Truck Crane

Model: XCT12L4

Basic technical specifications

Lifting capacity	
Max. lifting load	12t
Dimension	
Overall length	10900mm
Overall width	2500mm
Overall height	3550mm
In travel configuration	
Total weight	16000kg
Axle load of 1st axle	6000kg
Axle load of 2nd axle	10000kg
Performance	
Max. travel speed	90km/h
Max. grade ability	41%
Boom	4 sections, 9.45m～30.5m
Length of boom + jib	37.5m
Max. lifting height of boom	30.9m
Max. lifting height of boom + jib	38.1m

Xuzhou Heavy Machinery CO.,LTD

Features and advantages of XCT12L4 Truck crane

XCT12L4 Truck crane is designed to mainly aim at domestic market, and to take international market requirements into consideration. It is mounted on a self-made special chassis, which is suitable for driving on a wide range of roads.

It has high lifting height, powerful lifting capacity and high working efficiency. It is widely used for the lifting operations in general engineering projects, such as construction site, urban renewal, communication and transportation, ports, bridge, oilfields and mine, and complex working environments.

It is mounted on a two-axle truck crane chassis. Four-section boom with octagonal profile, a lattice jib, built-in double independent winches, new energy-saving power system, fixed counterweight and new energy-saving hydraulic system are available. The crane has newly designed XCMG G1 appearance of Truck Crane, luxurious full-dimension driver's cab and XCMG man-machine interactive system with the level of a car. Its performance takes the lead in the industry. It is more intelligent, energy-saving and user friendly to operate.

(1) High performance

The four-section boom with octagonal profile is made of high strength steel. The boom can be extended up to 30.5 m, which is 1.6 m longer than the competitive products in the same class in the industry. The boom cross-section is optimized to reduce the boom torsion and side bending during lifting operations; plug-in sliders are used to effectively increase the overlapping length of adjacent boom sections, resulting in improved lifting capacity; compact boom tail structure is designed to enhance the telescoping rate of each boom section, leading to enlarged boom length; H-type outriggers have span of 4.57 m × 5.5 m, significantly improving crane's stability; the lifting capacity of the crane is 10% higher than the highest level in the industry.

A high precision pressure shut-off valve is added to prevent pressure shock during lifting operations, to eliminate winch shaking while lowering the hook in case high temperature of hydraulic oil, greatly improving the reliability of lifting operations. A large displacement motor, combined with an oil-refilling circuit specialized for the winch and precise brake control, contributes to the response speed in millisecond and protection against winch speed out of control and prevents the load from sliding down while starting second lift.

(2) Intelligent

The latest control technology platform is adopted to perform intelligent crane operations and travel control, such as automatic planning of working conditions, parameter indication such as engine rotation speed, language selector and constant speed cruise.

(3) Energy-saving

New energy-saving hydraulic system is designed, such as the open winch hydraulic system consisting of variable displacement pumps and constant displacement motors, and the slewing hydraulic system consisting of a constant displacement pump and a low speed large torque motor with mature slewing buffering technology adopted. The external-controlled boom gravity fall results in improved lowering speed from a larger boom angle, which leads to 30% increase in the working efficiency. In addition, the radiator core fins are optimized, resulting in 10% improvement in cooling performance and 25% reduction in energy consumption for cooling.

The new power system consists of a new energy-saving engine and a transmission with synchronizer and over drive contributes to strong driving performance, high load-bearing capacity and better stability, resulting in perfect combination of high power performance and low fuel consumption, i.e.16% reduction in comprehensive fuel consumption, 12% increase in Max. travel speed

(4) Appearance and ergonomics

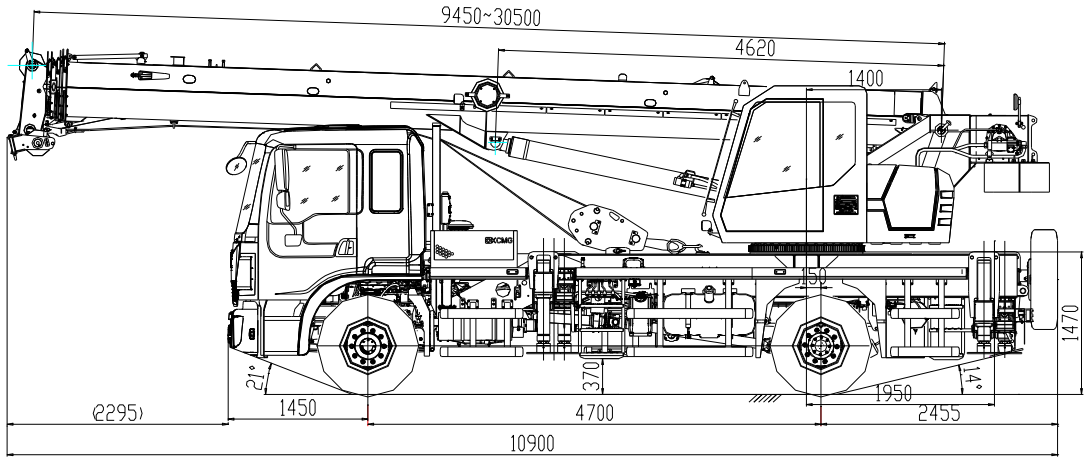
The crane has newly designed XCMG G1 appearance of Truck Crane, which looks more sturdy and elegant. The entire crane has been ergonomically improved. The full-dimension luxurious driver's cab improve driver's comfort. New designed aluminium deck presents aesthetic.

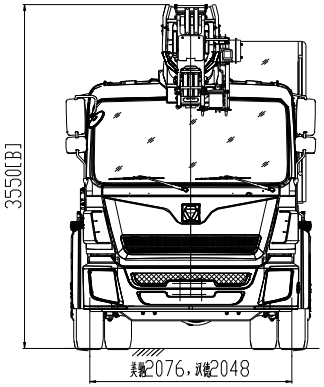
Covering door, made of new composite material, and bottom plate and handrail, made of aluminium alloy material, reduce the weight of coverings by 30%~40%.

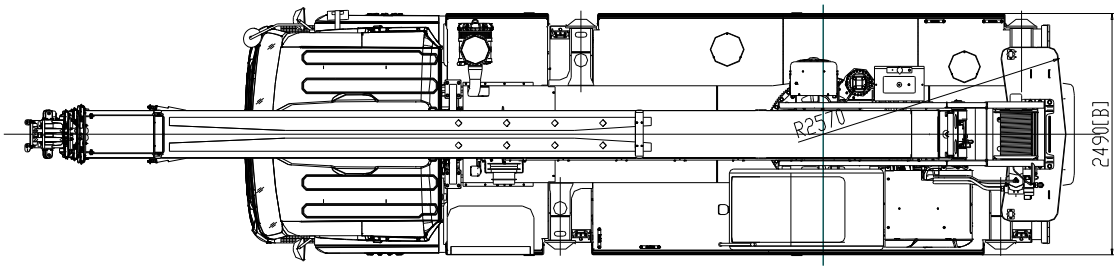
A portable reeving system is installed to reducethe the reeving time from 35 min to 18 min due to no need to disassemble wedge socket.

XCMG man-machine interactive system with the level of a car, i.e. ergonomically designed work space, informative interactive techniques and user friendly man-machine interaction are available.

Overall dimensions of crane in travel configuration

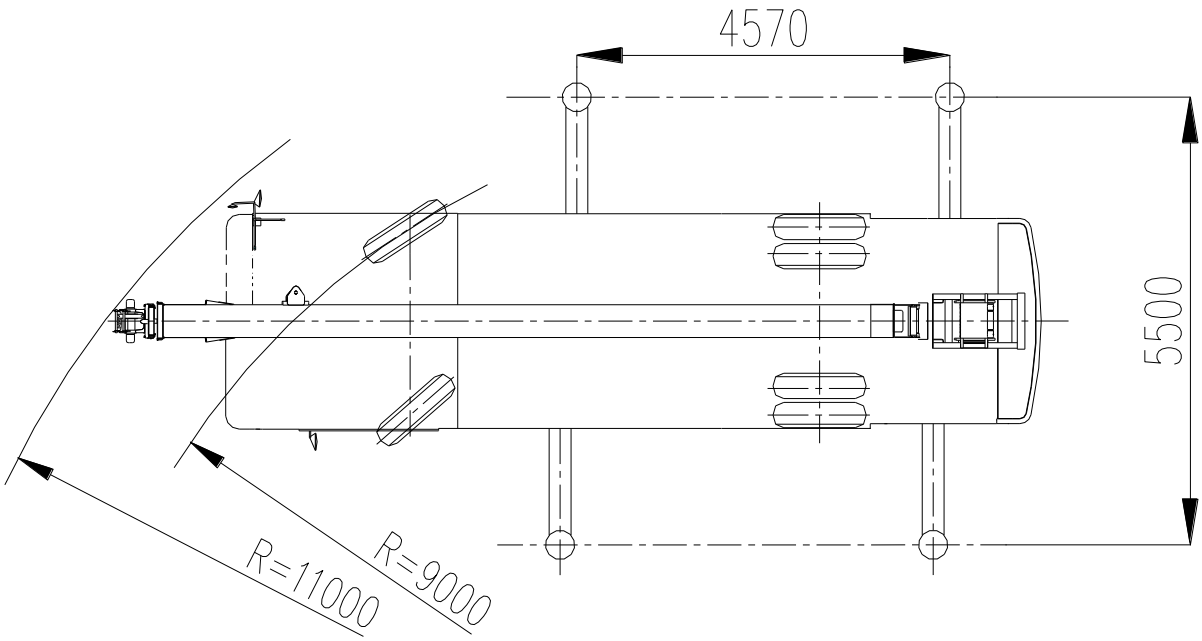






We reserve the right to modify the design without notice for improvement.

Turning track of crane in travel configuration



Technical specifications of superstructure

Model	XCT12L4
Hydraulic system	Hydraulic pump……the triple fixed-displacement gear pump driven by chassis engine. Control valve……mechanically-controlled multi-way change valve control system, displacement of main control valve core is in proportion to the output force of control rod. The change of control rod output force brings different movement speed of actuator. Oil filter……oil return filter
Boom	4-section boom with octagonal profile, made of high strength steel. The single-cylinder plus ropes system is used as telescoping system. Boom length……9.45m～30.5m. Single-plate boom head, and compact boom tail are available. Speed……about 80s for boom fully extending to 30.5m
Jib (optional)	1-section triangle swing-away lattice jib, 0°offset angle. Jib length……7m
Single top (optional) (boom auxiliary pulley)	Single pulley, installed at the boom top used for single line operation. Its lifting performance is the same as that for boom, but the max. lifting load could not exceed 2100 kg.
Elevating system	A single cylinder is used for front support elevation. A balance valve is equipped. Elevating speed……-2° to +80◦ about 45s
Main winch system	Hydraulic control is used for speed regulation. The system is driven by a hydraulic motor through a planetary gear reducer, with a normally closed brake and a grooved drum equipped. It has features of high speed with a light load and low speed with

a heavy load.
The main winch can be operated separately.
Single line pull……23kN
Single line speed (no load) ……138m/min
Diameter ×length……φ12mm×140m

Auxiliary winch system

Hydraulic control is used for speed regulation. The system is driven by a hydraulic motor through a planetary gear reducer, with a normally closed brake and a grooved drum equipped. It has features of high speed with a light load and low speed with a heavy load.
The auxiliary winch can be operated separately.
Single line pull……23kN
Single line speed (no load) ……138m/min
Diameter ×length……φ12mm×85m

Hook blocks

No.	Type	Lifting capacity (t)	Number of pulley	Parts of line	Weight (kg)	Qty	Remarks
1	Main hook block	12t	3	6	145	1	Single hook
2	Auxiliary hook block (optional)	2.1t	—	1	60	1	Single hook

Slewing system

Single-row four-point contact ball type with external slewing ring, planetary gear slewing reducer is driven by hydraulic motor which can slew 360 °continuously.
It has functions of power control or free slewing and stepless speed regulation is available.
Slewing speed: 0～3r/min

Operating mode

Mechanical control is used for controlling the superstructure. Adopting load moment limiter control system, it has many functions besides normal control functions such as hoisting planning, virtual instrument display and automatic fault

diagnosis.

Operator's cab	New fully-enclosed steel cab has better sealing and anti-corrosive properties and it's safe and comfortable to use. It is equipped with a full-view front window. Safety glass and sun shield are used for windows. A sliding door is also available. The cab features a new ergonomic seat design with backrest adjustment and armrests with joysticks fitted at the front of the seat. Wipers are fitted for the windshield and roof window. Standard controls and indicators are ergonomically arranged in the cab.
Safety devices	Hydraulic balance valve; Hydraulic relief valve; Double-way hydraulic valve; LMI; Lowering limiter for preventing wire rope from over-releasing; Height limiter on boom tip for preventing wire rope from over-spooling
LMI	Hirschmann load moment limiting system, a safety protective device in operator's cab for superstructure. When the actual load moment is approaching overloading value, audible warning will be set out, and dangerous operation will be stopped automatically before overloading. Overload memory function (black box) and fault self-diagnosis function are available. What can be shown continuously is as follows: Load moment percentage Actual lifting capacity Rated lifting capacity Working radius Boom length Boom angle Max. lifting height Working condition code Parts of line Information code

Fixed counterweight	0.9t
Color	Chassis, wheel rim: grey. Driver's cab, superstructure and boom: engineering yellow.

Technical specification of chassis

Type

Left-hand drive steering wheel, drive/steering type is 4×2, rear axle for driving and front axle for steering.

Frame

In-house designed and manufactured by XCMG, the load-bearing structure is optimized. It is made of high strength steel and has anti-torsion box structure with walking surface covered.

Engine

Model	SC7H230Q4	WP6.220E40	SC7H230Q5	WP6.220E50
Type	In-line, 6 cylinder, water cooled, supercharging intercooler, high pressure common rail, compression ignition engine			
Manufacture	Shanghai Diesel Engine Co., Ltd.	WEICHAI DEUTZ Engine Co., Limited	Shanghai Diesel Engine Co., Ltd.	WEICHAI DEUTZ Engine Co., Limited
Power/kw/rpm	170/2300	162/2300	170/2300	162/2300
Torque/N.m/rpm	900/1400	850/1400-1600	900/1200-1600	850/1200-1600
Displacement/L	6.44	6.75	6.44	6.75
Fuel tank capacity/L	About 200			
Emission standard	China National Ⅳ		China National Ⅴ	
Remark				

Chassis hydraulic system Constant displacement open-type system

Transmission

Shaanxi 6J85T and Datong DC6J95TA mechanical transmissions are adopted with manual long distance soft shaft manipulation. Full-synchronizer Shaanxi transmission and half-synchronizer Datong transmission are combined; with 6-forward gear and 1-reverse gear, it is stable and reliable to work.

Clutch

Single, dry, push-type, diaphragm spring clutch

Steering system

Mechanically steered plus hydraulic booster

Axles	Two high strength load-bearing axles with reliable performance, axle 2 for driving and axle 1 for steering, designed by advanced foreign technology and made by distinguished manufacturer. 1st axle: single tire, for steering; 2nd axle: double tire, for driving;
Drive shaft	Cross serrated flange is adopted for connection of drive shafts, so transmission torque is enlarged and power transmission is optimized. Consequently smooth and reliable transmission may be gained.
Suspensions	Less disc taper-leaf spring suspension is adopted for front suspension with light weight, low noise and good comfort; Made of rubber, rear suspension adopts V-shaped propelling rod with simple structure and strong carrying capacity.
Braking system	Service brake: pedal operated double-circuit air pressure brake. The first circuit acts on wheels of axle 2; the second circuit acts on wheels of axle 1. Parking brake: air-release brake, acting on axle 2 by the spring energy storing air chamber on each axle; Auxiliary brake: engine exhaust brake+ engine compression retarder brake (optional)
Hydraulic system	Constant displacement open-type system. The constant displacement gear pump is connected to transmission through PTO. Horizontal and vertical cylinders are mechanically controlled.
Outriggers	H-shaped outrigger beam is supported by 4 points and controlled by hydraulic. There is an outrigger control station located at each side of the chassis, and there is a level gauge on each control station. Outrigger floats are secured under jacks through ball pivots. The outriggers are designed to support the

	entire crane for better operations under various working conditions. Outrigger span: Longitudinal × lateral: 4.57m×5.5m Float dimension: diameter of 350mm Reaction force of outrigger at max. lifting load:189000N
Electric system	24V DC, negative ground, 2 batteries of 12V in series. Chassis illuminating system complies with Chinese road traffic standard, including adjustable head lamp, front and rear fog lamp, reversing lamp, etc. Generator output voltage and current is 28.5±0.3V and 70A.
Driver's cab	New full-dimension forward-control cab, luxury and comfort. It can realize manual hydraulic tilting over with half-floating suspension system, It is designed to be leakproof and shockproof. It is equipped with a windshield offering outstanding visibility, electric control washer, electronic lifters of doors and windows, heater & air conditioner, radio cassette player, etc. Steering wheel is adjustable for different height and angle, so it is convenient to operate for people of different stature. Driver and co-driver' seats adopt three-point safety belt. A mechanical shock-absorber seat is adopted for the driver. The rear seat is also a simple sleeper, which is installed to supply comfort and reduce fatigue.
Tires	10.00-20 (standard) 10.00R20 (optional)
Tools	A set of maintenance tools is supplied.

Main parts list

(Take real parts as standard)

No.	Name	Mamufacturer
1	Engine	Shanghai Diesel Engine Co., Ltd. WEICHAI DEUTZ Engine Co., Limited
2	Transmission	SHAANXI FAST GEAR Co., Ltd. SINOTRUK Datong Gear Co., Ltd.
3	Steering gear	Jiangmen Xingjiang Steering Gear Co., Ltd. Nantong Huanqiu Steering Gear Co., Ltd.
4	Axle	Xuzhou Meritor Axle Co., Ltd./Shaanxi Hande Axle Co.,Ltd
5	Tire	Xuzhou XuLun Rubber Co., Ltd./ Shanghai Double Coin Group Tire Co., Ltd/ Guizhou Tyre Co., Ltd./ Triangle Group Co., Ltd
6	Chassis hydraulic pump	Jinan Hydraulic Pump Co., Ltd. Xuzhou Keyuan Hydraulic Co., Ltd.
7	Extension cylinder	Xuzhou Hydraulic Parts Co., Ltd. XCMG Zhangjiakou Changyu Construction Machinery Hydraulic Cylinder Co., Ltd.
8	Jack cylinder	Xuzhou Hydraulic Parts Co., Ltd. XCMG Zhangjiakou Changyu Construction Machinery Hydraulic Cylinder Co., Ltd.
9	Slewing ring	Xuzhou Rothe Erde Slewing Bearing Co., Ltd. Maanshan Fangyuan Slewing Bearing Co., Ltd.
10	Slewing motor	Qidong Liangyi Machinery Manufacture Co., Ltd./ Zhejiang Shengbang Science & Technology Co., Ltd.
11	Slewing reducer	Xuzhou Shengbang Machinery Co., Ltd. Qingdao Haili gear box Co., Ltd.
12	Main winch motor	Guizhou Liyuan Hydraulic Co., Ltd./ Zhejiang Shengbang Science & Technology Co., Ltd.
13	Main winch reducer	Xuzhou Shengbang Machinery Co., Ltd. Qingdao Haili gear box Co., Ltd.
14	Main/ Auxiliary winch rope	Jiangsu Langshan wire Rope Co., Ltd. China Juli Sling Co., Ltd.
15	Auxiliary winch motor	Guizhou Liyuan Hydraulic Co., Ltd./ Zhejiang Shengbang Science & Technology Co., Ltd.
16	Auxiliary winch reducer	Xuzhou Shengbang Mechinery Co., Ltd. Qingdao Haili gear box Co., Ltd.
17	Elevating cylinder	Xuzhou Hydraulic Parts Co., Ltd. XCMG Chengdu Hydraulic Cylinder Co., Ltd.
18	Telescoping cylinder	Xuzhou Hydraulic Parts Co., Ltd. XCMG Chengdu Hydraulic Cylinder Co., Ltd.
19	LMI	Xuzhou Hirschmann Electronics Co., Ltd.
20	boom plate	BAOSTEEL

Technical Specifications

Main Technical Data Table of XCT12L4 in Travel configuration

(Subject to technical improvement)

Category	Item		Unit	Parameter	
Dimensions	Overall length		mm	10900	
	Overall width		mm	2500	
	Overall height		mm	3550	
	Wheel base		mm	4700	
	Track		mm	Meritor：2076/1830 Hande：2048/1830	
	Front overhang		mm	1450	
	Rear overhang		mm	2455	
Weight	Total weight in travel		kg	16000	
	Axle load	1st axle	kg	6000	
		2nd axle	kg	10000	
Power	China National IV	Engine model		SC7H230Q4	WP6.220E40
		Engine rated power	kw/(r/min)	170/2300	162/2300
		Engine rated torque	N.m/(r/min)	900/1400	850/1400-1600
	China National V	Engine model		SC7H230Q5	WP6.220E50
		Engine rated power	kw/(r/min)	170/2300	162/2300
		Engine rated torque	N.m/(r/min)	900/1200-1600	850/1200-1600
Travel	Travel speed	Max. travel speed	km/h	90	
		Min. travel speed	km/h	2～3	
	Turning diameter	Min. turning diameter	m	18	
		Min. turning diameter at boom tip	m	22	
	Min. ground clearance		mm	250	
	Approach angle		°	21	
	Departure angle		°	13	
	Braking distance (at 60 km/h)		m	≤10	
	Max. grade ability		%	41	
	Oil consumption per 100 km (theoretical)		L	20	
	Exterior noise level		dB(A)	≤84	
	Noise level at seated position		dB(A)	≤90	

Main Technical Data Table for Lifting Operation

(Subject to technical improvement)

Category	Item			Unit	Parameter
Main performance	Max. total rated lifting capacity			t	12
	Min. rated working radius			m	3
	Turning radius at turntable tail	Counterweight		mm	2570
		Auxiliary winch		mm	2910
	Max. load moment	Base boom		t.m	48.25
		Fully-extended boom		t.m	27.60
	Outrigger span (fully-extended)	Longitudinal		m	4.57
		Lateral		m	5.5
	Hoist height	Base boom		m	9.5
		Fully-extended boom		m	30.9
		Fully-extended boom + Jib		m	38.1
	Boom length	Base boom		m	9.45
		Fully-extended boom		m	30.5
		Fully-extended boom + Jib		m	30.5+7
	Jib offset angle			°	0
Working speed	Elevating time	Boom raising		s	≤38
	Telescoping time	Fully extended		s	≤58
	Max. slewing speed			r/min	3
	Outrigger extending and retracting time	Outrigger beam	Extending Simultaneously	s	≤20
			Retracting Simultaneously	s	≤15
		Outrigger jack	Extending Simultaneously	s	≤25
			Retracting Simultaneously	s	≤20
	Hoisting speed (single line, 4th layer)	Main winch		m/min	138
		Auxiliary winch		m/min	138
Noise	Exterior noise level			dB（A）	≤122
	Noise level at seated position			dB（A）	≤90

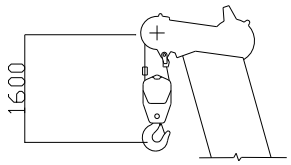
Rated Load Charts of XCT12L4 Truck Crane

Over rear and over side on fully-extended outriggers							
Working radius（m）	Base boom 9.45m	Medium-length boom 13.65m	Medium-length boom 17.85m	Medium-length boom 22.05m	Medium-length boom 26.25m	Medium-length boom 30.5m	Fully-extended boom + jib 30.5+7m
	Lifting load（kg）	Lifting load（kg）	Lifting load（kg）	Lifting load（kg）	Lifting load（kg）	Lifting load（kg）	Lifting load（kg）
3	12000	9550	8950				
3.5	12000	9550	8750	7300			
4	11000	9500	8550	7150			
4.5	10200	9500	8300	6500	5500		
5	9650	9200	8000	6100	5200		
5.5	8400	8600	7800	5750	4900	4000	
6	7300	7500	7300	5400	4650	3800	
6.5	6400	6600	6700	5100	4400	3600	
7	5600	5750	5900	4850	4100	3450	2100
8		4700	4800	4300	3600	3050	2100
9		3700	3800	3800	3400	2800	2100
10		3100	3200	3250	3100	2600	1900
11		2500	2700	2750	2700	2500	1800
12			2300	2300	2400	2300	1650
14			1700	1700	1750	1750	1200
16				1300	1300	1350	1100
18				1000	980	1050	900
20					800	850	750
22					600	650	550
24						450	350
26						350	300
Parts of line	6	6	5	4	3	3	1
Second boom	0	20%	40%	60%	80%	100%	100%
Third boom	0	20%	40%	60%	80%	100%	100%
Fourth boom	0	20%	40%	60%	80%	100%	100%
Min. boom angle	31 °	28 °	33 °	31 °	29 °	28 °	46 °
Max. boom angle	65 °	73 °	77 °	79 °	79 °	79 °	80 °
Weight of hook block	145kg						60kg

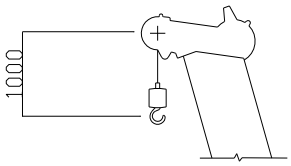
Notes on rated load charts:

1) The total rated loads given in the rated load charts are the maximum lifting capacity when the crane is set up on firm and level ground, and it includes the weight of the hook block and slings.
2) The working radius shown in the rated load charts is the radius when load is lifted off the ground, and it is the actual value including loaded boom deflection. Before lifting, boom deflection should be taken in to consideration.
3) A lifting operation is permissible only when wind force is below grade 5 (wind speed is 14.1 m/s, wind pressure is 125N/m2).
4) Before beginning lifting operation, the operator should know the weight of the load to be lifted and its working range, and then select proper working conditions. Never operate the crane beyond the limit shown in the chart. Use the lower value from the chart when the boom length or working radius is between the range of values.
5) Observe the boom angle limit. Never operate the crane with the boom angle beyond the recommended limit even if a load is not being carried. Otherwise, the crane will tip.
6) The total rated load for single top is the same as that for the boom, and the max. lifting load should not exceed 2100 kg.
7) Total rated load shown in tables is the value without the jib attached. When the jib is attached to the boom head during lifting, 300 kg must be deducted from the rated lifting load.

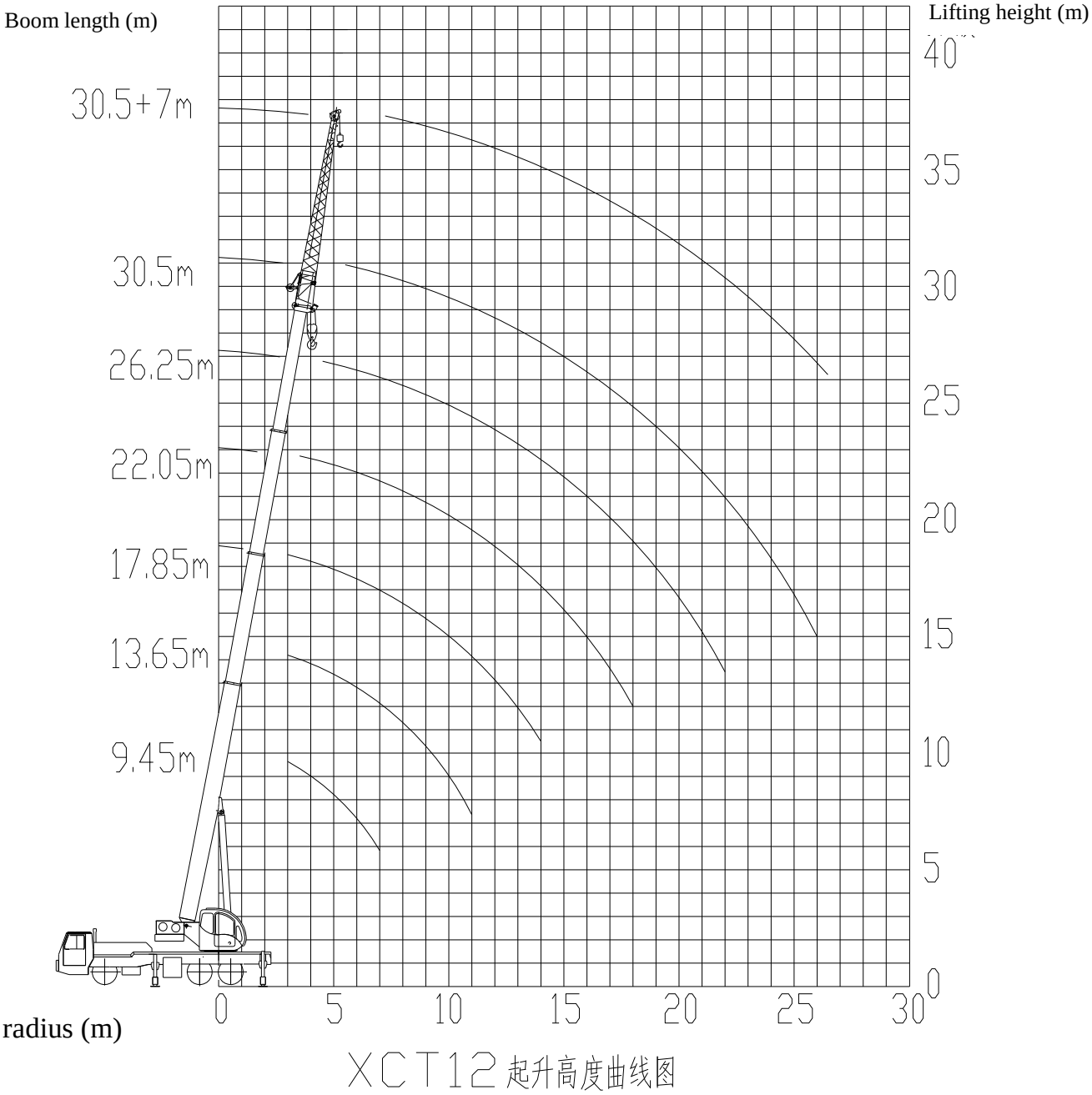
Lifting Height Chart



Distance between main hook block center and boom pulley center



Distance between auxiliary hook block center and boom pulley center



Working Areas of Crane
(on fully-extended outriggers)