



ZOOMLION

ZOOMLION ZCC600V CRAWLER CRANE

TECHNICAL SPECIFICATIONS

ZCC600V/27Y

Edition: May 2020

Zoomlion Heavy Industry Science & Technology Co.,Ltd.

Zoomlion ZCC600V Crawler Crane

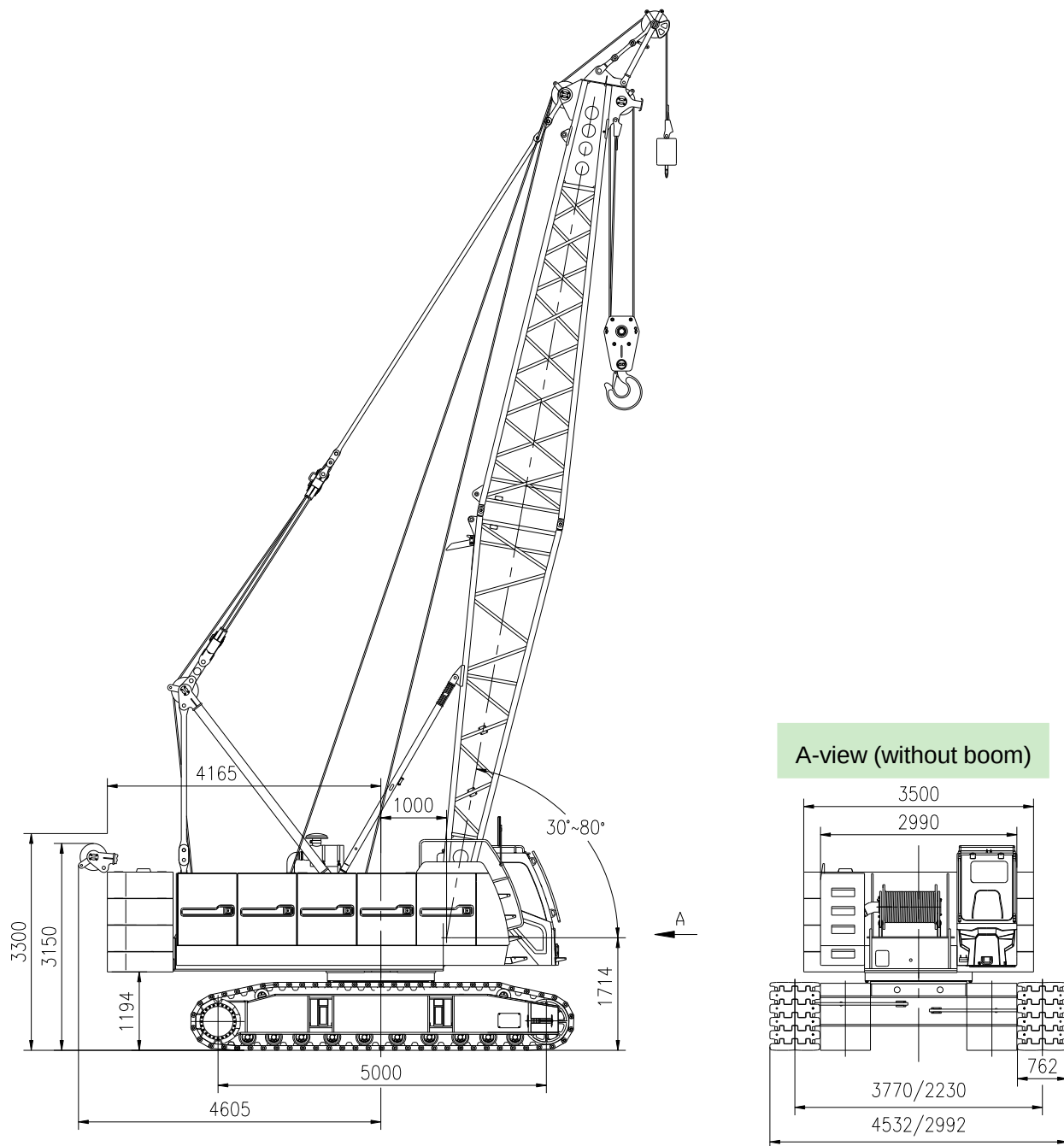
Technical Specifications

ZCC600V/27Y

1. Overall dimensions and major technical parameters	2
1.1. Overall dimensions of the crane	2
1.2. Major technical parameters.....	3
Major technical parameters	3
1.3. Illustrations of operating modes.....	4
1.4. Major technical features	4
2. Technical instructions.....	5
2.1. Power unit	5
2.2. Hydraulic system	5
2.3. Electrical system	5
2.4. Hoisting mechanism	5
2.5. Derricking mechanism.....	6
2.6. Slewing mechanism	6
2.7. Counterweight.....	6
2.8. Operator's cab	6
2.9. Traveling mechanism	7
2.10. Safety devices	8
2.11. Boom sections.....	10
2.12. Load hook.....	10
3. Working radius and lifting capacity charts.....	11
3.1. Operating mode of main boom (S)	11
3.2. Operating mode of main boom + fixed jib	13
4. Dimensions of components in transport	18

1. Overall dimensions and major technical parameters

1.1. Overall dimensions of the crane



1.2. Major technical parameters

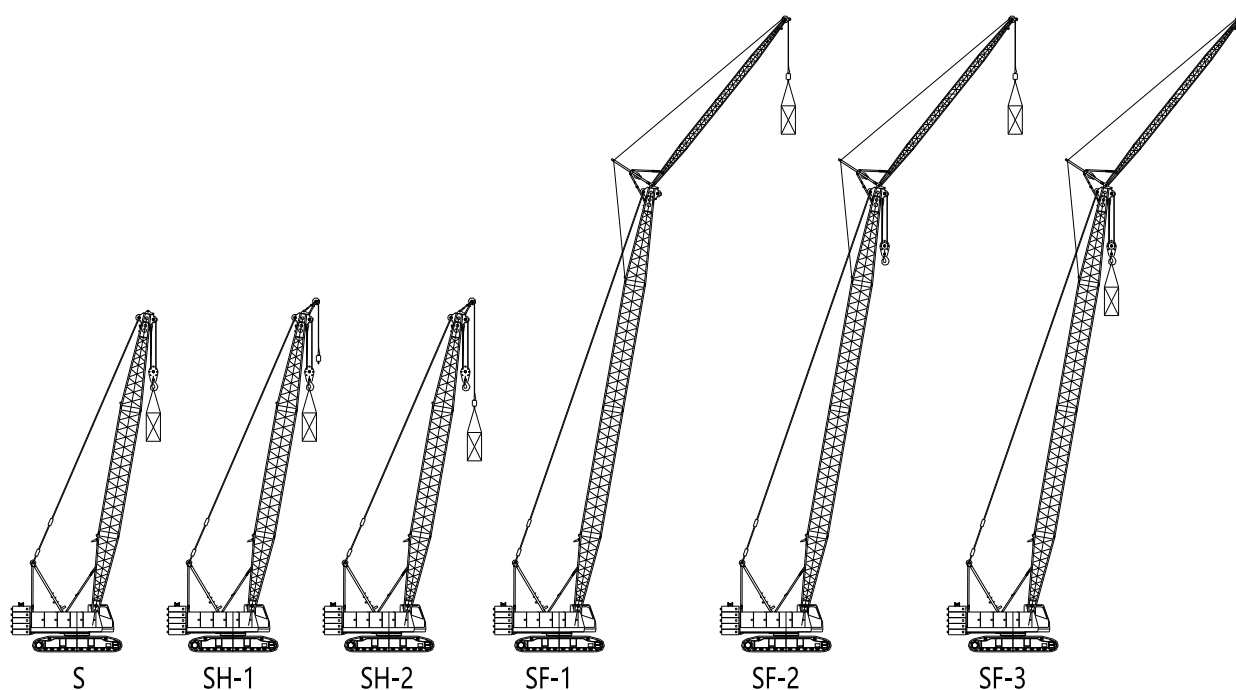
Major technical parameters

Items		Unit	Values	Notes
Max. lifting moment		t×m	222	
Max. lifting capacity		t	60	
Max. lifting capacity of fixed jib		t	12	
Main boom length		m	13~52	
Fixed jib length		m	7~15	
Max. length of main boom + fixed jib		m	43+15	
Main boom angle		°	30~80	
Fixed jib angle		°	10, 30	
Single rope speed of H1 and H2		m/min	145	The 3 rd layer
Single rope speed of derricking winch		m/min	82	The 3 rd layer
Slewing speed		rpm	0~2.5	
Traveling speed		km/h	0~1.3	
Gradeability		%	30	
Ground pressure		MPa	0.063	
Dead weight of the crane		t	49.5	Basic boom with primary hook
Counterweight		t	17.4	
Overall dimensions L×W×H		mm	12100×4530(2990)×3300	With A-frame and pivot section
Engine	Model		WP6G190E301	
	Rated power/rotational speed	kW/rpm	140/2000	
	Max. output torque /rotational speed	Nm/rpm	860/1300	
	Emission standard	/	National III	
Distance between two tracks × contact length of track × width of track pad		mm	2230×5000×760	Track carrier retracted
		mm	3770×5000×760	Track carrier extended

Note:

1. Single rope speed of winch, slewing speed and traveling speed vary with the weight of load.
2. The value of ground pressure is the mean value of the operating mode with the basic boom. The actual maximum ground pressure is determined according to the actual operating mode.

1.3. Illustrations of operating modes



Code	Operating mode	Boom combination
S	Main boom	13m~52m
SH-1	Main boom + tip boom (primary hook)	13m~52m
SH-2	Main boom + tip boom (auxiliary hook)	13m~52m
SF-1	Main boom + fixed jib (auxiliary hook, without primary hook)	(28m~43m) + (7m~15m)
SF-2	Main boom + fixed jib (auxiliary hook, with primary hook)	(28m~43m) + (7m~15m)
SF-3	Main boom + fixed jib (primary hook)	(28m~43m) + (7m~15m)

1.4. Major technical features

★ High working efficiency

Single rope speed of H1 and H2 reaches 145m/min (the 3rd layer).

The optional free-fall winch helps to improve the efficiency of hoisting.

★ Optimization in transport and dismantling

Tracks are extendible. The maximum width in transport is 3.0m.

The weight of a single counterweight plate shall not exceed 5.1t. A small auxiliary crane can help to finish the assembly.

2. Technical instructions

2.1. Power unit

Engine: Weichai WP6G190E301

Type: in-line 6-cylinder, intercooled supercharged diesel engine

Displacement: 6.75L

Rated power: 140kW/2000r/min

Maximum torque: 860N.m/1300r/min

Emission standard: National III

Volume of fuel oil tank: 400L

2.2. Hydraulic system

Hydraulic pump: The main pump, a plunger pump, drives winches and the traveling mechanism. Dual gear pump is used for slewing and heat dissipation.

Control: pilot proportional control hydraulic system. The motor of hoisting winches is a variable plunger pump. Two cross-shaped hydraulic control levers and a dual foot-operated traveling control valve are used for controlling different executive components.

Volume of hydraulic oil tank: 520L

2.3. Electrical system

DC of 24V, negative ground, two storage batteries of 200AH

Electrical system is composed of power supply, engine system, load moment limit system, illumination system, safety control system, etc. Data communication between controller and controlling elements is realized through CAN bus.

The crane is equipped with a global position system (GPS/GPRS).

2.4. Hoisting mechanism

Both the primary and the secondary hoisting winches are driven by an axial hydraulic variable-displacement piston motor through a built-in planetary reducer. Braking of the spring on winch motor is controlled by the balancing valve. The drum with a double-rope groove guarantees that rope of multiple layers will not intertwine together.

	H1	H2
Rated single rope tension	7t (the 3 rd layer)	7t (the 3 rd layer)
Wire rope diameter	20mm	20mm
Wire rope length	185m	130m
Single rope speed	145m/min (the 3 rd layer)	145m/min (the 3 rd layer)

Free-fall hook is optional for both hoisting winches.

2.5. Derricking mechanism

The derricking winch is driven by an axial piston motor through a built-in planetary reducer and brakes through the spring on the motor end.

Cable drum lock: The winch is locked by ratchet wheel and ratchet pawl.

	Derricking mechanism
Rated single rope tension	71kN (the 1 st layer)
Wire rope diameter	20mm
Wire rope length	100m
Single rope speed	82m/min (the 3 rd layer)

2.6. Slewing mechanism

The slewing gear is driven by an axial constant-displacement piston hydraulic motor through a planetary gear reducer. Small gear of the output shaft rotates around the slewing bearing ring fixed on the chassis so that the slewing table makes slewing movement of 360°. Lateral pulling force on boom can be effectively reduced through the function of free slewing.

✪ Slewing bearing

Single-row-roller and four-point-contact slewing bearing, internal gearing

✪ Slewing speed

The maximum slewing speed is 2.5 rpm.

2.7. Counterweight

Counterweight plates are piled up and locked by chains.

Rear counterweight is composed of a base and 3 counterweight plates, the total weight of which is 17.4t.

2.8. Operator's cab

The newly-designed operator's cab is decorated with fine interiors and equipped with a working light and rearview mirrors that provide a broad vision. The cab is also equipped

with an air-conditioner, a radio, a color display of 10.4". Control levers and buttons are designed according to the ergonomics.

✧ Armrest boxes

Both armrest boxes are equipped with various kinds of electrical switches and emergency-stop buttons and can be adjusted with the seat.

✧ Control lever and joystick

The cross-shaped pilot hydraulic joystick controls primary and secondary winches, slewing, and boom derricking.

Control levers for traveling (equipped with foot pedal) control traveling and steering of the whole machine.

✧ Air conditioner

Air conditioner, optimized air flue and air vent are standard configurations.

2.9. Traveling mechanism

✧ Undercarriage

The two independent hydraulic driving systems on both sides are embedded in track carriers. Each hydraulic driving system is equipped with a hydraulic motor that drives the driving sprocket through the planetary reducer.

Folding brackets are optional.

✧ Retracting and extension of tracks

Retracting and extension of tracks are controlled by hydraulic cylinders. Tracks must be fully extended during operation.

✧ Tensioning of track

Push the driving sprocket with the lifting jack and adjust the tension of track through the spacer.

✧ Track roller

Maintenance-free enclosed structure.

✧ Track pad

High-strength alloy-cast steel track pad; the width is 760mm.

2.10. Safety devices

The crane is equipped with different types of safety and alarm devices, such as mechanical, electronic and hydraulic devices, that guarantee the safety of the machine.

★ Load moment limiter

Main boom angle and load capacity will be automatically detected by load moment limiter, which gives a feedback according to the actual lifting condition that is to send out an alarm and limit the current movement when the normal working range of the crane is exceeded.

Information such as load moment percentage, main boom angle, main boom length, working radius, actual load capacity on the hook and permitted load capacity can be displayed on the screen as required.

★ Limit on hoisting height

Limit switch and limiting weight fixed on boom end are used to prevent excessive hoisting of the hook. Limit switch will send out a signal when the hook is hoisted to a certain height to avoid excessive hoisting.

★ Limit on main boom angle

When the main boom angle is 80°, the limit switch of the pivot section will be activated, the upward derricking will be cut off, and a sound-light signal will be sent out from the buzzer and the indicator light.

★ Protective device for over-unwinding of rope

The protective device will send out a signal and cut off the movement of lowering the hook when there are only three circles of rope left on the drum. A sound-light signal will be also sent out from the buzzer and the indicator light in the operator's cab.

★ Tilting-back support for boom

A tilting-back support, used to avoid backward tilting of the boom, is composed of nested steel and spring.

★ Slewing locking device

It is used to secure the superstructure and the undercarriage during transport. It must be unlocked during operation.

★ Mousing on hook

A mousing is used to close off a hook to prevent a load from slipping off.

✧ Anemometer

With the electronic anemometer, real-time wind speed can be presented on the display.

✧ Electronic gradienter

The levelness of the whole crane is displayed on the screen.

✧ Aviation warning light

It is fixed on the top of the boom for warning in the upper air.

✧ Main boom angle indicator

Main boom angle indicator is fixed at the rear lower end of the pivot section. Operator is able to see the elevation angle of the boom clearly from the operator's cab.

✧ Rear-view mirror

One is located on the front left side of the cab and the other is on the handrail of the right hood.

✧ Automatic locking mechanism of ratchet wheel on the derricking winch

It is used to lock the derricking winch when the crane is stopped.

✧ Emergency stop button

Press this button to shut down the engine and cut off all movements in an emergency.

✧ Tri-color warning light

The warning light has three colors, red, yellow, and green. The loading condition of the crane can be displayed simultaneously. Green indicates that the load rate is below 90%; yellow indicates that the load rate ranges between 90% and 100%; red means that the load rate is beyond 100% and the crane is overloaded.

✧ Slewing alarm

It gives out a sound-light alarm during slewing.

✧ Traveling alarm

It gives out a sound-light alarm during traveling.

✧ Monitoring system (optional)

Camera and video displayer are optional, through which the real-time working condition of the hoisting winch and the blind area at the rear end of the crane can be monitored.

2.11. Boom sections

★ Main boom

Main boom length ranges between 13m~52m. Components of a main boom are: a pivot section of 6.5m, a boom head of 6.5m, intermediate sections of 3m, 6m and 9m. A tip boom can be assembled on the main boom head.

★ Fixed jib

Fixed jib length ranges between 7m and 15m. Components of a fixed jib are: a pivot section of 3.5m, a boom head of 3.5m, and an intermediate section of 4m.

Main boom length ranges between 28m~43m.

2.12. Load hook

Four types of load hooks are available.

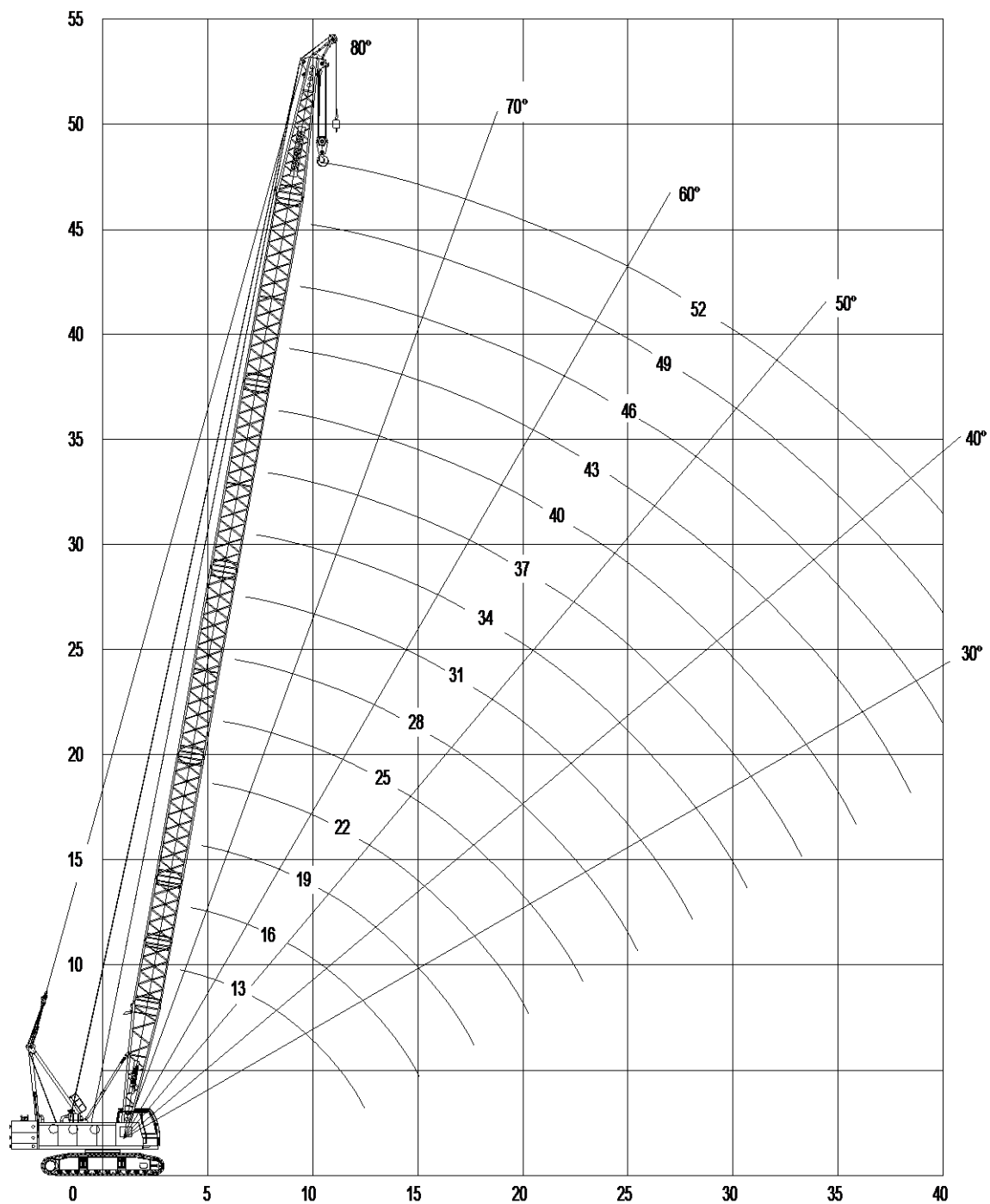
Specification of hook	Lifting capacity (Kg)	Number of pulleys
60t	655	5
40t	400	3
20 t	315	1
8 t	155	0

3. Working radius and lifting capacity charts

3.1. Operating mode of main boom (S)

Curves of hoisting height (S)

Unit: m



Lifting capacity chart (S)

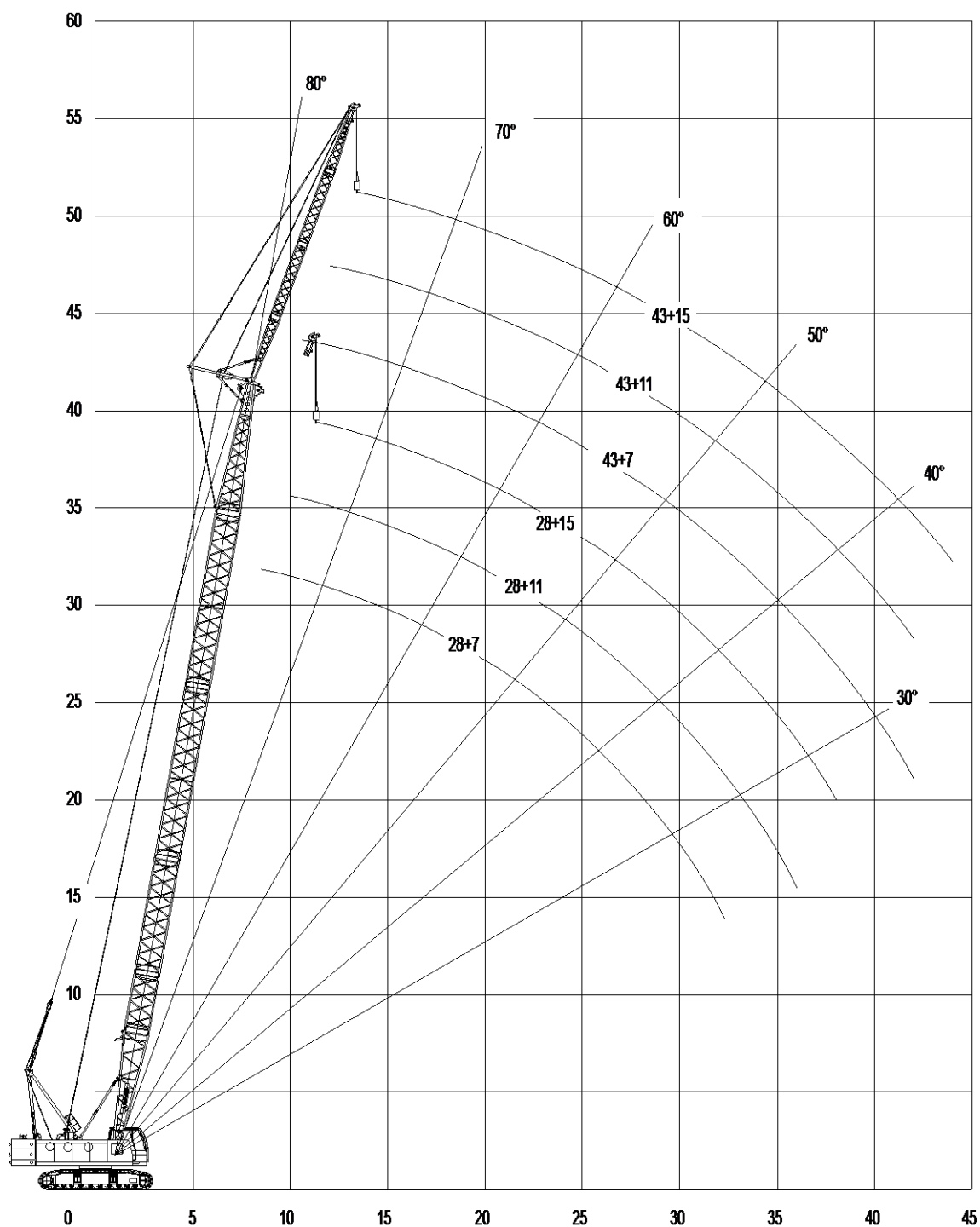
Unit: t

Radius (m)	Main boom length (m)													
	13	16	19	22	25	28	31	34	37	40	43	46	49	52
3.7	60													
4	52.5													
5	40.4	39.1	38.4											
6	31.2	30.9	30.1	29.1	28.3									
7	24.7	24.6	24.5	24.2	23.4	22.9	22.4							
8	20.4	20.3	20.2	20.1	20	19.6	19.1	18.6	18.2					
9	17.5	17.4	17.3	17	16.9	16.8	16.5	16.2	15.9	15.4	15			
10	15.3	15	14.9	14.8	14.7	14.6	14.5	14.2	13.9	13.7	13.4	12.9	12.6	
11	13.4	13.3	13.2	13.1	13	12.9	12.8	12.6	12.4	12.1	11.9	11.6	11.3	10.8
12	12.1	11.9	11.8	11.6	11.5	11.4	11.3	11.2	11.1	10.8	10.5	10.3	10	9.8
14		9.8	9.5	9.5	9.5	9.4	9.2	9.2	9.2	9.1	8.8	8.6	8.3	8.1
16			8.1	8	8	7.8	7.8	7.7	7.7	7.5	7.5	7.2	7	6.9
18				6.9	6.8	6.7	6.7	6.5	6.5	6.4	6.2	6.2	6	5.7
20				6	5.9	5.8	5.7	5.6	5.6	5.4	5.4	5.3	5.1	4.9
22					5.1	5.1	5	4.9	4.8	4.7	4.6	4.5	4.4	4.3
24						4.4	4.4	4.3	4.2	4.1	4	3.9	3.8	3.8
26							3.9	3.8	3.8	3.6	3.5	3.5	3.3	3.3
28							3.5	3.4	3.3	3.3	3.2	3	3	2.9
30								3	3	2.9	2.7	2.7	2.6	2.5
32									2.7	2.6	2.5	2.4	2.3	2.2
34										2.3	2.2	2.1	2	1.9
36											2	1.8	1.8	1.6
38											1.7	1.6	1.5	1.4
40												1.4	1.3	1.2
42													1.2	1

3.2. Operating mode of main boom + fixed jib

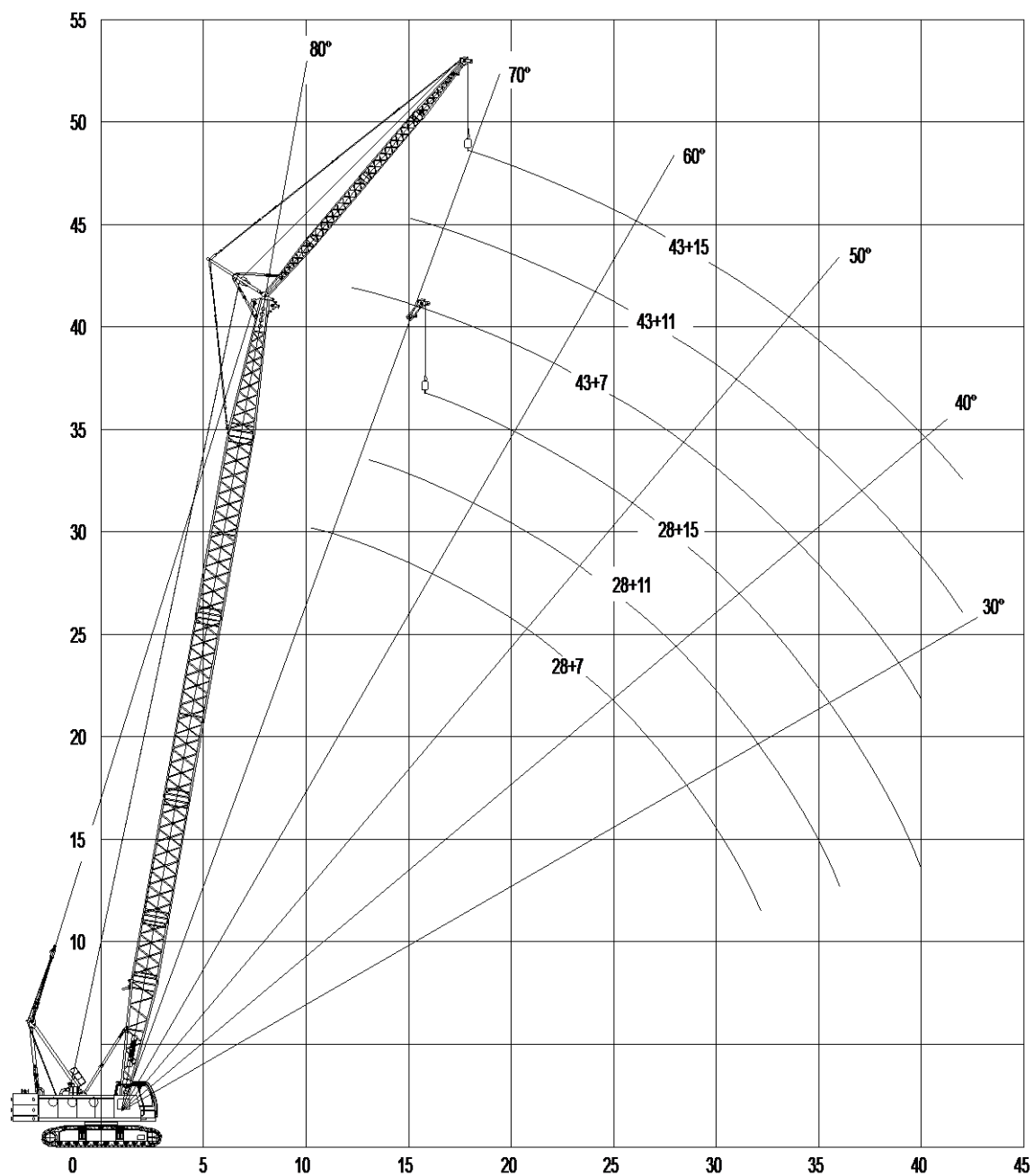
Curves of hoisting height (SF-1), 10°

Unit: m



Curves of hoisting height (SF-1), 30°

Unit: m



Lifting capacity chart (SF-1, 1/3)

Unit: t

Main boom length	28m						31m					
Jib length	7m		11m		15m		7m		11m		15m	
Angle	10°	30°	10°	30°	10°	30°	10°	30°	10°	30°	10°	30°
9	12						12					
10	12		12				12					
11	12	12	12				12		7			
12	10.9	11.2	11		7		10.8	11.1	7		7	
14	8.8	9	8.9	8.4	7		8.8	9	7	7	7	
16	7.4	7.5	7.5	7.7	7	6.4	7.3	7.5	7	7	7	
18	6.3	6.4	6.3	6.6	6.4	6.1	6.2	6.3	6.3	6.5	6.3	6
20	5.4	5.5	5.5	5.7	5.5	5.7	5.3	5.4	5.4	5.6	5.5	5.7
22	4.7	4.8	4.8	4.9	4.8	5	4.6	4.7	4.7	4.9	4.7	5
24	4.1	4.2	4.2	4.3	4.2	4.4	4.1	4.1	4.1	4.3	4.2	4.4
26	3.7	3.7	3.7	3.8	3.8	3.9	3.6	3.7	3.6	3.8	3.7	3.9
28	3.2	3.3	3.3	3.4	3.4	3.5	3.2	3.2	3.2	3.3	3.3	3.4
30	2.9	2.9	3	3	3	3.1	2.8	2.8	2.9	3	2.9	3.1
32			2.7	2.7	2.7	2.8	2.5	2.6	2.6	2.7	2.6	2.7
34			2.4	2.4	2.4	2.5		2.3	2.3	2.3	2.3	2.4
36					2.2	2.3			2	2.1	2.1	2.2
38					1.9	2				1.8	1.8	1.9
40											1.7	1.7
42												1.5

Lifting capacity chart (SF-1, 2/3)

Unit: t

Main boom length	34m						37m					
Jib length	7m		11m		15m		7m		11m		15m	
Angle	10°	30°	10°	30°	10°	30°	10°	30°	10°	30°	10°	30°
10	12						7					
11	11.9		7				7					
12	10.7	11.1	7				7		7			
14	8.7	8.9	7		7		7	7	7		7	
16	7.2	7.4	7	7	7		7	7	7	7	7	
18	6.1	6.3	6.2	6.5	6.2	6	6	6.2	6.1	6.4	6.2	5.9
20	5.2	5.4	5.3	5.5	5.4	5.7	5.2	5.3	5.2	5.5	5.3	5.6
22	4.5	4.7	4.6	4.8	4.7	4.9	4.5	4.6	4.5	4.7	4.6	4.9
24	4	4.1	4	4.2	4.1	4.3	3.9	4	4	4.1	4	4.3
26	3.5	3.6	3.6	3.7	3.6	3.8	3.4	3.5	3.5	3.6	3.5	3.8
28	3.1	3.2	3.2	3.3	3.2	3.4	3	3.1	3.1	3.2	3.1	3.3
30	2.7	2.8	2.8	2.9	2.8	3	2.7	2.7	2.7	2.8	2.8	2.9
32	2.4	2.4	2.5	2.6	2.5	2.7	2.3	2.4	2.4	2.5	2.4	2.6
34	2.2	2.2	2.2	2.3	2.2	2.3	2	2.1	2.1	2.2	2.2	2.3
36	1.9	1.9	1.9	2	2	2.1	1.8	1.8	1.8	1.9	1.9	2
38			1.7	1.8	1.8	1.8	1.6	1.6	1.6	1.7	1.7	1.8
40			1.5	1.6	1.6	1.7			1.4	1.5	1.4	1.6
42					1.3	1.4			1.2	1.2	1.2	1.3
44						1.2					1.1	1.2
46											0.9	1

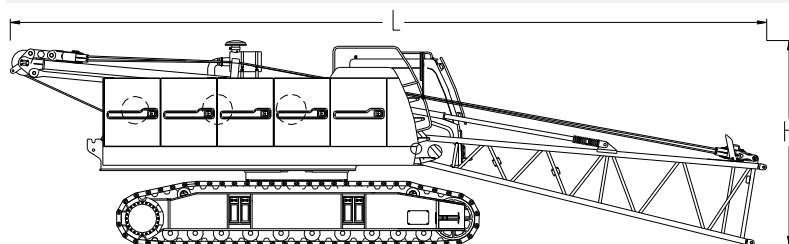
Lifting capacity chart (SF-1, 3/3)

Unit: t

Main boom length	40m						43m					
Jin length	7m		11m		15m		7m		11m		15m	
Angle	10°	30°	10°	30°	10°	30°	10°	30°	10°	30°	10°	30°
11	7						7					
12	7		7				7					
14	7	7	7		7		7	7	7		7	
16	7	7	7	7	7		6.7	7	6.7	7	6.7	
18	6	6.1	6	6.3	6.1	5.9	5.8	6.1	5.8	6.2	5.8	
20	5.1	5.2	5.2	5.4	5.2	5.6	5	5.2	5	5.3	5	5.5
22	4.4	4.5	4.5	4.7	4.5	4.8	4.3	4.5	4.3	4.6	4.3	4.7
24	3.8	3.9	3.9	4.1	3.9	4.2	3.7	3.9	3.8	4	3.8	4.2
26	3.3	3.4	3.4	3.6	3.5	3.7	3.2	3.4	3.3	3.5	3.3	3.6
28	2.9	3	3	3.2	3	3.2	2.8	2.9	2.8	3.1	2.9	3.2
30	2.6	2.6	2.6	2.8	2.7	2.9	2.4	2.6	2.5	2.7	2.6	2.8
32	2.3	2.3	2.3	2.4	2.3	2.5	2.1	2.2	2.2	2.3	2.3	2.4
34	1.9	2	2	2.1	2	2.2	1.8	1.9	1.9	2	1.9	2.2
36	1.7	1.8	1.8	1.8	1.8	1.9	1.6	1.7	1.7	1.8	1.7	1.8
38	1.5	1.5	1.5	1.6	1.6	1.7	1.3	1.4	1.4	1.5	1.4	1.6
40	1.3	1.3	1.3	1.4	1.3	1.5	1.2	1.2	1.2	1.3	1.2	1.4
42		1.1	1.1	1.2	1.2	1.3	1	1	1	1.1	1.1	1.2
44			1	1	1	1.1	0.8	0.8	0.9	0.9	0.9	1
46				0.8	0.9	0.9				0.8	0.8	0.8

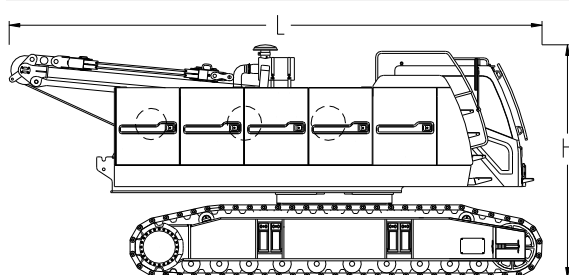
4. Dimensions of components in transport

Basic machine 1 (with pivot section)



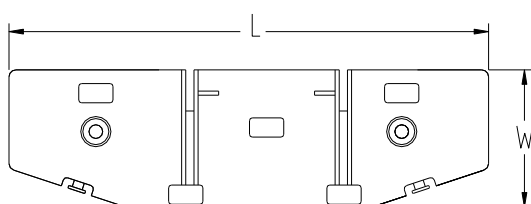
	1 piece *
Length (L)	12100 mm
Width (W)	2990 mm
Height (H)	3300 mm
Weight	30600kg

Basic machine 2 (without pivot section)



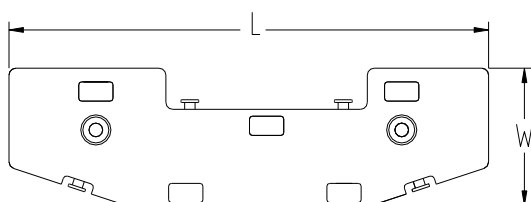
	1 piece *
Length(L)	7550 mm
Width (W)	2990 mm
Height (H)	3300 mm
Weight	29670kg

Counterweight base



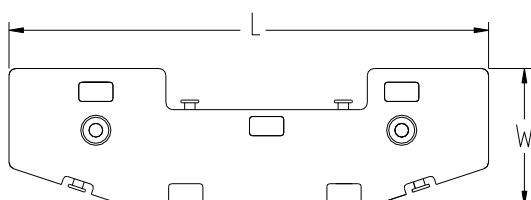
	1 piece
Length(L)	3500 mm
Width (W)	1000 mm
Height (H)	560 mm
Weight	3300kg

Counterweight plate

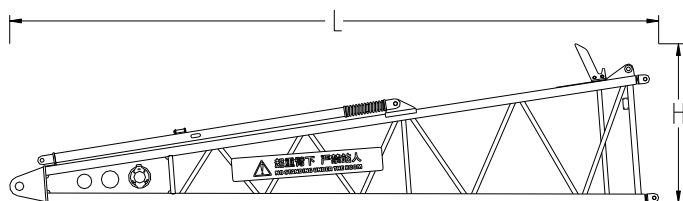


	1 piece
Length(L)	3500 mm
Width (W)	1000 mm
Height (H)	450 mm
Weight	5100 kg

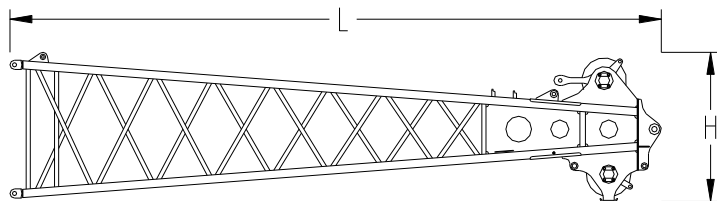
Counterweight plate



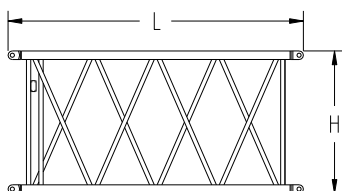
	2 pieces
Length(L)	3500 mm
Width (W)	1000 mm
Height (H)	450 mm
Weight	4500 kg

Main boom pivot section

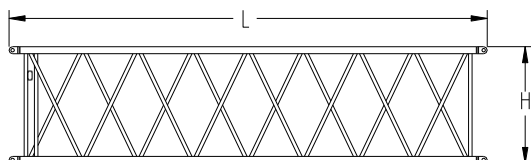
	1 piece *
Length(L)	6670 mm
Width (W)	1470 mm
Height (H)	1640 mm
Weight	930kg

Main boom head

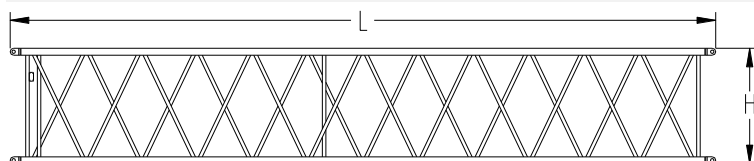
	1 piece
Length(L)	7130 mm
Width (W)	1430 mm
Height (H)	1630 mm
Weight	830kg

Main boom intermediate section of 3m

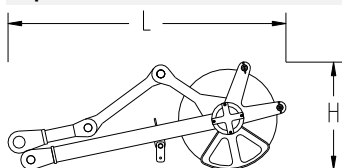
	2 pieces *
Length(L)	3080 mm
Width (W)	1430 mm
Height (H)	1310 mm
Weight	220kg

Main boom intermediate section of 6m

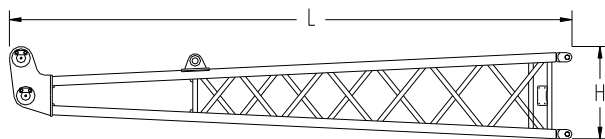
	1 piece *
Length(L)	6080 mm
Width (W)	1430 mm
Height (H)	1310 mm
Weight	351kg

Main boom intermediate section of 9m

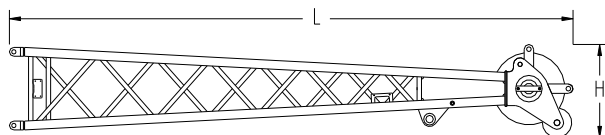
	3 pieces *
Length(L)	9080 mm
Width (W)	1430 mm
Height (H)	1310 mm
Weight	551kg

Tip boom

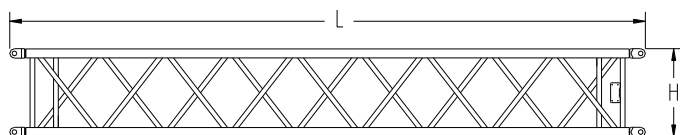
	1 piece
Length(L)	1370 mm
Width (W)	590 mm
Height (H)	470 mm
Weight	120 kg

Fixed jib pivot section

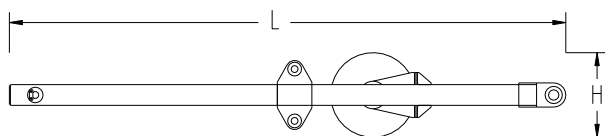
	1 piece *
Length(L)	3640 mm
Width (W)	570 mm
Height (H)	570 mm
Weight	160kg

Fixed jib head

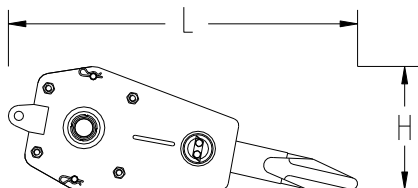
	1 piece *
Length(L)	3820 mm
Width (W)	570 mm
Height (H)	570 mm
Weight	210kg

Fixed jib intermediate section of 4m

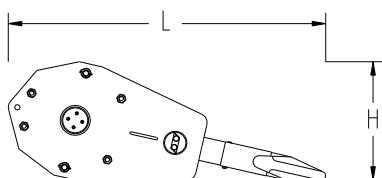
	3 pieces *
Length(L)	4060 mm
Width (W)	570 mm
Height (H)	570 mm
Weight	120 kg

FA-frame

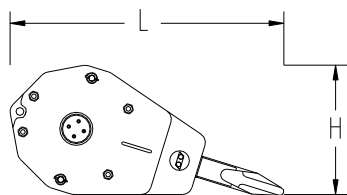
	1 piece *
Length(L)	3230 mm
Width (W)	730 mm
Height (H)	410 mm
Weight	270 kg

Load hook of 60t

	1 piece *
Length(L)	1500 mm
Width (W)	660 mm
Height (H)	530 mm
Weight	655 kg

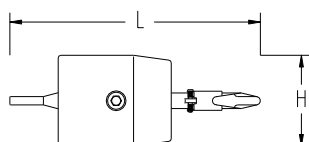
Load hook of 40t

	1 piece *
Length(L)	1340 mm
Width (W)	490 mm
Height (H)	530 mm
Weight	400 kg

Load hook of 20t

1 piece *

Length(L)	1180 mm
Width (W)	420 mm
Height (H)	560 mm
Weight	315 kg

Load hook of 8t

1 piece *

Length(L)	830 mm
Width (W)	320 mm
Height (H)	320 mm
Weight	155 kg

Notes:

1. Components are presented in diagrammatic drawings that are not drawn to scale. Length is a boundary dimension.
2. Weight of packaging is not counted in the weight above, which might be different from the actual weight due to manufacturing error.
3. There might be improvements made on components listed above, resulting modifications in dimensions and weight. Actual products to be delivered shall prevail.
4. Numbers of components marked * are determined by the actual need.