

WITH **GREAT POWER**
COMES **GREAT RESPONSIBILITY**

ZOOMLION

ROUGH TERRAIN CRANE

ZRT700V532-1



Max. rated lifting
capacity

70t

Max. load moment
of basic boom

2499kN.m

Max. lifting height
of main boom

46m

Max. lifting height
of jib

62m

ZRT700V532-1

ROUGH TERRAIN CRANE

A New Generation of V-series Rough Terrain Crane with Superior Performance

Outstanding performance

- 46m 5-section U-type boom with the maximum lifting moment (basic boom) of 2499kN.m
- and an integrated lifting performance of 10% superior to the competitors
- Large outrigger span of 8.3m×8.2m ensures more stable lifting operation

Excellent driving performance

- Significantly improved working efficiency of telescoping, hoisting and slewing mechanisms
- Optimal min. turning radius, ground clearance and approach/departure angle
- Superior off-road performance with the max. driving speed of 37km/h and a gradeability of 70%

Intelligent and safe

- Outrigger position detection function guarantees safer operation and outrigger remote control provides more convenience
- Intelligent functions such as anti-tipping control, data return, self-diagnosis of fault and remote data export ensure safe and reliable operation.



Specifications

Crane Superstructure

Main boom

The box-shaped telescopic boom consists of 5 U-type 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.

Jib

It consists of two lattice jib sections. The jib section II can be stretched out from the inside of the jib section I, and the whole jib is fixed at one side of the main boom during transport. A single pulley is assembled at the jib head.

Jib angle: 0°, 15° and 30°

Derricking mechanism

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

Derricking angle: -2°- 80°

Hoisting mechanism

Main and auxiliary winches

Main and auxiliary winches share the same fittings. Load hoisting and lowering are realized through the rotation of the drum driven by the planetary reducer, which is driven by the variable axial piston hydraulic motor.

Wire rope

High strength wire rope (anti-twisting rope is optional)

Max. hoist rope tensile force: 5400kg

Max. hoist rope speed: 145m/min (At the 4th layer)

Rope diameter: 17mm

Main winch rope length: 230m

Auxiliary winch rope length: 140m

Hook

Main hook for 60t: with 6 pulleys and a hook latch, secured at the front of the chassis frame.

Auxiliary hook for 5t: with a hook latch, used with the rooster sheave and jib, secured at the auxiliary hook holder on the chassis frame.

Hook for 70t (optional): with 6 pulleys and a hook latch, secured at the front of the chassis frame.

Slewing mechanism

It consists of such parts as 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 slewing of the superstructure.

Hydraulically controlled normally-closed brake with controllable slewing function and 360° hydraulic slewing lock.

Slewing speed: 0~2.5r/min

Slewing platform

Wall plate structure

Counterweight

Fixed counterweight of 6t

Hydraulic system

Oil pump

Two variable pumps supply hydraulic oil to the telescoping, derricking and hoisting mechanisms and provide pilot oil.

One gear pump supplies hydraulic oil to braking system, oil radiator of chassis torque converter, and superstructure AC.

The other gear pump supplies hydraulic oil to outriggers, slewing mechanism and steering system.

Control valve

Quadruple downstream-pressure compensation hydraulic-controlled multiplex directional valve.

Pipeline

Hydraulic oil return lines are fitted with an air-cooled hydraulic oil cooler driven by an electric motor.

The system pressure can be displayed on the instrument console. Hydraulic pipelines are fitted with pressure test ports.

Hydraulic oil tank

Capacity: 800L

The built-in return oil filter has a defoaming function. The filter fineness is 10μm.

Crane control

Operations of the superstructure are controlled by the two hydraulic joysticks on both sides of operator’s seat.

The left joystick controls the slewing mechanism and the auxiliary winch;

The right joystick controls the derricking mechanism and the main winch.

Hoisting, derricking and telescoping can be executed synchronously.

Driver’s cab

For ZRT700V5-1, both crane operation and driving are performed in the driver’s cab. It is a side-mounted one-seat left-hand driving cab.

Both sides of the seat are equipped with an armrest box. The left armrest box can be pulled up.

Cab dimensions:

Length: 1810±5mm

Specifications

Crane Superstructure

Width: 1050±5mm

Height: 1710±5mm

Load moment limiter

If the actual load moment approaches the rated one, the buzzer sends out a sound-light alarm and all dangerous operations of the crane are cut off automatically if the rated load moment is reached.

The load moment limiter can also limit working ranges, such as working radius, boom angle, lifting height, slewing range, etc.

The following information can be displayed on the monitor:

- 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 angle or wire rope reeving;
- Indication of boom position;
- Outrigger position or “On Tires” indication.

The following information is displayed by bar graph:

- Dynamic moment percentage;

Working pressure of 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 the secure lock of outriggers during working or driving.

Outrigger boxes are directly welded on the chassis frame. The outriggers can be completely extended, half extended or completely retracted for different operating modes.

Outrigger spread (longitudinal): 8300mm

Outrigger spread (transversal): 8200mm (fully extended)
5600mm (half extended)
3060mm (fully retracted)

Specifications

Crane chassis

Type
Rear engine; left-hand driving; 4x4 driving mode.

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: 990N.m / 1500rpm

Drive system
Electrically controlled automatic hydraulic transmission; front and rear axles driving mode.
Multiple forward and reverse gears; electric-hydraulic power gear shift with an automatic locking mechanism;
The working hydraulic oil pump and the steering oil pump directly take off power from the transmission.

Axle
Front axle: rigidly mounted steering and driving axle with a planetary reducer, a service brake and a parking brake.
Rear axle: full-floating steering and driving axle with a planetary reducer and a service 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: rigidly 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 disc brake acting on 4 wheels.
Parking brake: hydraulically released parking brake, acted by the spring mounted on the input shaft of the front axle.

Electrical system
24V DC,2 batteries with 12V rated voltage and 120Ah rated current.

Fuel tank
Effective volume: 300L.

Tire
Specification:
Standard: 26.5-25-32PR
Optional: 29.5-25-34PR
29.5-25-28PR (desert tires)

Technical Data

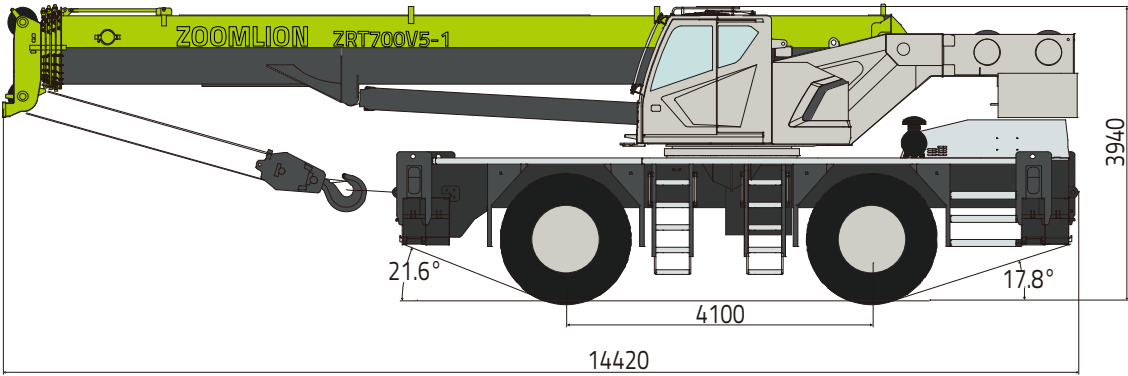
	Item	Unit	Value	Remarks
 Working performance	Max. rated lifting capacity × working radius	kg.m	70000×3	
	Max. load moment of the basic boom	kN.m	2499	
	Max. load moment of the boom (fully extended)	kN.m	1215	
	Max. lifting height of the boom (fully extended)	m	46	
	Max. lifting height of the jib	m	62	
 Working speeds	Max. hoist rope speed (Main winch)	m/min	145	
	Min. boom telescoping-out time	s	88	
	Min. boom telescoping-in time	s	110	
	Min. boom derricking-up time	s	58	
	Min. boom derricking-down time	s	100	
	Slewing speed	r/min	0~2.5	
 Driving	Max. driving speed	km/h	37	
	Wheelbase	mm	4100	
	Treads(Front / Rear)	mm	2550	
	Max. gradeability	%	70	
 Weight and load	Gross weight	kg	43800	
	Front axle load	kg	22700	
	Rear axle load	kg	21100	
 Hydraulic system	Rated working pressure	MPa	28	
	Rated working flow	L/min	280	
	Hydraulic oil tank capacity	L	800	
 Dimensions	Overall dimensions (L × W × H)	mm	14420×3300×3940	
	Outrigger spread (longitudinal × transversal)	mm	8300×8200	
	Boom length	mm	11800~ 46000	
	Jib length	mm	9500、16000	
	Boom angle	°	-2~ 80	
	Slewing range		360° continuous	

Main Parts Table

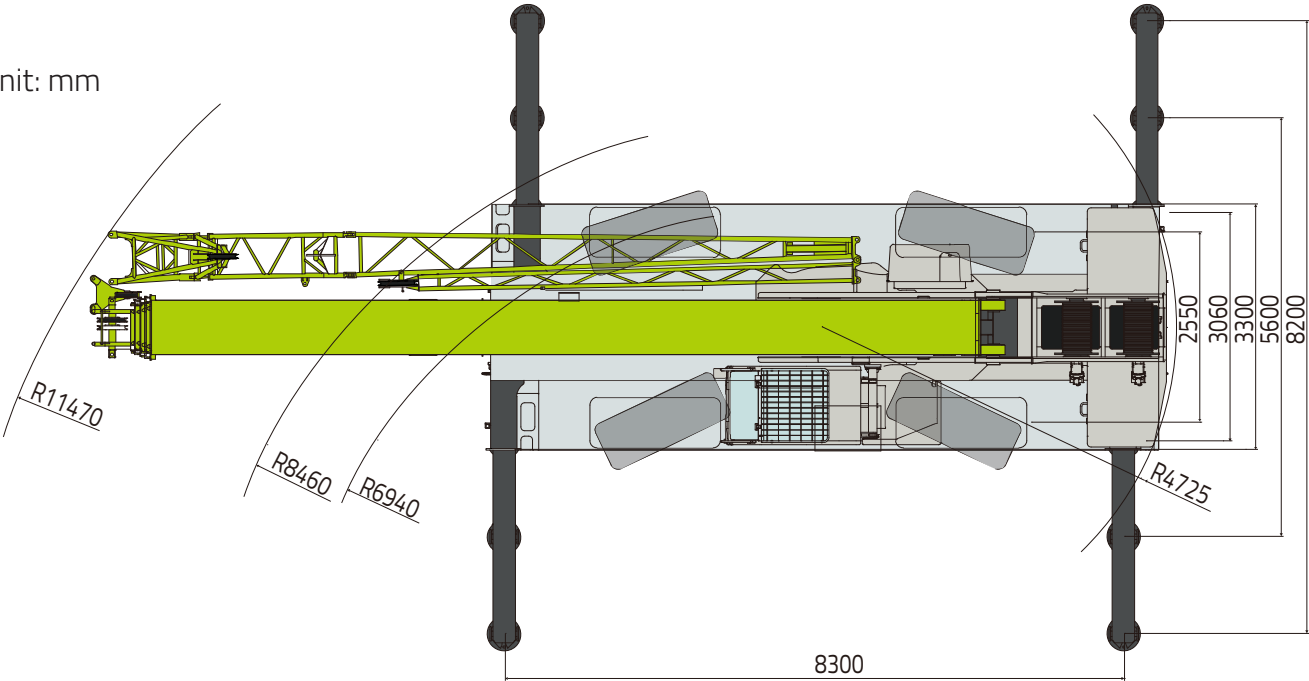
	Item	Unit	Main configuration
Power system	Engine manufacturer & model		Cummins QSB6.7
	Fuel type		Diesel
	Intake system		Turbo-charged, air-to-air intercooling
	Cooling system		Water-cooling
	Engine rated power	KW/rpm	194KW/2200rpm (Dongfeng Cummins) 194KW/2400rpm (US Cummins)
	Engine rated torque	N.m/rpm	990N.m/1500rpm
	Fuel tank capacity		300 L
Drive system	Transmission drive mode		4×4
	Transmission brand or model		ZF
	Transmission gear		6 forward and 3 reverse gears
Travelling system	Suspension		Rigid (front) / Flexible (rear)
	Axle brand or model		Hande/Meritor
	Steering mode		Front-wheel steering Rear-wheel steering 4-wheel steering Crab steering
	Tire size		26.5-25-32PR/29.5-25-34PR/ 29.5-25-28PR (desert tires)
	Tire number		4
Hydraulic system	Main valve brand		Zoomlion
	Pump		Hengli/Liyuan, WANY/Fuxin
	Balance valve / hydraulic lock		Zoomlion/Zoomlion, Dingsheng
Electrical system	Load moment limiter		Zoomlion/HIRSCHMANN
Emission			T III

Dimensions

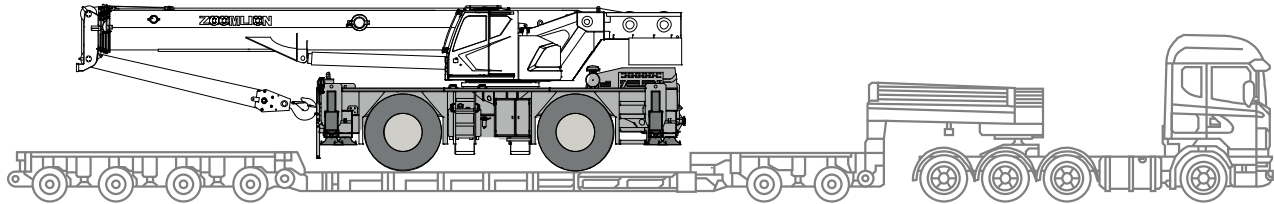
Unit: mm



Unit: mm



Transport of the main body (meeting road transport requirements)
Dimensions: width of 3.3m, height of 3.94m;
Weight: 43.8t (with counterweight, jib and hook)



Boom/Jib Combination

T: Main boom
F: Jib



Lifting heights + Lifting capacities

Rated lifting capacity charts are provided for different operating modes of the crane. The operator should choose the correct capacity chart and determine the rated lifting capacity according to the actual operating mode.

Values in Column "I" represent the extended length of the telescopic cylinder I under a corresponding OM. The values in Column "II" represent three times the extended length of the telescopic cylinder II under a corresponding OM.

Matters needing attention:

- a)The hook for 70T should be used if the rated lifting capacity exceeds 60t. For operating modes marked with "*" in the table, the crane should be retrofitted with special devices.
- b)Rated load of the crane is provided based on the fact that the crane stands on a leveled, solid and flat supporting ground.
- c)Rated load of the outriggers is provided based on the fact that the outriggers are fully or half extended or fully retracted and the tires are supported off the ground. Rated load must not be exceeded and do not load the crane with heavy objects to determine its allowable loads.
- d)The load must be lifted vertically. Do not pull the load with an angle.
- e)When the working radius and the main boom length are within the range of the listed values in the table, the smaller value of rated load should be adopted.
- f)The boom angle shown on the lifting height chart is an approximate value for the working radius of a certain boom length. The boom angle should be larger before loading to account for boom deflection.
- g)Rated load includes the weight of hook, wire rope, and auxiliary lifting devices. The net load is obtained by subtracting the weight of these devices from the rated load.
- h)Rated load of the tires depends on tire pressure and tire condition. Be careful when increasing tire pressure. Please refer to the Operator's Manual for matters needing attention.
- i)For pick-and-carry operations in tires, the boom must be centered at the front of the crane with the slewing brake lock engaged. Keep the minimum lifting height of the boom so that the load approaches the ground. The crane must travel on a smooth and flat surface.
- j)Avoid swinging during load lifting.
- k)Creeping means the crane travels less than 61m (200ft) within 30minutes. The maximum creeping speed shall not exceed 1.44km/h (0.9mph).
- l)Please refer to the Operator's Manual for more details on pulley reeving and installation of wire rope.
- m)If a rope reeving larger than the specified reeving is adopted, the hook may not be able to touch the ground due to insufficient length of rope. Choose correct rope reeving according to Load Ratings.
- n)Proper maintenance of wire rope is an inseparable part of safe crane operation. Please refer to the Operator's Manual and Maintenance Manual for proper maintenance and inspection requirements.
- o)Rated load should be reduced according to adverse working conditions, such as soft or uneven ground, unbalanced surface, strong wind, lateral load, swing operation, on-load yanking or sudden stop, dangerous state, inexperienced personnel, lifting with two cranes, traveling with load, electric wires, etc. (Lateral push and pull of the main boom or the jib is dangerous). Stop working immediately and retract the boom to the state for driving if the wind speed is higher than 13.8m/s (45ft/s) or there is lightning when the crane is working.
- p)Maintenance of the crane should be carried out in line with the Operator's Manual and Maintenance Manual so as not affect its load ratings.

Illustration for rated capacities



Boom length (m)



Jib



Main boom



6t counterweight



Rope reeving



Outriggers fully extended



Outriggers half extended



Outriggers fully retracted



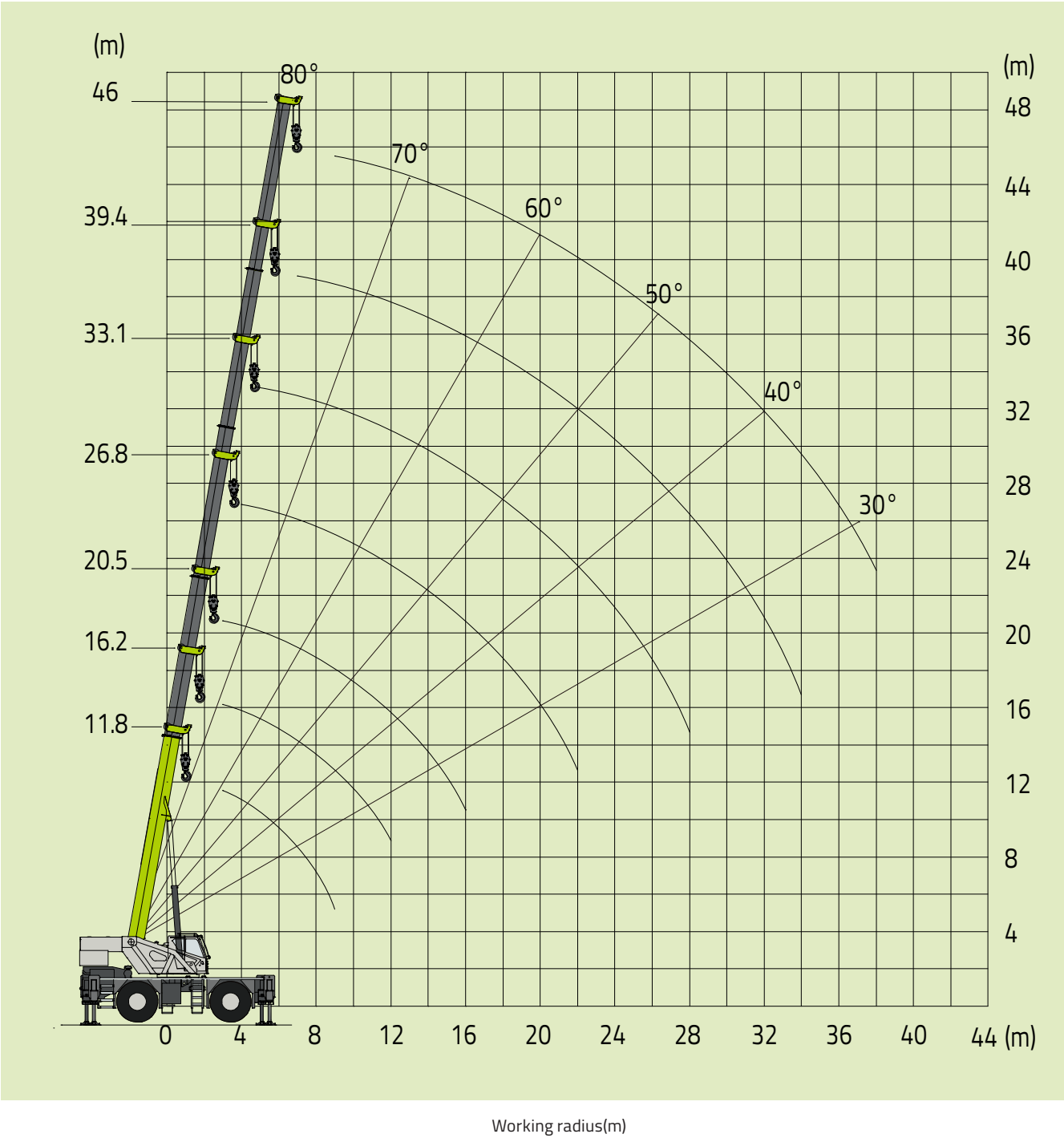
Slewing of 360°



Working radius (m)

Lifting Height Chart

T



Lifting Capacity Chart

T

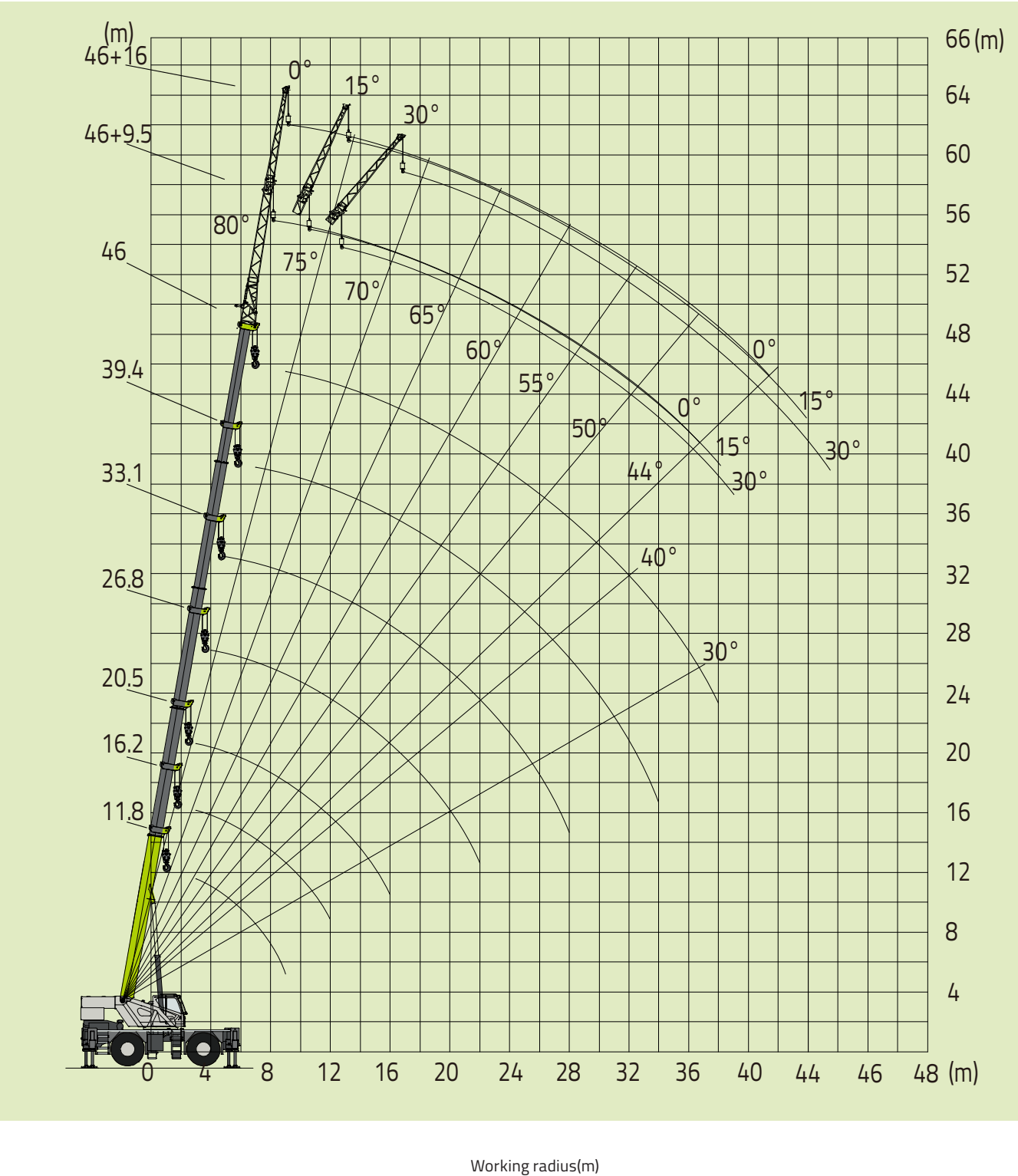


Unit: ton

	11.8m	16.2m	20.5m	26.8m	33.1m	39.4m	46.0m	
3.0	70.0*	46.0	35.0					3.0
3.5	64.0*	46.0	35.0					3.5
4.0	58.0	46.0	35.0	26.0				4.0
4.5	54.0	44.0	35.0	26.0				4.5
5.0	49.5	42.0	34.0	26.0	21.5			5.0
5.5	45.5	40.0	33.0	26.0	21.5			5.5
6.0	42.5	37.0	32.0	26.0	21.5			6.0
7.0	33.5	33.0	29.0	24.6	20.5	15.5		7.0
8.0	28.5	28.0	26.0	22.6	19.0	15.5		8.0
9.0	23.0	23.0	23.0	20.6	17.5	14.4	11.0	9.0
10.0		19.6	19.3	18.9	16.2	13.4	11.0	10.0
11.0		16.1	15.8	17.3	15.0	12.6	10.3	11.0
12.0		13.4	13.1	14.3	14.0	11.8	9.8	12.0
14.0			9.3	10.5	11.3	10.4	8.6	14.0
16.0			6.8	7.9	8.7	9.2	7.6	16.0
18.0				6.1	6.8	7.3	6.8	18.0
20.0				4.8	5.5	5.9	6.2	20.0
22.0				3.7	4.4	4.8	5.1	22.0
24.0					3.5	3.9	4.2	24.0
26.0					2.8	3.2	3.5	26.0
28.0					2.2	2.6	2.9	28.0
30.0						2.1	2.4	30.0
32.0						1.7	2.0	32.0
34.0						1.3	1.6	34.0
36.0							1.3	36.0
38.0							1.0	38.0
I	0	4.4	8.7	8.7	8.7	8.7	8.7	I
II	0	0	0	6.3	12.6	18.9	25.5	II
12t	12	10	8	6	4	4	3	12t
60t	60t							

Lifting Height Curves

TF



Lifting Capacity Chart

TF



Unit: ton

	Main boom						
	46+9.5			46+16.0			
	0°	15°	30°	0°	15°	30°	
80.0	5.00	3.30	2.50	2.90	1.80	1.30	80.0
78.0	4.80	3.30	2.50	2.70	1.70	1.25	78.0
76.0	4.50	3.20	2.50	2.50	1.60	1.20	76.0
74.0	4.30	3.10	2.50	2.30	1.50	1.15	74.0
72.0	4.00	3.00	2.50	2.10	1.45	1.15	72.0
70.0	3.60	2.90	2.40	1.90	1.40	1.10	70.0
68.0	3.30	2.80	2.30	1.80	1.35	1.10	68.0
66.0	3.10	2.70	2.20	1.70	1.30	1.05	66.0
64.0	2.90	2.60	2.10	1.60	1.25	1.05	64.0
62.0	2.70	2.50	2.00	1.50	1.20	1.00	62.0
60.0	2.50	2.40	1.90	1.40	1.15	1.00	60.0
58	2.20	2.10	1.80	1.30	1.10	0.95	58.0
56.0	1.90	1.80	1.70	1.25	1.05	0.95	56.0
54.0	1.60	1.55	1.50	1.20	1.00	0.90	54.0
52.0	1.40	1.35	1.30	1.15	0.95	0.90	52.0
50.0	1.20	1.15	1.10	1.10	0.90	0.85	50.0
48.0	1.00	0.95	0.90	0.90	0.85	0.80	48.0
46.0	0.90	0.85	0.80	0.75	0.70		46.0
44.0	0.80	0.75	0.70				44.0
42.0							42.0
40.0							40.0
38.0							38.0
	1						
	5t						

ZOOMLION

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