ZOOMLION

ZOOMLION ZCC3200V CRAWLER CRANE

TECHNICAL SPECIFICATIONS

ZCC3200V/27Y

Edition 2, June 2020

Zoomlion Heavy Industry Science & Technology Co.,Ltd.

ZOOMLION ZCC3200 CRAWLER CRANE

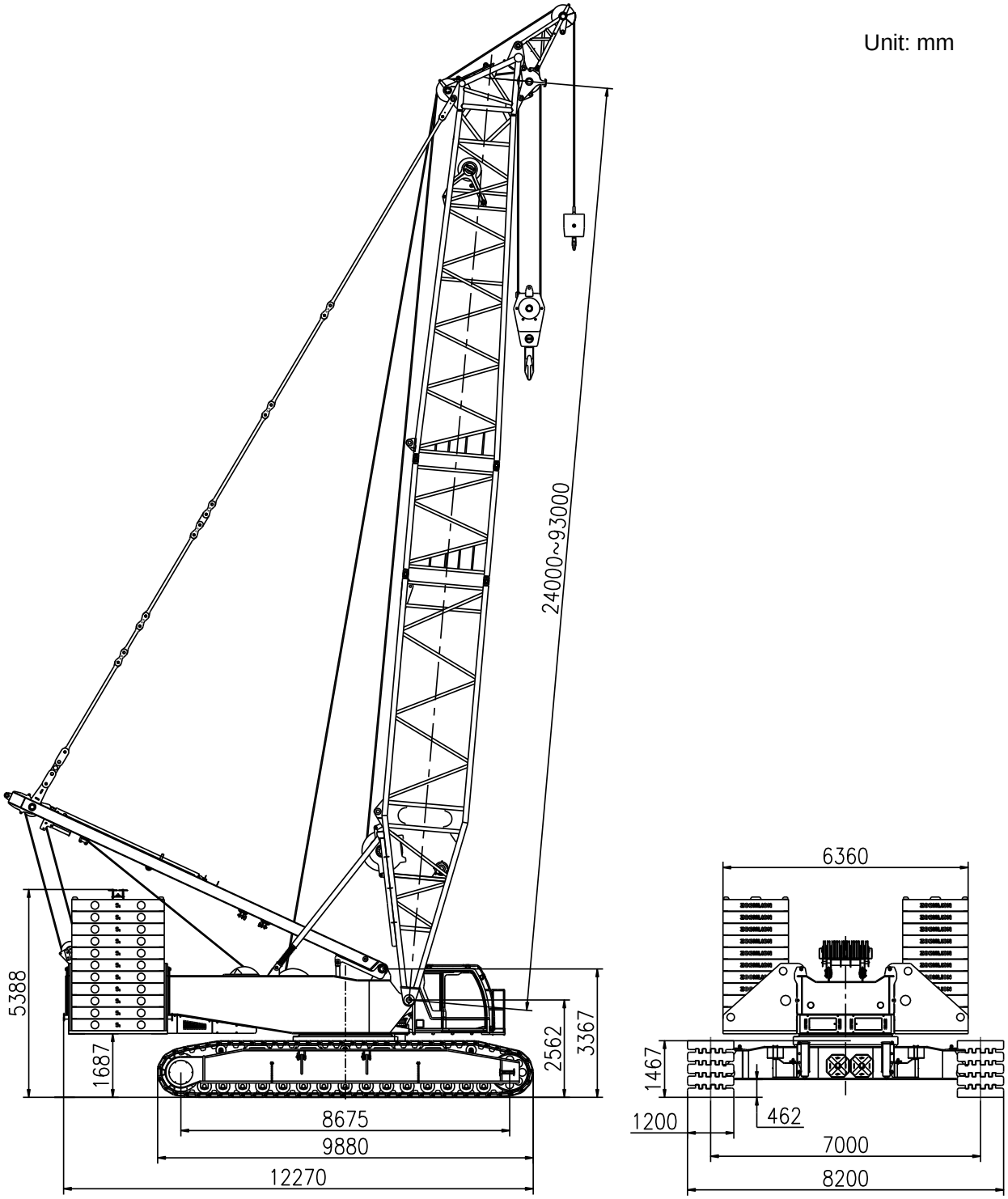
TECHNICAL SPECIFICATIONS

ZCC3200/27Y

1. Overall dimensions and main technical parameters

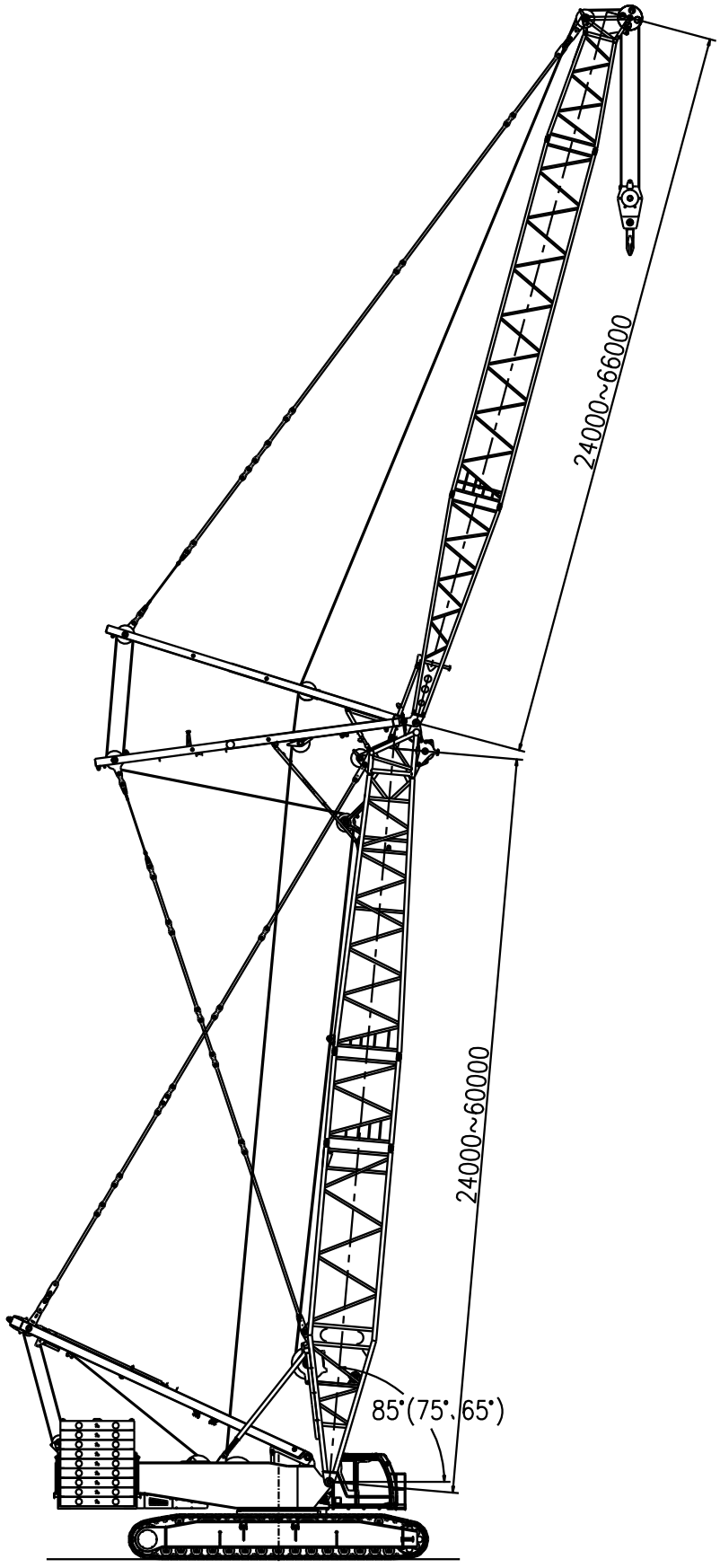
1.1 Dimensions of main boom operating mode

Unit: mm



1.2 Dimensions of luffing jib operating mode

Unit: mm



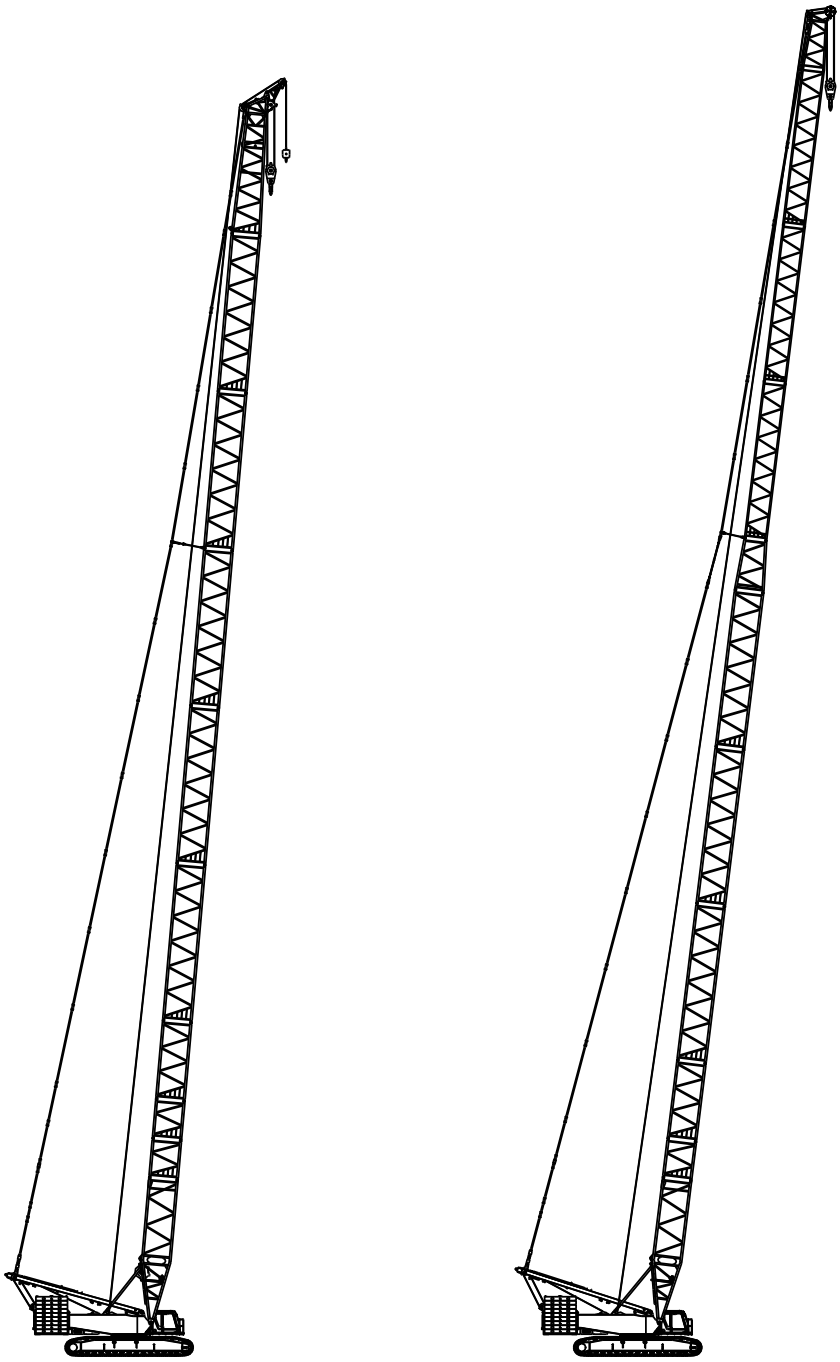
1.3 Main technical parameters

Items		Unit	ZCC3200V	Remarks
Main boom	Max. lifting capacity × radius	t×m	320×6	
	Max. lifting moment	t×m	1935	
	Main boom length	m	24～93	
Light main boom	Max. lifting capacity × radius	t×m	122×11	
	Main boom length	m	67.5～106.5	
Fixed jib	Max. lifting capacity × radius	t×m	130×9	
	Fixed jib length	m	9～36	
	Main boom length (with fixed jib)	m	24～81	
	Max. length of main boom + fixed jib	m	81+9、63+36	
	Fixed jib angle	°	10°、20°、30°	
Luffing jib	Max. lifting capacity × radius	t×m	118×12	
	Luffing jib length	m	24～66	
	Main boom length (with luffing jib)	m	24～60	
	Max. length of main boom + luffing jib	m	60+66	
	Main boom angle	°	85°、75°、65°	
Winch speed	Speed of hoisting winch 1	m/min	120	The 6th layer
	Speed of hoisting winch 2	m/min	116	The 6th layer
	Speed of derricking winch	m/min	2×50	The 6th layer
Crane parameters	Slewing speed	rpm	0～1	
	Traveling speed	km/h	0～1	
	Rear counterweight	t	120	
	Central counterweight	t	40	
	Max. transport weight of a single component	t	44.5	With mast and winch
	Total weight with main boom	t	272	With a load hook of 260t
	Average ground pressure	Mpa	0.135	
	Max. dimensions for transport (length × width × height)	m	13.7×3×3.22	
Engine	Manufacturer / Model		Weichai / WP10G336E344	
	Rated power / rotational	kw/rpm	247/1900	

	speed			
	Max. output torque / rotational speed	Nm/rpm	1550/1400	
	Exhaust emission		GB III	
Track gauge × crawler contact length × crawler width		mm	7000×8675×1200	

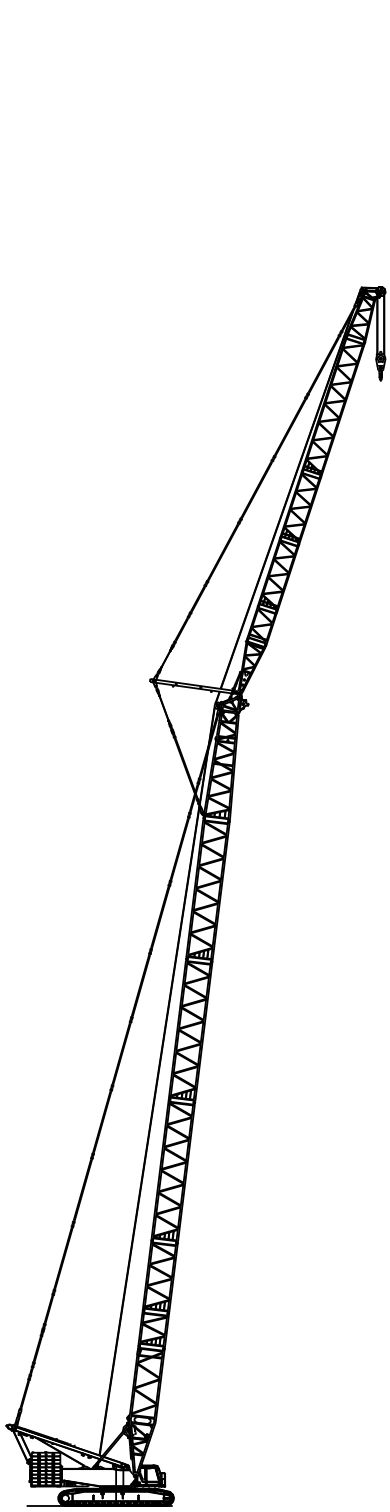
1.4 Description on boom operating modes

Boom system is a lattice structure made of high-strength tubes. Anchoring rods are made of high-strength board.

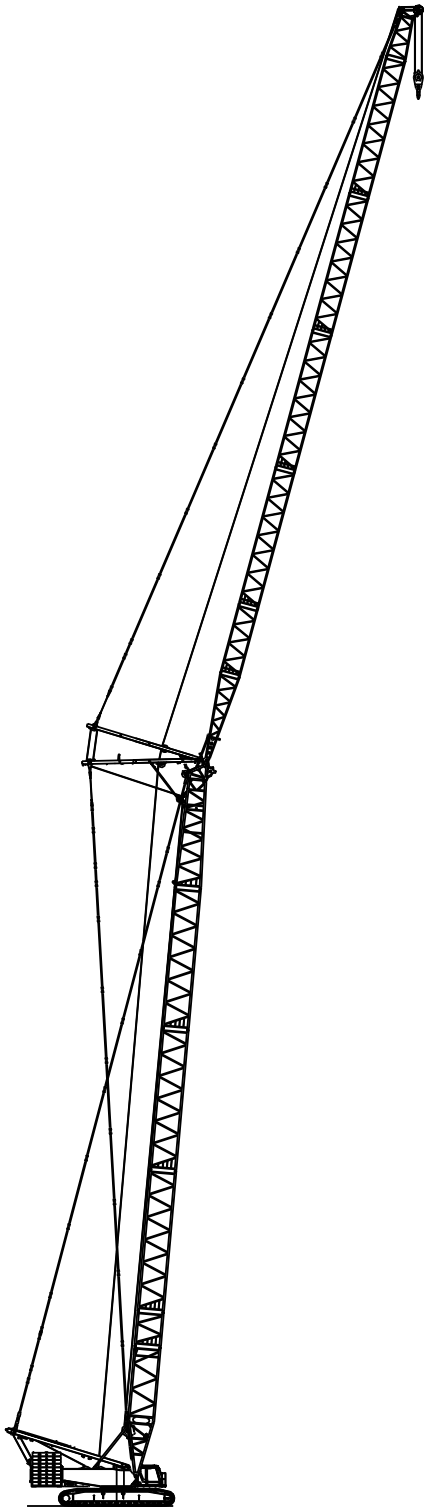


S SL

Code	Operating mode	Boom combination
S	Main boom	S=24～93 m
SL	Light main boom	SL=67.5～106.5 m

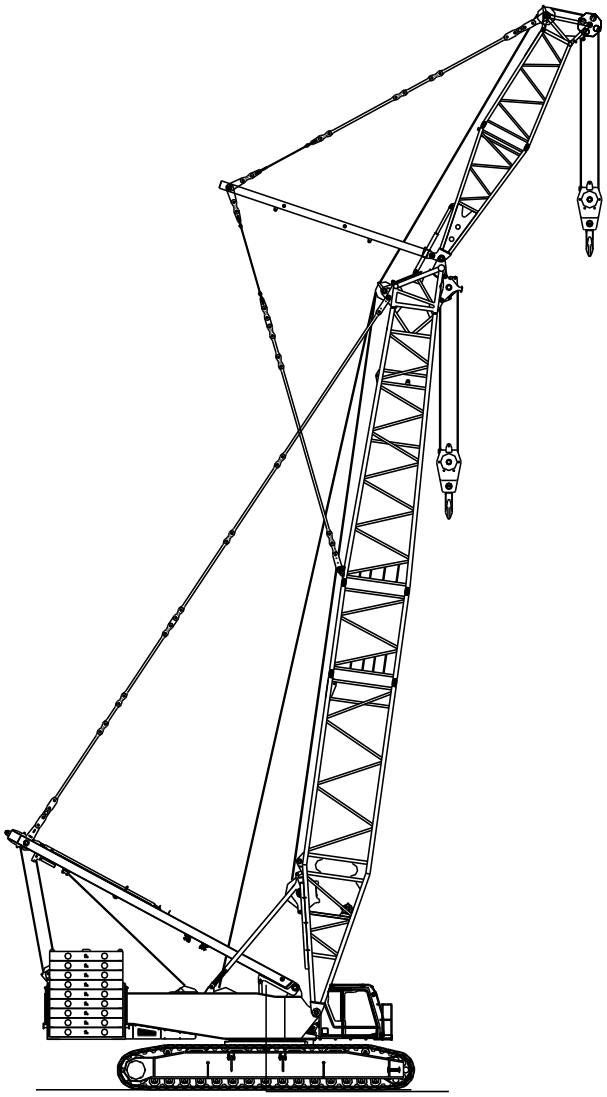


SF



SW

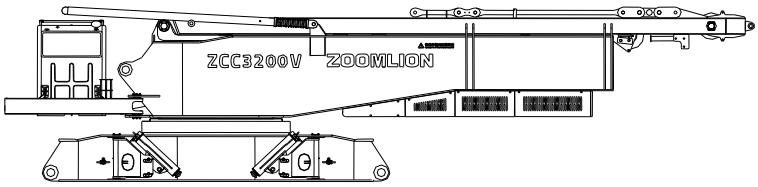
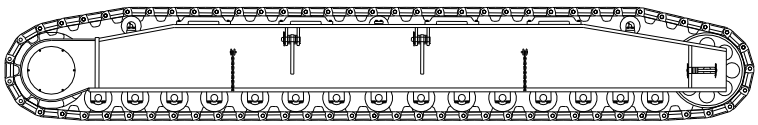
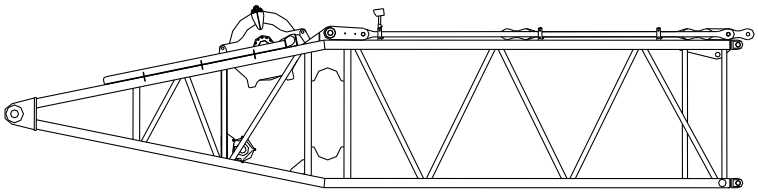
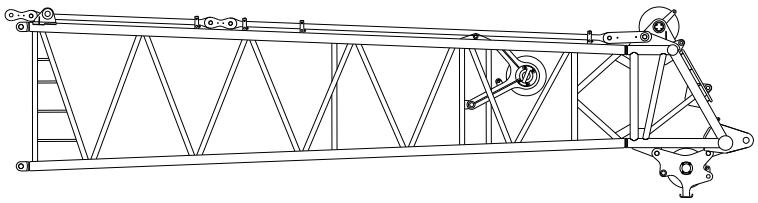
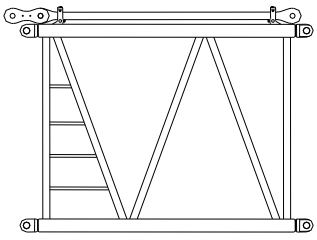
Code	Operating mode	Boom combination
SF	Fixed jib	S=24～63m F=9～36m
SW	Luffing jib	S=24～60m W=24～66m

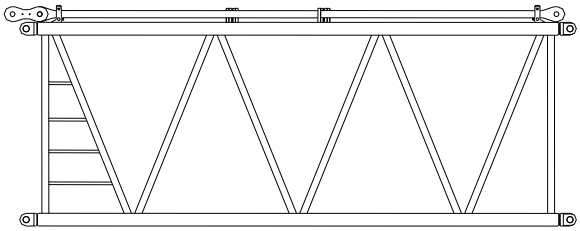
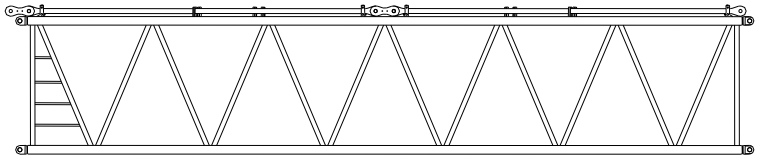
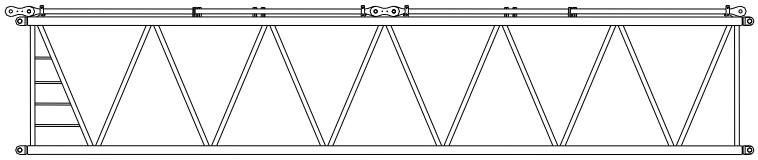
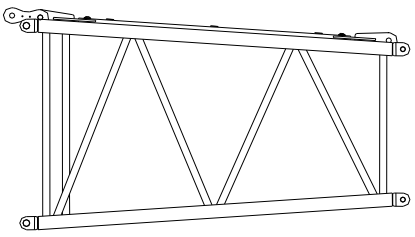
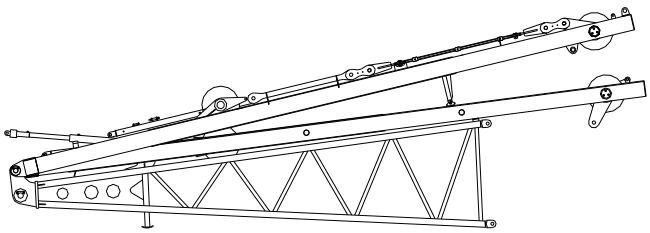


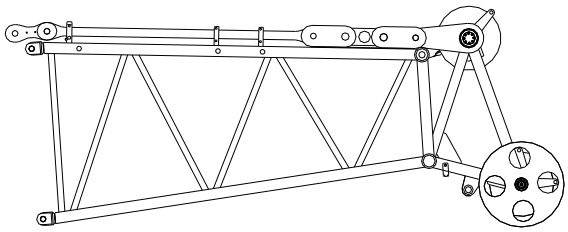
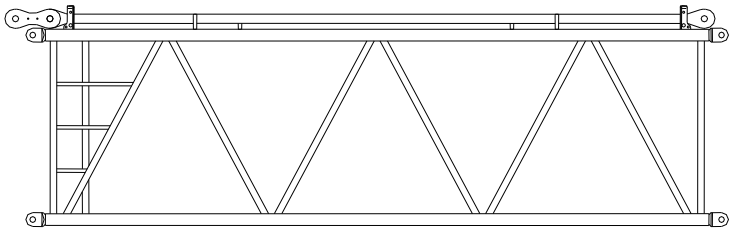
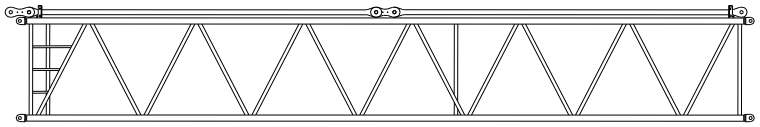
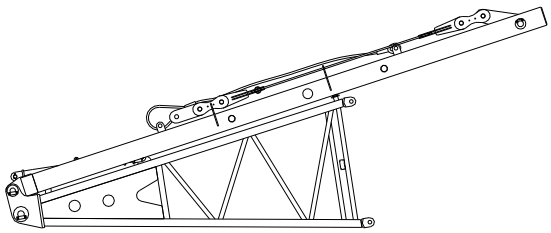
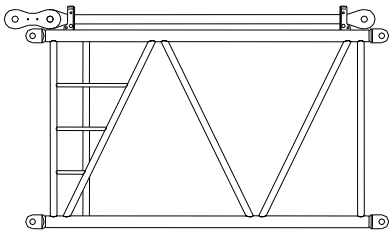
SFV

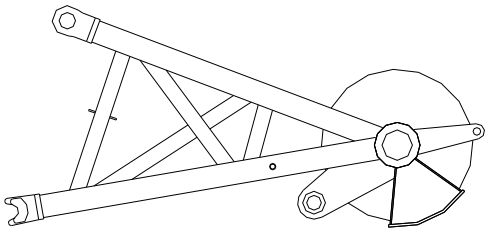
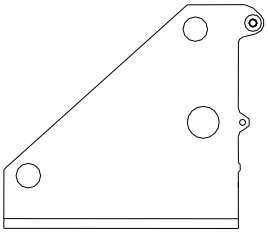
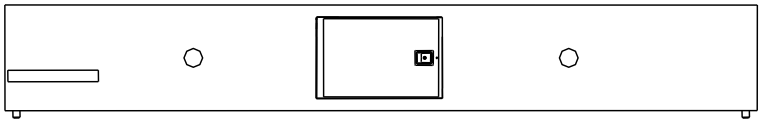
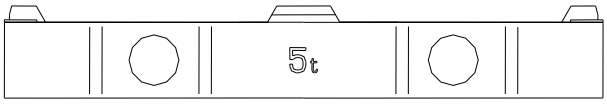
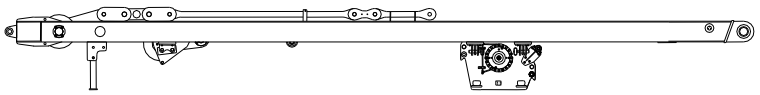
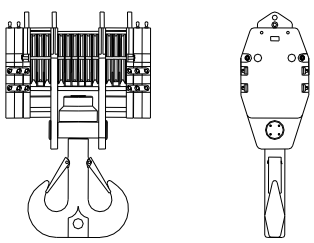
Code	Operating mode	Boom combination
SFV	Operating mode for turning over a shield tunneling machine	S=21~30m FV=9m

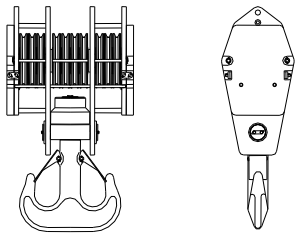
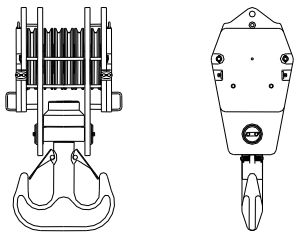
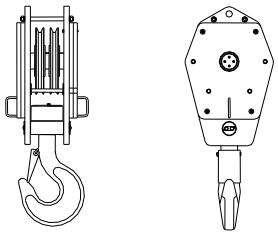
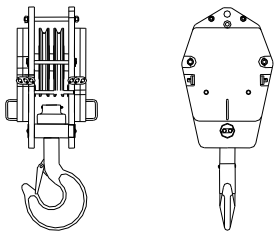
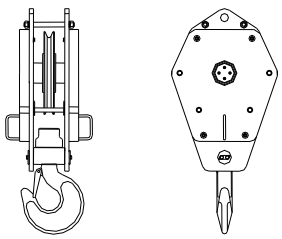
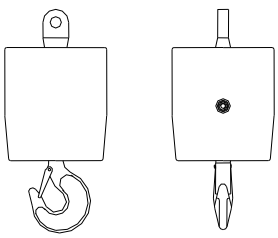
1.5 Overall dimensions and weights of major components in transport

Components in transport	Names	Weights/ dimensions
	Basic machine	×1
	Length	13700 mm
	Width	3000 mm
	Height	3220 mm
	Weight	44.5 t
Transport weight is 36.6t without mast		
	Crawler assy.	×2
	Length	9880 mm
	Width	1635 mm
	Height	1465mm
	Weight	25.6 t
	Main boom pivot section	×1
	Length	11400 mm
	Width	2740 mm
	Height	2765 mm
	Weight	8.39 t
With luffing jib derricking winch, 11.68t		
	Main boom head	×1
	Length	11250 mm
	Width	2740 mm
	Height	2870 mm
	Weight	5.46 t
	3m main boom intermediate section	×1
	Length	3310 mm
	Width	2740 mm
	Height	2425 mm
	Weight	1.21 t

	6m main boom intermediate section	×1
	Length	6310 mm
	Width	2740 mm
	Height	2425 mm
	Weight	2.04 t
	12m main boom intermediate section	×4
	Length	12310 mm
	Width	2740 mm
	Height	2425 mm
	Weight	3.38 t
	12m heavy main boom intermediate section	×1
	Length	12310 mm
	Width	2740 mm
	Height	2425 mm
	Weight	3.73 t
	4m reducing section	×1
	Length	4320 mm
	Width	2740 mm
	Height	2360 mm
	Weight	1.31 t
	Luffing jib pivot section	×1
	Length	10240 mm
	Width	2205 mm
	Height	3510 mm
	Weight	6.88 t
With WA-frame 1, WA-frame 2 and tilting-back support of luffing jib		

	Luffing jib head	×1
	Length	5240 mm
	Width	2120 mm
	Height	2070 mm
	Weight	1.57 t
	6m luffing jib intermediate section	×1
	Length	6300 mm
	Width	2120 mm
	Height	1920 mm
	Weight	1.02 t
	12m luffing jib intermediate section	×4
	Length	12300 mm
	Width	2120 mm
	Height	1920 mm
	Weight	1.9 t
	Fixed jib pivot section	×1
	Length	7090 mm
	Width	2760 mm
	Height	2890 mm
	Weight	3.25 t
With FA-frame, tilting-back support, etc.		
	3m fixed jin intermediate section	×1
	Length	3300 mm
	Width	2120 mm
	Height	1920 mm
	Weight	0.6 t

	Tip boom	×1
	Length	1900 mm
	Width	1280 mm
	Height	875 mm
	Weight	0.3 t
	Counterweight frame	×2
	Length	2825 mm
	Width	2120 mm
	Height	1825 mm
	Weight	5 t
	Central ballast	×2
	Length	5230 mm
	Width	1550 mm
	Height	780 mm
	Weight	20 t
	Counterweight plate	×18
	Length	2400 mm
	Width	1700 mm
	Height	365 mm
	Weight	5 t
	A-frame + derricking mechanism	×1
	Length	10940 mm
	Width	2355 mm
	Height	1195 mm
	Weight	7.9 t
		With main derricking rope
	Load hook for 300t	×1
	Length	1705 mm
	Width	800 mm
	Height	2626 mm
	Weight	6.91 t

	Load hook for 260t	×1
	Length	1400 mm
	Width	805 mm
	Height	2480 mm
	Weight	4.24 t
	Load hook for 160/100t	×1
	Length	1130 mm
	Width	805 mm
	Height	2195 mm
	Weight	2.87 t
	Load hook for 65t	×1
	Length	746 mm
	Width	805 mm
	Height	1990 mm
	Weight	1.82 t
	Load hook for 50t	×1
	Length	802 mm
	Width	805 mm
	Height	1965 mm
	Weight	1.71 t
	Load hook for 30t	×1
	Length	630 mm
	Width	775 mm
	Height	1635 mm
	Weight	1.1 t
	Load hook for 16t	×1
	Length	530 mm
	Width	530 mm
	Height	1160 mm
	Weight	0.9 t

2. Technical instruction

2.1 Boom system

Boom system is a truss structure, boom sections of which are made of high-strength seamless steel tubes and connected by pin spindles.

Boom system consists of main boom, luffing jib, fixed jib, luffing jib stay, FA-frame, and anchoring rod, etc. Lattice structure is made of high-strength steel tube; door-shaped structure is made of high-strength steel board; anchoring rod is made of high-strength board.

2.1.1 Main boom

Main boom is a spatial lattice structure made of high-strength steel tubes with a uniform cross-section at the center and variable cross-sections at both ends.

Main boom length: 24～93 m

2.1.2 Luffing jib

Luffing jib is a spatial lattice structure made of high-strength steel tubes with a uniform cross-section at the center and variable cross-sections at both ends.

Luffing jib length: 24～66 m

2.1.3 Fixed jib

Fixed jib is a spatial lattice structure made of high-strength steel tubes with a uniform cross-section at the center and variable cross-sections at both ends.

Intermediate sections and boom heads of fixed jib and luffing jib can be commonly used.

Fixed jib length: 9～36 m

2.1.4 Light boom

It consists of a main boom and a luffing jib, which is connected by a reducing section in the middle. The reducing section is a spatial lattice structure made of high-strength steel tubes with variable cross-section.

Light boom length: 67.5～106.5 m

2.1.5 WA-frame 1 and WA-frame 2

WA-frame is a door-shaped structure made of high-strength steel board.

Length of WA-frame 1: 9.5 m

Length of WA-frame 2: 9.5 m

2.1.6 FA-frame

FA-frame is a door-shaped structure made of high-strength steel board.

Length of FA-frame: 7 m

2.1.7 Operating mode for turning over a shield tunneling machine

Boom sections of the operating mode for turning over a shield tunneling machine and boom sections of the fixed jib operating mode are universal.

Main boom length: 21～30 m

Fixed jib length: 9 m

2.2 Mechanisms

2.2.1 Primary and secondary hoisting mechanisms

Primary and secondary hoisting mechanism consist of winch reducer, motor, normally-closed brake, wire rope, over-unwinding protection device, etc. Both mechanisms can be operated in high and low speeds. The drum has a double-rope groove and the wire rope is an anti-twisting rope with a special structure.

Mechanism	Item	Parameter	Remarks
Primary hoisting winch	Wire rope diameter	28mm	
	Wire rope length	700m	
	Single rope tension	160kN	
	Max. speed	120m/min	(the 6th layer)
Secondary hoisting winch	Wire rope diameter	28mm	
	Wire rope length	350m	
	Single rope tension	140kN	
	Max. speed	116m/min	(the 6th layer)

2.2.2 Derricking mechanism

Main boom derricking winch consists of winch reducer, motor, normally-closed brake, wire rope, over-unwinding protection device, etc. The drum has a duplex double-rope groove and the wire rope is derricking rope of exclusive use.

Luffing jib derricking winch consists of winch reducer, motor, normally-closed brake, wire rope, over-unwinding protection device, etc. The drum has a double-rope groove and the wire rope is derricking rope of exclusive use.

Mechanism	Item	Parameter	Remarks
Main boom derricking mechanism	Wire rope diameter	24mm	
	Wire rope length	490m	
	Single rope tension	10.4kN	
	Max. speed	2×50m/min	（第 6 层）
Luffing jib derricking mechanism	Wire rope diameter	28mm	
	Wire rope length	320m	
	Single rope tension	140kN	
	Max. speed	116m/min	（第 6 层）

2.2.3 Slewing mechanism

Slewing mechanism consists of reducer, motor, normally-closed brake, slewing bearing, etc. Superstructure realizes continuous rotation for 360° through the slewing bearing driven by the pinion of slewing reducer. Slewing mechanism has the function of free swing, which reduces or eliminates lateral force on boom section caused by the fact that the central gravity of load and wire rope are not in the same vertical line.

Infinitely variable slewing speed: 0～1 rpm

For safety's sake, the slewing mechanism can be locked by mechanical locking device in the front of slewing table during transportation.

2.2.4 Slewing bearing

The three-row roller external-gearing slewing bearing guarantees the stability and accuracy of slewing with its strong bearing capacity and high precision.

2.2.5 Traveling mechanism

Both the left and the right crawlers have their own traveling reducer and motor. Movements of the two crawlers, such as traveling straight, turning with one crawler, differential steering, pivot steering and traveling with a load, are controlled by two levers respectively. Both crawlers are of high mobility and flexibility.

Traveling speed: 0～1.0km/h

Gradeability: 30％

Crawler tensioning device: it is tensioned through a spiral lifting jack, which is fast, convenient and reliable.

2.3.6 Mast erecting mechanism

Mast erecting system is composed of mast, mast erecting cylinder, auxiliary hydraulic system, etc. When mast is used for self-assembly or dismantling (or transition), it must be erected for over 90° from the horizontal level so as to connect anchoring rods and assemble boom sections, crawler assembly and counterweight.

2.3 Systems

2.3.1 Hydraulic system

Hydraulic system comprises main pump, slewing pump, constant pressure pump, gear pump, main valve, motor, radiator, and other hydraulic components. The main oil line is an open loop, controlling the primary hoisting winch, the secondary hoisting winch, derricking winch, and traveling mechanism. Different output speeds can be controlled proportionally by the lever. The oil line for slewing is a closed loop, which guarantees that the mechanism is steady and stable in slewing with good micro-motion performance. Cylinders are controlled by auxiliary oil lines.

Main pump and slewing pump are electro-hydraulic proportional piston pump

Constant pressure pump controls auxiliary movements while gear pump provides oil for controlling.

Main valve is an electro-hydraulic proportional pilot control valve, which controls flow proportionally for compound movement.

Hydraulic oil tank capacity: 720 L

Radiator is a cooling fan driven by motor.

2.3.2 Control system

Engine is controlled by an intelligent electronic control system independently. With CAN bussing technology, engine, PLC, moment limiter, digital display, encoder, and bus operation lever are connected effectively. It has such functions failure detection and diagnosis, GPS/GPRS positioning, and remote fault diagnosis.

2.3.3 Power system

WeiChai electronic fuel injection engine with CAN bus interface

Model: WP10G336E344

Rated output power / rotational speed: 247 kw/1900 rpm

Max. output torque/rotational speed: 1550Nm/1400rpm

Exhaust emission standard: GB 20891-2014

Fuel oil tank: 700L (with a direct oil-filling pump)

2.3.4 Digital display system

Large LCD, having Chinese and English versions, displays all parameters of engine and hydraulic system and monitors working state of the crane at all times. The system sends out yellow or red warning signal when abnormal conditions occur.

2.4 Safety devices

2.4.1 Moment limiter

It is composed of digital LCD, central unit, signal converter, sensor and so on. When actual load moment reaches 90% of the maximum permissible load moment, an acoustic alarm will sound. When actual load moment reaches the maximum permissible load moment, an acoustic alarm will sound, and the dangerous movements will be switched off automatically so as to avoid accidents caused by overloading of crane, thus ensuring normal and safe crane operation. The following data can be displayed on the digital LCD: moment ratio, main boom angle, main boom length, working radius, actual load, maximum permissible lifting load, maximum permissible lifting height, and wind speed at boom head.

2.4.2 Overflow valves of the hydraulic system

Overflow valves of the hydraulic system restrain abnormal high pressure in the loop so as to avoid damage on hydraulic oil-pump and motor and prevent the system from being overloaded.

2.4.3 Hoisting limiter

Components fixed on boom head, like limit switch and hoisting limit weight, are used to prevent over-hoisting of load hook. Limit switch will send out a signal when load hook is lifted to a certain height. Electrical system will cut off the lifting of load hook automatically and send out a sound-light alarm through buzzer and display in the operator’s cab so as to avoid over-winding of load hook.

2.4.4 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 from inside the cab.

2.4.5 Derricking limiter

Controlled by load moment limiter and limit switch, it is able detect the limit elevation of the heavy boom and cut off derricking automatically with a sound-light alarm.

2.4.6 Main boom tilting-back support

It is spring-loaded tilting-back support with the inner pipe inserted into the outer pipe. It is mounted on main boom pivot section to prevent main boom from tilting backward.

2.4.7 Crane inclinometer

An electronic inclinometer is used to indicate the “leveled position” of the crane. The operator can observe the inclination of crane from the screen at all times. A bubble level is also equipped on the crane.

2.4.8 Safety catch

It is a device used to protect the load from jumping out from the hook.

2.4.9 Lowering limiter

It is a device ensuring that three windings of wire rope on the drum are maintained at all times

during operation. When there are only three windings of wire rope left on the drum, the lowering limit switch will be triggered, the buzzer will sound, and the crane movement “reel off winch” will be switched off.

2.4.10 Anemometer

An electronic device used to indicate the actual wind speed at boom head

2.4.11 Emergency stop button

The engine can be shut down and all movements can be stopped if the button is pressed down for emergent conditions.

2.4.12 Tricolor warning light

The warning light, by showing red, yellow and green colors, can indicate loading status. 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.

2.4.13 Monitoring system

Three video cameras: monitor situations of the winch on slewing table, rear end of the crane and the winch on main boom pivot section.

A high-definition spherical camera: installed on main boom head is used to monitor the lifting condition.

Display: switch different monitoring screens through a press-key.

The system has the function of storing monitoring records.

2.5 Operator’s cab

The operator’s cab is an all-steer structure with a width of 1250mm. It is equipped with tempering glasses all around and laminated glasses on the front and the top. It is also equipped with a right sun shield, an adjustable seat, a windscreen wiper, control levers, a display of load moment, a digital display system, all kinds of switches, an air-conditioner, a fan, a light, and a fire extinguisher, etc. The operator’s cab can be pitched up for 20° with a broad view. With upgraded designs of ergonomics, the operation can be safe and comfortable.

2.6 Load hook

With load hooks and safety catch devices.

Load hook of 300t: equipped with 12 pulleys (optional);

Load hook of 260t: equipped with 10 pulleys (optional);

Load hook of 160/100t: equipped with 6 pulleys (optional);

Load hook of 300t: equipped with 12 pulleys (optional);

Load hook of 50t: equipped with 2 pulleys (optional);

Load hook of 30t: equipped with 1 pulley (optional);

Load hook of 16t: no pulley (optional).

2.7 Counterweight

2.7.1 Rear counterweight

It comprises counterweight frame and counterweight plate, weighting 120t.

Counterweight frame: 5t×2;

Counterweight plate: 5t×22.

(110t and 120t are optional specifications)

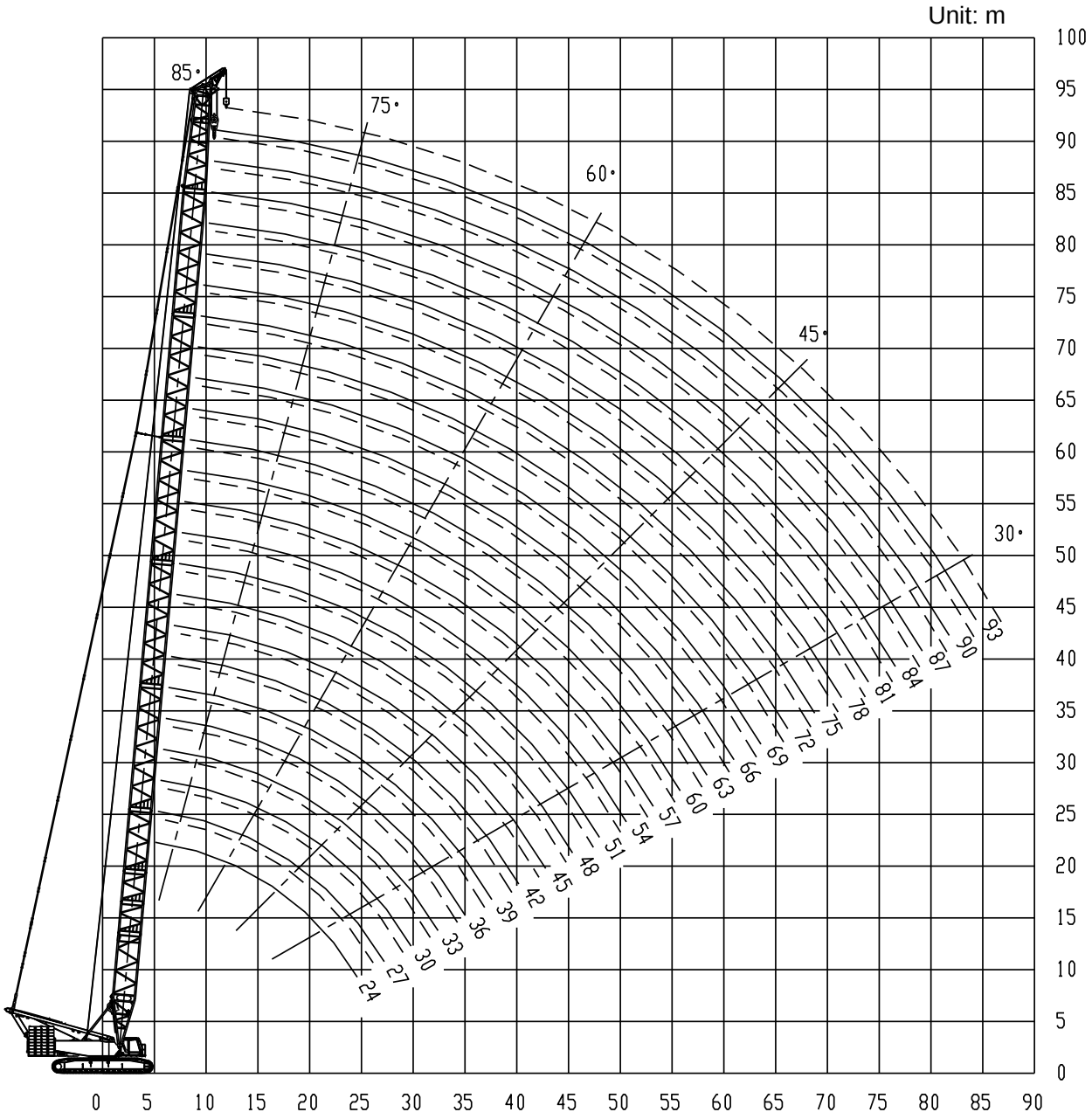
2.7.2 Central ballast

Central ballast: 20t×2.

3. Lifting performance

3.1 Main boom operating mode

3.1.1 Characteristic curve of lifting height of main boom



Note:

1. X-axis indicates the working radius in meters while Y-axis indicates the lifting height in meters.

2. Boom deflection is not considered in this curve.

3.1.2 Boom lengths of main boom operating mode

Boom / Main boom length	Main boom pivot section 11m	Main boom intermediate section 3m	Main boom intermediate section 6m	Heavy main boom intermediate section 12m	Main boom intermediate section 12m	Main boom head 10m
24	1	1	0	0	0	1
27	1	0	1	0	0	1
30	1	1	1	0	0	1
33	1	0	0	1	0	1
36	1	1	0	1	0	1
39	1	0	1	1	0	1
42	1	1	1	1	0	1
45	1	0	0	1	1	1
48	1	1	0	1	1	1
51	1	0	1	1	1	1
54	1	1	1	1	1	1
57	1	0	0	1	2	1
60	1	1	0	1	2	1
63	1	0	1	1	2	1
66	1	1	1	1	2	1
69	1	0	0	1	3	1
72	1	1	0	1	3	1
75	1	0	1	1	3	1
78	1	1	1	1	3	1
81	1	0	0	1	4	1
84	1	1	0	1	4	1
87*	1	0	1	1	4	1
90*	1	1	1	1	4	1
93*	1	0	2	1	4	1

Note: Main boom lengths of 87-93m are optional (with intermediate tensioner).

3.1.3 Lifting capacity chart for main boom operating mode

Lifting capacity chart for main boom operating mode

Rear counterweight: 120t Central counterweight: 40t

Radius m	Main boom length m												Radius m
	24	27	30	33	36	39	42	45	48	51	54	57	
5	320												5
6	320	320	304	278	265								6
7	276	276	276	276	265	237	224	210	196				7
8	242	242	242	238	231	224	217	210	196	182	182	167	8
9	215	215	215	207	201	196	190	186	182	177	172	167	9
10	193	193	189	183	178	174	170	166	162	159	155	152	10
11	170	170	169	164	160	156	152	150	147	143	140	138	11
12	149	149	149	148	145	141	138	137	134	131	128	126	12
14	119	119	119	118	118	118	117	115	113	111	109	108	14
16	99.2	99.1	98.9	97.8	97.7	97.6	97.4	98.1	97.9	96.2	94.5	93.6	16
18	84.5	84.4	84.2	83.1	83	82.8	82.6	83.4	83.1	82.9	82.6	82.5	18
20	73.4	73.3	73.1	72	71.8	71.7	71.5	72.2	71.9	71.7	71.4	71.9	20
22	64.6	64.6	64.3	63.3	63.1	63	62.8	63.5	63.2	62.9	62.6	63.1	22
24		57.5	57.3	56.3	56.1	56	55.7	56.4	56.1	55.9	55.6	56	24
26			51.5	50.5	50.3	50.2	49.9	50.6	50.4	50.1	49.8	50.2	26
28			46.6	45.6	45.5	45.3	45.1	45.8	45.5	45.3	44.9	45.4	28
30				41.5	41.4	41.2	41	41.7	41.4	41.1	40.8	41.3	30
32					37.8	37.7	37.4	38.2	37.9	37.6	37.3	37.7	32
34						34.6	34.4	35.1	34.8	34.5	34.2	34.6	34
36						31.9	31.7	32.4	32.1	31.8	31.5	31.9	36
38							29.2	30	29.7	29.4	29.1	29.5	38
40								27.8	27.5	27.3	27	27.4	40
44										23.6	23.3	23.8	44
48											20.3	20.8	48

Lifting capacity chart for main boom operating mode

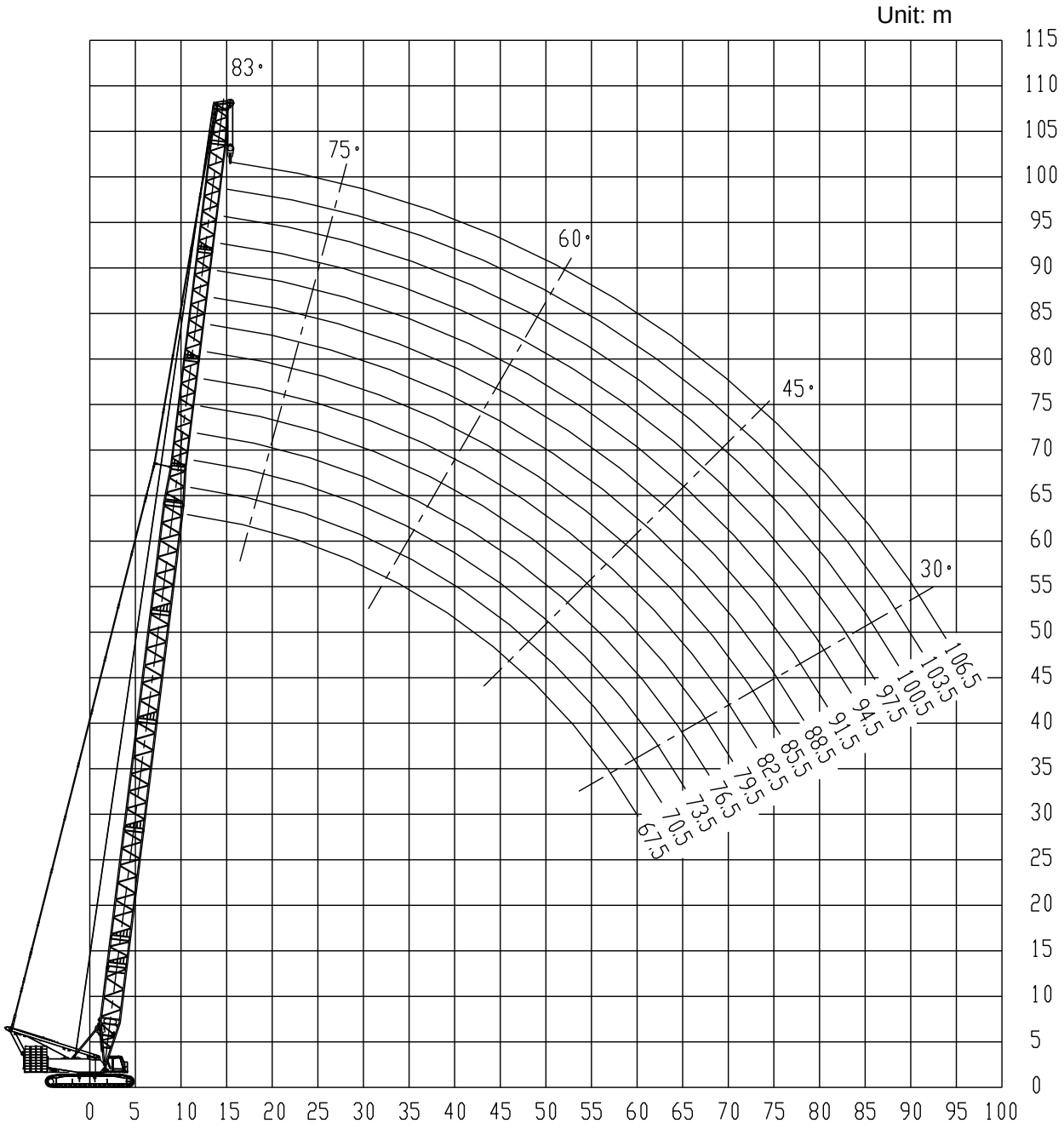
Rear counterweight: 120t Central counterweight: 40t

Radius m	Main boom length m												Radius m
	60	63	66	69	72	75	78	81	84	87*	90*	93*	
9	153	153	138	138									9
10	149	145	138	136	127	118	110	98.2					10
11	135	132	129	127	125	116	108	96.6	93.2	85.2	79.9	78	11
12	124	121	119	117	115	112	106	95	91.6	83.7	78.5	76.5	12
14	106	104	102	100	98.6	96.8	95	91.8	88.5	80.7	75.8	73.9	14
16	91.9	90.3	88.5	87.7	86.1	84.6	83	82.1	80.6	77.9	72.9	71.3	16
18	81	79.6	78.1	77.5	76.1	74.8	73.5	72.7	71.5	70.2	69	67.6	18
20	71.6	71	69.7	69.2	68	66.9	65.6	65.1	63.9	62.8	61.7	60.5	20
22	62.8	62.5	62.2	62.4	61.3	60.2	59.1	58.7	57.6	56.6	55.6	54.5	22
24	55.7	55.4	55.1	55.4	55.1	54.6	53.6	53.3	52.3	51.4	50.4	49.4	24
26	49.9	49.6	49.3	49.5	49.2	48.9	48.6	48.6	47.7	46.8	45.9	45	26
28	45	44.7	44.4	44.7	44.3	44	43.7	43.8	43.5	42.8	42	41.1	28
30	40.9	40.6	40.3	40.5	40.2	39.9	39.5	39.7	39.3	39	38.6	37.8	30
32	37.4	37.1	36.7	37	36.6	36.3	35.9	36.1	35.8	35.4	35.1	34.7	32
34	34.3	34	33.6	33.9	33.5	33.2	32.8	33	32.7	32.3	32	31.6	34
36	31.6	31.3	30.9	31.2	30.8	30.5	30.1	30.3	29.9	29.6	29.2	28.8	36
38	29.2	28.9	28.5	28.8	28.4	28.1	27.7	27.9	27.5	27.2	26.8	26.4	38
40	27	26.8	26.4	26.6	26.3	26	25.6	25.8	25.4	25	24.7	24.3	40
44	23.4	23.1	22.7	23	22.6	22.3	21.9	22.1	21.7	21.4	21	20.6	44
48	20.4	20.1	19.7	20	19.6	19.3	18.9	19.1	18.7	18.4	18	17.6	48
52	17.9	17.6	17.2	17.5	17.1	16.8	16.4	16.6	16.2	15.9	15.5	15.1	52
56		15.5	15.1	15.4	15	14.7	14.3	14.5	14.1	13.7	13.4	12.9	56
60				13.5	13.2	12.8	12.5	12.6	12.2	11.9	11.5	11.1	60
64					11.6	11.3	10.9	11	10.7	10.3	9.9	9.5	64
68							9.5	9.6	9.3	8.9	8.5	8.1	68
72								8.4	8	7.7	7.3	6.9	72
76										6.6	6.2	5.8	76
80											5.2	4.8	80

Note: Main boom lengths of 87-93m are optional (with intermediate tensioner). The boom must not be raised with the hook on.

3.2 Light main boom operating mode

3.2.1 Characteristic curve of lifting height of light main boom



Note:

1. X-axis indicates the working radius in meters while Y-axis indicates the lifting height in meters.

2. Boom deflection is not considered in this curve.

3.2.2 Boom lengths of light main boom operating mode

Boom / Main boom length	Main boom pivot section 11m	Main boom intermediate section 3m	Heavy main boom intermediate section 12m	Main boom intermediate section 12m	4m reducing section	6m derricking jib	12m derricking jib	4.5m derricking jib
67.5	1	0	1	3	1	0	0	1
70.5	1	1	1	3	1	0	0	1
73.5	1	0	1	3	1	1	0	1
76.5	1	1	1	3	1	1	0	1
79.5	1	0	1	3	1	0	1	1
82.5	1	1	1	3	1	0	1	1
85.5*	1	0	1	3	1	1	1	1
88.5*	1	1	1	3	1	1	1	1
91.5*	1	0	1	3	1	0	2	1
94.5*	1	1	1	3	1	0	2	1
97.5*	1	0	1	3	1	1	2	1
100.5*	1	1	1	3	1	1	2	1
103.5*	1	0	1	3	1	0	3	1
106.5*	1	1	1	3	1	0	3	1

Note: Intermediate tensioner is equipped for light main boom lengths of 85.5-106.5m.

3.2.3 Lifting capacity chart of light main boom operating mode

Lifting capacity chart of light main boom operating mode

Rear counterweight: 120t Central ballast: 40t

Radius m	Light main boom length m							Radius m
	67.5	70.5	73.5	76.5	79.5	82.5	85.5	
11	122	112						11
12	115	111	105	96.3	90	89.3	76.2	12
14	95.4	94.3	89.7	88.2	80	79	73.3	14
16	81.1	80.1	79.6	78.7	73	72.4	70.8	16
18	70.2	69.4	69	68.2	65.6	63.7	62.2	18
20	61.7	61	60.7	60	59.7	57.5	57.8	20
22	54.4	54	54	53.4	53.2	51.8	52.2	22
24	48.2	47.8	48.1	47.8	47.7	47	46.9	24
26	43.1	42.8	43	42.7	43	42.6	42.4	26
28	38.9	38.5	38.8	38.5	38.7	38.4	38.6	28
30	35.3	34.9	35.2	34.8	35.1	34.8	34.9	30
32	32.2	31.8	32	31.7	32	31.7	31.8	32
34	29.5	29.1	29.4	29	29.3	29	29.1	34
36	27.1	26.8	27	26.7	27	26.6	26.8	36
38	25	24.7	24.9	24.6	24.9	24.5	24.7	38
40	23.2	22.8	23.1	22.7	23	22.7	22.8	40
44	20	19.7	19.9	19.5	19.8	19.5	19.6	44
48	17.4	17.1	17.3	16.9	17.2	16.9	17	48
52	15.2	14.9	15.1	14.8	15.1	14.6	14.8	52
56	13.4	13	13.3	12.9	13.2	12.5	13	56
60	11.8	11.4	11.7	11.3	11.6	10.6	11.4	60
64			10.3	9.9	9.9	9	10	64
68					8.3	7.4	8.8	68
72						6.1	7.7	72

Lifting capacity chart of light main boom operating mode

Rear counterweight: 120t Central ballast: 40t

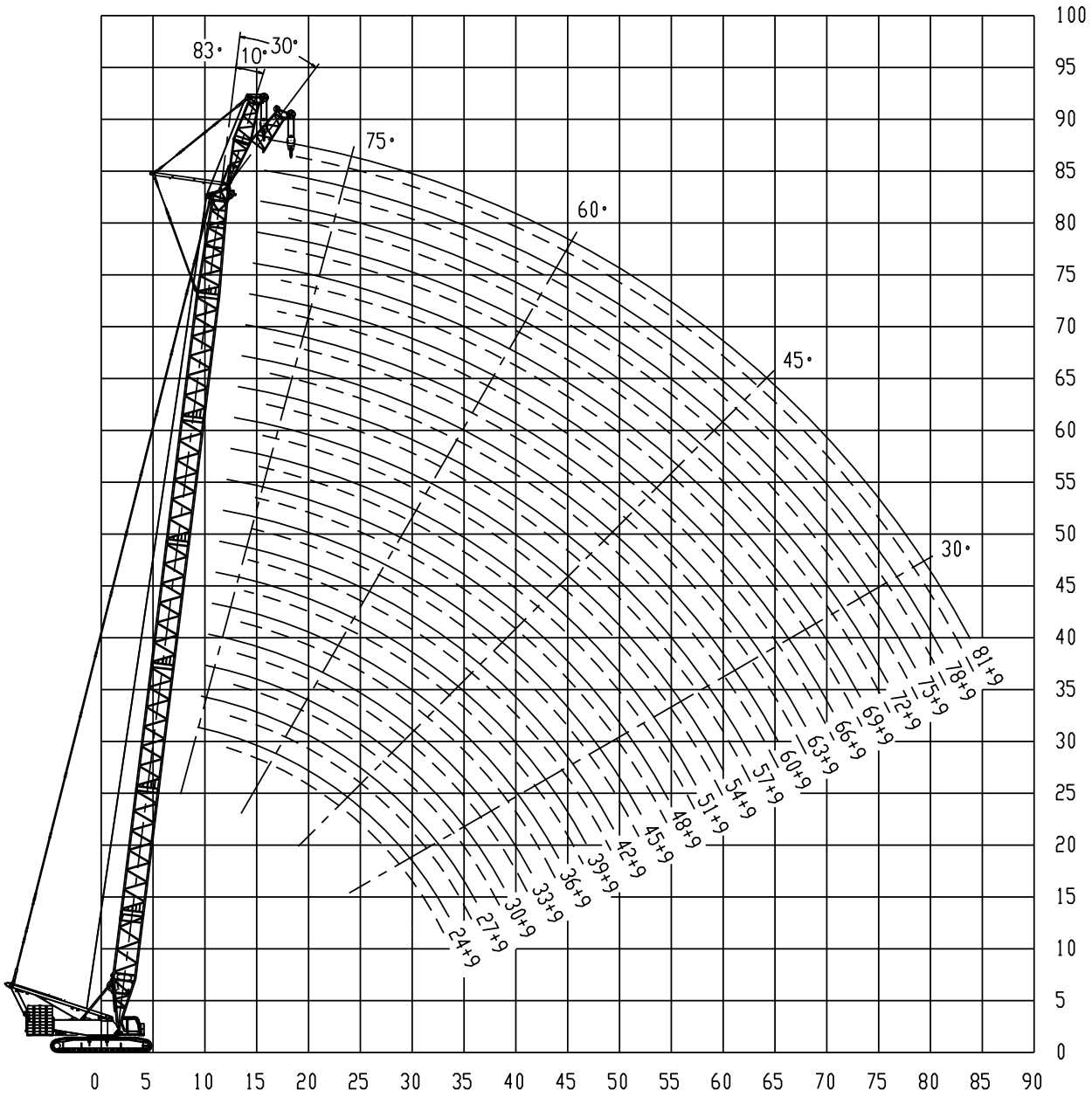
Radius m	Light main boom length m							Radius m
	88.5	91.5	94.5	97.5*	100.5*	103.5*	106.5*	
14	71.4	55.2	54.1	42.2	42.4	33.6	33.8	14
16	69.1	52.1	51.1	39.7	39.9	31.2	31.3	16
18	61.2	49.8	48.9	37.1	37.4	29.1	29.1	18
20	56.2	46.1	45.6	34.9	35.5	27.1	27.5	20
22	51.5	44.1	43.9	32.6	33.5	25.2	25.7	22
24	46.3	42.3	42.2	30.9	31.7	23.7	24	24
26	41.8	40.5	40.7	29.4	30.3	22.4	22.6	26
28	38.1	38	37.4	28	28.9	21	21.4	28
30	34.6	34.8	34.2	26.8	27.6	20	20.4	30
32	31.5	31.7	31.4	25.5	26.4	18.9	19.4	32
34	28.8	29	28.7	24.4	25.4	17.9	18.3	34
36	26.4	26.7	26.3	23.4	24.4	17.2	17.6	36
38	24.3	24.5	24.2	22.6	22.8	16.3	16.8	38
40	22.5	22.7	22.4	21.7	21.2	15.6	16	40
44	19.3	19.5	19.2	19.3	18.4	14.4	14.8	44
48	16.7	16.9	16.6	16.7	16.1	13.2	12.9	48
52	14.5	14.7	14.4	14.5	14.1	12.1	11.2	52
56	12.7	12.9	12.5	12.6	12.3	10.6	9.7	56
60	11.1	11.3	10.9	11	10.7	9.3	8.4	60
64	9.7	9.9	9.6	9.7	9.3	8.1	7.3	64
68	8.5	8.7	8.3	8.4	8.1	7	6.2	68
72	7.4	7.6	7.3	7.4	7	6.1	5.3	72
76	6.4	6.7	6.3	6.4	6.1	5.2	4.5	76
80		5.8	5.4	5.5	5.2	4.4	3.7	80
84				4.8	4.4	3.7	3	84

Note: Intermediate tensioner is equipped for light main boom lengths of 85.5-106.5m. The boom must not be raised with the hook on.

3.3 Fixed jib operating mode

3.3.1 Characteristic curve of lifting height of fixed jib

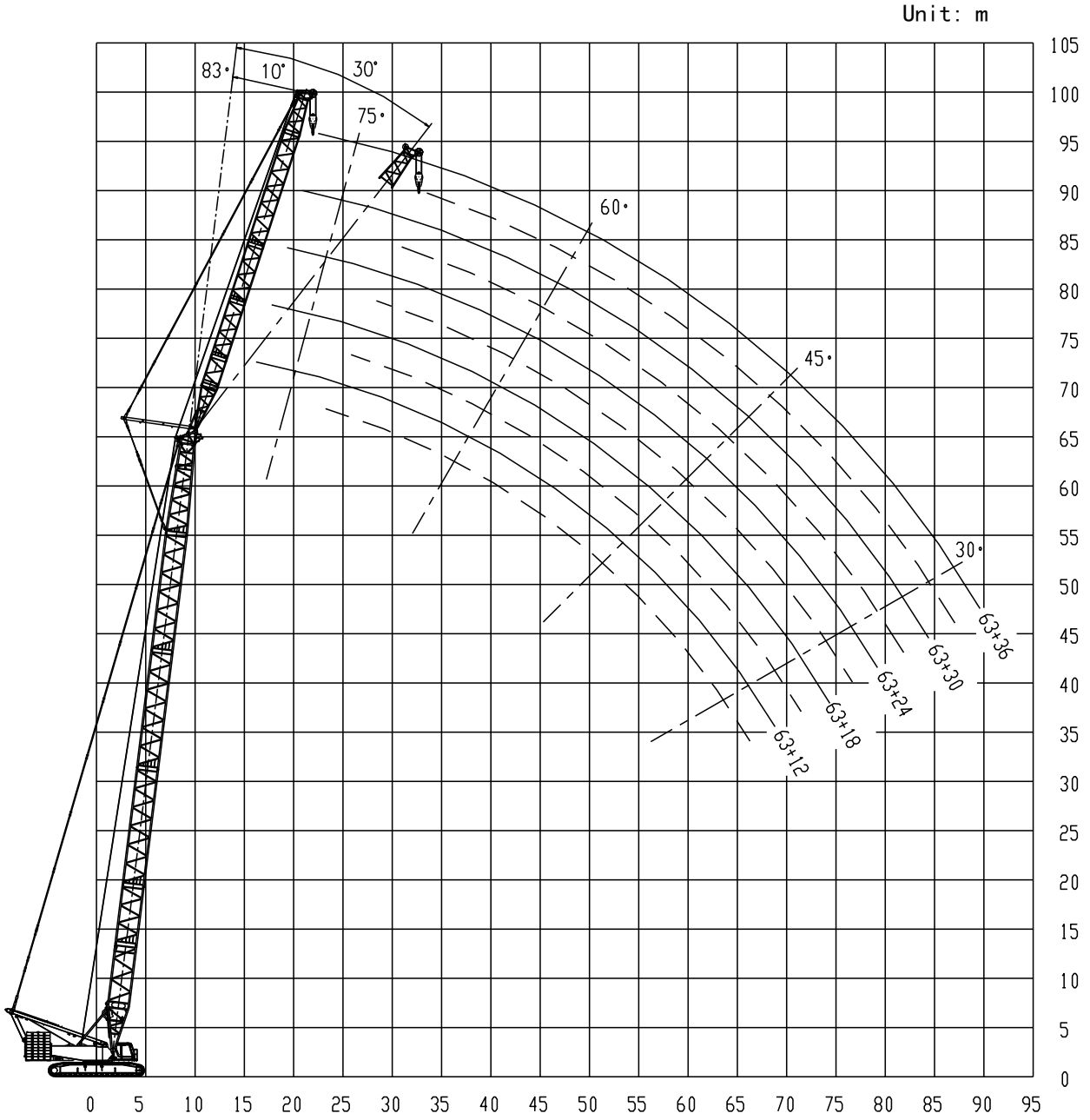
Unit: m



Note:

1. X-axis indicates the working radius in meters while Y-axis indicates the lifting height in meters.

2. Boom deflection is not considered in this curve.



Note:

1. X-axis indicates the working radius in meters while Y-axis indicates the lifting height in meters.

2. Boom deflection is not considered in this curve.

3.3.2 Boom lengths of fixed jib operating mode

Boom / Fixed jib length	Fixed jib pivot section 4.5m	Fixed jib intermediate section 3m	Fixed jib intermediate section 6m	Fixed jib intermediate section 12m	Fixed jib head 4.5m
9	1	0	0	0	1
12	1	1	0	0	1
18	1	1	1	0	1
24	1	1	0	1	1
30	1	1	1	1	1
36	1	1	0	2	1

3.3.3 Lifting capacity chart of fixed jib operating mode

Lifting capacity chart of fixed jib operating mode

Rear counterweight: 120t Central ballast: 40t Included angle of main boom and fixed jib: 10°

Fixed jib length: 9m

Radius m	Main boom length m										Radius m
	24	27	30	33	36	39	42	45	48	51	
9	135										9
10	130	127	124	123							10
11	124	121	120	118	117	115	113				11
12	120	117	115	113	112	111	109	108	108		12
14	110	109	108	106	105	105	103	102	101	100	14
16	91.7	91.5	91.2	90.4	90.3	90.1	89.9	89.8	88.9	87.9	16
18	77.9	77.7	77.4	76.6	76.4	76.2	76	76.4	76.2	75.9	18
20	67.5	67.2	67	66.1	65.9	65.7	65.4	65.9	65.6	65.4	20
22	59.3	59.1	58.8	57.9	57.7	57.5	57.2	57.7	57.4	57.1	22
24	52.7	52.5	52.2	51.3	51.1	50.8	50.6	51	50.8	50.5	24
26	47.3	47.1	46.8	45.9	45.6	45.4	45.1	45.6	45.3	45	26
28	42.8	42.5	42.2	41.3	41.1	40.9	40.6	41	40.7	40.4	28
30	38.9	38.7	38.4	37.5	37.2	37	36.7	37.1	36.8	36.6	30
32	35.5	35.3	35	34.1	33.9	33.6	33.4	33.8	33.5	33.2	32
34		32.4	32.1	31.2	31	30.7	30.5	30.9	30.6	30.3	34
36			29.5	28.7	28.4	28.2	27.9	28.4	28	27.8	36
38				26.4	26.1	25.9	25.7	26.1	25.8	25.5	38
40				24.4	24.1	23.9	23.6	24.1	23.8	23.5	40
44						20.5	20.2	20.7	20.4	20.1	44
48								17.8	17.5	17.2	48
52									15.1	14.9	52

Lifting capacity chart of fixed jib operating mode

Rear counterweight: 120t Central ballast: 40t Included angle of main boom and fixed jib: 10°

Fixed jib length: 9m

Radius m	Main boom length m										Radius m
	54	57	60	63	66	69	72	75	78*	81*	
14	99.2	96.7	96.7	93.8	92.7						14
16	87	86.5	85.6	84.7	83.7	82.4	79.9	75.9	71.9	66.6	16
18	75	74.7	73.9	73.2	72.3	71.9	71	70.3	69.5	64.8	18
20	65.1	65.4	64.7	64	63.3	63	62.3	61.5	60.9	60.4	20
22	56.9	57.1	56.9	56.6	56.1	55.8	55.1	54.5	53.8	53.5	22
24	50.2	50.5	50.2	49.9	49.6	49.8	49.2	48.6	48	47.7	24
26	44.7	45	44.7	44.4	44.1	44.3	44	43.7	43.1	42.9	26
28	40.1	40.4	40.1	39.8	39.5	39.7	39.4	39.1	38.8	38.8	28
30	36.3	36.5	36.2	35.9	35.6	35.8	35.5	35.2	34.8	34.9	30
32	32.9	33.2	32.8	32.6	32.2	32.4	32.1	31.8	31.4	31.5	32
34	30	30.3	29.9	29.6	29.3	29.5	29.2	28.9	28.5	28.6	34
36	27.4	27.7	27.4	27.1	26.7	26.9	26.6	26.3	25.9	26	36
38	25.2	25.4	25.1	24.8	24.5	24.7	24.3	24	23.6	23.8	38
40	23.2	23.5	23.1	22.8	22.4	22.6	22.3	22	21.6	21.7	40
44	19.7	20	19.6	19.4	19	19.2	18.8	18.5	18.2	18.2	44
48	16.9	17.2	16.8	16.5	16.2	16.3	16	15.7	15.3	15.4	48
52	14.5	14.8	14.5	14.2	13.8	14	13.6	13.3	12.9	13	52
56	12.5	12.8	12.4	12.1	11.8	12	11.6	11.3	10.9	11	56
60		11	10.7	10.4	10	10.2	9.9	9.5	9.1	9.3	60
64				8.9	8.5	8.7	8.3	8	7.6	7.7	64
68					7.2	7.4	7	6.7	6.3	6.4	68
72							5.8	5.5	5.1	5.2	72
76								4.4	4.1	4.2	76

Note: Booms of lengths marked with * cannot be raised with a hook on.

Lifting capacity chart of fixed jib operating mode

Rear counterweight: 120t Central ballast: 40t Included angle of main boom and fixed jib: 10°

Fixed jib length: 12m

Radius m	Main boom length m														Radius m
	24	27	30	33	36	39	42	45	48	51	54	57	60*	63*	
10	110														10
11	106	103	100	99.6											11
12	102	98.5	96.7	95.6	93.8	93.8	92								12
14	93.8	91	89.9	89.2	88.1	87.4	86.3	85.2	84.5	83.4	83.4	81.2			14
16	87.4	85.2	83.4	83.4	82.8	81.7	81.7	80.6	79.9	79.9	78.8	77	75.9	75.9	16
18	78.2	78	77.7	76.9	76.7	76.6	76.4	75.9	75.9	75.2	74.8	73.7	72.4	71.9	18
20	67.8	67.5	67.3	66.4	66.2	66	65.8	66.2	65.9	65.7	65.4	65.3	64.5	63.8	20
22	59.6	59.4	59.1	58.2	58	57.8	57.5	57.9	57.6	57.4	57.1	57.4	57.1	56.6	22
24	53	52.7	52.5	51.6	51.4	51.1	50.9	51.3	51	50.7	50.4	50.7	50.4	50.2	24
26	47.6	47.3	47	46.2	45.9	45.7	45.4	45.8	45.5	45.3	44.9	45.2	44.9	44.6	26
28	43	42.8	42.5	41.6	41.3	41.1	40.8	41.2	40.9	40.6	40.3	40.6	40.3	40	28
30	39.2	38.9	38.6	37.7	37.5	37.2	36.9	37.3	37	36.7	36.4	36.7	36.4	36.1	30
32	35.8	35.6	35.2	34.4	34.1	33.9	33.6	34	33.7	33.4	33.1	33.3	33	32.7	32
34	32.9	32.7	32.3	31.5	31.2	31	30.7	31.1	30.8	30.5	30.1	30.4	30.1	29.8	34
36		30.1	29.8	28.9	28.7	28.4	28.1	28.5	28.2	27.9	27.6	27.8	27.5	27.2	36
38			27.5	26.7	26.4	26.2	25.8	26.3	25.9	25.6	25.3	25.6	25.2	24.9	38
40			25.5	24.6	24.4	24.1	23.8	24.2	23.9	23.6	23.3	23.6	23.2	22.9	40
44					20.9	20.7	20.4	20.8	20.5	20.2	19.9	20.1	19.7	19.5	44
48						17.8	17.5	18	17.6	17.3	17	17.3	16.9	16.6	48
52								15.6	15.2	15	14.6	14.9	14.5	14.2	52
56										12.9	12.6	12.9	12.5	12.2	56
60											10.8	11.1	10.8	10.5	60
64													9.2	8.9	64

Note: Booms of lengths marked with * cannot be raised with a hook on.

Lifting capacity chart of fixed jib operating mode

Rear counterweight: 120t Central ballast: 40t Included angle of main boom and fixed jib: 10°

Fixed jib length: 18m

Radius m	Main boom length m														Radius m
	24	27	30	33	36	39	42	45	48	51	54	57	60*	63*	
12	86.3	83.4													12
14	79.9	77	75.2	74.1	73	72.4	71.3	70.8							14
16	73	71.3	70.2	69.5	68.4	67.7	67.3	66.2	65.5	64.8	64.8	63.7	63.1		16
18	68.4	66.6	65.5	64.8	63.7	63.7	63.1	62.6	62	61.5	60.9	60.2	59.8	59.1	18
20	63.7	62	61.5	60.9	60.2	60.2	59.8	59.1	58.7	58	58	57.3	56.9	56.2	20
22	60	58.7	57.3	57.3	57.3	56.9	56.2	55.5	55.5	55.5	55.1	54.4	54	53.3	22
24	53.4	53.2	52.9	52.1	51.9	51.7	51.4	51.7	51.4	51.2	51	51.2	50.9	50.4	24
26	48	47.7	47.4	46.7	46.4	46.2	45.9	46.2	45.9	45.7	45.4	45.6	45.3	45	26
28	43.4	43.2	42.9	42.1	41.8	41.6	41.3	41.6	41.3	41	40.7	41	40.6	40.4	28
30	39.6	39.3	39	38.2	37.9	37.7	37.4	37.7	37.4	37.1	36.8	37	36.7	36.5	30
32	36.2	36	35.6	34.8	34.6	34.3	34	34.3	34	33.7	33.4	33.6	33.3	33.1	32
34	33.3	33.1	32.7	31.9	31.6	31.4	31.1	31.4	31.1	30.8	30.5	30.7	30.3	30.1	34
36	30.8	30.5	30.2	29.4	29.1	28.8	28.5	28.8	28.5	28.2	27.9	28.1	27.8	27.5	36
38	28.5	28.2	27.9	27.1	26.8	26.6	26.2	26.6	26.2	26	25.6	25.8	25.5	25.2	38
40	26.5	26.2	25.9	25.1	24.8	24.5	24.2	24.5	24.2	23.9	23.6	23.8	23.4	23.2	40
44			22.4	21.6	21.3	21.1	20.8	21.1	20.8	20.5	20.1	20.3	20	19.7	44
48				18.7	18.5	18.2	17.9	18.2	17.9	17.6	17.2	17.5	17.1	16.8	48
52						15.8	15.5	15.8	15.5	15.2	14.9	15.1	14.7	14.4	52
56							13.4	13.8	13.5	13.2	12.8	13	12.7	12.4	56
60									11.7	11.4	11	11.3	10.9	10.6	60
64										9.8	9.5	9.7	9.4	9.1	64
68												8.4	8	7.7	68
72														6.5	72

Note: Booms of lengths marked with * cannot be raised with a hook on.

Lifting capacity chart of fixed jib operating mode

Rear counterweight: 120t Central ballast: 40t Included angle of main boom and fixed jib: 10°

Fixed jib length: 24m

Radius m	Main boom length m														Radius m
	24	27	30	33	36	39	42	45	48	51	54	57	60*	63*	
14	70.2	68.4	66.6												14
16	64.8	63.1	60.9	60.2	59.1	59.1	58	57.3							16
18	60.2	58	56.9	56.2	55.5	55.1	54.4	54	53.3	52.7	52.2	51.6	51.6	50.5	18
20	56.2	54.4	53.3	52.7	52.2	51.6	51.6	50.5	50.5	49.8	49.4	48.7	48	48	20
22	52.7	51.1	49.8	49.8	49.1	48.7	48.7	48	47.6	47.6	46.9	46.5	45.8	45.8	22
24	49.4	48	46.9	46.9	46.5	45.8	45.8	45.1	45.1	45.1	44.7	44	43.8	43.4	24
26	46.9	45.1	44.7	44.5	44	44	43.4	43.4	42.9	42.9	42.9	42.3	41.8	41.8	26
28	43.8	42.9	42.3	42.3	41.8	41.8	41.8	41.2	41.2	41.2	40.9	40.5	40.1	39.8	28
30	39.9	39.7	39.3	38.6	38.4	38.1	37.8	38.1	37.8	37.5	37.2	37.4	37.1	36.9	30
32	36.6	36.3	36	35.3	35	34.8	34.5	34.7	34.4	34.2	33.9	34	33.7	33.5	32
34	33.7	33.4	33.1	32.3	32.1	31.8	31.5	31.8	31.5	31.2	30.9	31.1	30.7	30.5	34
36	31.1	30.8	30.5	29.8	29.5	29.2	28.9	29.2	28.9	28.6	28.3	28.4	28.1	27.9	36
38	28.9	28.6	28.3	27.5	27.2	27	26.7	26.9	26.6	26.3	26	26.2	25.8	25.5	38
40	26.9	26.6	26.2	25.5	25.2	24.9	24.6	24.9	24.5	24.3	24	24.1	23.8	23.5	40
44	23.4	23.1	22.8	22	21.7	21.5	21.2	21.4	21.1	20.8	20.5	20.6	20.3	20	44
48		20.3	19.9	19.2	18.9	18.6	18.3	18.5	18.2	17.9	17.6	17.7	17.4	17.1	48
52				16.8	16.5	16.2	15.9	16.1	15.8	15.5	15.2	15.3	15	14.7	52
56					14.4	14.1	13.8	14.1	13.8	13.5	13.1	13.3	12.9	12.6	56
60							12	12.3	12	11.7	11.3	11.5	11.2	10.9	60
64								10.8	10.4	10.2	9.8	10	9.6	9.3	64
68										8.8	8.4	8.6	8.3	8	68
72											7.2	7.4	7.1	6.8	72
76													6	5.7	76

Note: Booms of lengths marked with * cannot be raised with a hook on.

Lifting capacity chart of fixed jib operating mode

Rear counterweight: 120t Central ballast: 40t Included angle of main boom and fixed jib: 10°

Fixed jib length: 30m

Radius m	Main boom length m														Radius m
	24	27	30	33	36	39	42	45	48	51	54	57*	60*	63*	
16	58.7	56.2	55.1	54											16
18	54.4	52.7	51.1	50.5	49.4	48.7	48	47.6	46.9						18
20	50.5	48.7	47.6	46.9	46.5	45.8	45.1	44.7	44	44	43.4	42.9	42.3	41.8	20
22	46.9	45.8	44.7	44	43.4	42.9	42.7	42.3	41.8	41.6	41.2	40.5	40.5	40.1	22
24	44	42.9	41.8	41.6	41.2	40.5	40.5	40.1	39.4	39.4	39	38.3	38.3	38.3	24
26	41.8	40.5	39.4	39.4	39	38.3	38.3	37.6	37.6	37.6	37.2	36.5	36.5	36.3	26
28	39.4	38.3	37.6	37.2	36.9	36.5	36.5	35.8	35.8	35.8	35.4	35.2	34.7	34.7	28
30	37.6	36.3	35.8	35.4	35.2	34.7	34.7	34.3	34.3	34.1	34.1	33.4	33.4	33	30
32	35.4	34.3	34.1	33.6	33.6	33.4	33	32.5	32.5	32.5	32.5	31.9	31.9	31.9	32
34	33.8	33	32.5	32.3	31.9	31.9	31.7	31.2	31.2	31.2	31.1	30.8	30.8	30.5	34
36	31.2	31	30.6	30	29.7	29.4	29.1	29.3	29	28.8	28.5	28.6	28.3	28	36
38	29	28.7	28.4	27.7	27.4	27.1	26.9	27	26.7	26.5	26.1	26.3	26	25.7	38
40	27	26.7	26.3	25.7	25.4	25.1	24.8	25	24.7	24.4	24.1	24.2	23.9	23.7	40
44	23.5	23.2	22.9	22.2	21.9	21.6	21.3	21.5	21.2	20.9	20.6	20.7	20.4	20.1	44
48	20.7	20.4	20.1	19.4	19	18.8	18.5	18.6	18.3	18	17.7	17.8	17.5	17.2	48
52	18.3	18	17.7	16.9	16.6	16.4	16	16.2	15.9	15.6	15.3	15.4	15.1	14.8	52
56			15.6	14.9	14.6	14.3	14	14.2	13.9	13.6	13.2	13.4	13	12.7	56
60					12.8	12.5	12.2	12.4	12.1	11.8	11.5	11.6	11.2	10.9	60
64						11	10.7	10.9	10.5	10.2	9.9	10	9.7	9.4	64
68								9.5	9.2	8.9	8.5	8.7	8.3	8	68
72									7.9	7.7	7.3	7.5	7.1	6.8	72
76											6.2	6.4	6	5.7	76
80												5.4	5.1	4.8	80
84														3.9	84

Note: Booms of lengths marked with * cannot be raised with a hook on.

Lifting capacity chart of fixed jib operating mode

Rear counterweight: 120t Central ballast: 40t Included angle of main boom and fixed jib: 10°

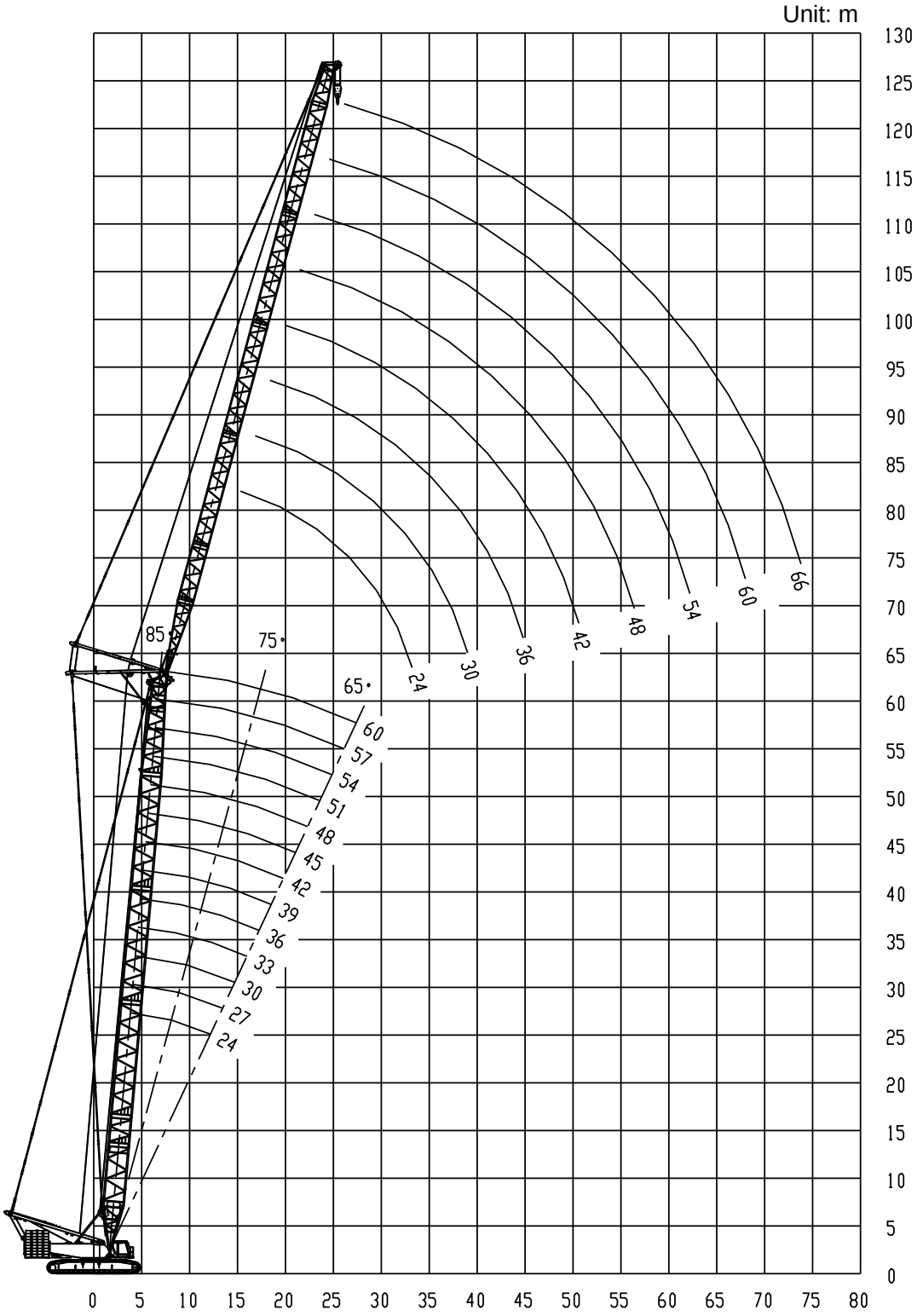
Fixed jib length: 36m

Radius m	Main boom length m														Radius m
	24	27	30	33	36	39	42	45	48	51	54	57*	60*	63*	
18	50.5	48	46.9	45.8											18
20	46.5	44.7	43.4	42.9	42.3	41.2	41.2	40.5	40.1	39.4					20
22	43.4	41.8	40.5	40.1	39.4	39	38.3	38	37.6	37.2	36.9	36.5	35.8	35.8	22
24	40.5	39.4	38.3	37.6	37.2	36.5	36.5	35.8	35.4	35.4	35.2	34.3	34.3	34.1	24
26	38.3	37.2	35.8	35.4	35.2	34.7	34.3	34.1	33.6	33.6	33.4	33	32.5	32.3	26
28	36.3	34.7	34.1	33.6	33.4	33	32.5	32.3	31.9	31.9	31.9	31.2	31.2	30.8	28
30	34.3	33	32.3	31.9	31.6	31.2	31.2	30.8	30.5	30.5	30.1	29.7	29.7	29.4	30
32	32.5	31.2	30.8	30.5	30.1	29.7	29.7	29.2	29	29	29	28.3	28.3	28.2	32
34	30.8	29.7	29.2	29	28.7	28.3	28.3	27.9	27.9	27.9	27.6	27.2	27.2	26.8	34
36	29.7	28.3	27.9	27.6	27.5	27.2	27.2	26.8	26.8	26.8	26.5	26.1	26.1	26.1	36
38	28.3	27.2	26.8	26.5	26.1	26.1	26.1	25.9	25.7	25.4	25.4	25.3	25	25	38
40	26.8	26.1	25.4	25.4	25.3	25	25	24.8	24.8	24.6	24.3	24.3	24.1	23.9	40
44	23.6	23.3	23	22.4	22.1	21.8	21.5	21.6	21.4	21.1	20.8	20.9	20.5	20.3	44
48	20.8	20.5	20.2	19.5	19.2	18.9	18.6	18.8	18.5	18.2	17.9	18	17.7	17.4	48
52	18.4	18.1	17.8	17.1	16.8	16.5	16.2	16.4	16.1	15.8	15.4	15.5	15.2	14.9	52
56	16.3	16.1	15.7	15.1	14.7	14.5	14.2	14.3	14	13.7	13.4	13.5	13.1	12.8	56
60		14.3	13.9	13.3	13	12.7	12.4	12.5	12.2	11.9	11.6	11.7	11.4	11.1	60
64				11.7	11.4	11.2	10.8	11	10.7	10.4	10	10.1	9.8	9.5	64
68					10	9.8	9.5	9.6	9.3	9	8.7	8.8	8.4	8.1	68
72							8.2	8.4	8.1	7.8	7.5	7.6	7.2	6.9	72
76									7	6.7	6.4	6.5	6.1	5.8	76
80										5.7	5.4	5.5	5.2	4.9	80
84												4.6	4.3	4	84
88													3.4	3.2	88

Note: Booms of lengths marked with * cannot be raised with a hook on.

3.4 Luffing jib operating mode

3.4.1 Characteristic curve of lifting height of luffing jib



Note:

1. X-axis indicates the working radius in meters while Y-axis indicates the lifting height in meters.

2. Boom deflection is not considered in this curve.

3.4.2 Boom lengths f luffing jib operating mode

Boom / Luffing jib length	Luffing jib pivot section 7.5m	Luffing jib intermediate section 6m	Luffing jib intermediate section 12m	Luffing jib head 4.5m
24	1	0	1	1
30	1	1	1	1
36	1	0	2	1
42	1	1	2	1
48	1	0	3	1
54	1	1	3	1
60	1	0	4	1
66	1	1	4	1

3.4.3 Lifting capacity chart of luffing jib operating mode

Lifting capacity chart of luffing jib operating mode (85°)

Rear counterweight: 120t Central ballast: 40t

Main boom length m	24								Main boom length m
Jib length m / Radius m	24	30	36	42	48	54	60	66	Jib length m / Radius m
12	118								12
14	106	99.7							14
16	96.5	91.4	83.1						16
18	84.6	84.2	77.2	71.2	58.9				18
20	74	73.7	71.8	66.5	56.5	46.4			20
22	65.7	65.4	65.1	62.4	54.3	44.6	36.7		22
24	59	58.7	58.4	58	52.3	42.9	35.3	29	24
26	53.4	53.2	52.9	52.5	50.4	41.4	34	27.9	26
28		48.5	48.3	47.9	47.6	39.9	32.7	26.8	28
30		44.6	44.4	44	43.7	38.6	31.6	25.9	30
32		40.9	41	40.7	40.3	36.9	30.4	25	32
34			38.1	37.7	37.4	35	28.8	23.6	34
36			35.5	35.2	34.8	33.3	27.3	22.3	36
38			32.2	32.9	32.6	31.7	26	21.2	38
40				30.9	30.6	30	24.7	20.1	40
44				26.1	27.1	26.8	22.5	18.2	44
48					23.6	23.9	20.1	16.6	48
52						21.4	18	14.7	52
56						17.9	16.2	13.1	56
60							14.6	11.6	60
64								10.4	64

Lifting capacity chart of luffing jib operating mode (85°)

Rear counterweight: 120t Central ballast: 40t

Main boom length m	30								**Main boom length m**
Jib length m / **Radius m**	24	30	36	42	48	54	60	66	**Jib length m** / **Radius m**
14	109	101							14
16	98.5	92.7	84.8						16
18	84.5	84.2	78.2	71.9					18
20	73.9	73.6	72.8	67.3	56.6	45.6			20
22	65.6	65.2	64.9	63.1	54.9	44.8	36.8		22
24	58.9	58.6	58.3	57.9	52.8	43.1	35.4	29.3	24
26	53.4	53.1	52.8	52.4	50.9	41.6	34.1	28.2	26
28	48.5	48.5	48.2	47.8	47.5	40.1	32.8	27.1	28
30		44.5	44.3	43.9	43.6	38.8	31.7	26.1	30
32		41.2	40.9	40.6	40.2	37.3	30.6	25.2	32
34		36.9	38	37.6	37.3	35.4	29	24	34
36			35.4	35.1	34.8	33.6	27.5	22.7	36
38			33.1	32.8	32.5	32	26.2	21.5	38
40			29.4	30.8	30.5	30.1	24.9	20.4	40
44				27.3	27	26.7	22.7	18.5	44
48					24.2	23.9	20.3	16.8	48
52						21.5	18.2	14.9	52
56						18.7	16.3	13.3	56
60							14.7	11.8	60
64								10.6	64

Lifting capacity chart of luffing jib operating mode (85°)

Rear counterweight: 120t Central ballast: 40t

Main boom length m	36								**Main boom length m**
Jib length m / **Radius m**	24	30	36	42	48	54	60	66	**Jib length m** / **Radius m**
14	107								14
16	98.1	94.4	86.3						16
18	84.1	83.7	79.7	68.3					18
20	73.5	73.2	72.9	68.1	54.3				20
22	65.3	64.9	64.6	64.1	53.9	43.5	35.6		22
24	58.6	58.3	57.9	57.6	53	43.1	35.2	29.3	24
26	53.1	52.8	52.5	52.1	51.1	41.7	34.4	28.2	26
28	48.5	48.2	47.9	47.5	47.2	40.2	33.1	27.1	28
30		44.3	44	43.7	43.3	38.9	32	26.1	30
32		41	40.7	40.3	40	37.6	30.9	25.2	32
34		38	37.8	37.4	37.1	35.6	29.5	24.1	34
36			35.2	34.9	34.5	33.9	27.9	22.8	36
38			33	32.6	32.3	31.9	26.5	21.6	38
40			30.9	30.6	30.3	29.9	25.2	20.5	40
44				27.2	26.9	26.5	23	18.5	44
48					24.1	23.7	20.6	16.9	48
52					20.6	21.4	18.5	15.1	52
56						19.3	16.6	13.4	56
60							15	11.9	60
64								10.6	64
68								9.5	68

Lifting capacity chart of luffing jib operating mode (85°)

Rear counterweight: 120t Central ballast: 40t

Main boom length m	42								**Main boom length m**
Jib length m / **Radius m**	24	30	36	42	48	54	60	66	**Jib length m** / **Radius m**
14	99.3								14
16	90.4	87.6							16
18	83.8	80.3	77.6	64.5					18
20	73.3	72.9	72.4	64.4	51.8				20
22	65.1	64.7	64.4	64	51.5	41.8			22
24	58.4	58.1	57.7	57.3	51.2	41.5	34.9	29.3	24
26	52.9	52.6	52.3	51.9	50.9	41.1	34.4	28.5	26
28	48.3	48	47.7	47.4	47	40.6	33.1	27.4	28
30		44.2	43.9	43.5	43.1	39.2	32	26.4	30
32		40.8	40.5	40.2	39.8	37.9	30.9	25.5	32
34		37.9	37.6	37.3	36.9	36.1	29.6	24.5	34
36			35.1	34.8	34.4	34	28.1	23.1	36
38			32.9	32.5	32.2	31.8	26.6	21.9	38
40			30.8	30.5	30.2	29.8	25.3	20.8	40
44				27.1	26.8	26.4	23.1	18.8	44
48					24	23.6	20.8	17.1	48
52					21.4	21.3	18.6	15.3	52
56						19.3	16.7	13.6	56
60							15	12.1	60
64							13.7	10.8	64
68								9.7	68

Lifting capacity chart of luffing jib operating mode (85°)

Rear counterweight: 120t Central ballast: 40t

Main boom length m	48								**Main boom length m**
Jib length m / Radius m	24	30	36	42	48	54	60	66	**Jib length m / Radius m**
14	90.4								14
16	83.1	80.3							16
18	76.9	74.2	71.4						18
20	71.4	68.6	65.8	59.1	48.1				20
22	64.9	64.1	62	58.9	48	40.3			22
24	58.3	57.9	57.6	55.8	47.7	40	32.8		24
26	52.9	52.5	52.2	51.8	47.4	39.7	32.5	27.5	26
28	48.3	48	47.6	47.2	46.9	39.4	32.2	27.2	28
30	44.3	44.1	43.8	43.4	43	39.1	31.9	26.6	30
32		40.7	40.5	40.1	39.7	37.9	31.2	25.7	32
34		37.8	37.6	37.2	36.8	36.3	30.1	24.8	34
36			35	34.7	34.3	33.9	28.5	23.5	36
38			32.8	32.4	32.1	31.7	27	22.2	38
40			30.8	30.4	30.1	29.7	25.7	21	40
44				27	26.7	26.3	23.4	19	44
48					23.9	23.5	21.1	17.3	48
52					21.6	21.2	18.9	15.5	52
56						19.2	16.9	13.8	56
60							15.3	12.3	60
64							13.8	11	64
68								9.8	68

Lifting capacity chart of luffing jib operating mode (85°)

Rear counterweight: 120t Central ballast: 40t

Main boom length m	54								**Main boom length m**
Jib length m / Radius m	24	30	36	42	48	54	60	66	**Jib length m / Radius m**
16	77.6	74.2							16
18	71.4	68.6	65.8						18
20	65.8	63.7	61.4	55.1					20
22	61.4	59.7	56.9	54.8	46.3	38			22
24	58	55.8	53.5	52	46.1	37.8	31.9		24
26	52.6	52.2	50.3	48.6	45.7	37.5	31.6	26.4	26
28	48.1	47.7	47.4	45.8	44.1	37.2	31.3	26.1	28
30	44.2	43.9	43.5	43.1	41.8	36.9	31	25.8	30
32		40.5	40.2	39.8	39.5	36.6	30.7	25.5	32
34		37.7	37.4	37	36.6	36.2	30.4	24.7	34
36		35.1	34.8	34.5	34.1	33.7	28.9	23.5	36
38			32.6	32.2	31.9	31.5	27.4	22.3	38
40			30.6	30.3	29.9	29.5	26	21.1	40
44				26.9	26.5	26.1	23.6	19.1	44
48					23.8	23.4	21.4	17.3	48
52					21.4	21.1	19.1	15.6	52
56						19.1	17.2	13.9	56
60							15.5	12.4	60
64							14	11	64
68								9.9	68

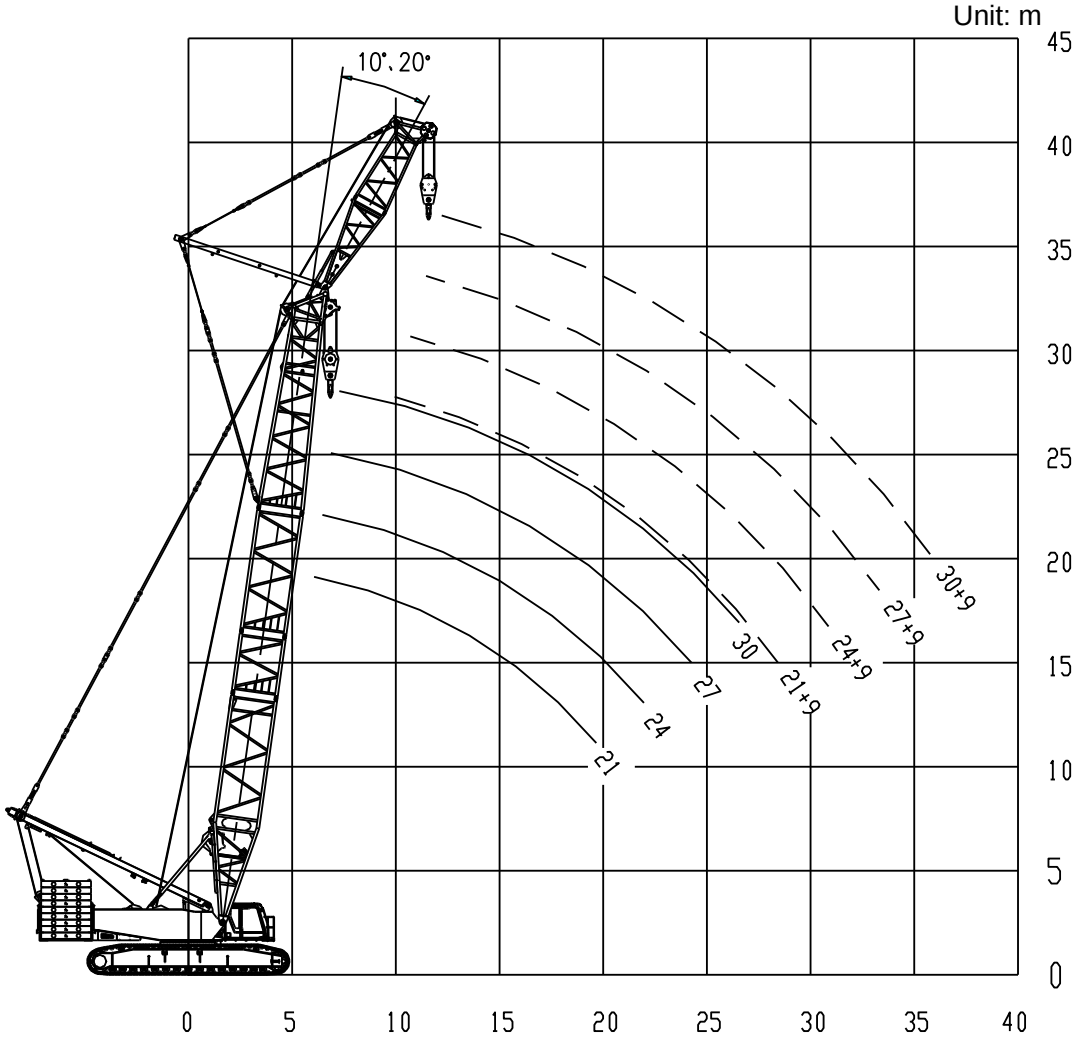
Lifting capacity chart of luffing jib operating mode (85°)

Rear counterweight: 120t Central ballast: 40t

Main boom length m	60								**Main boom length m**
Jib length m / Radius m	24	30	36	42	48	54	60	66	**Jib length m / Radius m**
16	70.3								16
18	65.2	62.4	59.9						18
20	60.7	58	55.8	50.9					20
22	56.5	54.1	52.4	50.3	42				22
24	52.4	50.7	49.2	46.9	41.7	35.5	29.7		24
26	49.7	47.9	46.2	44.1	42.1	35.2	29.5	24.8	26
28	46.6	45.2	43.5	41.8	40.3	34.9	29.2	24.5	28
30	44	42.4	41.3	39.6	37.9	34.6	29	24.3	30
32		40.3	39	37.5	36.2	34.2	28.7	24	32
34		37.5	36.9	35.6	34.5	33	28.4	23.8	34
36		35	34.7	33.9	32.4	31.3	28	23.5	36
38			32.5	32.1	31.1	30	27.4	22.6	38
40			30.5	30.1	29.6	28.6	26	21.4	40
44				26.8	26.4	25.8	23.7	19.3	44
48				24	23.7	23.3	21.5	17.5	48
52					21.3	21	19.2	15.9	52
56						19	17.3	14.1	56
60						17.3	15.5	12.5	60
64							14.1	11.2	64
68								10	68

3.5 Operating mode for turning over a shield tunneling machine

3.5.1 Characteristic curve of lifting height



Note:

1. X-axis indicates the working radius in meters while Y-axis indicates the lifting height in meters.

2. Boom deflection is not considered in this curve.

3.5.2 Boom lengths of SFV operating mode

Main boom lengths

Boom / Main boom length	Main boom pivot section 11m	Main boom intermediate section 3m	Main boom intermediate section 6m	Main boom intermediate section 10m
21	1	0	0	1
24	1	1	0	1
27	1	0	1	1
30	1	1	1	1

Jib lengths

Jib / Luffing jib length	Fixed jib pivot section 4.5m	Luffing jib head 4.5m
9	1	1

3.5.3 Lifting capacity chart for SFV

Lifting capacity chart fro SFV

Main boom length: 21m Jib length: 9m Rear counterweight: 120t Central ballast: 40t Fixing angle for main boom and jib: 10°						
Main boom angle (°)	Radius m			Lifting capacity t		
	Primary hook	Jib	Turning over	Primary hook	Auxiliary hook	Turning over
81	6	9.4	7.7	297	135	205.2
78.2	7	10.8	8.9	276	135	195.2
75.4	8	12.3	10.2	242	131	177.2
72.5	9	13.7	11.4	215	122	160.1
69.5	10	15.2	12.6	190	105	140.1
66.5	11	16.6	13.8	163	93	121.6
63.5	12	18	15	142	83	106.9
57	14	20.8	17.4	112	68	85.5
49.9	16	23.7	19.9	91.8	56.8	70.6
41.9	18	26.4	22.2	77	48.8	59.8
32.2	20	29.2	24.6	65.9	42.3	51.4
Note: The auxiliary hook weighs 2.9t when the primary hook works (for load hook of 160t). The primary hook weighs 4.3t when the auxiliary hook work (for load hook of 260t).						

4. Working conditions and matters need attention

4.1 Working environment

1. Temperature of working environment ranges between -20℃～40℃, and the elevation of working site shall not exceed 1000m.

2. Wind speed: It shall not exceed 14.1m/s when boom length ≤50m or not exceed 9.8m/s when boom length＞50m.

3. The ground of working site must be solid and flat with an inclination of no larger than 1%. Bearing capacity of the ground or supporting surface must be larger than the maximum gradeability of the current operating mode.

4.2 Load

1. Value in lifting capacity charts includes the weight of slings and wire rope. The actual weight of load should be smaller than the value.

2. Values in lifting capacity charts are provided based on a working condition that the ground is solid and level and the load is freely suspended.

3. Empty-load area, not listed in lifting capacity charts, is a non-operation area.

4. This crane is able to travel with a load, the maximum traveling speed of which should be lower than0.1m/s (6m/min).

4.3 Load hook and rope reeving

The rated lifting capacity of the load hook must be larger than or equal to the actual weight of load (including slings and rope) in any condition.

Data in technical specifications will change with the improvement of product. Actual condition shall prevail.