
The Zoomlion logo consists of the word "ZOOMLION" in a bold, dark blue, sans-serif font. It is positioned on a light green rectangular background that has a diagonal cut on its right side, creating a trapezoidal shape.

ZOOMLION ZRT400 ROUGH TERRAIN CRANE

TECHNICAL SPECIFICATIONS

GQ0751002700000EN

Zoomlion Heavy Industry Science & Technology Co.,Ltd.

TECHNICAL SPECIFICATIONS

GQ0751002700000EN

1. PRODUCT CHARACTERISTICS

ZRT400 rough terrain crane is adapted to narrow work space through its wide tread, high stability, short wheelbase and small turning radius.

It provides a 360° slewing function, “on-tires” lifts and pick-and-carry operations.

It can be widely used in construction building sites, oil fields, warehouses, freight yards and logistics bases etc., to carry out lifting work, short distance transportation and pick-and-carry operations in narrow working areas.

ZRT400 rough terrain crane consists of a superstructure and a special purpose chassis, including a power system, drive system, suspension system, steering system, braking system, hoist mechanism, derricking mechanism, slewing mechanism, boom system, turntable, chassis frame, outrigger, hydraulic system, electric system and cab etc.

Its distinguishing characteristics include:

- Four steering modes:
2-wheel steering (front wheels), 2-wheel steering (rear wheels), 4-wheel steering and crab steering.
- Max. rated lifting capacity: 40 t at 2.5 m working radius
- Max. lifting height: 47.8m
- Max. driving speed: 38 km/h
- Overall dimensions: 12360×2690×3650mm
- Deadweight: 31 tons
- Capable of picking and carrying loads
- Capable of travelling on rough terrains

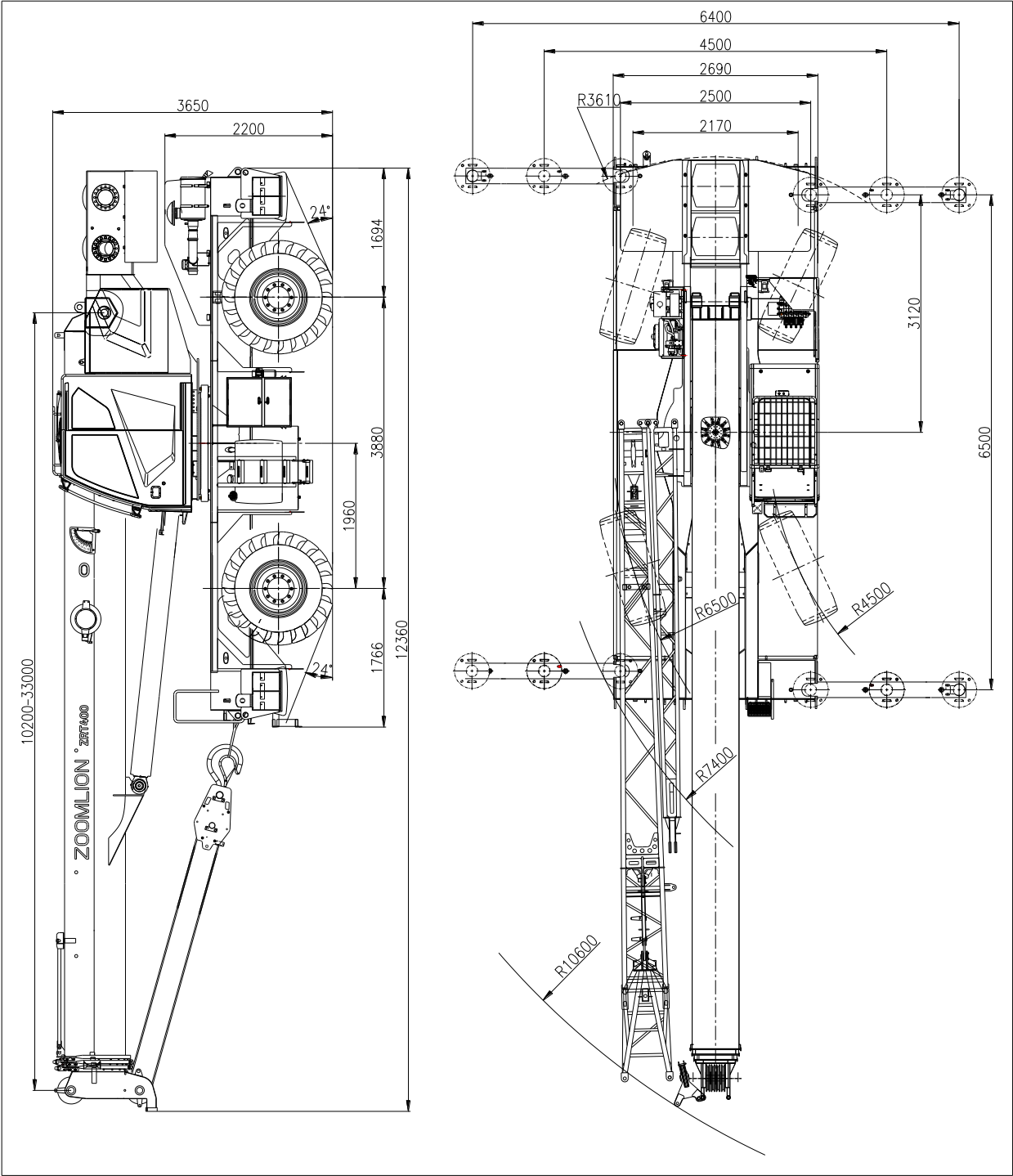


Figure 1 Overall View – ZRT400 Rough Terrain Crane

2. TECHNICAL DATA

MAIN TECHNICAL DATA

Type	Ser. No.	Item	Unit	Value
Working performance	1	Max. rated lifting capacity × working radius	kg.m	40000×2.5
	2	Max. load moment of the boom	kN.m	1305
	3	Max. load moment of the boom (fully extended)	kN.m	792
	4	Max. lifting height of the boom (fully extended)	m	33.9
	5	Max. lifting height of the jib	m	47.8
Dimensions	6	Overall dimensions (L × W × H)	mm	12360×2690×3650
	7	Outrigger spread (Height × Width)	mm	6500×6400
	8	Boom length	mm	10200-33000
	9	Jib length	mm	8200-14000
	10	Boom angle	°	-2-80
	11	Slewing range		360° unlimited slewing (Full range)
Working speeds	12	Max. hoist rope speed (Main winch)	m/min	130
	13	Min. boom telescoping out time	s	50
	14	Min. boom telescoping in time	s	40
	15	Min. boom derricking up time	s	45
	16	Min. boom derricking down time	s	120
	17	Slewing speed	r/min	0-2.5
Hydraulic system	18	Rated working pressure	MPa	25
	19	Hydraulic oil tank capacity	L	580
Gross vehicle mass	20	Gross weight	kg	31000
Driving	21	Max. driving speed	km/h	38/38
	22	Wheelbase	mm	3880
	23	Treads (Front / Rear)	mm	2170
	24	Max. gradeability	%	55

3. MAIN PARTS TABLE

MAIN PARTS TABLE

Type	Ser. No.	Item		Main configuration
Power system	1	Engine make & model		DF Cummins QSB6.7
	2	Fuel type		Diesel
	3	Intake system		Turbo-charged, air to air, inter-cooling
	4	Cooling system		Water-cooling
	5	Engine rated power	KW/r/min	129KW/2200rpm
	6	Engine rated torque	N.m/r/min	800N.m/1500rpm
	7	Fuel tank capacity		250 L
Drive system	8	Transmission drive mode		4×2, 4×4,
	9	Model or brand of transmission		DANA
	10	Transmission gear stage		6 forward and 3 reverse speeds
Travel system	11	Suspension		Rigid (front) / Flexible (rear)
	12	Model or brand of axles		Meritor (Xuzhou)
	13	Steering mode		2-wheel steering (front wheels) 2-wheel steering (rear wheels) 4-wheel steering Crab steering
	14	Tire size		20.5-25-28PR TL
	15	Tire number		4
	16	Model or brand of main valve		ZOOMLION
Hydraulic system	17	Gear pump		Jinan Hydraulics
	18	Balance valve / hydraulic lock		ZOOMLION
	19	Slewing motor		HIGH-TECH
	20	Rated capacity indicator		ZOOMLION
Electrical system	21	Controller		IFM
	22	Electric accelerator pedal		Jieou
	23	Bus cable		Phoenix/Zhaolong
	24	Battery		VARTA
	25	Lights and switches		Hella and Bangchen
Emission	26			Chinese National Stage III for non-road vehicles

4. SPECIFICATIONS, SUPERSTRUCTURE

4.1 Boom and telescoping mechanism

The box-shaped telescopic boom consists of 4 U-shape boom sections made of high-strength steel.

The telescopic boom sections are telescoped in / out via two telescopic cylinders and two sets of boom extension/retraction ropes. Each telescopic cylinder is equipped with a plug-in balance valve.

The boom head is equipped with 6 pulleys, which is convenient for changing wire rope reevings without removing the wedges. A rooster sheave is optional.

Min. boom length (with telescopic sections completely retracted): 10200mm

Max. boom length (with telescopic sections completely extended): 33000mm

Min. telescoping out time: 50 s

4.2 Jib

It consists of two lattice jib sections. The jib section II is secured into the jib section I, and the whole jib is stowed to one side of the boom via moveable pins during driving.

A single pulley is assembled at the jib head.

Jib angle: 0°, 15° and 30°

Jib length: 8.2m - 14m

4.3 Derricking mechanism

A front-mounted single derricking cylinder is installed with a derricking balance valve.

Derricking angle range: -2° - 80°

Derricking speed: -2° - 80°/45s

4.4 Hoist mechanism

4.4.1 Main and auxiliary winches

The main winch realizes lifting and lowering movements through rotations of the drum driven by the planetary reducer which is driven by the axial variable plunger pump.

The auxiliary winch adopts identical components.

4.4.2 Wire rope

High strength wire rope

Max. hoist rope tensile force:	5130kg
Max. hoist rope speed:	130m/min (At the 4th layer)
Rope diameter:	Φ17 mm
Main winch rope length:	185 m
Auxiliary winch rope length:	110 m

4.4.3 Hook block

Rotatable main hook: 40 t, with 4 pulleys and a hook latch, secured at the chassis frame in front of slewing table.

Rotatable auxiliary hook: 4.5 t, with a hook latch, used with the rooster sheave and jib, secured at the auxiliary hook holder on the chassis frame.

4.5 Slewing mechanism

It consists of a hydraulic motor, planetary gear reducer, pinion gear and slewing ring, etc. Via the planetary gear reducer, the hydraulic motor drives the pinion gear to rotate and makes the slewing bearing's outer ring rotate around its inner toothed ring fixed on chassis frame, realizing 360° unlimited superstructure slewing.

A hydraulically controlled usually-closed brake is installed. Controlled slewing function of the slewing mechanism is adopted.

Slewing speed: 0-2.5 r/min

4.6 Turntable

The turntable adopts a wall plate structure.

4.7 Hydraulic system

4.7.1 Oil pump

Two sets of dual gear pumps are installed on the transmission.

The two front gear pumps supply hydraulic oil together to the boom telescoping system, derricking mechanism and hoisting mechanism.

One rear gear pump supplies hydraulic oil to outriggers, braking system and air conditioner, and supplies pilot oil.

The other rear gear pump supplies hydraulic oil to the slewing and steering mechanisms.

4.7.2 Control valve

Quadruple multi-way directional valves adopt downstream pressure compensation technology.

4.7.3 Pipeline

An air-cooled hydraulic oil cooler driven by an electric motor is located in the return line.

The system pressure can be displayed on the instrument console. There are pressure test ports configured in hydraulic lines.

4.7.4 Hydraulic oil tank

Capacity: 580 L

4.7.5 Filters

A high pressure filter with the filtering accuracy of 10 μ is mounted in oil ways of outriggers, slewing, steering and braking systems.

Two return oil filters with the filtering accuracy of 12 μ are mounted in the hydraulic oil tank.

4.8 Crane controls

The superstructure movements are controlled by two hydraulic joysticks (with a cross shaft) on both sides of operator's seat (complying with ISO standard requirements).

The left joystick controls slewing and auxiliary winch movements

The right joystick controls derricking and main winch movements.

The telescoping control pedal controls boom telescoping movements.

Derricking and telescoping movements can be executed simultaneously.

4.9 Cab

There is only one cab for ZRT400 rough terrain crane. It can be used as the operator's cab as well as the driver's cab. The cab is side-mounted and adopts left hand drive.

The crane adopts EATON (Ji'ning) hydraulic steering gear, Yuxin (He'nan) air conditioner and Jingwei (Beijing) cab heater.

Exhaust emission complies with the requirements of European Environment Protection.

There are two control boxes on the both sides of operator's seat. The left / right control box can be pulled up. Controls of the superstructure are arranged according to the requirements of ASME B30.5-2007 standard and comply with ISO (International Organization for Standardization) standard.

Cab dimensions:

Length: 1830 $\pm$ 5mm

Width: 910 $\pm$ 5mm

Height: 1710 $\pm$ 5mm

4.10 Rated capacity indicator (RCI)

If the actual load approaches the rated one, the buzzer sends out visual and audible warning.

If the actual load reaches the rated one, all dangerous movements are switched off automatically.

The rated capacity indicator can also limit the working range (including working radius, boom angle, lifting height and slewing range etc.).

The following information can be displayed on the screen:

- Boom angle or moment ratio;
- Boom length or default hook weight;
- Actual working radius or slewing angle;
- Actual lifting capacity;
- Max. permissible lifting capacity;
- Jib installation angle or wire rope reeving;
- Boom status indication;
- Outrigger status or "On Tires" indication.

The following information is displayed by bar graph:

- Percentage of actual lifting capacity to the rated one or working pressure of the hydraulic system.

4.11 Outriggers

H-type outriggers, hydraulically controlled, can be operated in the cab simultaneously or independently.

Each vertical jack cylinder is equipped with a two-way hydraulic lock to ensure that outriggers are secured reliably during working or driving.

Outrigger boxes are directly welded onto the chassis frame.

The outriggers can be completely extended, half extended or completely retracted for different operating modes.

Outrigger spread (Height): 6500 mm

Outrigger spread (Width): 6400 mm (fully extended)

4500 mm (half extended)

2500 mm (fully retracted)

5. SPECIFICATIONS, SPECIAL PURPOSE CHASSIS FOR ROUGH TERRAIN CRANE

5.1 Type

Rear-mounted engine, left-hand drive

Drive mode: 4 x 2 and 4 x 4

5.2 Chassis frame

An Integral box-type structure welded by high-strength steel

5.3 Engine

5.3.1 Model

DF CUMMINS QSB6.7

5.3.2 Type

Four-stroke, 6-cylinder, direct injection, water-cooled, turbocharged diesel engine.

5.3.3 Performance

Max. output power: 129KW/2200RPM

Max. output torque: 800Nm/1500RPM

5.4 Drive system

Electrically controlled automatic hydraulic transmission, capable of four-wheel drive mode when the transmission drives both the front and rear axles, as well as rear-wheel drive mode when the transmission disengages from the front axle and only drives the rear axle.

6 forwards and 3 reverse speeds, electric-hydraulic power gear shift, with an automatic locking mechanism.

The working hydraulic oil pump and steering oil pump directly take off power from the transmission.

5.5 Axle

5.5.1 Front axle

Steering and driving axle, directly mounted to the chassis frame, with a planetary reducer and brake.

5.5.2 Rear axle

Full-floating steering and driving axle, with a planetary reducer and brake.

5.6 Steering system

Fully hydraulic power steering gear

The cylinder of the steering and driving axles is controlled by steering wheel to realize crane steering.

4 steering modes:

2-wheel steering – front wheel steering

2-wheel steering – rear wheel steering

4-wheel steering – all-wheel steering

4-wheel steering – crab steering

5.7 Suspension system

Front axle: directly mounted to the chassis frame

Rear axle: a swing axle, connecting to the chassis frame via a hydraulic suspension cylinder

5.8 Braking system

5.8.1 Service brake

Hydraulically controlled caliper disc brake acting on 4 wheels

5.8.2 Parking brake

Hydraulically released parking brake, acted on by the spring mounted on the input shaft of the front axle.

5.9 Electrical system

24 Volt DC

2 batteries with 12 V rated voltage and 120 Ah rated current

5.10 Fuel tank

Capacity: 250 L

5.11 Tire

Size: 20.5-25-28PR TL

6 SAFETY DEVICES

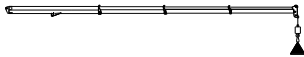
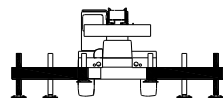
- Rated capacity indicator (RCI)
- Rotating beacon and horn
- Hoisting limiter (anti-two block, ATB)
- Lowering limiter (3rd wrap indicator)
- Balance valve
- Hydraulic lock
- Hydraulic safety valve
- Slewing lock
- Boom angle indicator
- Outrigger beam retaining pin
- Emergency stop button

7 LOAD RATINGS FOR ROUGH TERRAIN CRANE

7.1 Lifts With outrigger beams fully extended

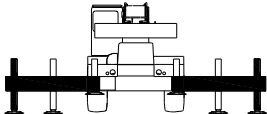
7.1.1 Rated loads with boom

Table 7-1 Rated Load on Outriggers Fully Extended

		360°slewing (UNIT: KG)				
Boom					Outriggers fully extended	
Working radius (m)	Cylinder I fully extended, outriggers fully extended, with 4.5 t counterweight					
	10.2	14.7	19.2	23.7	28.2	33
2.5	40000					
3	37000	23000				
3.5	34000	23000	22000			
4	31000	23000	22000	20000		
4.5	29000	23000	21000	18000		
5	25500	21500	20000	17000	14200	
5.5	23000	19500	18800	15800	14000	
6	20000	18000	17600	15000	13500	10000
7	17000	15500	15000	13500	12000	9800
8		13500	13000	12000	10600	9000
9		11500	11500	10800	9600	8400
10		9200	9600	9600	8700	7800
11		7500	8000	8200	8000	7200
12			7200	7400	6800	6600
14			5400	5600	5800	5600
16				4400	4500	4600
18				3400	3500	3600
20					2700	2800
22					2300	2300
24					1700	1800
26						1400
28						1100
30						
I (m)	0	4.5	9	13.5	18	22.8
Line part	8	6	6	5	4	3
Hook	40t					

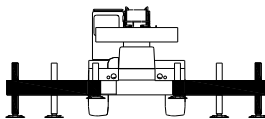
7.1.2 Rated loads with 8.2 m jib

Table 7-2 Rated Load on Outriggers Fully Extended (boom + 8.2 m jib)

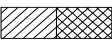
	360°slewing (UNIT: KG)		
Boom + 8.2m Jib	Outriggers fully extended		
Boom angle (°)	Outriggers fully extended, with 4.5t counterweight		
	0°	15°	30°
80	4500	3000	2400
78	4200	2800	2300
76	4000	2700	2200
74	3600	2500	2100
72	3300	2400	2000
70	3000	2200	1900
68	2800	2100	1800
66	2600	2000	1700
64	2300	1900	1550
62	2100	1700	1400
60	1800	1500	1300
58	1600	1400	1200
56	1500	1200	1100
54	1300	1100	1000
52	1100	1000	900
50	1000	900	800
48	900	800	700
46	700	600	550
Line part	1		
Hook	4.5 t		

7.1.3 Rated loads with 14 m jib

Table 7-3 Rated Load on Outriggers Fully Extended (boom + 14 m jib)

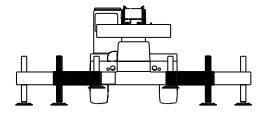
		360°slewing (UNIT: KG)		
Boom+14m jib		Outriggers fully extended		
Boom angle (°)	Outriggers fully extended, with 4.5t counterweight			
	0°	15°	30°	
80	2500	1800	1200	
78	2400	1700	1200	
76	2200	1550	1100	
74	2000	1400	1100	
72	1800	1350	1100	
70	1700	1300	1000	
68	1500	1200	1000	
66	1400	1100	950	
64	1300	1000	900	
62	1200	900	850	
60	1100	850	800	
58	1000	800	800	
56	950	750	750	
54	850	700	700	
52	800	600	550	
50	700			
Line part	1			
Hook	4.5 t			

Notes:

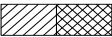
- a) Crane load ratings are based on the crane being leveled and standing on a firm and uniform supporting surface.
- b) Crane load ratings on outriggers are based on all outrigger beams being positioned according to the applicable lift chart and the tires raised free of the supporting surface.
- c) CRANE LOAD RATINGS MUST NOT BE EXCEEDED. DO NOT ATTEMPT TO TIP THE CRANE TO DETERMINE ALLOWABLE LOADS.
- d) Lift the load vertically. Do not pull the load at an angle.
- e) When either radius or boom length, or both, are between listed values, the smaller of the two listed load ratings shall be used.
- f) Do not operate at longer radii than those listed on the applicable lift chart (cross hatched areas  shown on range diagrams) as tipping can occur without a load on the hook.
- g) The boom angles shown on the lift charts give an approximation of the operating radius for a specified boom length. The boom angle, before loading, should be greater to account for boom deflection.
- h) Rated loads include the weight of hook block, slings, and auxiliary lifting devices. Their weights shall be subtracted from the listed rated load to obtain the net load that can be lifted.
- i) Consult appropriate section of the *Operator's Manual* for more exact description of hoist line reeving.
- j) Properly maintained wire rope is essential for safe crane operation. Consult the *Operator's Manual* and *Maintenance Manual* for proper maintenance and inspection requirements.
- k) When the rotation-resistant wire rope is used, the allowable rope loading shall be the breaking strength divided by five (5), unless otherwise specified by the wire rope manufacturer.
- l) The user shall operate at reduced ratings to allow for adverse job conditions, such as: soft or uneven ground, out of level conditions, high winds, side loads, pendulum action, jerking or sudden stopping off loads, hazardous conditions, experience of personnel, two-machine lifts, traveling with loads, electric wires, etc, (side pull on boom or jib is hazardous). If the wind speed is higher than the maximum permissible value (45 ft/s (13.8 m/s), grade 6) or it is fulminous during crane operation, stop the work, fully retract the boom and correctly stow the boom.
- m) Load ratings are dependent upon the crane being maintained according to the *Operator's Manual* and *Maintenance Manual*.

7.2 Lifts with outrigger beams at mid-position

Table 7-4 Rated Load on Outriggers Pinned at Mid-Position

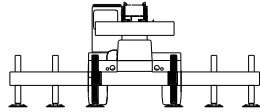
		360° slewing (UNIT: KG)				
Boom					OUTRIGGERS PINNED AT MID-POSITION	
Working radius (m)	Cylinder I fully extended, outriggers half extended, with 4.5 t counterweight					
	10.2	14.7	19.2	23.7	28.2	33
3	35000	23000				
3.5	29000	23000	22000			
4	25000	23000	22000	20000		
4.5	22000	20000	19500	18000		
5	17500	17800	17500	17000	14200	
5.5	15000	15500	15500	15800	14000	
6	12000	13000	13500	14000	13500	10000
7	8500	9800	10000	10000	11000	9800
8		8000	8000	8400	8600	8500
9		6400	6600	7000	7000	7000
10		4800	5200	5600	5800	5800
11		4000	4500	4800	5000	5000
12			3800	4000	4200	4200
14			2800	3000	3000	3100
16				2200	2300	2400
18				1600	1700	1800
20					1400	1400
22					1000	1100
24					800	900
26						650
28						
30						
I (m)	0	4.5	9	13.5	18	22.8
Line part	8	6	6	5	4	3
Hook	40t					

Notes:

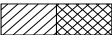
- a) Crane load ratings are based on the crane being leveled and standing on a firm and uniform supporting surface.
- b) Crane load ratings on outriggers are based on all outrigger beams being positioned according to the applicable lift chart and the tires raised free of the supporting surface.
- c) CRANE LOAD RATINGS MUST NOT BE EXCEEDED. DO NOT ATTEMPT TO TIP THE CRANE TO DETERMINE ALLOWABLE LOADS.
- d) Lift the load vertically. Do not pull the load at an angle.
- e) When either radius or boom length, or both, are between listed values, the smaller of the two listed load ratings shall be used.
- f) Do not operate at longer radii than those listed on the applicable lift chart (cross hatched areas  shown on range diagrams) as tipping can occur without a load on the hook.
- g) The boom angles shown on the lift charts give an approximation of the operating radius for a specified boom length. The boom angle, before loading, should be greater to account for boom deflection.
- h) Rated loads include the weight of hook block, slings, and auxiliary lifting devices. Their weights shall be subtracted from the listed rated load to obtain the net load that can be lifted.
- i) Consult appropriate section of the *Operator's Manual* for more exact description of hoist line part.
- j) The use of more parts of line than required by the load may result in having insufficient rope to allow the hook block to reach the ground. Choose the correct line parts to get a rope in the proper length. Refer to Table 1.1.
- k) Properly maintained wire rope is essential for safe crane operation. Consult the *Operator's Manual* and *Maintenance Manual* for proper maintenance and inspection requirements.
- l) When the rotation-resistant wire rope is used, the allowable rope loading shall be the breaking strength divided by five (5), unless otherwise specified by the wire rope manufacturer.
- m) The user shall operate at reduced ratings to allow for adverse job conditions, such as: soft or uneven ground, out of level conditions, high winds, side loads, pendulum action, jerking or sudden stopping off loads, hazardous conditions, experience of personnel, two-machine lifts, traveling with loads, electric wires, etc, (side pull on boom or jib is hazardous). If the wind speed is higher than the maximum permissible value (45 ft/s (13.8 m/s), grade 6) or it is fulminous during crane operation, stop the work, fully retract the boom and correctly stow the boom.
- n) Load ratings are dependent upon the crane being maintained according to the *Operator's Manual* and *Maintenance Manual*.

7.3 Lifts with outrigger beams fully retracted

Table 7-5 Rated Load with Boom on Outriggers Fully Retracted

		360° (UNIT: KG)				
Boom					OUTRIGGERS FULLY RETRACTED	
Working radius (m)	Cylinder I fully extended, outriggers fully retracted, with 4.5 t counterweight					
	10.2	14.7	19.2	23.7	28.2	33
3	20000	20000				
3.5	15000	15500	15000			
4	11000	11500	12000	12000		
4.5	9200	10000	9800	9800		
5	7800	8400	8400	8500	8500	
5.5	6400	7000	7200	7500	7500	
6	5200	5800	6200	6500	6500	6500
7	3600	4200	4600	4600	4800	5000
8		3000	3500	3600	3700	4000
9		2400	2800	3000	3200	3000
10		2000	2200	2400	2400	2400
11		1500	1700	1800	2000	2000
12			1400	1600	1700	1700
14			1000	1100	1100	1200
16				750	800	900
18						600
20						
22						
24						
26						
28						
30						
I (m)	0	4.5	9	13.5	18	22.8
Line part	8	6	6	5	4	3
Hook	40t					

Notes:

- a) Crane load ratings are based on the crane being leveled and standing on a firm and uniform supporting surface.
- b) Crane load ratings on outriggers are based on all outrigger beams being positioned according to the applicable lift chart and the tires raised free of the supporting surface.
- c) CRANE LOAD RATINGS MUST NOT BE EXCEEDED. DO NOT ATTEMPT TO TIP THE CRANE TO DETERMINE ALLOWABLE LOADS.
- d) Lift the load vertically. Do not pull the load at an angle.
- e) When either radius or boom length, or both, are between listed values, the smaller of the two listed load ratings shall be used.
- f) Do not operate at longer radii than those listed on the applicable lift chart (cross hatched areas  shown on range diagrams) as tipping can occur without a load on the hook.
- g) The boom angles shown on the lift charts give an approximation of the operating radius for a specified boom length. The boom angle, before loading, should be greater to account for boom deflection.
- h) Rated loads include the weight of hook block, slings, and auxiliary lifting devices. Their weights shall be subtracted from the listed rated load to obtain the net load that can be lifted.
- i) Consult appropriate section of the *Operator's Manual* for more exact description of hoist line part.
- j) The use of more parts of line than required by the load may result in having insufficient rope to allow the hook block to reach the ground. Choose the correct line parts to get a rope in the proper length. Refer to Table 1.1.
- k) Properly maintained wire rope is essential for safe crane operation. Consult the *Operator's Manual* and *Maintenance Manual* for proper maintenance and inspection requirements.
- l) When the rotation-resistant wire rope is used, the allowable rope loading shall be the breaking strength divided by five (5), unless otherwise specified by the wire rope manufacturer.
- m) The user shall operate at reduced ratings to allow for adverse job conditions, such as: soft or uneven ground, out of level conditions, high winds, side loads, pendulum action, jerking or sudden stopping off loads, hazardous conditions, experience of personnel, two-machine lifts, traveling with loads, electric wires, etc, (side pull on boom or jib is hazardous). If the wind speed is higher than the maximum permissible value (45 ft/s (13.8 m/s), grade 6) or it is fulminous during crane operation, stop the work, fully retract the boom and correctly stow the boom.
- n) Load ratings are dependent upon the crane being maintained according to the *Operator's Manual* and *Maintenance Manual*.

7.4 Lifts on tires

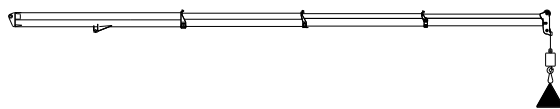
Table 7-6 Rated Load with Boom for Lift on Tires



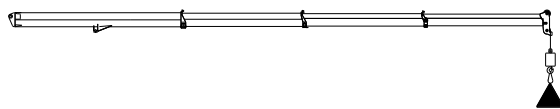
Rated capacities for lift on tires

(Unit: Kg)

Working radius (m)	Lift on tires standing still, over front working area, with 4.5t counterweight			
	10.2	14.7	19.2	23.7
3	15000	15000		
3.5	13000	13500	14000	
4	12200	12500	13000	12000
4.5	11000	12000	12000	11500
5	9500	10000	11000	10500
5.5	8500	9200	9800	9600
6	7400	8000	8600	8800
7	6400	7200	7800	7500
8		6400	6800	6600
9		5500	5600	5600
10		4800	5200	5000
11			4600	4600
12			3600	3500
14				2800
16				2100
18				
l (m)	0	4.5	9	13.5
Line part	8	6	6	4
Hook	40t			

Table 7-7 Rated Load with Boom for Lift on Tires**Rated capacities for lift on tires****(Unit: Kg)**

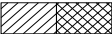
Working radius (m)	Lift on tires standing still, over 360-degree working area, with 4.5t counterweight			
	10.2	14.7	19.2	23.7
3	10000	9500		
3.5	8600	8600	8000	
4	7200	7400	7200	7500
4.5	6600	6500	6000	6000
5	5600	5400	5500	5200
5.5	4800	4800	4800	4600
6	4200	4300	4000	4000
7	3500	3600	3200	3400
8		2600	2500	2600
9		2100	2100	2200
10		1600	1700	1600
11			1300	1300
12			1100	1100
14				900
16				
18				
l (m)	0	4.5	9	13.5
Line part	8	6	6	4
Hook	40t			

Table 7-8 Rated Load with Boom for Lift on Tires

Rated capacities for lift on tires
(Unit: Kg)

Working radius (m)	Pick and carry the load, with 4.5t counterweight			
	10.2	14.7	19.2	23.7
3	14000	12000		
3.5	12000	10800	10000	
4	10000	10000	9600	9000
4.5	8800	8500	8400	8200
5	7600	7500	7500	7600
5.5	7000	7000	6800	7000
6	6400	6500	6400	6500
7	5500	5600	5500	5500
8		4800	4800	4600
9		4000	4200	4200
10		3400	3600	3600
11			3000	3000
12			2600	2500
14				2000
16				1500
18				
l (m)	0	4.5	9	13.5
Line part	8	6	6	4
Hook	40t			

Notes:

- a) Crane load ratings are based on the crane being leveled and standing on a firm and uniform supporting surface.
- b) Crane load ratings on outriggers are based on all outrigger beams being positioned according to the applicable lift chart and the tires raised free of the supporting surface.
- c) CRANE LOAD RATINGS MUST NOT BE EXCEEDED. DO NOT ATTEMPT TO TIP THE CRANE TO DETERMINE ALLOWABLE LOADS.
- d) Lift the load vertically. Do not pull the load at an angle.
- e) When either radius or boom length, or both, are between listed values, the smaller of the two listed load ratings shall be used.
- f) Do not operate at longer radii than those listed on the applicable lift chart (cross hatched areas  shown on range diagrams) as tipping can occur without a load on the hook.
- g) The boom angles shown on the lift charts give an approximation of the operating radius for a specified boom length. The boom angle, before loading, should be greater to account for boom deflection.
- h) Rated loads include the weight of hook block, slings, and auxiliary lifting devices. Their weights shall be subtracted from the listed rated load to obtain the net load that can be lifted.
- i) Consult appropriate section of the *Operator's Manual* for more exact description of hoist line part.
- j) The use of more parts of line than required by the load may result in having insufficient rope to allow the hook block to reach the ground. Choose the correct line parts to get a rope in the proper length. Refer to Table 1.1.
- k) Properly maintained wire rope is essential for safe crane operation. Consult the *Operator's Manual* and *Maintenance Manual* for proper maintenance and inspection requirements.
- l) When the rotation-resistant wire rope is used, the allowable rope loading shall be the breaking strength divided by five (5), unless otherwise specified by the wire rope manufacturer.
- m) The user shall operate at reduced ratings to allow for adverse job conditions, such as: soft or uneven ground, out of level conditions, high winds, side loads, pendulum action, jerking or sudden stopping of loads, hazardous conditions, experience of personnel, two-machine lifts, traveling with loads, electric wires, etc. (side pull on boom or jib is hazardous). If the wind speed is higher than the maximum permissible value (45 ft/s (13.8 m/s), grade 6) or it is fulminous during crane operation, stop the work, fully retract the boom and correctly stow the boom.
- n) Load ratings are dependent upon the crane being maintained according to the *Operator's Manual* and *Maintenance Manual*.

7.5 Lifting Height Curve

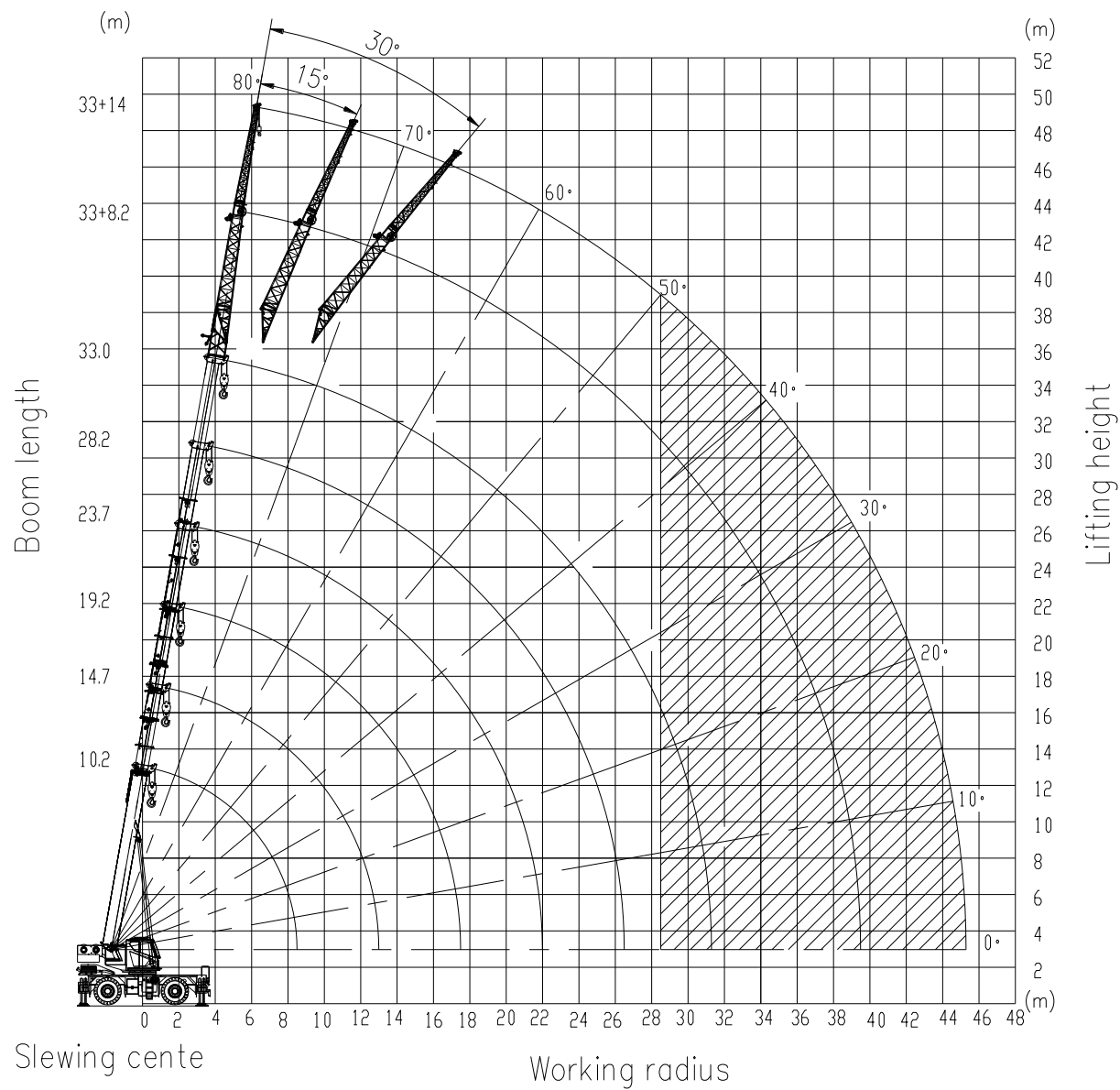


Figure 2 Lift Height on Outriggers Fully Extended