



## XGC100-I Crawler Crane Technical Specification

Crawler crane model: XGC100-I

Maximum rated lifting capacity: 100t

Maximum rated load moment: 360t.m

### I. Product components and systems

#### 1. Boom combinations

Boom working condition HB, boom length ranges from 13m to 61m. Boom composition: boom base 1×6.5m, boom top 1×6.5m, boom insert 2×3m, boom insert 1×6m, boom insert 4×9m.

Fixed jib length 7 ~ 19m. Fixed jib composition: jib base 1×4m, jib top 1×3m, jib insert 2×3m, jib insert 1×6m, jib strut 1×3m.

Boom single top is installed on boom head.

#### 2. Boom luffing components

Boom luffing uses guy cable as main part and pendant as supplement part, featuring high safety factor and easy for assembly/disassembly and transport.

#### 3. Gantry

Gantry is double-limb structure, with reinforced beam between the two limbs for good stability. Gantry is equipped with self-erection roller, which can achieve self-erection function in coordination with boom base.

#### 4. Turntable

Turntable is connected with undercarriage by slewing ring. Boom base, gantry, hoist winch, luffing winch and counterweight are arranged on the main force structure; cab, engine system, main pump, hydraulic valve, electric cabinet and other structures arranged on cantilever structure on both sides; turntable main structure and cantilever structure of both sides are design according to the overall force condition, with reasonable structure, good overall strength and stiffness.

#### 5. Mechanism composition

Refer to the following table for crane mechanism configuration and application:

No.	Mechanism	Application	Location
1	Main hoist winch	Boom main lifting operation.	At the middle and front of turntable
2	Auxiliary hoist winch	Used as auxiliary lifting operation in boom, single top and fixed jib working condition	At the middle of turntable
3	Main luffing winch	Boom luffing operation.	At the rear of turntable
4	Slewing unit	Superstructure slewing	At the front of turntable
5	Travel unit	Crane travel	Crawler drive roller



## 6. Hoist winch

Hoist winch is driven by planetary reducer with constant displacement motor, to achieve main or auxiliary hook block hoisting up /down by drum and pulley block, and to increase hoist winch hoisting speed by double-pump oil supply function.

Hoist winch has built-in planetary reducer, uses constant closed brake to achieve "spring brake/hydraulic release" function, safe and reliable.

Hoist winch drum is made of wire rope with high breaking tension. Rope diameter  $\phi 22$  mm.

## 7. Luffing winch

Luffing winch is driven by planetary reducer to achieve boom luffing by drum and luffing pulley block.

Luffing winch has built-in planetary reducer, uses constant closed brake to achieve "spring brake/ hydraulic release" function, safe and reliable.

The drum has a ratchet locking device, pawl driven by a hydraulic cylinder to achieve multiple lock protection.

Luffing winch uses wire rope with high breaking force. Rope diameter  $\phi 20$  mm.

## 8. Slewing unit

Slewing unit with slewing ring is internally engaged drive type, arranged in front of the turntable, driven by constant displacement motor via a planetary gear reducer through pinion to drive slewing ring to achieve 360 ° slewing.

Slewing unit has built-in planetary reducer, uses constant closed brake to achieve "spring brake/ hydraulic release" function, to ensure slewing with high braking safety.

Slewing unit also has a mechanical slewing locking device to achieve locking protection for the slewing unit.

Slewing unit has free-swing function.

## 9. Slewing ring

The slewing features large load bearing capacity, small slewing resistance, wearing resistance, and longer service life.

## 10. Oil cylinder assy.

Oil cylinder assy. includes track frame telescopic cylinder and main luffing ratchet lock cylinder.

Track frame telescopic cylinder uses the cylinder as power to easily change crawler track to meet the requirements of transport and lifting operation.

Main luffing ratchet lock cylinder is used to control pawl action with higher safety.

## 11. Operator's cab

Operator's cab is designed in bionic modeling, with wider field of vision, comfortable and convenient for operation.

## 12. Car-body

Car-body is radiation box-type structure welded with high-strength steel plate, with good rigidity, high strength and high precision.

## 13. Crawler travel unit

Crawler travel unit is divided into left and right crawler travel unit, consists of track frame, track shoe, track roller, sprocket,



idle roller, carrier roller, crawler travel unit, and crawler tensioning device.

Track frame: left/right symmetrical, each of one piece, with steel plate welded into box-type structure, inserting type connection with car-body.

Sprocket: high-strength wear-resistant alloy steel casting, connected on planetary reducer housing with high-strength bolt.

Track roller: high-strength wear-resistant alloy steel forging, double flange design, with built-in floating seal, self-lubrication, and maintenance-free.

Idle roller: high-strength wear-resistant alloy steel casting, with built-in floating seal, self-lubrication. Mechanical jack is used for tensioning, adjust crawler track tensioning by adjusting the shim type and number to keep the crawler track in top working condition.

Carrier roller: high-strength wear-resistant alloy steel forging, carrier roller has built-in floating seal, self-lubrication.

Track shoe: high strength wear-resistant alloy steel casting.

Travel unit: constant closed planetary reducer with powerful travel, high flexibility and mobility. The multi-plate wet type constant closed brake, spring brake, hydraulic release valve.

#### 14. Hydraulic system

It uses LUDV load sensing system controlled by hydraulic pilot proportional control, featuring accurate speed, sensitive operation, and good fine motion. The main valve can achieve combined operation of any movement, featuring compact structure, and easy maintenance.

Main hoist and auxiliary hoist winches have double pump confluence, easy to achieve winch high/low speed control. Specialized slewing buffer circuit design, slewing start and stop is smooth and soft, to meet the requirements of fine lifting operation.

#### 15. Electrical system

Electrical system mainly includes the following components: engine control, monitor instruments, auxiliary equipment, hydraulic system control, load moment limiter, and safety monitors.

Electrical system composition: conventional electrical system and PLC control system.

Conventional electrical system includes power supply, start control, cab air conditioner and sound, lights, wipers and so on.

PLC control system includes control of main and auxiliary winches, slewing, boom luffing and other movements, engine state monitoring. All the movements are controlled through PLC logic control of CAN-bus technology.

#### 16. Engine system

Model: six-cylinder in line, water-cooled, turbocharged, inter-cool, four-stroke diesel engine;

Environmental protection: complaint with China GB III standard;

Fuel tank capacity: 400L.

#### 17. Counterweight

There are turntable counterweights and undercarriage counterweights, installed separately at the rear of turntable and outer side of crawler tracks, they are connected by pin shafts.





### 18. Hook block

Hook block is total 3 kinds for selection, including 75t、35t、8t.

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## II. Safety Protection Devices

This crane widely uses mechanical, electronic and hydraulic and other safety and warning devices to ensure the safe use of the machine. The safety devices include: load moment limiter, slewing lock device, boom backstop device, hoist limit switch, boom angle limiter, anemometer, electronic level meter, slewing warning and hydraulic system relief valve, balance valve, hydraulic lock, and etc.

### 1. Assembly mode & Work mode exchange switch

In Assembly mode, over-wound protection device, boom backstop device, load moment limiter does not work, in order to facilitate crane assembly. In Work mode, all safety devices do work.

### 2. Emergency stop button

In emergency conditions, press this button to stop all the crane movements.

### 3. Anti-operation error function

The handle is to prevent miss-operation. There is a safety protection switch in front of the handle. If this switch is not on, all movement signals are screened and the handle is disabled, this is to prevent operation error.

### 4. Winch over-wound protection device

There is a over-wound device on boom head to prevent rope over-wound. When main/auxiliary winch hoists up to a certain lifting height, a winch over-wound warning lamp on instrument panel lights up, at the same time, load moment limiter stops crane hoisting up movements.

### 5. Winch over-release protection device

A rope-end limiter is set on main and auxiliary hoist winch to prevent wire rope from over-release. When there are only three loops of rope left, the winch over-release warning lamp on instrument panel lights up, at the same time, the movement of hoisting down is stopped.

### 6. Ratchet locking device

It is used to lock the luffing winch so that boom is stopped and placed safely at non-working state.

### 7. Slewing locking device

Slewing locking device is used for superstructure slewing locking when stopping the crane.

### 8. Backstop device

The crane is equipped with boom and jib strut backstop devices to prevent boom and strut backward tilting.

### 9. Boom angle limit

When boom is raised to a specified angle, the boom raising is stopped by both control of load moment limiter and hoist limit switch. When boom luffing angle is less than the specified angle, boom lowering is stopped by control of load moment limiter and which also gives a sound warning.

### 10. Hook latch

All hook blocks are equipped with hook latch to prevent the hanging rope on the hook head from falling.

### 11. Hydraulic system safety protection device

Hydraulic system is equipped with hydraulic balance valve, hydraulic relief valve and other devices to ensure the stable



and safe work for the system .

#### 12. LMI system

Detection function: automatic detection of boom angle and lifting load. It has pre-warning and overload automatic stopping operation.

#### 13. Audio/video warning

The tri-color light and audio/video warning can show crane loading and operation state to give the operator and staff outside warning.

#### 14. Illuminator lamp

The illuminator lamp is in front of turntable, on the top of and inside operator's cab for lighting.

#### 15. Rearview mirror

It is located outside the operator's cab for the driver easy to observe the situation behind the machine.

#### 16. Height mark lamp

It is located on boom tip for high level operation warning.

#### 17. Anemometer

It can detect the current wind speed and send signal to the monitor in operator's cab to remind the operator for safe operation in wind load.

#### 18. Level meter

Equipped with mechanical level meter, can indicate the degree of the road inclination, and provide the operator with the machine level degree for reference.



## III. Main Parts List

No.	Parts name		Model	Manufacturer	
1	Engine		SC9D270G3	Shangchai or other	
2	Hydraulic system	Main winch	Reducer	QBL400	Fushen, Tai'an or other
			Motor	A2FE107	Liyuan, Guizhou or other
		Aux. winch	Reducer	QBL400	Fushen, Tai'an or other
			Motor	A2FE107	Liyuan, Guizhou or other
		Luffing winch	Reducer	QBL260	Fushen, Tai'an or other
			Motor	A2FM80	Liyuan, Guizhou or other
		Swing	Reducer	HS200	Fushen, Tai'an or other
			Motor	A2F63	Liyuan, Guizhou or other
		Travel	Reducer	XBL1000	Fushen, Tai'an or other
			Motor	L2FE125	Liyuan, Guizhou or other
		Main pump		L8V107	Huade, Beijing or other
		Main valve		MWVL25	Huade, Beijing or other
3	Electrical system	Load moment limiter	HC4900	Hirschmann or other	
4	Slewing bearing		DQNA1435	Tongli, Ma'anshan or other	
5	Hook block		75t/35t/8t	Hongruida, Shandong or other	

Notes: owing to the difference of manufactures, the model label may be different.





#### IV. Main Technical Specifications

##### 1. XGC100-I crawler crane outline dimensions

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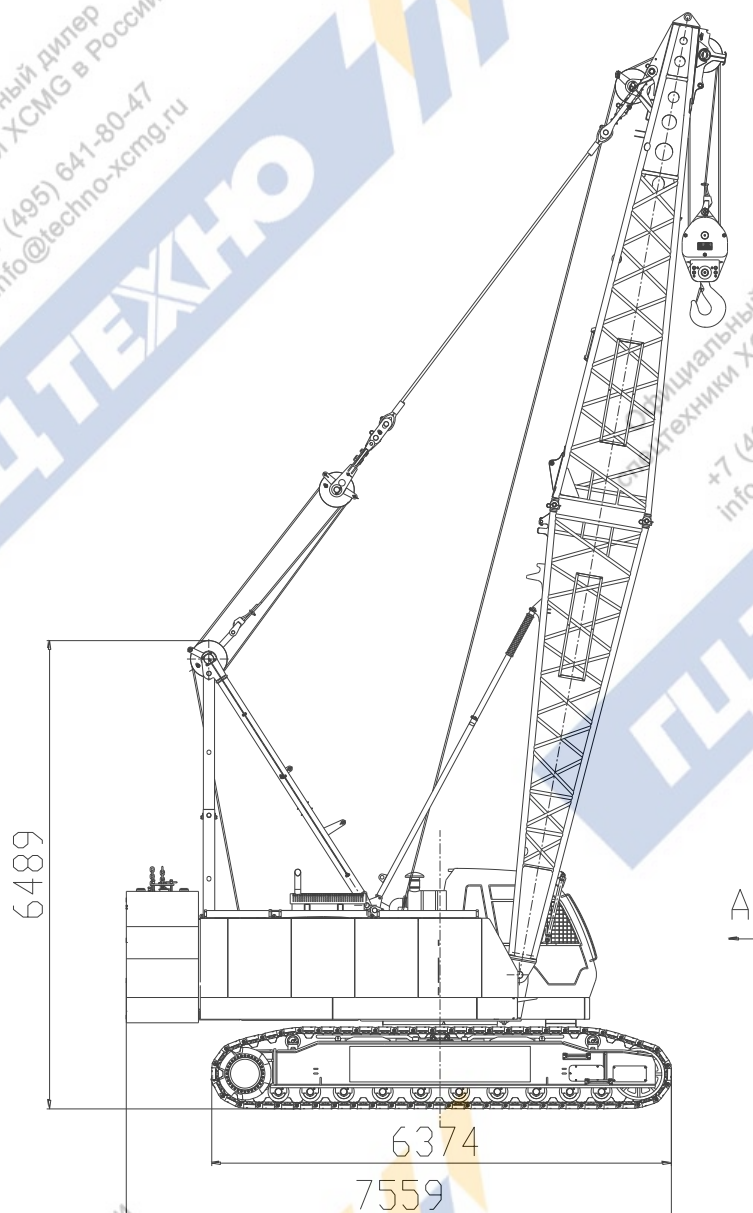
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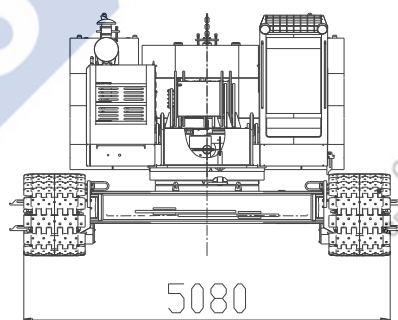


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A direction (remove boom, gantry, luffing sheave block, etc.)



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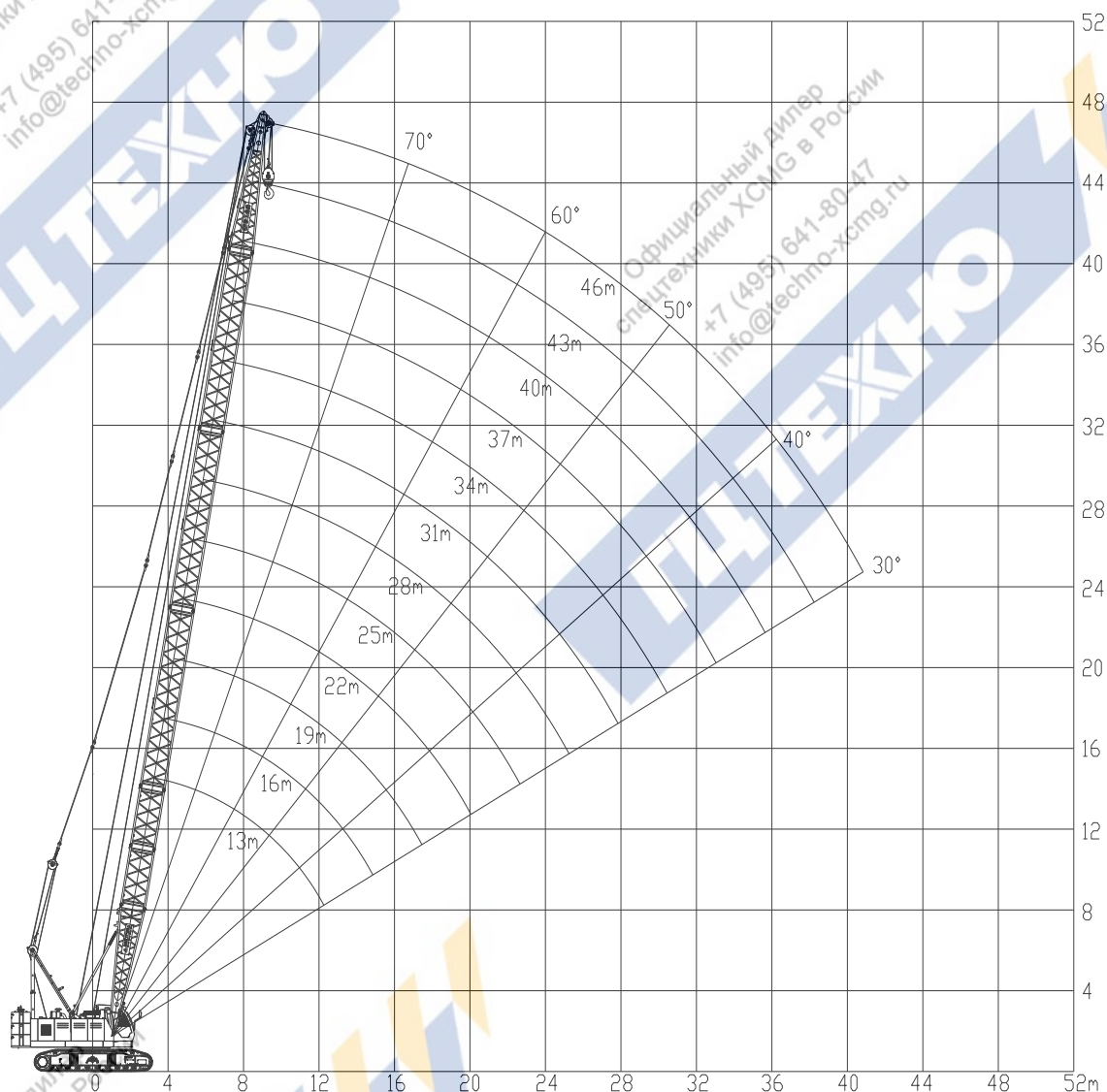
## 2. XGC100-I crawler crane main technical specifications

Item		Unit	Parameters
Max. rated lifting capacity	Boom working condition	t	100
	Fixed jib working condition	t	12
	Boom single top working condition	t	8
Max. load moment of boom		t.m	360
Dimension	Boom length	m	13~61
	Fixed jib length	m	7~19
	Boom single top length	m	1.1
Speed	Max. single line speed of hoist winch	m/min	120
	Max. single line speed of boom luffing winch	m/min	70
	Max. slewing speed	rpm	2.0
	Max. travel speed	km/h	0.9
Engine	Rated power	kW	200
	Emission standard	-	GB III
Total vehicle mass (with 13m basic boom and 75t hook block)		t	83.2
Mean ground pressure		MPa	0.093
Grade-ability		-	30%
Max. mass of single unit in transport state		t	41.5
Max. dimension of single unit in transport state (L×W×H)		m	13.05×3.4×3.3



## V. Lifting Performance Table in Typical Working Condition

### 1. Boom working condition



Boom working area diagram



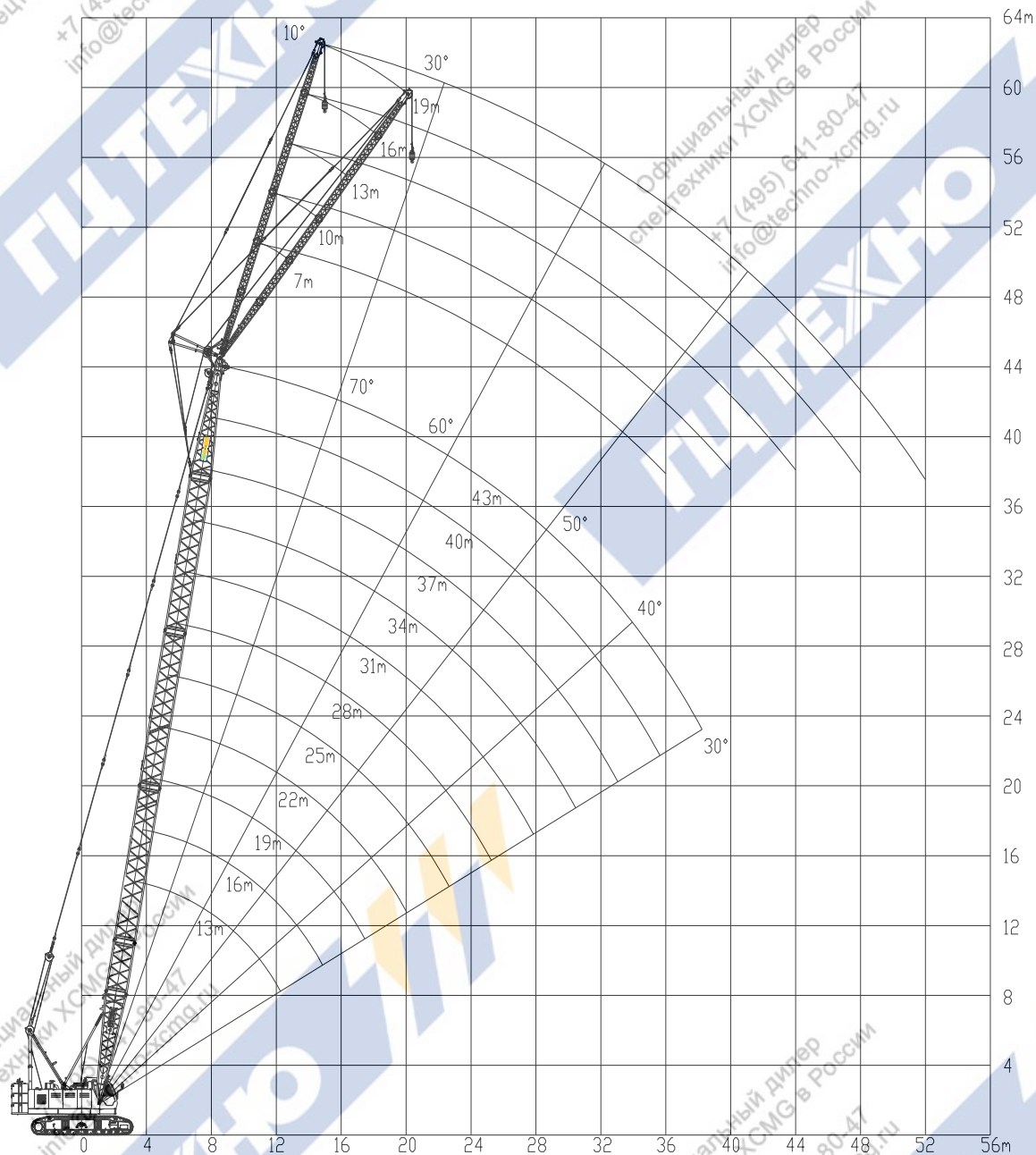
lifting capacity of boom (Unit: t)

Radius (m)	Boom length (m)								
	13	19	25	31	37	43	49	55	61
3.6	100								
4	88.6								
5	68.4	64.2							
6	56.1	55.8	52.1						
7	47.5	47.2	44.3	40.9					
8	39.7	39.6	38.3	35.9	32.0				
9	33.6	33.5	33.3	31.7	29.9	25.8			
10	29.1	29.0	28.8	28.3	26.7	24.6	20.3		
12	22.8	22.7	22.4	22.3	22	20.9	18.7	16.8	
14		18.5	18.3	18.1	17.8	17.6	16.8	15.3	12.4
16		15.5	15.3	15.1	14.9	14.6	14.4	13.7	11.2
18			13.1	12.9	12.6	12.4	12.2	11.9	10.1
20			11.4	11.2	10.9	10.6	10.4	10.1	9.1
22			10.0	9.8	9.5	9.3	9.0	8.8	8.2
24				8.7	8.4	8.1	7.9	7.6	7.3
26				7.7	7.5	7.2	7.0	6.7	6.3
28				6.9	6.7	6.4	6.2	5.9	5.5
30					6.0	5.7	5.5	5.2	4.8
32					5.4	5.1	4.9	4.6	4.2
34						4.6	4.4	4.1	3.7
36						4.1	3.9	3.6	3.3
38						3.7	3.5	3.2	2.9
40							3.1	2.9	2.5
42							2.8	2.5	2.2
44								2.2	1.8
46								2.0	1.4
48								1.7	1.0





## 2.Fixed jib working condition



working area diagram

Fixed jib



lifting capacity of fixed jib (Unit: t)

Radius (m)	Boom length 31m									
	Fixed jib length (m)									
	7		10		13		16		19	
	Fixed jib angle (°)									
	10	30	10	30	10	30	10	30	10	30
9	12.0									
10	12.0		12.0							
12	12.0	11.5	12.0		9.9		8.0			
14	12.0	10.7	12.0	7.9	9.5		7.7		6.0	
16	12.0	10.1	11.1	7.4	9.0	6.1	7.3		5.6	
18	12.0	9.5	10.1	7.0	8.4	5.8	7.0	5.0	5.3	
20	11.2	9.1	9.3	6.7	7.7	5.4	6.7	4.7	5.0	3.8
22	9.8	8.7	8.6	6.4	7.1	5.2	6.2	4.4	4.8	3.6
24	8.7	8.3	7.9	6.1	6.6	4.9	5.7	4.2	4.5	3.5
26	7.7	7.9	7.4	5.8	6.1	4.7	5.3	4.0	4.3	3.4
28	6.9	7.0	7.0	5.6	5.7	4.5	5.0	3.8	4.1	3.3
30	6.3	6.3	6.4	5.4	5.4	4.4	4.6	3.7	3.9	3.2
32	5.7	5.7	5.8	5.3	5.1	4.2	4.4	3.5	3.7	3.1
34	5.1		5.2	5.2	4.8	4.1	4.1	3.4	3.6	2.9
36			4.8	4.8	4.6	4.0	3.9	3.3	3.4	2.8
38					4.3	3.9	3.7	3.2	3.3	2.7
40					4.1		3.5	3.1	3.1	2.6
42							3.4	3.0	2.9	2.6
44									2.8	2.5



lifting capacity of fixed jib (Unit: t)-continued

Radius (m)	Boom length 52m									
	Fixed jib length (m)									
	7		10		13		16		19	
	Fixed jib angle (°)									
	10	30	10	30	10	30	10	30	10	30
14	8.0		8.0							
16	8.0	8.0	8.0		8.0		7.1		5.7	
18	8.0	8.0	8.0	7.8	8.0		6.9		5.5	
20	8.0	8.0	8.0	7.5	8.0	6.0	6.7		5.4	
22	8.0	8.0	8.0	7.2	8.0	5.8	6.6	4.9	5.2	3.8
24	7.7	8.0	7.9	7.0	8.0	5.6	6.4	4.7	5.0	3.7
26	6.8	7.0	6.9	6.7	7.1	5.4	6.2	4.5	4.8	3.6
28	6.0	6.2	6.1	6.4	6.2	5.2	6.1	4.4	4.7	3.5
30	5.3	5.5	5.4	5.7	5.5	5.0	5.6	4.2	4.5	3.4
32	4.7	4.9	4.8	5.1	4.9	4.8	5.0	4.0	4.4	3.4
34	4.2	4.3	4.3	4.5	4.4	4.7	4.5	3.9	4.2	3.3
36	3.7	3.8	3.8	4.0	3.9	4.2	4.0	3.8	4.0	3.2
38	3.3	3.4	3.4	3.6	3.5	3.8	3.6	3.7	3.6	3.2
40	2.9	3.0	3.0	3.2	3.1	3.4	3.2	3.5	3.2	3.1
42	2.6	2.7	2.7	2.8	2.8	3.0	2.9	3.1	2.9	3.0
44	2.3	2.4	2.4	2.5	2.5	2.7	2.5	2.8	2.6	2.9
46	2.0	2.1	2.1	2.2	2.2	2.4	2.3	2.5	2.3	2.6
48	1.8	1.8	1.9	1.9	2.0	2.1	2.0	2.2	2.0	2.3
50	1.5	1.6	1.6	1.7	1.7	1.8	1.8	2.0	1.8	2.1
52	1.3		1.4	1.5	1.5	1.6	1.6	1.7	1.6	1.8
54			1.2	1.2	1.3	1.4	1.4	1.5	1.4	1.6
56					1.1	1.2	1.2	1.3	1.2	1.4
58							1.0	1.1	1.0	1.2
60										1.0



## VI. Spare tools

No.	Code	Name	Qty.	Remarks
1	819954753	Tools box	1	
2	819900454	First-aid box, domestic	1	
3	819900607	Information lever bag	1	
4	801500365	Hammer	1	
5	840500530	Mechanical lifting jack	2	
6	801970835	Dry powder fire extinguisher	1	
7	840700145	Flat tape	2	