

ZOOMLION

ZRT500V432

ROUGH TERRAIN CRANE



4.0
PRODUCTS

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 ZRT500V432



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TECHNICAL DATA

	Item	Unit	Value
 Working performance	Max. rated lifting capacity × working radius	kg.m	50000×3
	Max. load moment of the boom	kN.m	1715
	Max. load moment of the boom (fully extended)	kN.m	826
	Max. lifting height of the boom (fully extended)	m	39
	Max. lifting height of the jib	m	48
 Dimensions	Overall dimensions (L × W × H)	mm	13110×2980×3800
	Outrigger spread (Height × Width)	mm	7600×7500
	Boom length	mm	10900-36000
	Jib length	mm	9000
	Boom angle	°	-1~80
	Slewing range		360° unlimited slewing(Full range)
 Working speeds	Max. hoist rope speed (Main winch)	m/min	130
	Min. boom telescoping out time	s	60
	Min. boom telescoping in time	s	45
	Min. boom derricking up time	s	45
	Min. boom derricking down time	s	75
	Slewing speed	r/min	0~2.6
 Hydraulic system	Rated working pressure	MPa	28
	Rated working flow	L/min	280
	Hydraulic oil tank capacity	L	760
 Gross vehicle mass	Gross weight	kg	32600
	Front axle load	kg	16300
	Rear axle load	kg	16300
 Driving	Max. driving speed	km/h	38/23
	Wheelbase	mm	4000
	Treads (Front / Rear)	mm	2380
	Max. gradeability	%	79

MAIN PARTS TABLE

	Item	Unit	Value
 Power system	Engine make & model		Cummins QSB6.7
	Fuel type		Diesel
	Intake system		Turbo-charged, air to air, inter-cooling
	Cooling system		Water-cooling
	Engine rated power	KW/rpm	194KW/2200rpm(Dongfeng Cummins) 194KW/2400rpm(US Cummins)
	Engine rated torque	N.m/rpm	990N.m/1500rpm
	Fuel tank capacity		300 L
 Drive system	Emission		T III
	Transmission drive mode		4×2, 4×4
	Model or brand of transmission		DANA
	Transmission gear stage		6 forward and 3 reverse speeds
 Travel system	Suspension		Rigid (front) / Flexible (rear)
	Model or brand of axles		Hande / Meritor (Xuzhou)
	Steering mode		2-wheel steering (front wheels) 2-wheel steering (rear wheels) 4-wheel steering Crab steering
	Tire size		23.5-25-32PR
	Tire number		4
 Hydraulic system	Model or brand of main valve		ZOOMLION
	Gear pump		Liyuan/Hi-Tech/Hengli
	Balance valve / hydraulic lock		Zoomlion Hydraulic
 Electrical system	Rated capacity indicator		ZOOMLION/HIRSCHMANN

SPECIFICATIONS

Crane Superstructure

Main boom

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 one telescopic cylinders and two sets of boom extension/ retraction ropes. The boom head is equipped with 5 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): 10900mm Max. boom length (with telescopic sections completely extended):36000mm Min. telescoping out time: 60 s

Jib

It consists of one lattice jib sections. 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: 9m

Derricking mechanism

A front-mounted single derricking cylinder is installed with a derricking balance valve. Derricking angle range: -1°~ 80° Derricking speed: -1°~ 80°/50s

Main and auxiliary winched

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.

Wire rope

High strength wire rope
Max. hoist rope tensile force: 5400kg
Max. hoist rope speed:130m/min (At the 4th layer)
Rope diameter:Φ17 mm
Main winch rope length:160 m
Auxiliary winch rope length:105 m

Hook block

Rotatable main hook:
50 t, with 5 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.

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: 0~2.6 r/min

Turntable

The turntable adopts a wall plate structure

Counterweight

3t fixed counterweight

Oil pump

The two variable pumps together supply hydraulic oil to the telescoping, derricking and hoist mechanisms. Moreover, the two pumps also supply pilot oil. One gear pump supplies hydraulic oil to outriggers, braking system, oil radiator of chassis torque converter, and superstructure AC. The other gear pump supplies hydraulic oil to the slewing and steering systems.

Control valve

A quadruple multi-way directional valve which adopts downstream pressure compensation technology.

SPECIFICATIONS

Crane Superstructure

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.

Hydraulic oil tank

Capacity: about 760 L. The return oil filter can eliminate bubbles. The filtering accuracy is 10μm.

Crane controls

The superstructure movements are controlled by two hydraulic joysticks (with a cross shaft) on both sides of operator’s seat. The left joystick controls slewing and auxiliary winch movements . The right joystick controls derricking and main winch movements. Derricking and telescoping movements can be executed simultaneously.

Cab

There is only one cab for ZRT500 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. There are two control boxes on the both sides of operator’s seat. The left / right control box can be pulled up. Cab dimensions:
Length: 1810±5mm
Width: 1050±5mm
Height: 1710±5mm

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.

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): 7600mm Outrigger spread (Width): 7500 mm (fully extended)/ 5100 mm (half extended)/2600 mm (fully retracted)

SPECIFICATIONS

Crane chassis

Type

Rear-mounted engine, left-hand drive;
Drive mode: 4 x 2 and 4 x 4.

Chassis frame

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

Engine

Model:
CUMMINS QSB6.7
Type:
Four-stroke, 6-cylinder, direct injection, water-cooled, turbocharged diesel engine.
Parameters:
Max. output power:
194KW/2200rpm (Dongfeng Cummins)
194KW/2400rpm(US Cummins)
Max. output torque:990 N.m /1500rpm

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.

Axle

Front axle:
Steering and driving axle, directly mounted to the chassis frame, with a planetary reducer and brake.
Rear axle:
Full-floating steering and driving axle, with a planetary reducer and brake.

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

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

Braking system

Service brake:
Hydraulically controlled caliper disc brake acting on 4 wheels
Parking brake:
Hydraulically released parking brake, acted on by the spring mounted on the input shaft of the front axle

Electrical system

24 Volt DC
2 batteries with 12 V rated voltage and 120 Ah rated current

Fuel tank

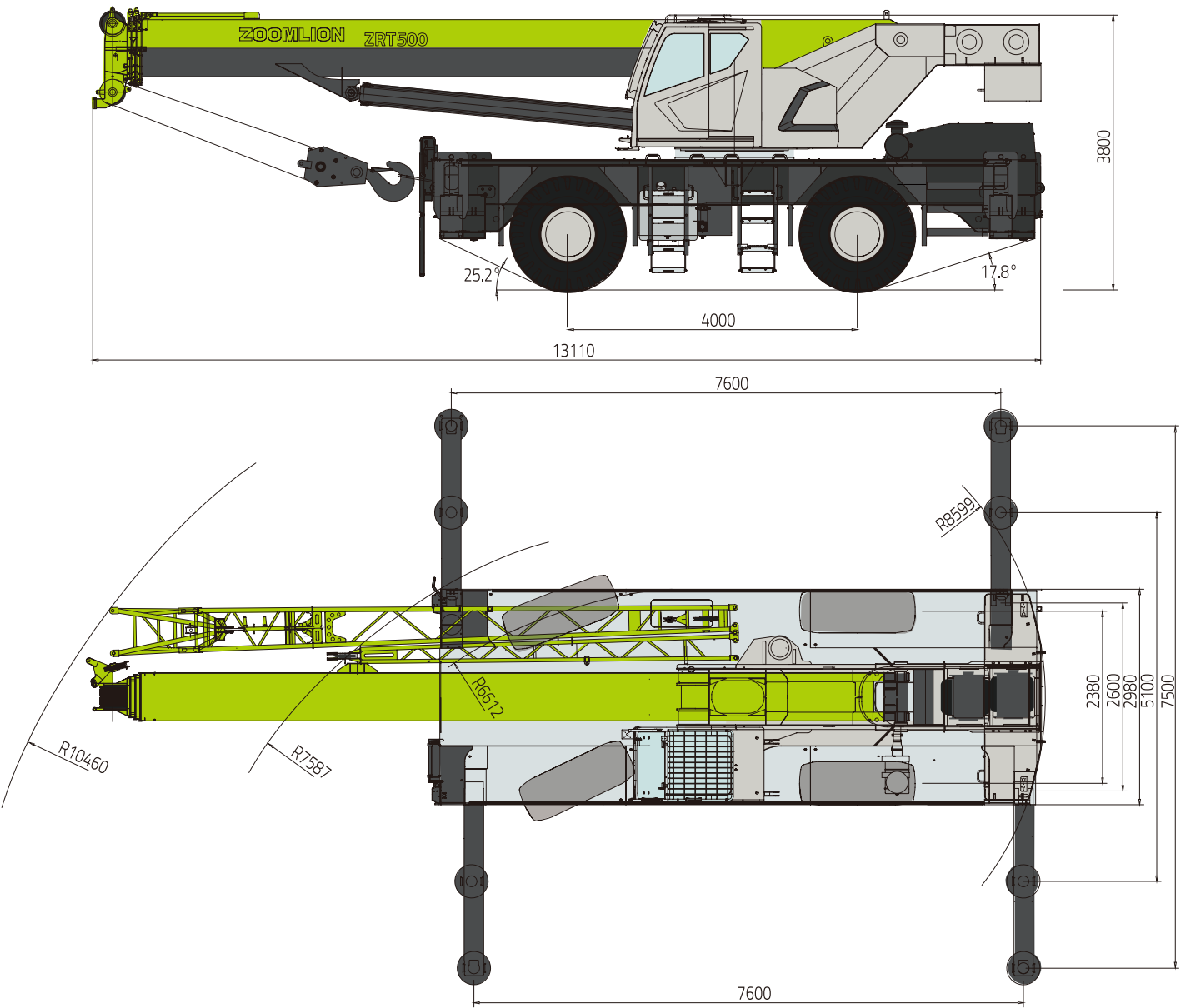
Capacity: 300 L

Tire

Size:23.5-25-32PR

DIMENSIONS

Unit: mm



BOOM/JIB COMBINATION

T Main boom
F Jib



LIFTING HEIGHTS + LIFTING CAPACITIES

This crane is provided with various rated capacity charts. The operator should select proper rated lifting load referring to resp. rated capacity charts according to actual working conditions. The values in Column represent the extended length of the telescopic cylinder I under a corresponding OM.

- Notes:
- a) Crane load ratings are based on the crane being leveled and standing on a firm and uniform supporting surface.
 - b) The rated loads on outriggers are based on outriggers fully or intermediately extended/retracted, and the tires should be supported off ground.
- CRANE LOAD RATINGS MUST NOT BE EXCEEDED.**
- DO NOT ATTEMPT TO TIP THE CRANE TO DETERMINE ALLOWABLE LOADS.**
- c) Lift the load vertically. Do not pull the load at an angle.
 - d) When either radius or boom length, or both, are between listed values, the smaller of the two listed load ratings shall be used.
 - e) 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.
 - f) 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.
 - g) Crane load ratings on tires depend on appropriate inflation pressure and tire condition. Caution must be exercised when increasing air pressures in tires. Consult the Operator's Manual for precautions.
 - h) For pick-and-carry operations, the boom must be centered over the front of the crane with the slewing brake lock engaged. Use minimum boom point height and keep the load close to the ground surface. Travel must be on smooth level surface.
 - i) The load should be restrained from swinging.
 - j) Creep speed is crane movement of less than 200 ft (61 m) in 30-minutes period and not exceeding 0.9 mph (1.44 km/h).
 - k) Consult appropriate section of the Operator's Manual for more exact description of hoist line reeving.
 - l) 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.
 - m) Properly maintained wire rope is essential for safe crane operation. Consult the Operator's Manual and Maintenance Manual for proper maintenance and inspection requirements.
 - n) 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.
 - o) Load ratings are dependent upon the crane being maintained according to the Operator's Manual and Maintenance Manual.

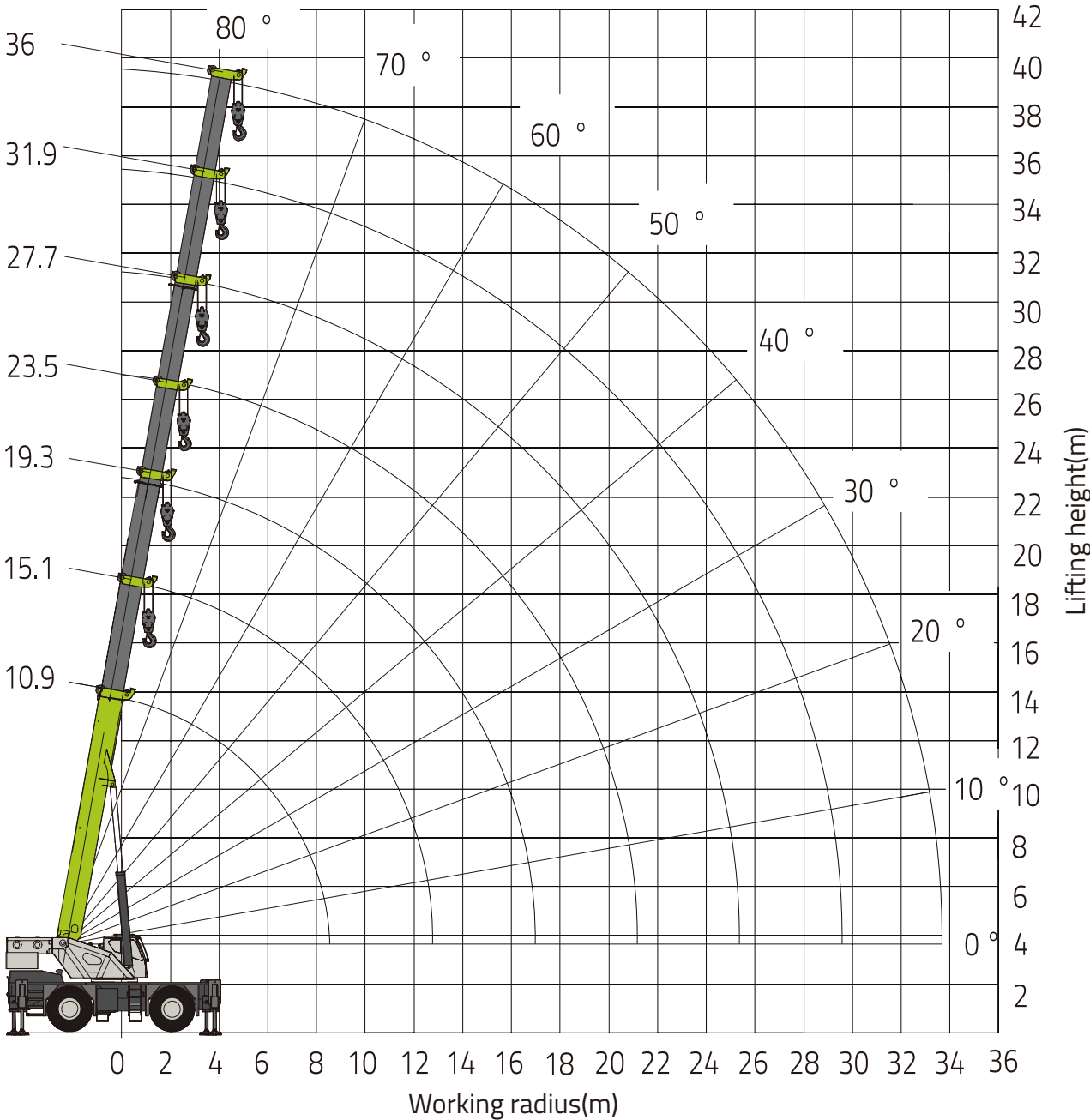
Symbolic identification

Main Boom OM	Boom length	Working radius	Jib	360° slewing
3t counterweight	Outriggers fully extended	Outriggers intermediately extended	Outriggers fully retracted	

T4

LIFTING HEIGHT CHART

boom only on outriggers fully extended



RATED CAPACITY CHART

boom only on outriggers fully extended

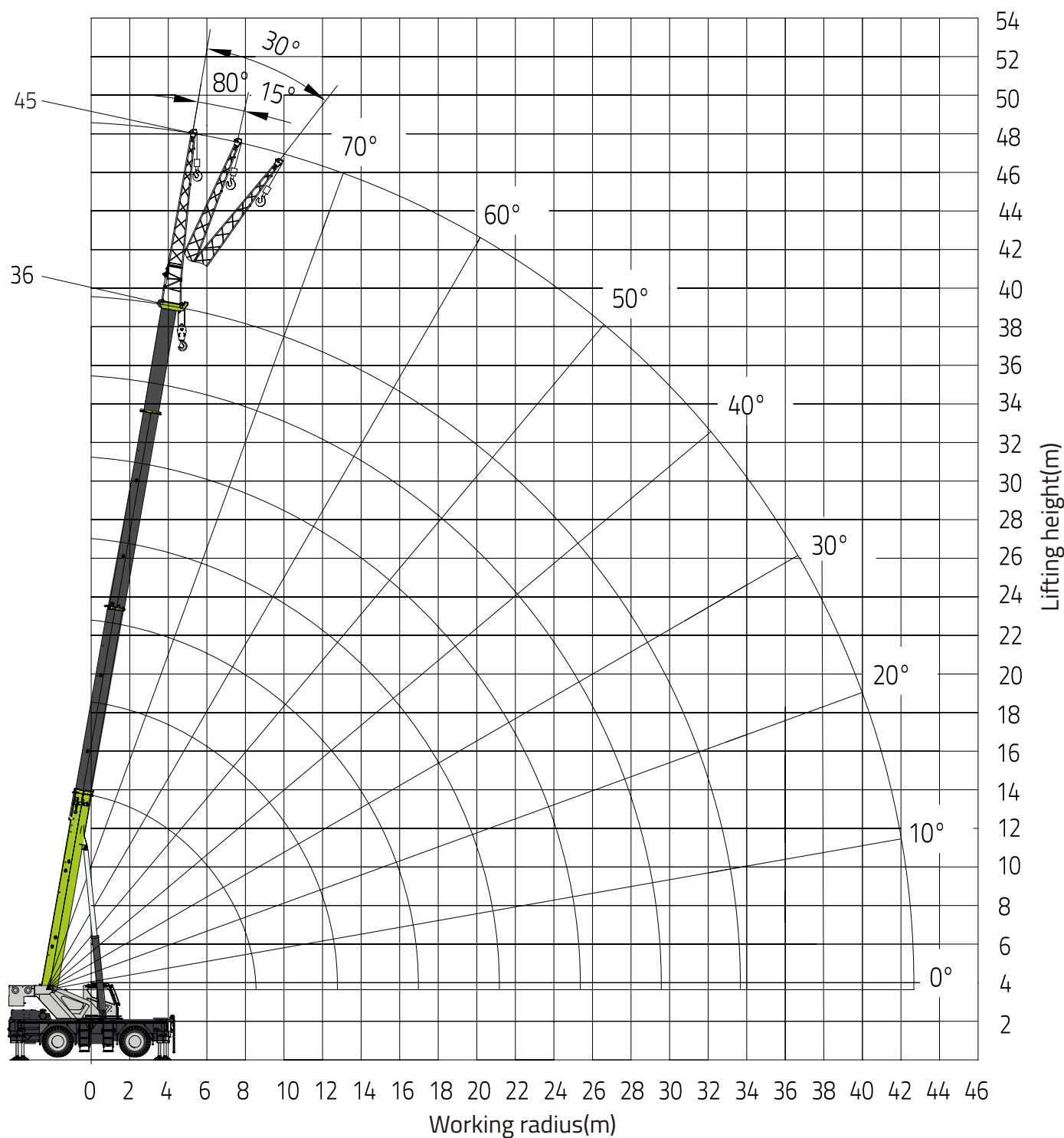


	Boom length (m)						
	10.9	15.1	19.3	23.5	27.7	31.9	36
3.0	50	27					
3.5	45	27	24.5				
4.0	42	27	24	21.5			
4.5	37	26	23.5	21	17.5		
5.0	33.5	25	23	20.5	17	13.5	
5.5	32	24	22.5	20	16.5	13	
6.0	29	23	22	19.5	16	12.5	12
7.0	25	22	21	18.5	14.8	12	11
8.0	18.5	19	19.5	17.5	13.8	11.5	10
9.0		15.5	16	16.5	12.8	10.8	9.5
10.0		12.5	13	13.3	11.8	10.1	8.8
11.0		10.3	10.8	11.1	11	9.4	8.3
12.0			9.3	9.5	9.8	8.9	7.8
14.0			6.9	7.1	7.4	7.5	7
16.0				5.5	5.8	5.9	6
18.0				4.3	4.6	4.7	4.8
20.0					3.7	3.8	3.9
22.0					3.0	3.1	3.2
24.0						2.5	2.6
26.0						2.1	2.2
28.0							1.8
30.0							1.5
32.0							
34.0							
36.0							
38.0							
l(m)	0	4.2	8.4	12.6	16.8	21	25.1
Reeving	10	8	8	6	5	4	3
Hook	50t						

T4F

LIFTING HEIGHT CHART

boom only on outriggers fully extended + jib



RATED CAPACITY CHART

boom only on outriggers fully extended + jib



Boom angle(°)	Boom (36m) + Jib(9m)		
	0°	15°	30°
80	4.0	2.8	2.1
78	4.0	2.7	2.0
76	3.9	2.5	2.0
74	3.8	2.4	1.9
72	3.2	2.3	1.85
70	3.0	2.2	1.7
68	2.8	2.1	1.65
66	2.6	2.0	1.65
64	2.4	1.9	1.6
62	2.4	1.8	1.55
60	2.2	1.7	1.5
58	2.0	1.6	1.4
56	1.8	1.5	1.3
54	1.6	1.4	1.25
52	1.4	1.3	1.2
50	1.2	1.2	1.1
48	1.0	1.0	1.0
Reeving	1		
Hook	4.5t		