I . Instruction

#### 1. Carrier

Designed and manufactured by XCMG, with luxury, spacious cab, six axles, drive/steering type is 8×4×4.

#### 1.1 Frame

Designed and manufactured by XCMG, with anti-torsion box structure, made of imported high strength steel.

Outrigger boxes are located between axles 2 and 3, and the rear end of frame. Front and rear towing hooks are available.

#### 1.2 Carrier engine

Manufacturer: Hangzhou Mobile Engine Co., Ltd.

Model: WD615.338

Type: six-cylinder, in line, water cooled, supercharging intercooler, fuel straight injection, compression ignition engine

Environmental protection compliance: compliant with Euro III standard.

Fuel tank capacity: about 350L.

#### 1.3 Drive line

##### 1.3.1 Transmission

Manually mechanical control, 9-speed transmission, 9-forward and 1 reverse, performance is stable and reliable.

##### 1.3.2 Axle

High strength axle, easy maintenance

1st axle: single tire, for steering;

2nd axle: single tire, for steering;

3rd axle: double tire, for driving, 1-stage main reduction plus wheel rim reduction;

4th axle: double tire, for driving, 1-stage main reduction plus wheel rim reduction;

##### 1.3.3 Drive shaft

Cross serrated flange is adopted for connection of drive shaft, force transmission is optimized, and transmission torque is enlarged, easy maintenance, disassembly and assembly.



#### **1.4 Suspension**

Front suspension: longitudinal plate spring, with barrel shock absorber;

Rear suspension: double-axle balance, longitudinal plate spring, plate spring and push rod for guiding.

#### **1.5 Steering**

Mechanical steering system has hydraulic boosting devices. The location of steering wheel is adjustable.

#### **1.6 Tire**

Radial ply tire, 12.00R24, suitable for heavy truck, has good commonality. One spare tire is standard.

#### **1.7 Brake**

Service brake: double-circuit air brake, acting on the brake drums of front and rear axles;

Parking brake: spring-loaded brake, acting on all brake drums of mid and rear axles;

Auxiliary brake: diesel engine exhaust brake.

#### **1.8 Driver's cab**

New luxury cab, equipped with CD player, adjustable seats, adjustable steering wheel, large-view rear mirrors, electrically controlled windshield washer, and electrically operated door window. Heater and air conditioner are available.

#### **1.9 Hydraulic system**

Fixed displacement pump, connected with transmission through PTO, controls carrier hydraulic outriggers and supplies power for lifting operation.

#### **1.10 Hydraulic outriggers**

Four-point supporting, outrigger beams and jacks are controlled hydraulically. Control stations are located on both sides of the carrier. Level gauges are equipped on the front outriggers. Outrigger beam is two-stage extended, and outrigger floats are attached under jacks.

**The 5th jack:** located in the front of frame, with it applied the crane could perform 360° fully slewing operation.

#### **1.11 Electric equipments**

24V DC, negative ground, 2 batteries. Illumination complies with Chinese Road Traffic Legislation, including head lamp, fog lamp and reversing lamp.

#### **1.12 Tools**

A set of service tool is supplied.

## **2. Superstructure**

### **2.1 Slewing ring**

Three-row roller slewing ring, it can slew 360 ° continuously, roller raceway seal is water proof and dust proof.

### **2.2 Turntable**

Welded by fine grained high strength steel, with anti-torsion frame structure, has strong load bearing capacity.

### **2.3 Hydraulic system**

In the electro hydraulic pilot control system, the pilot valve is imported electro hydraulic proportional control valve. The moving angle of the pilot valve handle is directly proportional to the input current, and the valve spindle displacement of main control valve is directly proportional to the input current of the pilot valve, as well as the moving speed of actuator such as motor and oil cylinder. Thus fine inching control is available in the whole machine. The main control valve is load sensitive multi-way change valve. The speed of actuator and the force that operator moves the pilot handle have no relationship with load, so better comfort is gained in the pilot control system.

Constant power variable displacement pump control may optimize pump pressure, flow via load feedback, and make improvement in control performance and energy saving effect.

Winch system has features of high speed with light load and low speed with heavy load.

Free fall is adopted in elevating system, energy saving.

The swing circuit has free sliding function. Fine inching control and smooth operation are available in the swing system.

Oil tank capacity: about: 740L

#### **2.3.1 Oil cooler**

Connected with hydraulic system in series, with larger power, can efficiently reduce the oil temperature in the hydraulic system

### **2.4 Control**

Hydraulic pilot control, easy operation, high sensitivity, stepless speed regulation is available.

### **2.5 Main/auxiliary hoist system**

Driven by hydraulic motor, with built-in planetary gear reducer and normally closed brake, anti-winding wire rope equipped. Main and auxiliary hoist systems can be operated separately.

Main hoist system: single line pull is 55KN, diameter of wire rope is 20mm, length 205m;

Auxiliary hoist system: single line pull is 40KN, diameter of wire rope is 18mm, length 130m.

### **2.6 Elevating system**

One double-acting oil cylinder with balance valve equipped.

Elevating angle:  $-2^{\circ} \sim 78^{\circ}$

### **2.7 Slewing system**

Driven by hydraulic motor, with built-in planetary gear reducer and normally closed brake. Stepless slewing speed regulation is available.

### **2.8 Telescoping boom**

It consists of one base boom and four-telescoping section, is made of high strength structural steel, with U-type cross section. Anti-torsion design is adopted. Good stability in lifting operation is available. Clearance between sliders is adjustable. Double-cylinder plus ropes telescoping mechanism is for synchronous plus sequential telescoping. Six pulleys on boom head are standard.

### **2.9 Operator's cab**

Ergonomically designed cab, safe and comfortable, high-visibility, with safety glass, sun visor and protective rails equipped. Outward open door and adjustable seat are available.

Heater and air conditioner are available.

### **2.10 Safety devices**

Hydraulic balance valve, hydraulic relief valve, double-way hydraulic valve, etc are fitted in the hydraulic system to ensure the system stable and safe.

Hirschmann Load moment limiter system employs advanced micro-processing technology, has features of less power consumption, powerful function, high sensitivity and easy operation. LCD with large screen will show the lifting operation data, such as moment percentage, actual lifting capacity, rated lifting capacity, working radius, boom length, boom angle, max. lifting height, working condition code, parts of line, limited angle, information code, etc. by means of Chinese and graphical symbol. It has complete forewarning and overloading cutout function, as well as overloading memory (black box) and fault self-diagnosis function.

Rope end limiter is equipped in winch to prevent rope over-releasing.

Height limiter is fitted on the boom head to prevent rope over-winding.

### **2.11 Counterweight**

Counterweight is secured at the tail of turntable.

Weight of standard counterweight is 4000kg;

Weight of optional counterweight is 1000kg.

### **2.12 Jib**

Made of high strength steel, one section is lattice and another is box structure, length of 8.5m ~15m, three offset angles of  $0^{\circ}$ ,  $15^{\circ}$  and  $30^{\circ}$ .

It can be taken with while located on the side of boom during the vehicle is driving on a road.

**2.13 Hook block**

No.	Lifting capacity (t)	Sheave block	Hook weight (kg)	Qty	Remark
1	70	6	616	1	Single hook
2	35	3	297	1	Single hook
3	4	0	100	1	Single hook

**3. Colour**

The colour of carrier and wheel rim is deep grey.

The colour of driver's cab, superstructure and boom is yellow.

**II. QY70K- I Truck Crane Main Parts List**

(Take real parts as standard)

No.	Name	Suppliers
1	Carrier engine	Hangzhou Engine Co., Ltd.
2	Transmission	SHAANXI FAST GEAR Co., Ltd.
3	Steering gear	Jiangmen Xingjiang, Nantong Huanqiu
4	Axle	Xuzhou Meritor Axle Co., Ltd., Chongqing Dajing
5	Tire	Shanghai Shuangqian, Guizhou Qianjin
6	Hydraulic pump	Bosch Rexroth, Parker America
7	Carrier multi-way valve	Zhejiang Shengbang Fenghua Third Hydraulic Parts Factory
8	Slewing ring	Xuzhou Rothe Erde Slewing Bearing Co., Ltd.
9	Superstructure multi-way valve	Bucher Germany, Zhejiang Shengbang
10	Main and auxiliary winch motors	Bosch Rexroth, Parker America SAMHYDRAULIK Italy
11	Main and auxiliary winch reducers	Bosch Group Rexroth (Beijing) Hydraulic Co., Ltd. Jinan Komatsu, Xuzhou Keyuan, Xuzhou Deli
12	Main winch rope	Jiangsu Saifutian Rope Co., Ltd. Jiangsu Langshan Rope Co., Ltd.
13	Auxiliary winch rope	Jiangsu Saifutian Rope Co., Ltd. Jiangsu Langshan Rope Co., Ltd.
14	Slewing motor	Beijing Huade, Guizhou Liyuan
15	Slewing reducer	Bosch Group Rexroth (Beijing) Hydraulic Co., Ltd. Jinan Komatsu, Xuzhou Keyuan, Xuzhou Deli
16	Elevating cylinder	Chengdu Hydraulic Cylinder Co., Ltd. Xuzhou Hydraulic Parts Co., Ltd. XCMG
17	Telescoping cylinder	Chengdu Hydraulic Cylinder Co., Ltd. Xuzhou Hydraulic Parts Co., Ltd. XCMG
18	Load moment limiter	Xuzhou Hirschmann Electronics Co., Ltd.
19	Pilot lever	P & G, England, OIL CONTRAL Italy
20	Boom steel plate	SSAB Sweden
21	Boom telescoping bearing	Japanese NSK, NTN and Koyo, BUC America, STE Austria
22	Boom telescoping rope	German CASAR, DIEPA
23	Pipe connection	EMB Germany or PARK America

### III. QY70K- I Truck Crane Technical Specifications

#### 1. Main Technical Data Table in Travel configuration

(Subject to improvement)

Category	Item		Unit	Parameter
Outline Dimensions	Overall length		mm	13900
	Overall width		mm	2800
	Overall height		mm	3575
	Wheel base	1st and 2nd Axle	mm	1470
		2nd and 3rd Axle	mm	4105
		3rd and 4th Axle	mm	1350
	Track	Front wheel	mm	2304
Rear wheel		mm	2075	
Weight	Total vehicle mass in travel configuration		kg	43000 (not including auxiliary counterweight of 1t)
	Axle load	1st and 2nd Axle	kg	17000
		3rd and 4th Axle	kg	26000
Power	Engine model			WD615.338
	Engine rated power		kW/(r/min)	276/2200
	Engine rated torque		N.m/(r/min)	1500/1400
	Engine rated rotational speed		r/min	2100
Travel Performance	Max. travel speed		km/h	80
	Min. stable travel speed		km/h	3
	Min. turning diameter		m	24
	Min. turning diameter at boom tip		m	29
	Min. ground clearance		mm	327
	Approach angle		°	19
	Departure angle		°	11
	Braking distance (at 30 km/h )		m	≤10
	Max. grade ability		%	40
	Oil consumption per 100km		L	45



## 2. Main Technical Data Table for Lifting Operation

Category	Item		Unit	Parameter	
Main Lifting Performance	Max. total rated lifting capacity		t	70	
	Min. rated working radius		m	3	
	Turning radius at turntable tail		mm	3550	
	Max. load moment	Base boom	kN.m	2303	
		Fully-extended boom	kN.m	1129	
		Fully-extended boom + Jib	kN.m	580.2	
	Outrigger span	Longitudinal	m	6.1	
		Lateral	m	7.3	
	Hoist height	Base boom	m	11.8	
		Fully-extended boom	m	44.2	
		Fully-extended boom + Jib	m	59.4	
Boom length	Base boom	m	11.6		
	Fully-extended boom	m	44.5		
	Fully-extended boom + Jib	m	59.5		
Jib offset angle		°	0, 15, 30		
Working Speed	Elevating time	Boom raising	s	60	
		Boom lowering	s	80	
	Telescoping time	Fully extended	s	150	
		Fully retracted	s	100	
	Max. swing speed		r/min	2	
	Outrigger extending and retracting time	Outrigger beam	Extending Simultaneously	s	30
			Retracting Simultaneously	s	20
		Outrigger jack	Extending Simultaneously	s	35
			Retracting Simultaneously	s	30
	Hoisting speed (single line)	Main winch	Full load	m/min	75
			No load	m/min	130
Auxiliary winch		Full load	m/min	98	
		No load	m/min	108	
Noise	Exterior noise level		dB (A)	≤122	
	Noise level at seated position		dB (A)	≤90	

### 3. QY70K- I Truck Crane Lifting Load Tables

**Table 1 Total Rated Lifting Load Table for Boom**

With fully-extended outriggers of 7.3m, without front jack, boom over side or over rear; with front jack down, 360 °operation of the boom, with counterweight of 5t													
Working radius (m)	Base boom of 11.6m			Mid-extended boom of 15.71m			Mid-extended boom of 19.82m			Mid-extended boom of 25.98m			
	Lifting load (kg)	Boom angle (°)	Lifting height (m)	Lifting load (kg)	Boom angle (°)	Lifting height (m)	Lifting load (kg)	Boom angle (°)	Lifting height (m)	Lifting load (kg)	Boom angle (°)	Lifting height (m)	
3	70000	71.5	11813										
3.5	63500	68.8	11584										
4	54500	66.0	11325	47500	73.1	15838	40600	77.2	20173				
5	47000	60.3	10709	42600	69.2	15418	38500	74.2	19850	27600	79.4	26313	
6	38500	54.1	9938	37000	65.1	14912	34200	71.1	19467	25500	77.1	26029	
7	30000	47.3	8965	29000	60.9	14311	28800	67.9	19019	23500	74.8	25701	
8	23500	39.5	7703	23000	56.4	13602	23000	64.7	18503	21500	72.4	25327	
9	18600	29.8	5929	18500	51.7	12764	18300	61.3	17911	19000	70.0	24905	
10				15000	46.6	11767	15000	57.8	17236	16000	67.6	24432	
12				10300	34.5	9052	10300	50.4	15586	11300	62.6	23321	
14							7300	41.9	13389	8300	57.2	21960	
16							5200	31.4	10301	6300	51.5	20296	
18										4700	45.3	18239	
20										3600	38.1	15624	
22										2700	29.2	12058	
24													
26													
28													
30													
32													
34													
36													
Parts of line	12			9			8			6			10

We reserve the right to modify the design without notice for improvement.

**Continued Table 1**

With fully-extended outriggers of 7.3m, without front jack, boom over side or over rear; with front jack down, 360 °operation of the boom, with counterweight of 5t									
Working radius (m)	Mid-extended boom of 32.15m			Mid-extended boom of 38.31m			Mid-extended boom of 44.5m		
	Lifting load (kg)	Boom angle (°)	Lifting height (m)	Lifting load (kg)	Boom angle (°)	Lifting height (m)	Lifting load (kg)	Boom angle (°)	Lifting height (m)
3									
3.5									
4									
5									
6									
7	18200	79.6	32222						
8	17500	77.7	31926	14100	80.0	38339			
9	16000	75.8	31595	14100	78.7	38065			
10	14500	73.9	31226	13200	77.2	37762	9900	79.5	44224
12	12000	70.1	30372	11200	74.0	37064	9100	76.8	43632
14	9000	66.1	29350	9500	70.8	36237	8100	74.1	42936
16	6900	61.9	28140	7300	67.5	35373	7200	71.4	42130
18	5400	57.6	26717	5800	64.1	34160	5950	68.5	41208
20	4200	53.0	25043	4600	60.5	32881	4600	65.6	40161
22	3300	48.0	23059	3700	56.8	31415	3800	62.6	38979
24	2600	42.5	20671	3000	52.9	29735	3100	59.6	37648
26	2000	36.2	17707	2400	48.8	27799	2500	56.4	36153
28				1900	44.3	25547	2000	53.0	34471
30				1400	39.4	22881	1600	49.5	32571
32				1100			1300	45.7	30412
34							1000	41.6	27.93
36							700	37.2	25.03
Parts of line		4			3			3	

We reserve the right to modify the design without notice for improvement.

**Table 2 Total Rated Lifting Load Table for Jib**

With fully-extended outriggers of 7.3m, without front jack, boom over side or over rear; with front jack down, 360 °operation of the boom, with counterweight of 5t									
Boom length	44.5m								
Jib length	8.5m								
Jib offset angle	0 °			15 °			30 °		
Boom angle	Lifting load ( kg )	Working radius ( m )	Lifting height ( m )	Lifting load ( kg )	Working radius ( m )	Lifting height ( m )	Lifting load ( kg )	Working radius ( m )	Lifting height ( m )
78	4000	13.2	53.6	2700	15.2	52.9	2400	16.8	51.7
75	3600	15.9	52.8	2500	17.8	51.9	2300	19.4	50.7
72	3200	18.5	51.8	2300	20.4	50.9	2200	21.9	49.5
70	2900	20.3	51.1	2200	22.1	50.1	2100	23.6	48.7
65	2400	24.5	49	2000	26.2	47.9	1900	27.5	46.3
60	2000	28.5	46.6	1800	30.1	45.3	1700	31.3	43.7
55	1300	32.2	43.9	1200	33.7	42.4	1100	34.8	40.7
50	800	35.8	40.8	650	37.1	39.2	600	38	37.4
With 5m of outriggers half-extended, without fifth jack, boom over side or over rear; with fifth jack down, 360 °operation of the boom									
78	4000	13.2	53.6	2700	15.2	52.9	2400	16.8	51.7
75	3600	15.9	52.8	2500	17.8	51.9	2300	19.4	50.7
72	2700	18.5	51.8	2300	20.4	50.9	2200	21.9	49.5
70	2100	20.3	51.1	1900	22.1	50.1	1800	23.6	48.7
65	1100	24.5	49	1000	26.2	47.9	1000	27.5	46.3
60	500	28.5	46.6	400	30.1	45.3	400	31.3	43.7
Weight of hook	100kg								

**Continued Table 2**

With fully-extended outriggers of 7.3m, without front jack, boom over side or over rear; with front jack down, 360 °operation of the boom, with counterweight of 5t									
Boom length	44.5m								
Jib length	15m								
Jib offset angle	0 °			15 °			30 °		
Boom angle	Lifting load ( kg )	Working radius ( m )	Lifting height ( m )	Lifting load ( kg )	Working radius ( m )	Lifting height ( m )	Lifting load ( kg )	Working radius ( m )	Lifting height ( m )
78	2500	14.7	59.4	1400	18.1	58.1	1100	21	55.9
75	2100	17.7	58.5	1250	21	57	1040	23.8	54.7
72	1800	20.6	57.4	1150	23.8	55.7	990	26.5	53.3
70	1700	22.5	56.6	1100	25.7	54.8	950	28.3	52.3
65	1400	27.2	54.3	950	30.2	52.3	880	32.5	49.5
60	1200	31.6	51.6	850	34.4	49.3	830	36.5	46.4
55	800	35.8	48.6	700	38.4	46	600	40.3	42.9
50	500	39.8	45.2	400	42.1	42.4	350	43.7	39.1
With 5m of outriggers half-extended, without fifth jack, boom over side or over rear; with fifth jack down, 360 °operation of the boom									
78	2500	14.7	59.4	1400	18.1	58.1	1100	21	55.9
75	2100	17.7	58.5	1250	21	57	1040	23.8	54.7
72	1800	20.6	57.4	1150	23.8	55.7	990	26.5	53.3
70	1600	22.5	56.6	1100	25.7	54.8	950	28.3	52.3
65	700	27.2	54.3	600	30.2	52.3	500	32.5	49.5
60	200	31.6	51.6						
Weight of hook	100kg								

We reserve the right to modify the design without notice for improvement.

### 4. Lifting Height Chart

Combined length of boom and jib

