

QY20B.5Truck Crane Highlights

1. Specialized boom of Bi-hexagonal cross section optimized, local stability of web and side plate, and lifting boom stability are better than the similar products made by the same industry manufacturers.
2. Built-in boom head, larger slider supporting area, better stress distribution, longer lifetime; strong restriction of slider to boom body reduces the boom torsion and side-bending, accordingly safety of operating boom is improved.
3. Half-dimension driver's cab, spacious and comfortable for operator to operate. Full covered walking surface is available.
4. Excellent welding technology for structural members. Welding robot with advance process used for key welding make reliable quality products.
5. Ferrule-type compression joints are used for pipeline, have features of reliable connection, better tightness and less leakage.

QY20B.5 Truck Crane Technical Specifications

Telescoping truck crane model: **QY20B.5**

Maximum rated lifting capacity: 20t



I . Instruction

1. Carrier

Designed and manufactured by XCMG, with a half-dimension left-hand cab, three axles, drive/steering type is 6×4×2.

1.1 Frame

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

Outrigger boxes are located between axles 1 and 2, and the rear end of frame. Front and rear towing hooks are available.

Full covered walking surface.

1.2 Carrier engine

Manufacturer: Shanghai Diesel Engine Co., Ltd.

Model: SC8DK260Q3 (Dongfeng-branded)

Type: six-cylinder, in line, water cooled, turbocharged, electric control diesel engine

Environmental protection compliance: compliant with Euro III standard

Fuel tank capacity: about 260L.

1.3 Drive line

1.3.1 Transmission

Manually mechanical control, 6-speed transmission, performance is stable and reliable.

1.3.2 Axle

High strength axle, easy maintenance

1st axle: single tire, for steering;

2nd axle: double tire, for driving.

3rd axle: double tire, for driving.

1.3.3 Drive shaft

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

1.4 Suspension

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

Rear suspension: longitudinal plate spring, double-axle balance.

1.5 Steering

Mechanical steering system has hydraulic boosting devices.

1.6 Tire

Diagonal tire, suitable for heavy truck, has good commonality.

1.7 Brake

Service brake: foot pedal control, double-circuit air brake. The 1st circuit acts on the wheels of 1st axle, the 2nd circuit acts on the wheels of 2nd and 3rd axle;

Parking brake: manual brake is used as emergency brake and parking brake, which works through the spring-loaded air cylinder on each axle;

Auxiliary brake: engine exhaust brake.

1.8 Driver's cab

Left-hand half-dimension cab, equipped with radio-cassette player, adjustable seats, adjustable steering wheel, large-view rear mirrors and manually operated lift of door window.

Heater is standard, air conditioner is optional.

1.9 Hydraulic system

Gear pump, connected with transmission through PTO, controls auxiliary steering and hydraulic outriggers, and supplies hydraulic power for lifting operation.

1.10 Hydraulic outriggers

H-type outriggers, four-point supporting, outrigger beams and jacks are controlled hydraulically. Joysticks are located on both sides of the carrier. Level gauge and accelerator control switch are equipped beside joysticks. Outrigger floats are articulated under jacks.

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

Single row four-point contact ball internal tooth 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

Superstructure hydraulic system is open system, which power is supplied by carrier gear pump. Lifting, telescoping, elevating and slewing motions are controlled by superstructure multi-way valve.

Oil tank capacity: 559L

2.3.1 Hydraulic oil radiator

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

2.4 Control

Mechanical control, realized by 5 joysticks located in the front of seat. All motions and speeds of crane may be infinitely controlled by joysticks.

2.5 Main/auxiliary hoist system

Driven by hydraulic motor, with normally closed brake and special drum equipped. Main and auxiliary hoist systems can be operated separately.

Main winch: single line pull is 35.8KN, diameter of wire rope is 16mm, length 150m;

Auxiliary winch: single line pull is 35.8KN, diameter of wire rope is 16mm, length 85m.

2.6 Elevating system

One differential cylinder with counterbalance valve equipped. Elevating angle: $-2^{\circ} \sim 80^{\circ}$

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 Main boom

It consists of one base boom and three-telescoping section, torsion-resistant design, made of high strength structural steel, with bi-hexagonal cross section. Good stability in lifting operation is available. Slider clearance is adjustable. Single-cylinder plus ropes telescoping mechanism is for synchronous telescoping. Three pulleys on boom head are standard.

2.9 Operator's cab

Ergonomically designed streamlined cab, safe and comfortable, with safety glass, sun screen and protective rails equipped. Outward open door and adjustable seat are available. Controllers and indicators are arranged ergonomically, with wide field of vision.

Heater and air conditioner are optional.

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 Xuzhou load moment limiter consists of display, boom angle sensor and boom length sensor, pressure sensor and height limiter switch. It will supply information for operator

such as boom length, boom angle, lifting height, working radius, rated load, and real load, etc.
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: 2110kg

2.12 Jib

Made of high strength steel, lattice structure, its length is 8.30m.

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

2.13 Hook block

No.	Lifting capacity (t)	Sheave block	Weight (kg)	Quantity	Remark
1	20	3	230	1	Single hook
2	3	0	59	1	Single hook

3. Colour

The colour of carrier is black.

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

II. QY20B.5 Truck Crane Main Parts List

(Take real parts as standard)

No.	Name	Suppliers
1	Engine	Shanghai Diesel Engine Co., Ltd.
2	Transmission	SHAANXI FAST GEAR Co., Ltd. Xuzhou Liangyu Gear Machinery Co., Ltd.
3	Steering gear	Jiangmen Xingjiang, Nantong Huanqiu
4	Axle	Xuzhou Meritor Axle Co., Ltd.
5	Tire	Xuzhou XuLun Material Trading Co., Ltd.
6	Hydraulic pump	Xuzhou Keyuan, Hefei Changyuan, Huaian Haida
7	Carrier multi-way valve	Zhejiang Shengbang Fenghua Third Hydraulic Parts Factory
8	Slewing ring	Xuzhou Rothe Erde Slewing Bearing Co., Ltd. Maanshan Fangyuan
9	Superstructure multi-way valve	Zhejiang Shengbang Mechinery Co., Ltd.
10	Main/auxiliary winch motor	Beijing Huade, Guizhou Liyuan, Zhejiang Shengbang
11	Main/auxiliary winch reducer	Jinan Komatsu, Xuzhou Deli, Qingdao Hailida
12	Main/auxiliary winch rope	Jiangsu Fasten Rope Co., Ltd. Jiangsu Langshan Rope Co., Ltd.
13	Slewing motor	Ningbo Zhongyi
14	Slewing reducer	Xuzhou Shengbang, Qingdao Hailida, Shanghai Xinghuo
15	Elevating cylinder	Xuzhou Hydraulic Parts Co., Ltd. XCMG Chengdu Hydraulic Cylinder Co., Ltd. Zhangjiakou Changyu
16	Telescoping cylinder	Xuzhou Hydraulic Parts Co., Ltd. XCMG Chengdu Hydraulic Cylinder Co., Ltd. Zhangjiakou Changyu
17	Load moment limiter	Xuzhou Hirschmann Electronics Co., Ltd.
18	Boom steel plate	Shanghai Baoshan Steel Co., Ltd.

III. QY20B.5 Truck Crane Technical Specifications

1. Main Technical Data Table in Travel configuration

(Subject to improvement)

Category	Item		Unit	Parameter
Outline Dimensions	Overall length		mm	12400
	Overall width		mm	2500
	Overall height		mm	3300
	Wheel base		mm	4325+1350
	Track		mm	2090/1865
Weight	Total vehicle mass in travel configuration		kg	26020
	Axle load	Front axle	kg	6900
		Rear axle	kg	19120
Power	Model			SC8DK260Q3
	Engine rated power		kw/(r/min)	192/2200
	Engine rated torque		N.m/(r/min)	1100/1400
Travel Performance	Max. travel speed		km/h	75
	Min. turning diameter		m	20
	Min. ground clearance		mm	270
	Max. grade ability		%	35
	Approach angle		°	21
	Departure angle		°	11
	Braking distance (at 30 km/h, full load)		m	9.5
	Oil consumption per 100km		L	35
Noise	Exterior noise level during acceleration traveling		dB (A)	84
	Noise level at seated position		dB (A)	90

2. Main Technical Data Table for Lifting Operation

Category	Item		Unit	Parameter	
Main Lifting Performance	Max. total rated lifting capacity		t	20	
	Min. rated working radius		m	3	
	Turning radius at turntable tail		mm	3385	
	Max. load moment	Base boom	KN.m	860	
		Fully-extended boom	KN.m	458.6	
	Outrigger span	Longitudinal	m	4.97	
		Lateral	m	5.4	
	Hoist height	Base boom	m	9.94	
		Fully-extended boom	m	32.1	
		Fully-extended boom + Jib	m	40.3	
	Boom length	Base boom	m	10.06	
Fully-extended boom		m	32.76		
Fully-extended boom + Jib		m	42.12		
Jib offset angle		°	0, 15,30		
Working Speed Parameter	Time for boom raising		s	75	
	Time for boom extending fully		s	95	
	Max. slewing speed		r/min	3	
	Outrigger extending and retracting time	Outrigger beam	Extending Simultaneously	s	35
			Retracting Simultaneously	s	30
		Outrigger jack	Extending Simultaneously	s	30
			Retracting Simultaneously	s	30
	Hoisting speed (single line)	Main winch	Full load	m/min	65
			No load	m/min	100
		Auxiliary winch	Full load	m/min	65
No load			m/min	100	
Noise	Exterior noise level		dB (A)	120	
	Noise level at seated position		dB (A)	90	