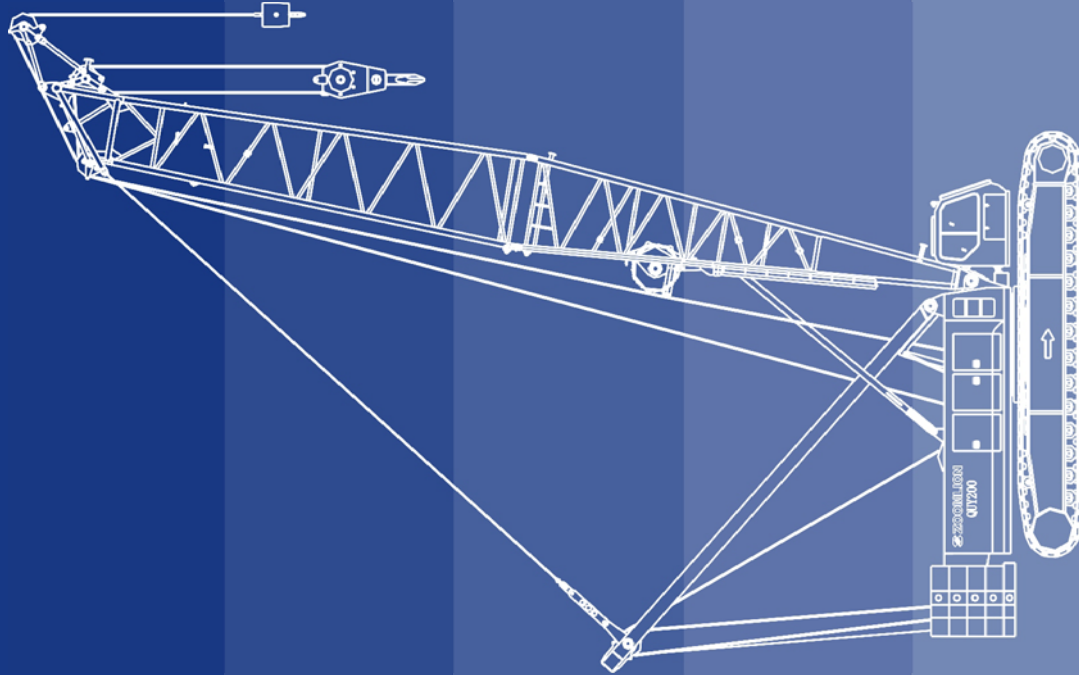


QY200

Crawler Crane Technical Manual



I. Overall dimensions and main parameters

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III. Self-assembly & dismantling function

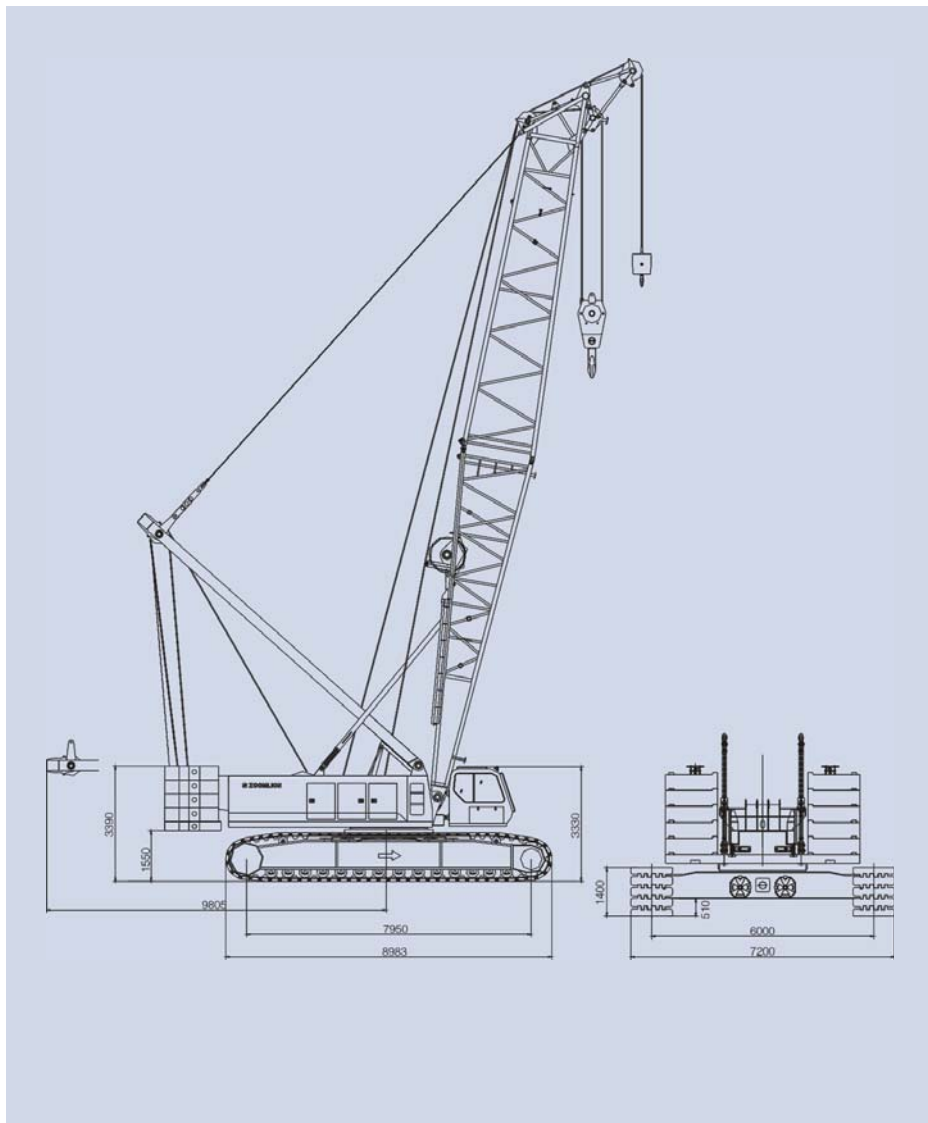
09

IV. Lifting capacity

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I . Overall dimensions and main parameters

1.Overall dimensions of basic machine



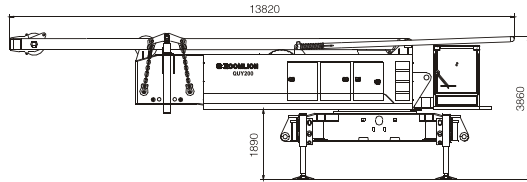
2.Main technical parameters

Item		Unit	Value		Remarks
Max. lifting capacity × radius		t × m	200 × 5		
Deadweight with basic boom		t	192		
Main boom length		m	20~83		
Fixed jib length		m	12~30		
Max. lifting capacity on fixed jib		t	32		
Fixed jib angle		°	10,30		
Max. length of main boom with fixed jib		m	71 + 30		
Luffing jib length		m	21~51		
Max. lifting capacity on luffing jib		t	55		
Main boom angle when luffing jib is used		°	65、75、85		
Max. length of main boom with luffing jib		m	59 + 51		
Single rope speed of winches	Hoisting winch 1	m/min	102		The 4 th rope layer
	Hoisting winch 2	m/min	102		The 4 th rope layer
	Derricking winch	m/min	31 × 2		The 5 th rope layer
Slewing speed		rpm	0~1.1		
Traveling speed		km/h	0~0.98		
Gradeability		%	30		
Ground pressure		MPa	0.1		
Overall dimensions (L × W × H)		m	10.7 × 7.2 × 3.3		Without A-frame and boom frame
Engine	type		VOLVO TWD1240VE	WeiChai	USA Cummins QSL9-C305
	Rated power/ rotational speed	kW/rpm	256/2100	276/1900	227/2000
	Max. output torque/ rotational speed	Nm/rpm	1750/1200	1800/1000~1400	1505/1400
	Exhaust emission standard		EU Stage II	EU Stage III	US EPA Tier 3 and EU stage III
Distance between track center × crawler contact length × crawler width			6000 × 7935 × 1200		

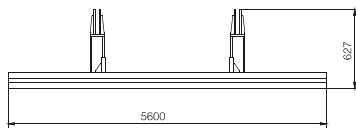
3. Transport dimensions and weights of main components

Unit: mm

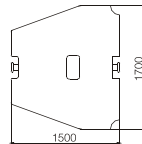
Basic machine: 46t Number: 1
Length (without A-frame): 9835mm Width: 3300mm Height: 3190mm



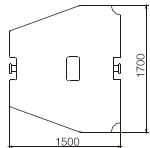
Counterweight base plate: 17.6t Number: 1 Width: 1700mm



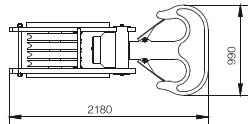
Counterweight plate: 6.6t Number: 6



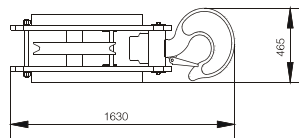
Counterweight plate: 4t Number: 2



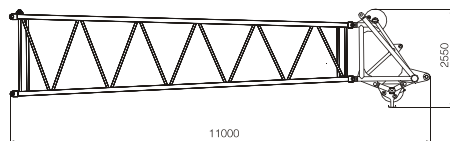
Load hook (130t): 2.4t Number: 1



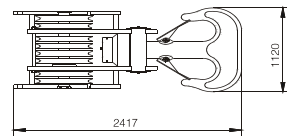
Load hook (30t): 1.09t Number: 1



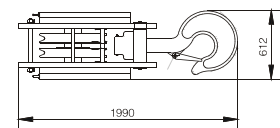
Main boom head: 3.3t Number: 1 Width: 2319mm



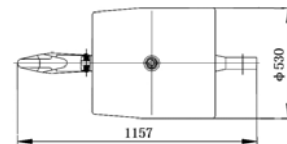
Load hook (200t): 3.2t Number: 1



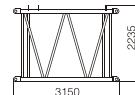
Load hook (65t): 1.8t Number: 1



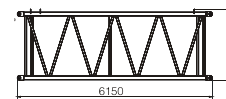
Load hook (16t): 0.89t Number: 1



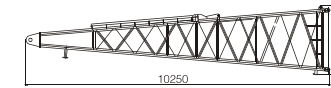
3m main boom intermediate section: 0.64t Number: 1 Width: 2319mm



6m main boom intermediate section: 1.12t Number: 1 Width: 2319mm

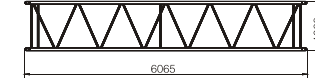


Main boom pivot section: 2.6t Number: 1 Width: 2380mm

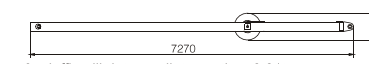


6m fixed jib intermediate section: 0.26t Number: 3 Width: 1268mm

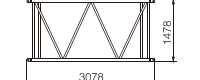
It can be pushed inside main boom section or luffing jib section for transportation purpose.



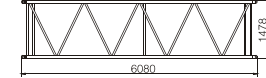
FA-frame: 0.75t Number: 1 Width: 1500mm



3m luffing jib intermediate section: 0.21t Number: 1 Width: 1480mm
It can be pushed inside 3m main boom intermediate section for transportation purpose.

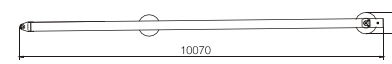


9m luffing jib intermediate section: 0.57t Number: 2 Width: 1480mm
It can be pushed inside 9m main boom intermediate section for transportation purpose.

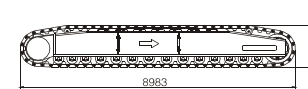


WA-frame 1: 1.2t Number: 1 Width: 1360mm

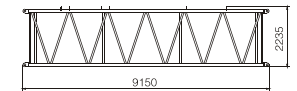
It is assembled on luffing jib pivot section during transportation.



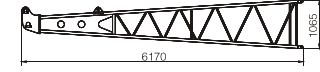
Crawler carrier: 22t Number: 2 Width: 1200mm



9m main boom intermediate section: 1.55t Number: 6 Width: 2319mm



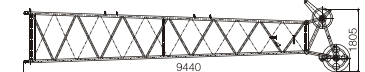
Fixed jib pivot section: 0.47t Number: 1 Width: 1470mm
It can be pushed inside main boom section or luffing jib section for transportation purpose



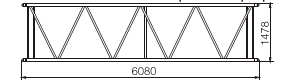
Fixed jib head: 0.62t Number: 1 Width: 1268mm
It can be pushed inside main boom section or luffing jib section for transportation purpose



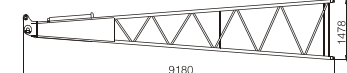
Luffing jib head: 0.95t Number: 1 Width: 1480mm
It can be pushed inside main boom section for transportation purpose.



6m luffing jib intermediate section: 0.41t Number: 2 Width: 1480mm
It can be pushed inside 6m main boom intermediate section for transportation purpose.

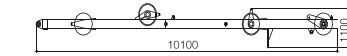


Luffing jib pivot section: 0.68t Number: 1 Width: 1480mm

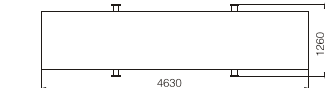


WA-frame 2: 1.5t Number: 1 Width: 1560mm

It is assembled on luffing jib pivot section during transportation.



Central counterweight plate: 14t Number: 2 Height: 400mm



II . Technical instruction

4. Boom system

The lattice boom is made of imported high-strength steel pipes, and the anchoring rod is made of imported high-strength steel plate.

Main boom (S boom)

S- main boom: 20 ~ 83m

Main boom intermediate section: 3m, 6m and 9m

Number of main boom intermediate section for S boom

Main boom length (m)	Number of main boom intermediate section		
	3m	6m	9m
23	1	0	0
26	2	0	0
29	1	1	0
32	2	1	0
35	1	2	0
38	1	1	1
41	2	1	1
44	1	2	1
47	1	1	2
50	2	1	2
53	1	2	2
56	1	1	3
59	2	1	3
62	1	2	3
65	1	1	4
68	2	1	4
71	1	2	4
74	1	1	5
77	2	1	5
80	1	2	5
83	1	1	6

Main boom with fixed jib (SF boom)

F- fixed jib: 12 m ~30 m

Fixed jib intermediate section: 6m

Max. length of main boom with fixed jib: 71 + 30m

Number of fixed jib intermediate section for SF boom

Fixed jib length (m)	Number of fixed jib intermediate section	
	6m	
12	0	
18	1	
24	2	
30	3	

Main boom with luffing jib (SW boom)

W- luffing jib: 21 m ~51 m

Luffing jib intermediate section: 3m, 6m, and 9m

Max. length of main boom with luffing jib: 59 + 51m

Number of luffing jib intermediate section for SW boom

Luffing jib length (m)	Number of luffing jib intermediate section		
	3m	6m	9m
21	1	0	0
24	2	0	0
27	1	1	0
30	2	1	0
33	1	2	0
36	1	1	1
39	2	1	1
42	1	2	1
45	1	1	2
48	2	1	2
51	1	2	2

5. Working mechanism

Hoisting winches

The crane is fitted with two hoisting winches: hoisting winch 1 and hoisting winch 2. Both of them are composed of concealed axial piston variable displacement motor, balance valve, reducer, normally closed brake as well as wire rope. And they can be controlled independently.

The hoisting rope is rotation resistant wire rope imported from Germany.

Infinitely variable speed from 0 to maximum hoisting speed is available for hoisting winch 1 and hoisting winch 2, the working efficiency is therefore improved dramatically.

Hoisting winches 1 and 2	Rope speed on outmost rope layer	102m/min
	Rope diameter	Φ28mm
	Rope length	370m
	Rated single rope force	15t

Derricking winch

The derricking winch is composed of concealed axial piston constant displacement motor, balance valve, reducer and normally closed brake as well as wire rope. And it is controllable independently.

Derricking winch	Rope speed on outmost rope layer	35m/min × 2
	Rope diameter	Φ26mm × 2
	Rope length	140m × 2
	Rated single rope force	10.2t

Slewing mechanism

The slewing mechanism consists of concealed dual variable displacement piston motor, dual gear reducer, normally closed slewing brake, and pinion gear as well as slewing ring. The superstructure can realize 360° continuous rotation via slewing ring which is driven by pinion gear.

The slewing mechanism of closed oil circuit system has controllable free swing function which can reduce the impacts on the crane and ensure that the slewing motion can be initiated /stopped more stably.

Infinitely variable speed from 0 to 1.2 r/min

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

Traveling mechanism

The traveling mechanism is fitted with two variable displacement motors and two traveling reducers. The hydraulic motor, traveling reducer and balance valve are all imported. Using control levers, the traveling movements can be controlled, such as traveling straight ahead/backwards, tuning with a crawler, differential steering, turning on spot, traveling with load. This kind of design enables crane to have high maneuverability.

Travelling speed: 0 ~ 0.98km/h

Gradeability: 30%

The tension degree of crawler can be adjusted by jack quickly and conveniently.

A-frame erecting mechanism

The A-frame erecting mechanism consists of A-frame, erection cylinder, auxiliary hydraulic system and so on. It is mainly used for the assembly, dismantling or conversion of the machine on the site.

The erection cylinder is connected to balance valve with anchoring rods. Such kind of connection allows high reliability and safety.

After the A-frame is erected over 90°, it can be used to connect anchoring rods on it and anchoring rods on main boom, assemble boom sections as well as install crawler carriers and counterweight.

Operator's cab movement-controlling mechanism

To reduce the transport width of the basic machine, the operator's cab can be swiveled out of the side working position to the centre of slewing table.

To broaden the field of vision of crane operator, the cab can tilt backwards for 20° via tilting cylinder when the load is lifted to a high position.

Counterweight and its fitting & removal mechanism

The counterweight fitting& removal mechanism is composed of counterweight base plate, counterweight plate, counterweight lifting cylinder, assembly chain and counterweight bolting cylinder. The counterweight can be fitted and removed by crane itself without the help of auxiliary crane, so the utilization rate of crane is increased and the risk of accident is decreased during fitting of counterweight.

Crawler carrier self-assembly/dismantling mechanism

Crawler carrier self-assembly/dismantling mechanism consists of folding brackets, support cylinders, support cylinder control valves, crawler carrier bolting cylinders and so on.

The support cylinders are the main load bearing components to raise the basic machine during self-assembly/dismantling of crawler carrier. The crawler carrier bolting cylinders are used to connect the crawler carrier to undercarriage center section. The crawler carrier can be assembled /dismantled by crane itself without help of auxiliary crane. Therefore, not only the working efficiency is improved, the labor intensity is reduced, but also the safe operation is guaranteed.

6. Crane system

Hydraulic system

The hydraulic system is composed of main pump, control valve, hydraulic motor, hydraulic oil tank, and oil cooler and so on.

International advanced pump-control technology is applied in the hydraulic system. Main hydraulic elements such as pump, motor and main control valve are imported. They are of high energy-saving, great reliable and long service life.

Hydraulic oil tank:700L

Oil cooler: it is an aluminium cooler, and the cooler fan is driven by hydraulic motor.

The overflow valve fitted in hydraulic system can restrain the pressure in the oil circuit from rising irregularly, thus protect such hydraulic elements as hydraulic oil pump and hydraulic motor against damage and prevent the hydraulic system from being overloaded.

Electrical system

24VDC, negative ground, two batteries of 195 AH each

The electrical system of machine includes power source, engine start, engine shutdown, indicator lights, warning device, illumination device, fan, wiper, horn, hoisting limiter, hydraulic oil cooling fan, digital display system, PLC controller, engine preheating device, safety equipment etc. which not only ensure safe operation of the crane, but also provide a good working environment. The crane adopts CAN bus control technology, which connects the engine, PLC controller and digital display efficiently, possessing fault detecting and self-diagnosis function.

Crane engine

Imported VOLVO Electronic Fuel Injection engine with CAN bus interface

Rated power/ rotational speed:256kw/2100rpm

Max. output torque/ rotational speed:1750NM/1200rpm

Exhaust emissions according to U.S. EPA Tier 2 and EU Stage II

Fuel tank has a great capacity of 700L, which can ensure long time working of engine.

WEICHAH WP12.375N engine and Cummins QSL9-C305 engine serve as an option.

Digital display system

The 10.4-inch LCD, having Chinese and English language versions, can show various data collected by PLC controller such as engine speed, water temperature, engine oil pressure, pressure of hydraulic pump, pressure of main motor, crane inclination, and so on. In this way, it can monitor the working state of crane at any time. When abnormal conditions occur, the system will send out red or yellow warning signal.

Central lubricating system

The central lubricating system imported from Germany BEKA Company has extended the service life of the crane to a great extent.

7. Safety equipment

Load moment limiter

It is composed of digital LCD, CPU, signal converter, sensor and so on. When actual load moment reaches 90% of the maximum permissible load moment, the warning light will light up and the buzzer will sound. When actual load moment reaches the maximum permissible load moment, the warning signals will be sent out, and the dangerous movements will be switched off automatically so as to avoid accidents caused by overloading of crane, and thus ensure normal and safe crane operation.

The following data can be shown on the digital LCD:

Moment ratio Main boom angle Main boom length

Working radius Actual load

Maximum permissible lifting load

Maximum permissible lifting height

Wind speed at boom head

Hoisting limiter

Device to prevent any specified upper limitation of the load lifting attachment from being exceeded.

If the load hook comes into contact with hoisting limit switch weight during its upward movement, the hoisting limit switch is triggered, the buzzer sounds, and the crane movement "spool up winch" is switched off.

Angle indicator

It is fitted at the lower rear end of boom pivot section (i.e. on the right side of the operator's cab). The operator can clearly see the boom angle in the cab.

Derricking (luffing) limiter

Device, constituted by load moment limiter and limit switch, to prevent derricking (luffing) motions of the main boom and/or luffing jib beyond specified limits

Tilting back support for main boom

The spring-loaded tilting-back steel support, mounted on the main boom pivot section, is used to prevent the main boom from tilting backwards.

Crane inclinometer

An electronic inclinometer to indicate the "leveled position" of the crane

Safety catch

Device to protect the lifted load from jumping out from the hook

Ratchet locking device for derricking winch

Device to prevent the derricking winch from rotating during long time parking

Lowering limiter

Device to ensure that three windings of rope on the hoist drum are maintained at all times during operation

When there are only 3 windings of wire rope left on the drum, the lowering limit switch is triggered, the buzzer sounds, and the crane movement "reel off winch" is switched off.

Anemometer

An electronic device to indicate the actual wind speed to the crane operator

Emergency shut-down button

Allow all crane movements and electrical control system to be cut off quickly in a dangerous situation.

Tricolor warning light

The warning light, by showing red, yellow and green three colors, can indicate loading status synchronously. The green color means the load ratio is less than 90%, the yellow color means the load ratio is between 90% and 100%, and the red color means that the load ratio has exceeded 100% and the crane is overloaded.

Monitoring system (optional)

2 video cameras: respectively monitor the working condition of crane winches and rear side of the crane

Display: switch between the monitoring screens via press-key.

Remote monitoring system GPS (optional)

Application of GPS enables such functions to be available as global positioning, GPRS data transmitting, working condition monitoring, remote fault diagnosing.

8. Operator's cab

Spacious, comfortable and all-steel construction cab, equipped with sun visor, adjustable seat, wiper, electric control levers, display of load moment limiter, digitized display, switches, air conditioning, fan, lighting lamp, radio (CD player or DVD player), cigarette lighter, fire extinguisher etc.

9. Load Hook

Rotatable load hook with safety catches:

200t load hook (optional): 8 pulleys

130t load hook: 4 pulleys

65t load hook: 2 pulleys

30t load hook: 1 pulley

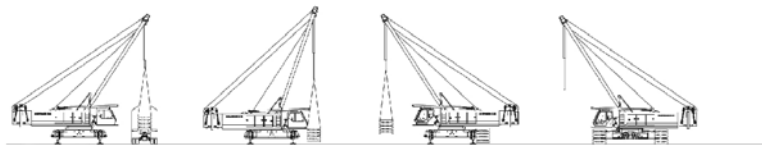
16t load hook (optional): single hook

III. Self-assembly & dismantling function

Take the self-assembly of crane in SW boom configuration as an example



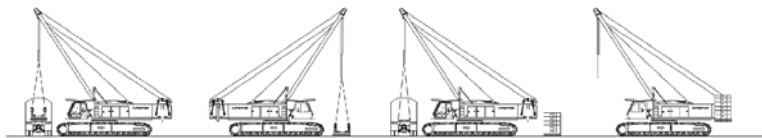
Unloading of basic machine



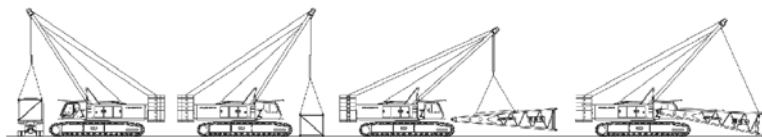
Unloading and assembly of crawler carriers



Unloading and assembly of central counterweight



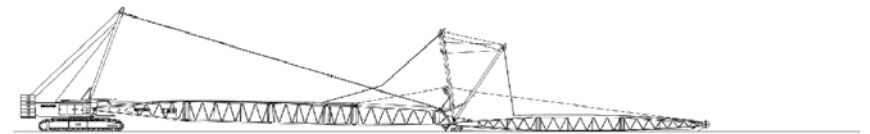
Unloading and assembly of rear counterweight



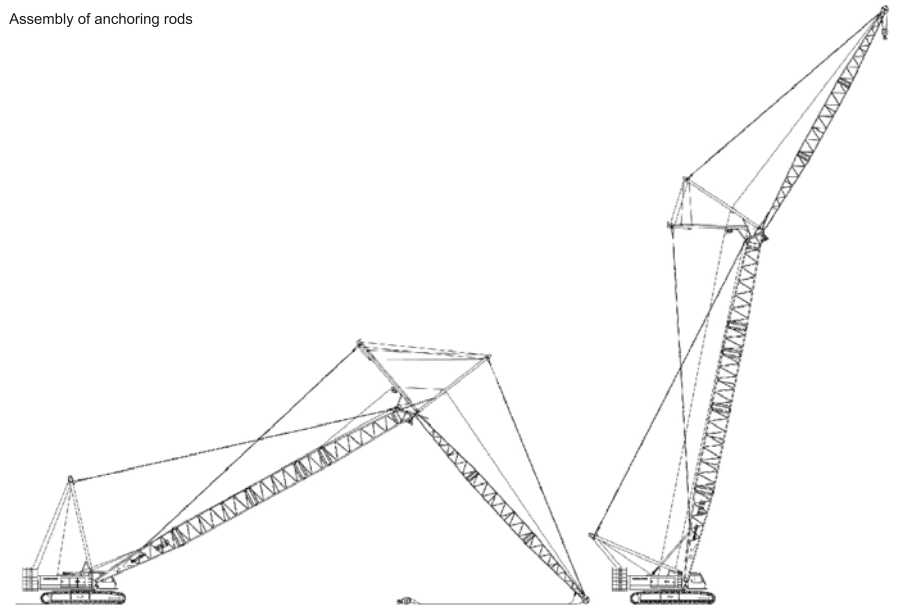
Unloading of boom frame



Assembly of boom frame



Assembly of anchoring rods



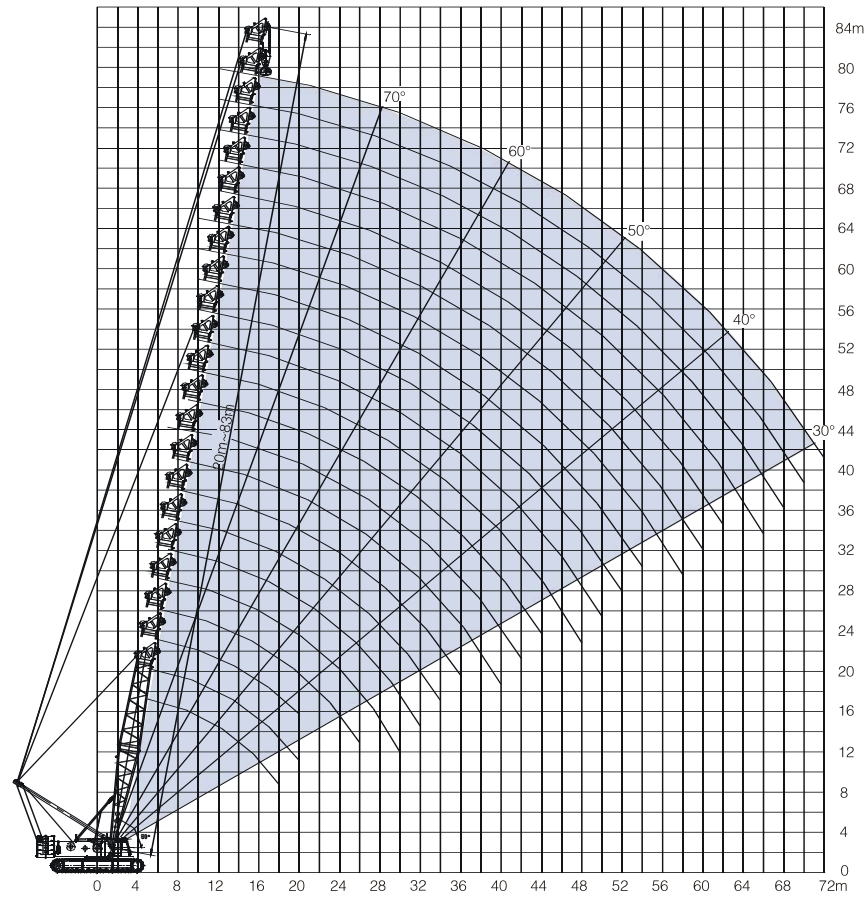
Boom in erecting position

Boom in working position

IV. Lifting capacity

10. Lifting performance on S boom

Lifting height on S boom



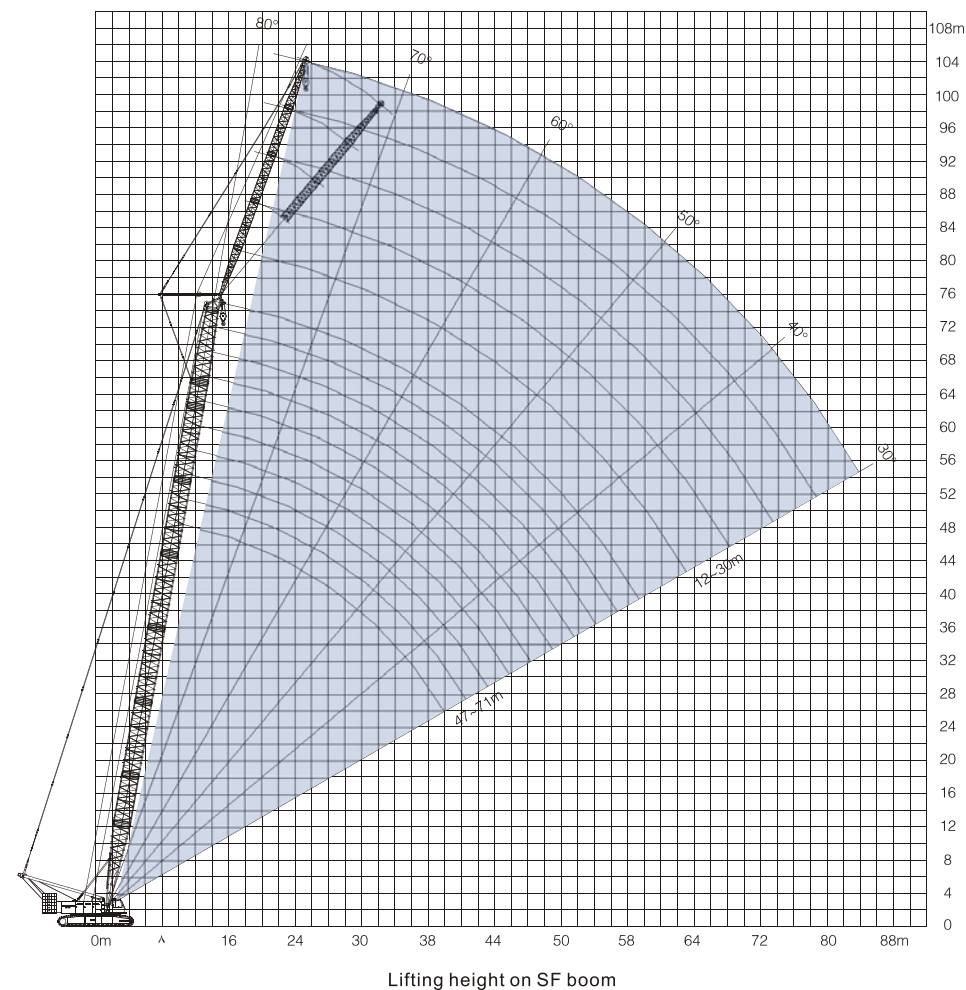
Lifting capacity on S boom

Length of S (m) Radius (m)	20	23	26	29	32	35	38	41	44	47	50
5.0	200	178.0/5.4									
6.0	199	178.0	166.6	143.3/6.4							
7.0	173.3	170.4	156.6	143.3	131.3	112.5/7.5					
8.0	144.0	141.8	139.7	137.5	131.3	110.5	106.5	97.6/8.5			
9.0	121.0	119.9	118.2	116.6	115.0	106.5	106.5	95.6	93.7	85.6/9.6	
10.0	103.3	103.1	102.4	101.1	99.8	98.5	97.2	93.7	93.7	82.6	80.6/10.1
12.0	79.8	79.5	79.3	79.0	78.7	77.7	76.8	75.9	74.9	74.0	73.1
14.0	64.8	64.5	64.3	64.0	63.8	63.5	63.2	62.5	61.7	61.0	60.2
16.0	54.4	54.1	53.9	53.6	53.4	53.1	52.8	52.6	52.3	51.7	51.0
18.0	46.8	46.5	46.3	46.0	45.7	45.5	45.2	44.9	44.7	44.4	44.1
20.0		40.7	40.4	40.2	39.9	39.6	39.4	39.1	38.8	38.6	38.3
22.0			35.8	35.6	35.3	35.0	34.8	34.5	34.2	33.9	33.7
24.0			33.9	31.8	31.6	31.3	31.0	30.7	30.5	30.2	29.9
26.0				28.8	28.5	28.2	27.9	27.7	27.4	27.1	26.8
28.0					25.9	25.6	25.3	25.1	24.8	24.5	24.2
30.0					24.8/29	23.4	23.1	22.9	22.6	22.3	22.0
32.0						22.4/31	21.2	21.0	20.7	20.4	20.1
34.0							19.6	19.3	19.0	18.7	18.5
36.0								17.8	17.6	17.3	17.0
38.0									16.3	16.0	15.7
40.0									15.7/39	14.8	14.6
42.0										13.8	13.5
44.0											12.6

11. Lifting performance on SF boom

Length of S (m) Radius (m)	53	56	59	62	65	68	71	74	77	80	83
9.0											
10.0	73.7/10.6	68.6/11.1	63.3/11.6								
12.0	71.2	68.1	63.3	57.5/12.2	53.7/12.7	50.0/13.2	42.2/13.7				
14.0	60.3	59.6	59.2	55.2	53.7	50.0	42.2	37.5/14.3	35.0/14.8	30.7/15.3	28.2/15.8
16.0	51.1	50.5	51.2	49.4	48.8	48.2	41.8	37.5	34.0	30.7	28.1
18.0	43.9	43.6	43.1	42.6	42.1	41.6	39.9	36.5	33.5	30.5	27.4
20.0	38.0	37.8	37.5	37.2	36.8	36.3	35.9	35.4	32.0	28.8	25.8
22.0	33.4	33.1	32.9	32.6	32.3	32.0	31.7	31.3	30.8	26.5	24.6
24.0	29.7	29.4	29.1	28.8	28.6	28.3	28.0	27.7	27.4	25.2	23.0
26.0	26.6	26.3	26.0	25.7	25.5	25.2	24.9	24.6	24.4	24.1	21.5
28.0	24.0	23.7	23.4	23.1	22.9	22.6	22.3	22.0	21.8	21.5	21.0
30.0	21.8	21.5	21.2	20.9	20.6	20.4	20.1	19.8	20.0	19.6	19.0
32.0	19.8	19.6	19.3	19.0	18.7	18.5	18.2	17.9	17.8	17.8	17.6
34.0	18.2	17.9	17.6	17.3	17.1	16.8	16.5	16.2	16.2	16.0	16.0
36.0	16.7	16.4	16.2	15.9	15.6	15.3	15.0	14.8	14.5	14.6	14.5
38.0	15.4	15.1	14.9	14.6	14.3	14.0	13.7	13.5	13.5	13.5	13.5
40.0	14.3	14.0	13.7	13.4	13.1	12.9	12.6	12.6	12.3	12.2	12.1
42.0	13.2	13.0	12.7	12.4	12.1	11.8	11.5	11.6	11.3	11.5	11.0
44.0	12.3	12.0	11.7	11.5	11.2	10.9	10.6	10.7	10.4	10.5	10.3
46.0	11.5	11.2	10.9	10.6	10.3	10.0	9.8	9.7	9.5	9.5	9.0
48.0	11.1/47	10.4	10.1	9.8	9.6	9.3	9.0	8.9	8.6	8.5	8.0
50.0		10.0/49	9.4	9.1	8.8	8.6	8.6	8.3	8.1	8.0	7.5
52.0			8.8	8.5	8.2	7.9	7.7	7.6	7.5	7.3	6.9
54.0				7.9	7.6	7.3	7.2	7.1	6.9	6.8	6.2
56.0					7.0	6.8	6.6	6.6	6.3	6.2	5.8
58.0					6.8/57	6.5	6.7	6.0	5.8	5.6	5.2
60.0						5.8	5.8	5.5	5.3	5.2	4.8
62.0							5.3	5.1	4.8	4.6	4.4
64.0								4.7	4.4	4.2	3.8
66.0								4.1/65	4.0	3.9	3.5
68.0									3.3	3.0	2.7
70.0										2.7	2.4
72.0											2.1

Note: When tip boom is used to lift the load, the lifting capacity on tip boom is the same as that on main boom of same length in the same working radius; however, it can not exceed 25t.



Lifting capacity on SF boom

Length of S (m)	47								Length of S (m)
Length of F (m)	12		18		24		30		Length of F (m)
F-jib angle (°) Radius (m)	10	30	10	30	10	30	10	30	F-jib angle (°) Radius (m)
14.0	32								14.0
16.0	31.5		23.5						16.0
18.0	30.8	27.1	22.9		17.1				18.0
20.0	30.2	26.7	22.4		16.8		12.3		20.0
22.0	29.6	26.5	22.0	19.0	16.4		12.0		22.0
24.0	28.8	26.2	21.5	18.7	16.0		11.8		24.0
26.0	25.9	25.9	21.1	18.5	15.7	13.6	11.5		26.0
28.0	23.4	23.8	20.7	18.3	15.3	13.4	11.2		28.0
30.0	21.4	21.7	20.2	18.0	15.0	13.2	10.9	9.2	30.0
32.0	19.5	19.9	19.8	17.9	14.7	13.0	10.7	9.0	32.0
34.0	18.0	18.3	18.3	17.7	14.5	12.9	10.4	8.9	34.0
36.0	16.7	16.9	16.9	17.4	14.2	12.7	10.2	8.7	36.0
38.0	15.5	15.7	15.7	16.2	14.0	12.6	9.9	8.6	38.0
40.0	14.4	14.6	14.7	15.0	13.8	12.4	9.7	8.5	40.0
42.0	13.5	13.6	13.7	14.1	13.5	12.3	9.5	8.3	42.0
44.0	12.6	12.8	12.9	13.2	13.0	12.2	9.3	8.3	44.0
46.0	11.8	12.0	12.0	12.3	12.3	12.1	9.1	8.1	46.0
48.0	11.1	11.2	11.4	11.6	11.5	11.9	8.9	8.0	48.0
50.0	10.5	10.5	10.7	10.9	10.9	11.2	8.8	7.8	50.0
52.0	9.8	9.9	10.1	10.2	10.3	10.6	8.6	7.7	52.0
54.0			9.5	9.7	9.7	10.0	8.5	7.6	54.0
56.0			9.0	9.1	9.2	9.4	8.3	7.5	56.0
58.0			8.2	8.6	8.7	8.9	8.3	7.4	58.0
60.0				7.7	8.3	8.4	8.0	7.4	60.0
62.0					7.6	8.0	7.9	7.3	62.0
64.0					6.8	7.4	7.6	7.3	64.0
66.0						6.5	7.1	7.2	66.0
68.0							6.4	7.1	68.0
70.0							5.7	6.3	70.0
72.0								5.5	72.0

Length of S (m)	50								Length of S (m)
Length of F (m)	12		18		24		30		Length of F (m)
F-jib angle (°) Radius (m)	10	30	10	30	10	30	10	30	F-jib angle (°) Radius (m)
14.0									14.0
16.0	32								16.0
18.0	31.1	27.1	23.1						18.0
20.0	30.5	26.7	22.6		16.8				20.0
22.0	29.9	26.5	22.1	19.0	16.5		12.1		22.0
24.0	28.6	26.3	21.7	18.9	16.2		11.9		24.0
26.0	25.7	26.1	21.3	18.6	15.8	13.6	11.6		26.0
28.0	23.2	23.8	20.8	18.3	15.5	13.5	11.3		28.0
30.0	21.2	21.7	20.5	18.2	15.2	13.2	11.1	9.2	30.0
32.0	19.4	19.8	19.7	18.0	14.9	13.1	10.8	9.1	32.0
34.0	17.8	18.2	18.1	17.8	14.7	12.9	10.5	8.9	34.0
36.0	16.5	16.8	16.8	17.3	14.4	12.8	10.3	8.8	36.0
38.0	15.3	15.6	15.6	16.0	14.1	12.6	10.1	8.6	38.0
40.0	14.2	14.5	14.5	14.9	13.9	12.5	9.8	8.6	40.0
42.0	13.2	13.5	13.5	13.9	13.7	12.4	9.6	8.4	42.0
44.0	12.4	12.6	12.6	13.0	12.9	12.3	9.5	8.3	44.0
46.0	11.7	11.8	11.9	12.2	12.1	12.2	9.2	8.2	46.0
48.0	10.9	11.1	11.1	11.4	11.4	11.8	9.1	8.0	48.0
50.0	10.2	10.4	10.5	10.8	10.7	11.1	8.9	7.9	50.0
52.0	9.6	9.8	9.9	10.2	10.1	10.5	8.8	7.8	52.0
54.0	9.1	9.2	9.3	9.5	9.5	9.8	8.6	7.7	54.0
56.0	8.2	8.5	8.9	9.0	9.0	9.3	8.5	7.6	56.0
58.0			8.3	8.5	8.6	8.8	8.3	7.5	58.0
60.0			7.7	8.0	8.1	8.3	8.3	7.4	60.0
62.0				7.2	7.7	7.9	7.8	7.4	62.0
64.0					7.1	7.4	7.4	7.3	64.0
66.0					6.4	6.9	7.1	7.3	66.0
68.0						6.1	6.5	7.0	68.0
70.0							5.9	6.5	70.0
72.0							5.3	5.9	72.0
74.0								5.2	74.0

Lifting capacity on SF boom

Length of S (m)	59								Length of S (m)
Length of F (m)	12		18		24		30		Length of F (m)
F-jib angle (°) Radius (m)	10	30	10	30	10	30	10	30	F-jib angle (°) Radius (m)
16.0	32								16.0
18.0	31.7		23.1						18.0
20.0	31.1	27	22.6		16.8				20.0
22.0	30.6	26.6	22.4		16.6		12.1		22.0
24.0	28.2	26.5	22.2	18.9	16.5		12		24.0
26.0	25.3	25.9	21.8	18.8	16.2		11.9		26.0
28.0	22.8	23.4	21.4	18.6	15.9	13.5	11.7		28.0
30.0	20.7	21.2	21.1	18.4	15.6	13.4	11.4		30.0
32.0	18.9	19.4	19.2	18.2	15.3	13.3	11.1	9.2	32.0
34.0	17.4	17.8	17.7	18.0	15.1	13.2	10.9	9.1	34.0
36.0	16.0	16.4	16.3	16.9	14.8	13.0	10.7	8.9	36.0
38.0	14.8	15.2	15.1	15.6	14.6	12.9	10.5	8.8	38.0
40.0	13.8	14.1	14.1	14.5	14.3	12.7	10.2	8.7	40.0
42.0	12.8	13.1	13.1	13.5	13.3	12.6	10.0	8.6	42.0
44.0	11.9	12.2	12.2	12.6	12.4	12.5	9.8	8.5	44.0
46.0	11.1	11.4	11.4	11.8	11.7	12.2	9.6	8.4	46.0
48.0	10.4	10.6	10.7	11.1	10.9	11.4	9.5	8.3	48.0
50.0	9.8	9.9	10.0	10.4	10.2	10.7	9.3	8.2	50.0
52.0	9.2	9.3	9.4	9.7	9.6	10.1	9.2	8.0	52.0
54.0	8.6	8.7	8.9	9.1	9.1	9.5	9.0	7.9	54.0
56.0	8.1	8.2	8.3	8.6	8.6	8.9	8.7	7.8	56.0
58.0	7.6	7.7	7.9	8.1	8.0	8.4	8.3	7.7	58.0
60.0	7.1	7.3	7.4	7.6	7.7	8.0	7.8	7.6	60.0
62.0	6.4	6.7	7.0	7.2	7.2	7.5	7.4	7.5	62.0
64.0		5.9	6.6	6.8	6.8	7.1	7.0	7.4	64.0
66.0			5.9	6.4	6.5	6.7	6.6	7.0	66.0
68.0			5.3	5.6	6.0	6.3	6.3	6.6	68.0
70.0				5.0	5.4	5.9	5.9	6.2	70.0
72.0					4.9	5.3	5.5	5.9	72.0
74.0						4.8	5.0	5.6	74.0
76.0						4.3	4.5	5.0	76.0
78.0							4.1	4.5	78.0
80.0								4.1	80.0
82.0								3.8	82.0

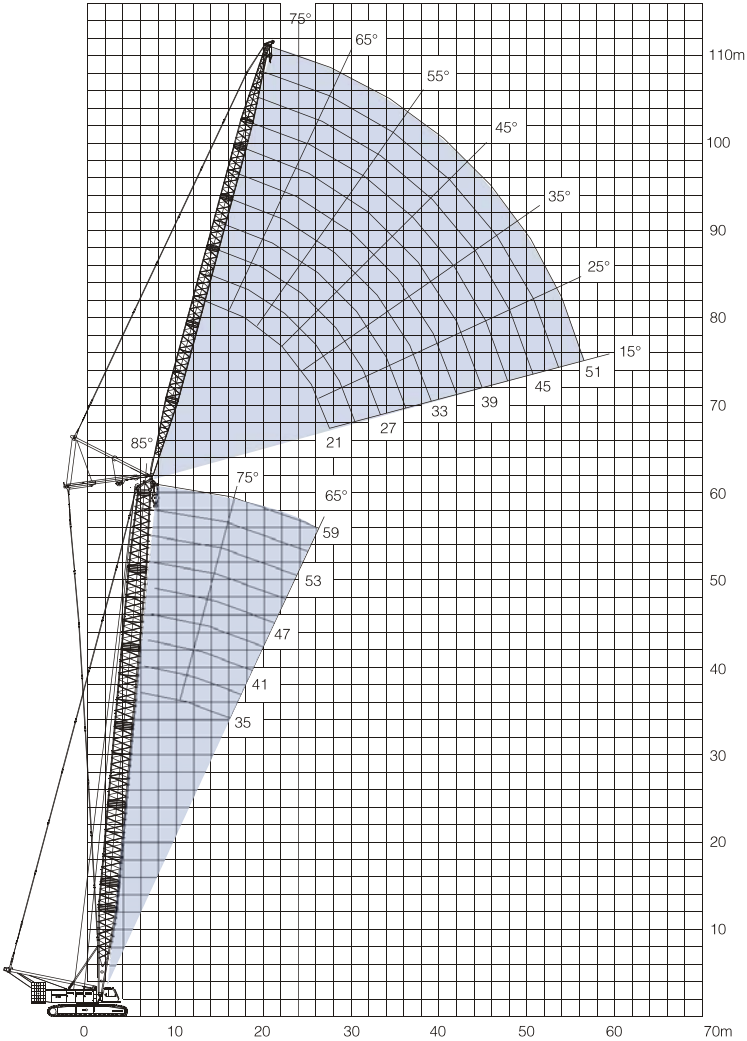
Length of S (m)	62								Length of S (m)
Length of F (m)	12		18		24		30		Length of F (m)
F-jib angle (°) Radius (m)	10	30	10	30	10	30	10	30	F-jib angle (°) Radius (m)
16.0									16.0
18.0	32								18.0
20.0	31.3	27	23.1						20.0
22.0	30.8	26.6	22.6		16.8				22.0
24.0	28.0	26.1	22.3	18.9	16.6		12.1		24.0
26.0	25.1	25.8	22.0	18.7	16.3		12.0		26.0
28.0	22.6	23.2	21.6	18.6	16.0	13.5	11.7		28.0
30.0	20.5	21.1	20.9	18.5	15.7	13.4	11.4		30.0
32.0	18.8	19.2	19.1	18.3	15.5	13.3	11.2	9.2	32.0
34.0	17.2	17.7	17.5	18.1	15.2	13.2	11.0	9.1	34.0
36.0	15.9	16.2	16.2	16.8	15.0	13.0	10.8	9.0	36.0
38.0	14.7	15.0	15.0	15.6	14.7	12.9	10.5	8.9	38.0
40.0	13.5	13.9	13.8	14.4	14.1	12.8	10.4	8.7	40.0
42.0	12.6	12.9	12.9	13.4	13.2	12.6	10.2	8.6	42.0
44.0	11.7	12.0	12.0	12.5	12.3	12.6	9.9	8.6	44.0
46.0	11.0	11.2	11.2	11.7	11.5	12.0	9.8	8.4	46.0
48.0	10.2	10.5	10.5	10.9	10.8	11.3	9.6	8.3	48.0
50.0	9.5	9.8	9.8	10.2	10.1	10.6	9.4	8.3	50.0
52.0	9.0	9.2	9.2	9.5	9.5	9.9	9.2	8.1	52.0
54.0	8.4	8.6	8.7	9.0	8.9	9.3	9.1	8.0	54.0
56.0	7.9	8.0	8.2	8.4	8.4	8.8	8.6	7.9	56.0
58.0	7.4	7.6	7.7	8.0	7.9	8.3	8.1	7.8	58.0
60.0	7.0	7.1	7.3	7.5	7.4	7.8	7.7	7.7	60.0
62.0	6.5	6.7	6.8	7.1	7.1	7.4	7.2	7.6	62.0
64.0	5.9	6.2	6.5	6.6	6.7	6.9	6.8	7.2	64.0
66.0	5.1	5.4	6.0	6.2	6.3	6.5	6.5	6.8	66.0
68.0			5.4	5.8	5.9	6.2	6.2	6.5	68.0
70.0			4.7	5.1	5.4	5.9	5.8	6.1	70.0
72.0				4.5	4.9	5.5	5.5	5.8	72.0
74.0					4.4	4.9	5.0	5.5	74.0
76.0					4.1	4.4	4.5	5.1	76.0
78.0						4.0	4.2	4.6	78.0
80.0							3.9	4.2	80.0
82.0								3.9	82.0
84.0								3.6	84.0

Lifting capacity on SF boom

Length of S (m)	71								Length of S (m)
Length of F (m)	12		18		24		30		Length of F (m)
F-jib angle (°)	10	30	10	30	10	30	10	30	F-jib angle (°)
Radius (m)									Radius (m)
18.0	32								18.0
20.0	31.8		23.1						20.0
22.0	30.4	27	22.6		16.8				22.0
24.0	27.1	26.5	22.3		16.7				24.0
26.0	24.5	25.3	22.1	18.9	16.5		12.1		26.0
28.0	22.2	22.9	22.0	18.7	16.3		12.0		28.0
30.0	20.1	20.8	20.5	18.6	16.1	13.5	11.7		30.0
32.0	18.3	18.9	18.6	18.5	15.8	13.4	11.5		32.0
34.0	16.8	17.3	17.1	17.9	15.6	13.3	11.3	9.2	34.0
36.0	15.3	15.9	15.7	16.5	15.3	13.2	11.1	9.1	36.0
38.0	14.1	14.6	14.5	15.2	14.7	13.1	10.8	9.0	38.0
40.0	13.1	13.5	13.4	14.1	13.7	12.9	10.7	8.9	40.0
42.0	12.1	12.5	12.4	13.0	12.7	12.9	10.5	8.8	42.0
44.0	11.3	11.6	11.6	12.1	11.8	12.6	10.3	8.6	44.0
46.0	10.5	10.8	10.8	11.3	11.0	11.7	10.1	8.6	46.0
48.0	9.8	10.1	10.0	10.5	10.3	10.9	9.9	8.5	48.0
50.0	9.1	9.4	9.4	9.8	9.6	10.2	9.8	8.4	50.0
52.0	8.5	8.7	8.8	9.2	9.0	9.5	9.2	8.3	52.0
54.0	7.9	8.2	8.2	8.6	8.4	8.9	8.6	8.3	54.0
56.0	7.4	7.7	7.7	8.0	7.9	8.4	8.1	8.1	56.0
58.0	6.9	7.1	7.2	7.5	7.4	7.9	7.7	8.0	58.0
60.0	6.5	6.7	6.8	7.1	7.0	7.4	7.2	7.7	60.0
62.0	6.1	6.2	6.3	6.6	6.5	7.0	6.8	7.3	62.0
64.0	5.7	5.9	5.9	6.2	6.2	6.5	6.4	6.8	64.0
66.0	5.3	5.5	5.6	5.9	5.8	6.2	6.0	6.5	66.0
68.0	4.7	5.0	5.3	5.5	5.5	5.8	5.6	6.1	68.0
70.0	4.3	4.5	4.8	5.1	5.2	5.4	5.3	5.7	70.0
72.0	3.9	4.1	4.4	4.7	4.7	5.1	5.0	5.4	72.0
74.0	3.6	3.8	4.1	4.3	4.4	4.8	4.7	5.1	74.0
76.0			3.8	4.0	4.1	4.4	4.4	4.8	76.0
78.0				3.6	3.8	4.1	4.1	4.4	78.0
80.0				3.3	3.5	3.8	3.8	4.2	80.0
82.0					3.3	3.5	3.6	3.9	82.0
84.0					3.0	3.2	3.3	3.7	84.0
86.0						2.9		3.5	86.0
88.0								3.2	88.0

12. Lifting performance on SW boom

Lifting height on SW boom



Lifting capacity on SW boom

Length of S (m)	35											
Length of W (m)	21			24			27			30		
S-boom angle (°) Radius (m)	85	75	65	85	75	65	85	75	65	85	75	65
10												
12	55			46.3/13								
14	51			43.6			40.5			38.3/15		
16	47			41.6			39.3			36.1		
18	40.3			37.1			37.9			34.8		
20	31.1	41.3/21		36.3			35			34.5		
22	24.1	36.8		28.8	36.6		33			34.2		
24	18.4	33		22.9	32.9		26.7	32.8		30.1	31.5/25	
26		30		18.1	29.9		21.7	29.8		24.9	29.8	
28		27.5			27.4		17.6	27.3		20.6	27.2	
30		25.3	24.2		25.3		14	25.2		17	25.1	
32			22.4		23.4	22.3		23.3		13.9	23.3	
34			20.9			20.8		18.8	20.7		21.7	
36			19.6			19.4		14.6	19.3		17.9	19.3
38						18.3			18.2		14.3	18.1
40									17.1			17
42									16.2			16.1
44												15.3

Length of S (m)	35											
Length of W (m)	33			36			39			42		
S-boom angle (°) Radius (m)	85	75	65	85	75	65	85	75	65	85	75	65
16	32.1			27.3/17								
18	28.7			25.5			23.3			20.8		
20	28.5			23.8			22.1			19.2		
22	28.3			23.3			21.4			18.4		
24	28			23			20.2			18.1		
26	27.3	28.6		22.8			19.9			17.8		
28	23.1	27.1		22.8	23.3		19.6			17.4		
30	19.5	25		21.2	23		18.9	19.3		16.2		
32	16.3	23.2		18.2	22.9		18.3	18.9		15	15.8	
34	13.6	21.6		15.6	21.4		16.8	18.7		14.8	15.4	
36	11.1	20.2		13.2	20.1		14.6	18.4		14.8	15.3	
38		16.9	17.9	11	18.8		12.7	18.3		13.5	15.1	
40		13.9	16.9		16	16.8	10.8	17.7		11.7	14.9	
42		11.2	16		13.3	15.8	9	15.1	15.8	10.3	14.8	
44			15.1		11	15		12.8	14.9	8.9	14.1	14.8
46			14.3			14.3		10.7	14.2		12.2	14.1
48			13.7			13.6		8.9	13.2		10.4	13.3
50						12.9			11.6		8.8	12.8
52									11.3			11.6
54												10.8
56												9.8

Lifting capacity on SW boom

Length of S (m)	35								
Length of W (m)	45			48			51		
S- boom angle (°)	85	75	65	85	75	65	85	75	65
Radius (m)	85	75	65	85	75	65	85	75	65
16									
18	16.8/19								
20	16.2			14.1			11.1/21		
22	15.8			14.0			10.7		
24	14.5			13.2			10.3		
26	14.2			12.6			10.1		
28	14.9			12.4			9.8		
30	13.7			12.1			9.5		
32	12.8			11.6			9.3		
34	12.2	12.9		11.3			9.1		
36	12	12.7		11.1	10.4/35		8.9	8.6	
38	11.9	12.4		10.9	10.2		8.8	8.3	
40	11.8	12.3		10.8	9.9		8.6	8.1	
42	10.8	12		10.6	9.8		8.5	7.9	
44	9.5	11.9		9.9	9.6		8.3	7.8	
46	8.3	11.9	12.3	9.6	9.5		8.3	7.6	
48		11.1	12	8.7	9.4	9.8	7.3	7.4	
50		9.7	11.9	6.7	9.3	9.7	6.9	7.3	7.8
52		8.4	11.9		8.8	9.5	6.1	7.3	7.6
54			11.5		7.7	9.4		7.3	7.4
56			11		6.7	9.3		6.9	7.3
58			10.6			8.9		6	7.2
60						8.6			7.1
62						8.2			6.8
64									6.6

Length of S (m)	59											
Length of W (m)	21			24			27			30		
S- boom angle (°)	85	75	65	85	75	65	85	75	65	85	75	65
Radius (m)	85	75	65	85	75	65	85	75	65	85	75	65
14	38.8			38.6/15								
16	33.9			33.8			33.6			33.4/17		
18	30.1			29.9			29.8			29.6		
20	27			26.8			26.6			26.4		
22	24.4			24.2			24			23.8		
24	22.3			22			21.8			21.7		
26	18.3	27.4		20.2			19.9			19.8		
28		25.3		17.9	25.1/29		18.3			18.2		
30		23.5			23.3		16.9	23		16.8		
32		21.8			21.7		13.7	21.5		15.6	21.3	
34		20.3			20.2			20.1		13.5	19.9	
36		19			18.9			18.8			18.7	
38			15		17.8			17.6			17.5	
40			14.2			14.1/41		16.6			16.5	
42			13.9			14		15.7			15.6	
44			13.2			13.3			13.2		14.8	
46			12.5			12.6			12.5			12.4
48						12			11.9			11.8
50									11.3			11.3
52									10.8			10.8
54												10.3

Lifting capacity on SW boom

Length of S (m)	59											
Length of W(m)	33			36			39			42		
S- boom angle (°)	85	75	65	85	75	65	85	75	65	85	75	65
Radius (m)	85	75	65	85	75	65	85	75	65	85	75	65
18	29.2			24.4			22.7/19					
20	26.3			24			20.8			18.2		
22	23.7			23.6			19.9			17.8		
24	21.5			21.3			19.4			17.4		
26	19.7			19.5			19.2			16.8		
28	18			17.9			17.8			16.3		
30	16.7			16.5			16.3			15.8		
32	15.4			15.3			15.1			15.2		
34	14.3	19.8		14.2			14			13.9		
36	12.9	18.6		13.2	18.4		13	18.3		12.9		
38		17.4		12.3	17.3		12.2	17.2		12	15.8	
40		16.4			16.3		11.3	16.2		11.3	15.5	
42		15.5			15.4		10.1	15.3		10.5	15.2	
44		14.7			14.6		8.1	14.5		9.5	14.3	
46		13.9			13.8			13.8			13.7	
48		12.5	11.7		13.2			13.1			12.9	
50			11.1		12.3	11		12.4			12.3	
52			10.6			10.5		11.2	10.4		11.8	
54			10.2			10.1		9.8	9.9		11.3	9.8
56			9.8			9.6			9.5		9.6	9.4
58			9.3			9.3			9.1			9
60						8.8			8.8			8.7
62									8.4			8.3
64									8.1			8
66												7.7

Length of S (m)	59								
Length of W(m)	45			48			51		
S- boom angle (°)	85	75	65	85	75	65	85	75	65
Radius (m)	85	75	65	85	75	65	85	75	65
22	16.2			13.8/23					
24	15.9			13.6			10.7		
26	15.5			12.9			10.3		
28	15.2			12.6			10.1		
30	14.9			12.1			9.8		
32	14.2			11.7			9.6		
34	13.4			11.5			9.5		
36	12.6			11.2			9.3		
38	11.9			10.9			8.9		
40	11.1	12.9		10.6			8.8		
42	10.4	12.8		10.3	10.5		8.6		
44	9.8	12.5		9.8	10.2		8.4	8.3	
46	9.2	12.3		9.1	9.9		8.3	8.1	
48	8	12		8.5	9.8		8.1	7.9	
50		11.9		7.6	9.7		7.9	7.8	
52		11.7			9.5		7.8	7.6	
54		11.2			9.4		6.2	7.4	
56		10.7	9.3		9.3			7.3	
58		9.5	8.9		9.3	8.8		7.3	
60		7.9	8.5		9.2	8.4		7.2	7.8
62			8.2		7.8	8.1		7.1	7.6
64			7.9			7.8		7	7.4
66			7.6			7.5			7.3
68			7.3			7.2			7.1
70						6.9			6.8
72						6.7			6.6
74									6.3