70t

49m

42m

64.6m

ZOOMLION

TECHNICAL SPECIFICATIONS

ZMC700V532

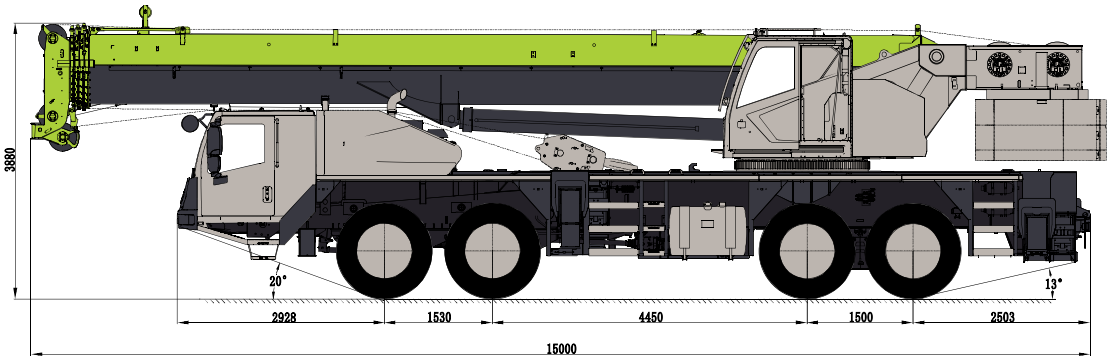
Truck crane

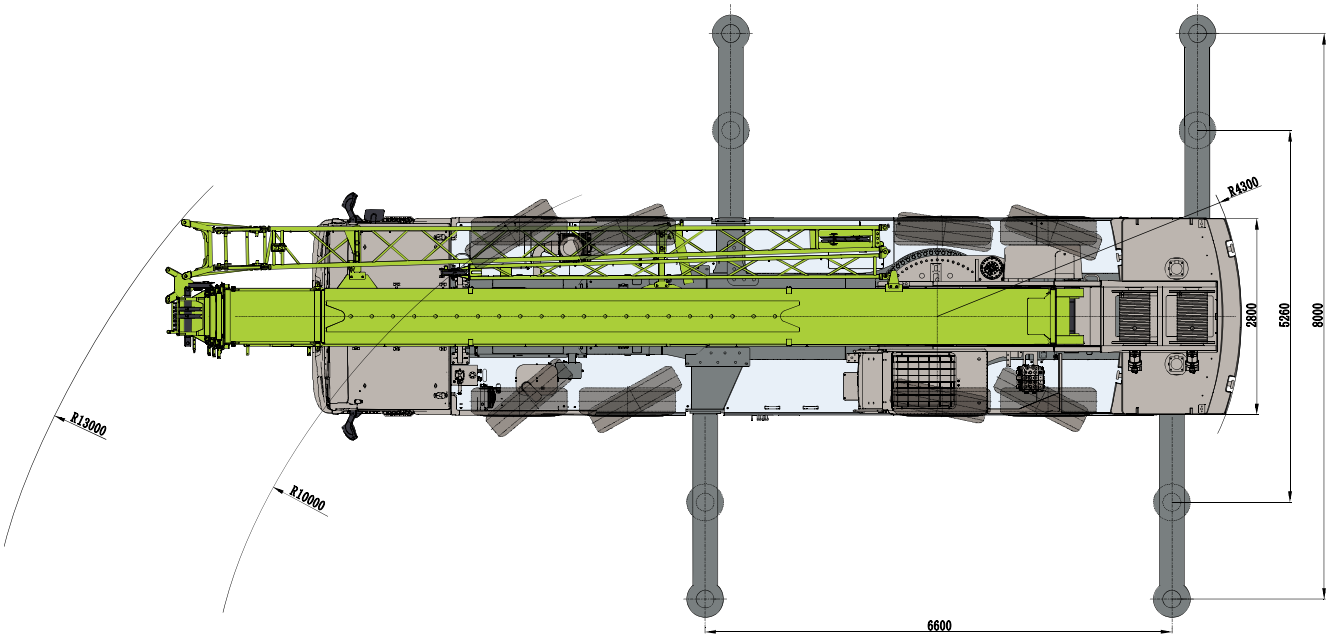
Edition 1 August 2024

Table of Contents

Overall dimensions

Work status (unit: mm)





ZMC700V532 Product introduction

49m

9.5~16m

16t

276/280kw

Major technical parameters

Item			Value	Remarks
Working performance	Max. rated lifting capacity	kg	70000	
	Max. load moment of basic boom	kN.m	2205	
	Max. lifting moment with fully extended boom	kN.m	1411	
	Max. lifting height of basic boom	m	13.6	
	Max. lifting height of boom	m	48.8	These parameters do not include deflection of boom and jib.
	Max. lifting height of jib	m	64.6	
Working speeds	Max. hoist rope speed (main winch)	m/min	140	Drum 4th layer
	Max. hoist rope speed (auxiliary winch)	m/min	140	Drum 4th layer
	Boom derricking up time	s	50	
	Boom telescoping out time	s	110	
	Slewing speed	r/min	0-2	
Driving parameters	Max. operation altitude	m	2000	
	Max. driving speed	km/h	85	
	Max. gradeability	%	45	
	Min. turning diameter	m	20	
	Min. ground clearance	mm	370	
	Fuel consumption per hundred kilometers	L	40	
Masses	Deadweight in driving condition	kg	42500	
	Complete vehicle kerb mass	kg	42370	
	Front axle load	kg	10000	
	Rear axle load	kg	11250	
Dimensions	Overall dimensions (L×W×H)	mm	14920×2800×3840	
	Transversal distance between outriggers	m	Fully extended:8.0	Intermediately extended: 5.26
	Longitudinal distance between outriggers	m	6.4	
	Slewing radius of counterweighttail	m	4300	
	Boom length	m	12.3-48.0	
	Boom angle	°	-2 - 80	
	fixed Jib length	m	9.5、16.0	
	Jib angle	°	0、15、30	

Optional components

No.	Description	Remarks
1	Hook	Standard configuration: 60t (Single hook) , 8t (Single hook) Optional configuration:90t (Anchor hook) , 80t (Single hook) , 70t (Single hook) , 60t (Double hooks) , 35t (Single hook)
2	Pads	Optional
3	Sleeper I	Optional
4	Seat assy.	Optional
5	Solar lights and installation	Optional
6	Spring pin	Optional

Working conditions

Temperature	The ambient temperature range for crane operation is -20℃-40℃.
Wind speed	During operation, the instantaneous wind speed should be taken as the actual one. Wind speed during crane operation should not exceed 14.1 m/s. The wind speed during crane operation (3 s instantaneous wind speed) = average value of wind speed for 10 minutes of 10 m above the ground × conversion coefficient 1.5. If the instantaneous wind speed is greater than the permissible value of 14.1 m/s (beaufort 5), while the crane is in operation, do the tasks that follow: (1) Stop the work (safely lower the load). (2) Retract the boom. (3) Correctly stow the boom.
Altitude	During crane operation, height above sea level should not be higher than 2000 m.

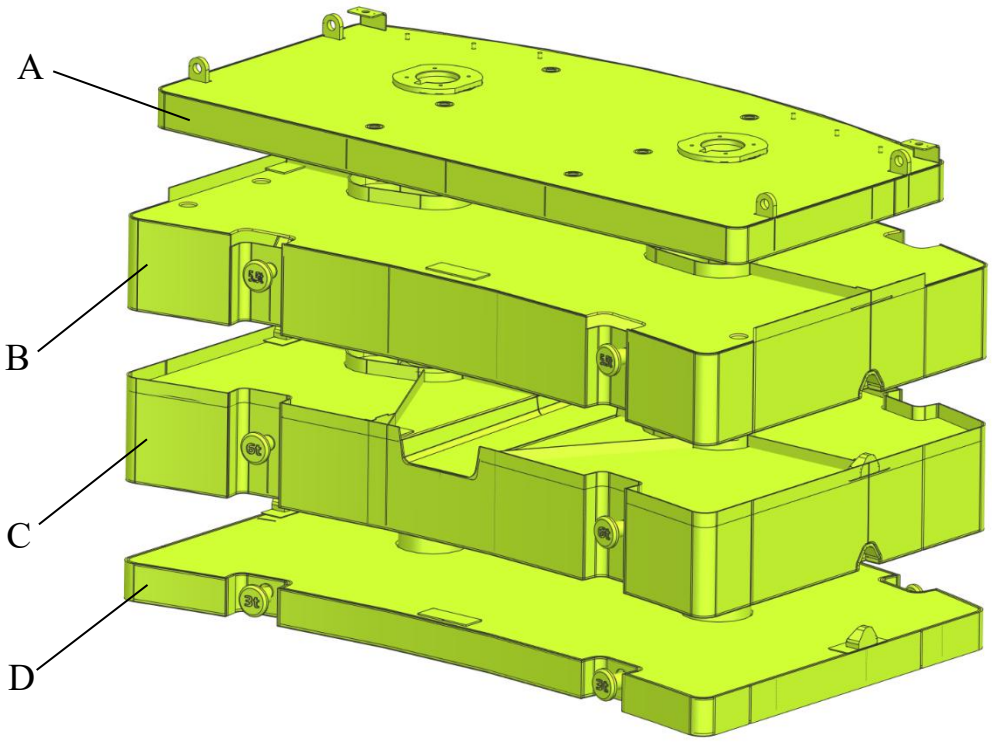
Hook

			
60t	510kg	1500×550×450(mm)	10
90t	1070kg	1700×750×650(mm)	14
80t	685kg	1600×600×520(mm)	13
70t	689kg	1550×560×530(mm)	12
60t	662kg	1400×560×530(mm)	12
35t	380kg	1450×560×350(mm)	6
8t	125kg	800×300×300(mm)	1

Wire rope

			
	17mm	200000mm	6.5t
	17mm	140000mm	6.5t

Counterweight



Description	Mass (t)	Dimensions (m)	Quantity (piece)
A (Fixed counterwrweight)	1.5t	2.8×1.5×0.3	1
B (middle movable counterwrweight I)	5.5t	3×2×0.4	1
C (middle movable counterwrweight II)	6.0t	3×2×0.4	1
D (Lower counterwrweight)	3.0t	3×2×0.9	1

Counterweight combinations

Unit：piece

	A	B	C	D
1.5t	1	0	0	0
4.5t	1	0	0	1
10.5t	1	0	1	1
16.0t	1	1	1	1

Crane configurations

Superstructure

● **Hydraulic system**	Open type, hydraulic-controlled proportional pilot operated, proportional speed control system, the power element is variable pump plus gear pump.
● **Hoist mechanism**	Composed of a hydraulic motor, winch balance valve, duplex winch brake valve, winch reducer, hositing limit switch, lowering limit switch, and wire rope.
● **Derricking mechanism**	One front-mounted hydraulic cylinder with safety balance valve provides the boom with smooth derricking movements from -1° to 80°.
● **Slewing mechanism**	Composed of a hydraulic motor, slewing cushion valve, slewing brake valve, slewing reducer and slewing bearing.
● **Operator's cab**	Steel structure body. Equipped with adjustable seat with headrest, adjustable console, air conditioning for heating and cooling, built-in sunshade, etc. Equipped with pilot control joysticks, windshield wiper and washer.
● **Slewing platform**	Single ribbed plate structured and optimized slewing platform made from high-strength steel plate makes the layout of articulated points of the boom and derricking mechanism more reasonable. It also has a novel style and beautiful figure. The engine hood is of a human-based layout.
● **Counterweight**	Underslung movable counterweight plate combination, and the total weight is 11t (standard configuration). Different movable counterweight plates can be installed by the counterweight handler at the end of the slewing platform according to operating modes.
● **Outriggers**	H-type outriggers, which are in box-shaped structure and welded of low-alloy and high-strength steel plate, are of good sectional performance and strong load bearing capability viafinite element analysis and simulated design. 2-section horizontal outrigger beam can be extended and retracted with a horizontal cylinder and a set of outrigger extension / retraction rope. Large outrigger span ensures stability of the crane. After the outriggers are fully extended or retracted, the outrigger pads can be locked with retaining pins. Manual outrigger control levers are fitted on both sides of the vehicle for controlling the outriggers to extend or retract simultaneously or independently. Each vertical cylinder is equipped with a two-way hydraulic lock to ensure stable and reliable operation of the crane. In addition, the crane also can work with outriggers intermediately extended for narrow area operation.
● **Safety devices**	This crane is equipped with an automatic load moment limiter whose display and warning devices are all fitted in operator's cab. If the actual load reaches 90% of the rated one, the warning light lights up and the buzzer sends out slow acoustic warning. If the actual load approaches 100% of the rated one, the warning light lights up, the buzzer sends out fast acoustic warning and all dangerous movements are

	switched off. The basic parameters, such as moment ratio, boom angle, boom length, working radius, actual lifting capacity, maximum permissible lifting capacity and actuallifting height will be displayed on the digital LCD. This crane is also equipped with the following safety devices to ensure the crane safety: a) Hoisting limit switch b) Hook safety device c) Lowering limit switch d) 5th outrigger overpressure protection device e) Two-way hydraulic lock f) Balance valve g) Relief valve
● Boom and telescoping mechanism	The boom consists of one basic boom and four telescopic booms, and the cylinder is made of low alloy high-strength steel, possessing good bending resistance. The boom structure adopts embedded slider, and at the same time adopts the slider compensation technology, which improves the guiding and lifting performance of the boom. Two telescopic cylinders with synchronized telescopic mechanism complete the free telescoping of the boom.
● Jib	It consists of two jib sections. They are folded on the side of boom when not used and can be installed and removed by inserted pins. The two jib sections are of a reducing and lattice structure. Jib section 1 is articulated on the head of top boom section with pins and can be assembled below an angle of 0°, 15° or 30° to the telescopic boom according to your needs. The angle can be conveniently changed via the pins and pull bracket. Jib length: Jib section 1: 9.5 m Jib section 1 + jib section 2: 16 m
● Rooster sheave	It is secured at the outside of the boom head when it is not used. It can be rotated around the shaft and pinned onto the boom head when it is used. This option is set up for rapid hoists over the boom head to improve the working efficiency when the loads are light.
● Main and auxiliary hooks	Main hook: 55 t, with 6 pulleys, installed with a mounting lug at the end of the wire rope and an anti-slipping and anti-rotation hook latch Auxiliary hook (1 reeving): 5 t, installed with an anti-twist and anti-slipping hook latch
● Electrical system	Adopting two-wire system, the power supply is 24V DC, and the whole electrical system is composed of the chassis electrical system and the superstructure electrical system. The superstructure electrical system mainly includes hoisting and lowering limit swtiches, overloading control, emergency stop control, signal indication, etc. The above devices ensure that the crane has excellent safety performance and a good working environment. The chassis electrical system mainly includes: MP3 player, air conditioner and cab heater, etc. The above devices ensure that the crane has excellent driving performance and comfortable driving environment.

Chassis

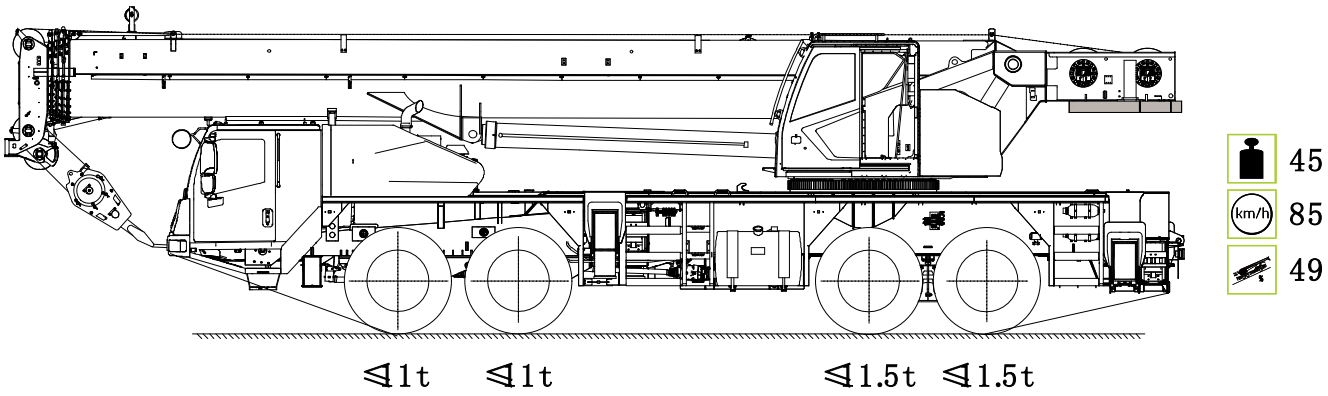
● **Engine**	Specialized high-pressure common rail electric injection diesel engine for construction machinery conforming to Brazilian MAR-1 emission standard. Large torque ouput at engine startup, superior start-off performance and fast acceleration. The turbocharger effectively ensures large torque at low engine speed, and greatly improves dynamic performance at low speed and overall gradeablity. Low exhaust temperature at low engine speed can effectively lengthen service life of the engine. Electric injection guarantees high fuel economy.
● **Clutch**	Single Dry Clutch.
● **Transmission**	Mechanical 10-speed transmission with locking pin synchronizers in both the main and secondary cases, with transverse teeth output.
● **PTO**	Rated output torque: 700N/m; output mode: flange connection, output flange rotation and engine rotation is of the same direction; rear-mounted power take-off, installed on the intermediate shaft at the bottom of the tranmission; manual pneumatic maneuvering.
● **Propeller shaft**	Styre series open-type propeller shaft assy., which consists of two sections, and is with contrate gear on the flange.
● **Chassis frame**	It adopts a box-type structure with high loading and anti-twisting capacity, and the material is high-strength structural steel plate.
● **Wheels and tires**	Special wheel rim and inflated tires Size: 385/95R25.
● **Steering system**	Mechanically controlled steering for Axle 1 and 2, electro-hydraulic proportional control steering for Axle 3 and 4, dual-channel steering colum; dual cylinder power steering for a single axle.
● **Suspension**	Transverally installed leaf spring suspension for the front axle, and rubber suspension for the rear axle.
● **Braking System**	It consists of a traveling brake (foot brake), a parking or emergency brake (hand brake) and an auxiliary brake. The traveling brake is a double circuit pneumatic brake, acting on all wheel hubs; the parking or emergency brake is a spring brake, acting on the hubs of the second, third and fourth axles; the auxiliary brake is the engine exhaust and VVEB.
● **Electrical system**	Two N200-type battery connected in series (each voltage 12V), using a single-wire system, the metal itself (negative) is used as the return line, and the negative is grounded through the main power switch, which composes of 24V output voltage; The standard generator is an integrated AC generator with voltage regulating function. , Tthe output power is 2kW; Combination lamps and rear fog lamps are installed; the cab instrument console uses a combination of instruments; The plugs and connectors of all electrical components are imported.
●**Driver's cab**	Low-mounted full-width driver's cab of a steel structure. The front instrument condole, adjustable steering wheel and electric windows at the two sides, adjustable hydraulic damping seat, AC for both heating and cooling, and sun

	visor provide the driver with comfortable environment.

Travelling mode

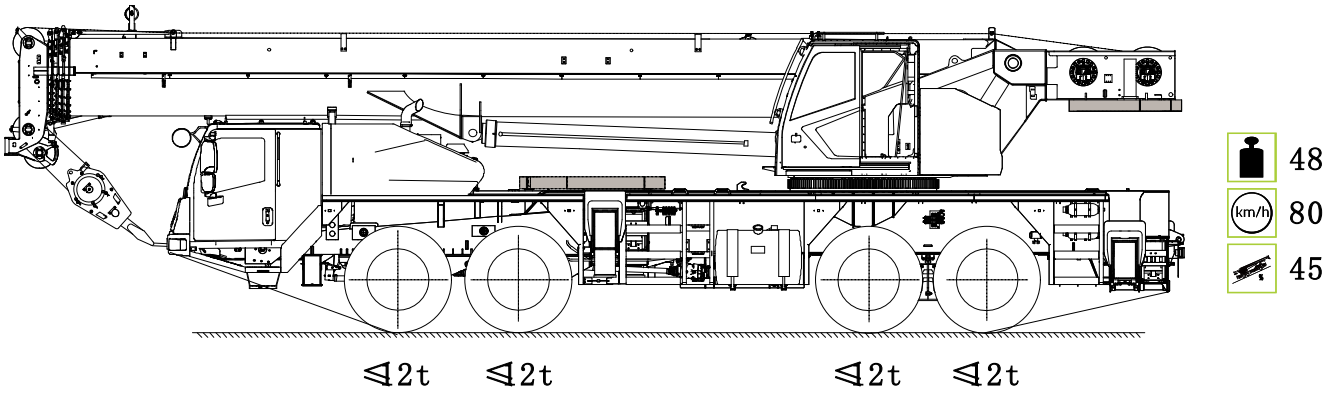
①The total mass of the whole crane is 45t:

With 1.5 tons fixed counterweight, jib, auxiliary hook, main hook, outriggers, and without spare tire, the crane can travel at its highest speed.



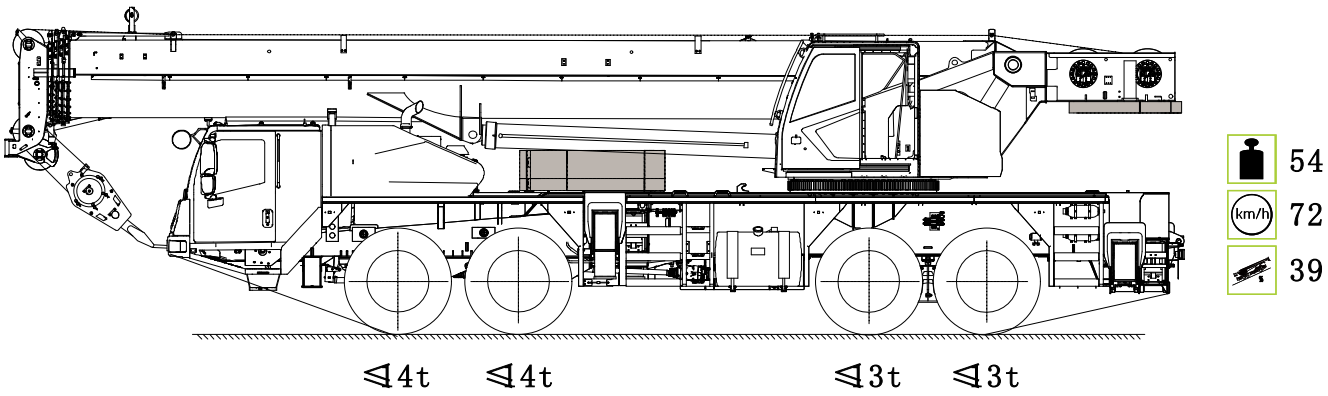
②The total mass of the whole crane is 48t:

With 1.5 tons fixed counterweight + 3 tons lower movable counterweight, jib, jib hook, main hook, footplate, without spare tire, in which the bottom counterweight is placed at the counterweight mounting seat, the crane can travel at its highest speed of 80km/h;



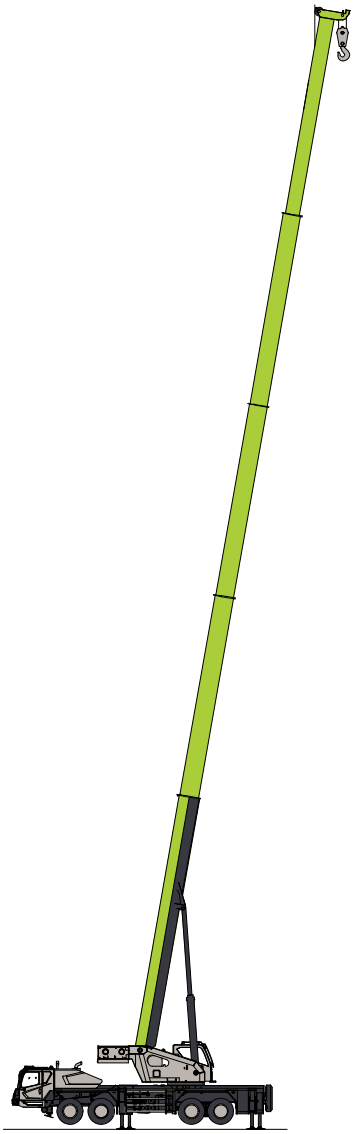
③The total mass of the whole crane is 54t:

With 1.5 tons of fixed counterweight + 3 tons of lower movable counterweight + 6 tons of middle movable counterweight, jib, jib hook, main hook, footplate, without spare tire, in which the bottom counterweight and middle movable counterweight are placed at the counterweight mounting seat, the crane can travel at the highest speed of 72km/h;

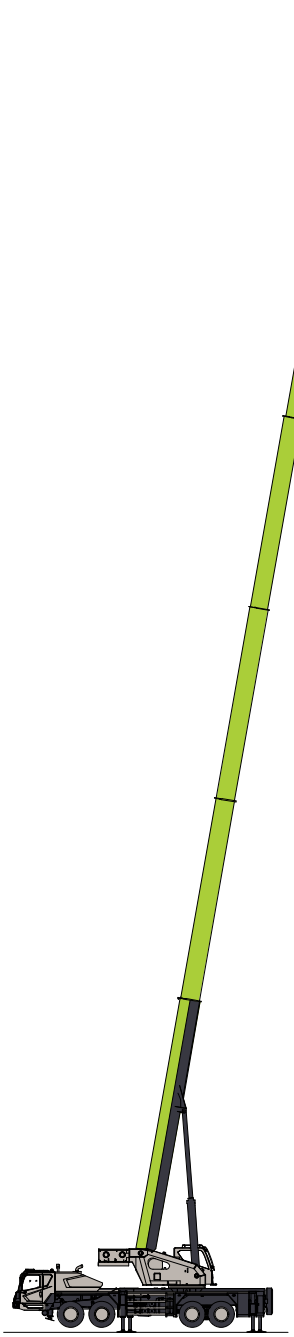


OM combinations

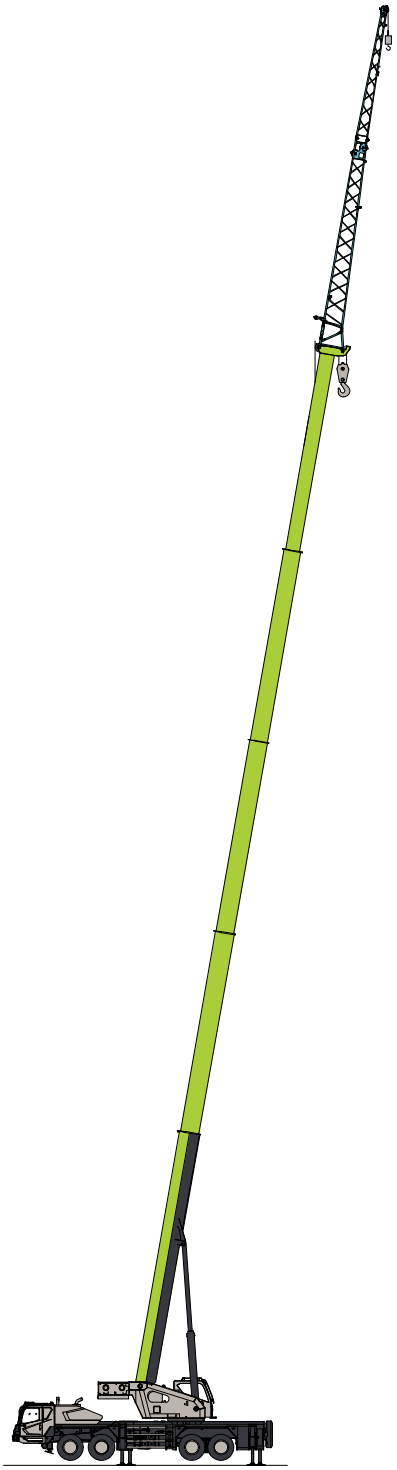
T Boom
S Jib



T7



T7F



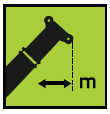
T7F2

OM with fixed jib

Jib-9.5m	
Jib-16.0m	

Lifting height charts + rated capacity chart

Ilustration for rated capacities

Ilustration	Description
	OM with boom only
	OM with boom and jib
	Working radius
	Full range slewing
	Boom angle

Ilustration	Description
	Outriggers fully extended
	Outriggers intermediately extended
	Counterweight mass
	Max. reevings
	Hook lifting capacity

1 For rated capacities exceeding 78t, a special device should be used to increase the reeving number, and other hook satisfying the need should be used. The reeving number should be 14 for a rated capacity of 90t.

2 Overloading is strictly prohibited under any circumstance. Pay special attention when operating with light counterweight or intermediately extended outriggers.

3 Working under overspeed wind is strictly prohibited;

4 Lateral sunlight will result in expansion at single side, which will influence straightness of the boom to some extent.

5 The hook and reeving for a single OM is the largest spec (except for OMs with a special device installed). Therefore select and use a suitable hook and reeving factor, so as to reduce single rope tension and rope damage risk.

6 The outriggers should be fully or intermediately extended for all rated capacitieis. It is prohibited to lift a load when the outriggers are not extended.

7 When the 5th outrigger is extended, the values in the charts are applicable to 360-degree working range. When the 5th outrigger is not extended, lifting over the front working area is prohibited.

8 The values given in the rated capacity charts are the max. permissible lifting capacities under various OMs and specified operating conditions. The values as given in the tables include the mass of the hook (main hook: 550 kg, auxiliary hook: 125 kg) and slings
Rated capacity = the actual lifting capacity of the crane + mass of the hook and slings

9 The working radius is the horizontal gravity center distance of the hook block from the rotational axis of the crane superstructure measured at the ground. The radius stated is valid under load conditions.

10 When a boom length or working radius is between two values in the chart, the rated capacity

should be determined using the interpolation method. The rated capacity displayed in the load moment limiter is for reference only.

11 If the jib or extension is mounted on the boom head during boom operation, the possible load should be subtracted by the mass of the slings and a further 2300 kg.

12 The maximum lifting capacity for the rooster sheave is 5000 kg. If the rated lifting capacity found out in the rated capacity chart is less than 5000 kg according to the actual working conditions, the lifting capacity found out in the table should be referred to.

For example:

The rated lifting capacity is 5000 kg when the crane is working with 30.7ong boom under 22 m working radius.

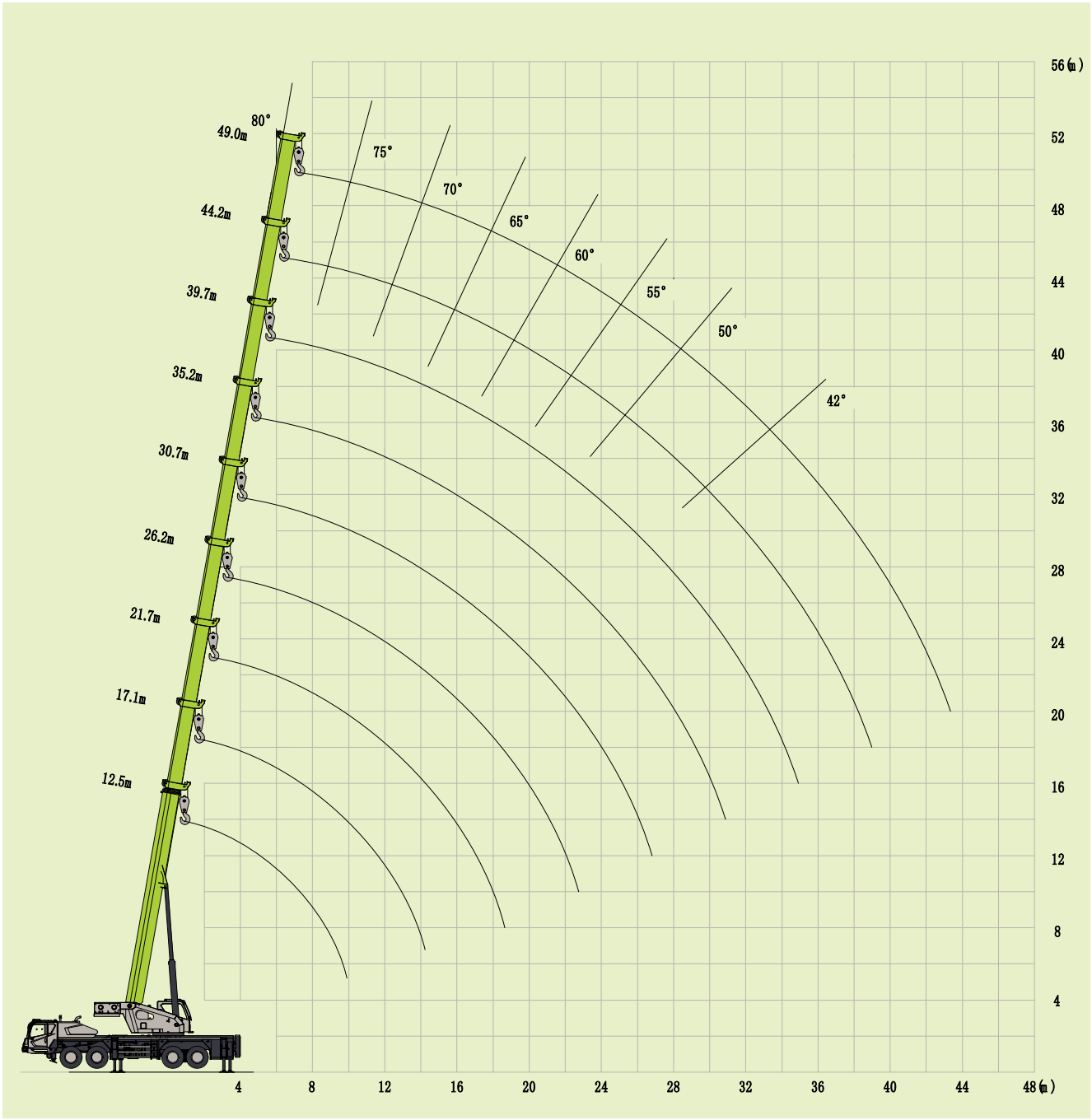
The rated lifting capacity is 3700kg if the crane is working with 39.7 long boom under 30 m working radius.

13 During operation, do not lift a load with both the main hook and auxiliary hook simultaneously.

14 The liftingheight charts do not take working radius and height changes cause by boom deflection into consideration.

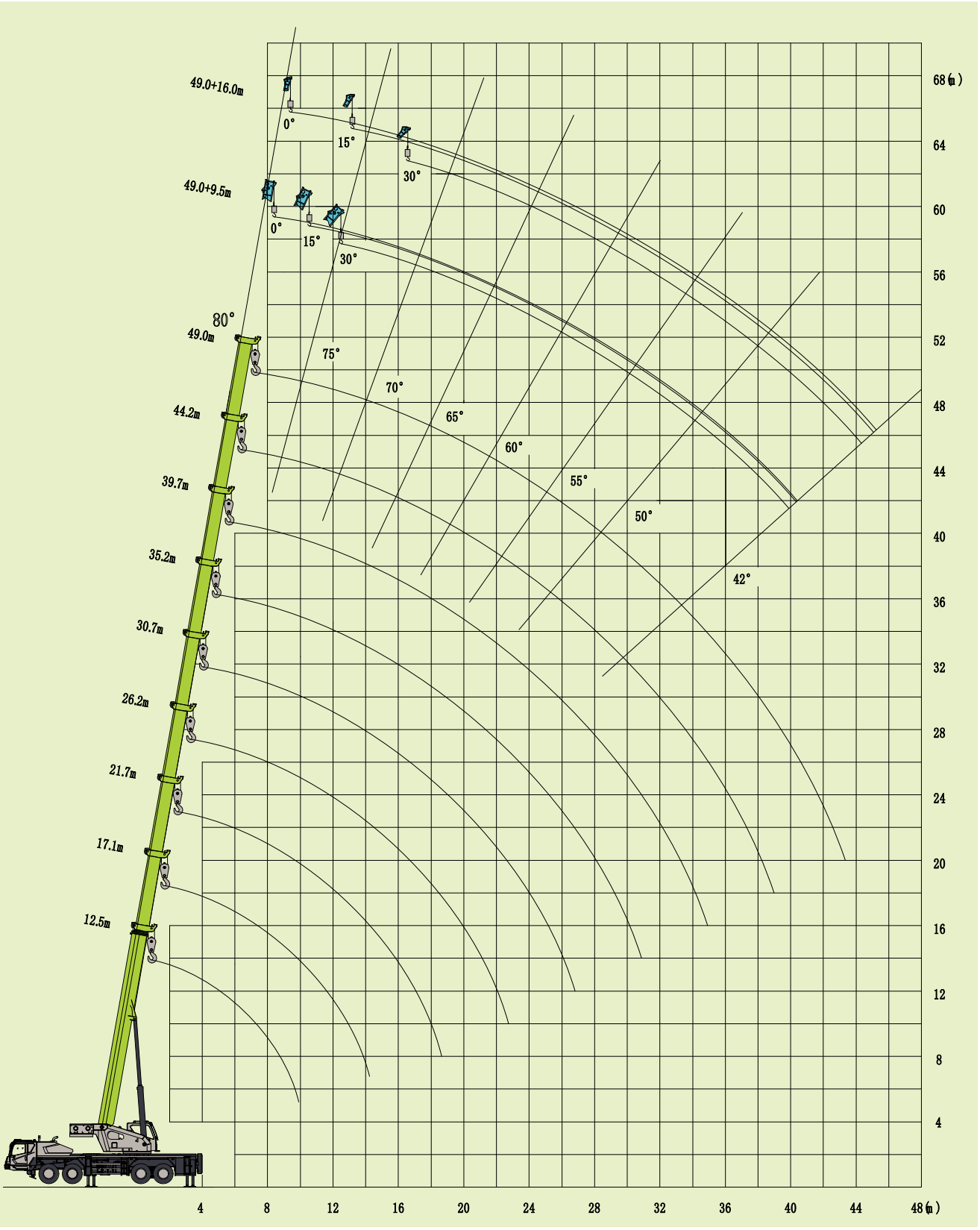
WARNING: When the boom length exceeds 30m, even if the hook is unloaded, derricking must be operated in strict accordance with the lifting height chart, otherwise it will cause overturning accidents.

Lifting height chart T



m	12.3	16.9	21.4	28.0	34.6	41.2	48.0	44.2	49.0	m
3	70.0	50.0	40.0							3
3.5	60.0	50.0	40.0							3.5
4	55.0	50.0	40.0							4
4.5	50.0	45.0	40.0	30.0						4.5
5	45.0	43.5	40.0	30.0						5
5.5	40.0	39.5	38.0	30.0						5.5
6	36.5	36.0	34.0	30.0	24.5					6
7	30.5	30.0	30.0	29.0	24.0					7
8	26.0	26.0	25.5	26.5	22.0	17.3				8
9	23.0	22.5	22.0	23.0	20.5	16.3				9
10		19.5	19.5	20.5	18.8	15.2	11.5			10
11		17.5	17.0	18.0	17.2	14.3	11			11
12		15.5	15.0	16.0	16.0	13.4	10.5			12
13		13.0	13.0	14.1	14.6	12.5	10.2			13
14			10.8	12.2	13.0	11.8	9.9			14
15			9.3	10.6	11.4	11.0	9.4			15
16			8.1	9.3	10.1	10.1	8.9			16
18			6.0	7.2	7.9	8.5	8			18
20				5.7	6.3	6.9	7.0			20
22				4.5	5.1	5.6	6.0			22
24				3.5	4.1	4.6	5.0			24
26					3.3	3.8	4.2			26
28					2.6	3.1	3.5			28
30					2.1	2.5	2.9			30
32						2.0	2.4			32
34						1.6	2.0			34
36						1.2	1.6			36
38							1.3			38
40							1.0			40
42							0.7			42
I	0	4..6	9.1	9.1	9.1	9.1	9.1			I
II	0	0	0	6.6	13.2	19.8	26.6			II
	12	10	8	6	5	4	3			
	55t									

Lifting height chart TF2



	48.0+9.5			48.0+16.0			
	0°	15°	30°	0°	15°	30°	
80	5.00	3.30	2.50	3.00	2.00	1.50	80
78	5.00	3.30	2.50	3.00	2.00	1.50	78
76	4.80	3.20	2.50	2.90	1.90	1.40	76
74	4.80	3.20	2.50	2.70	1.80	1.40	74
72	4.30	3.00	2.50	2.50	1.70	1.30	72
70	4.10	2.90	2.40	2.30	1.70	1.30	70
68	3.60	2.80	2.30	2.10	1.60	1.30	68
66	3.30	2.60	2.20	2.00	1.60	1.20	66
64	3.10	2.50	2.10	1.90	1.50	1.20	64
62	2.60	2.40	2.00	1.80	1.50	1.20	62
60	2.20	2.10	2.00	1.70	1.40	1.20	60
58	1.90	1.70	1.70	1.60	1.40	1.10	58
56	1.50	1.40	1.40	1.30	1.20	1.10	56
54	1.30	1.20	1.10	1.00	0.95	0.90	54
52	1.00	0.95	0.90	0.90	0.80	0.70	52
50	0.80	0.75	0.70	0.70	0.65	0.60	50
	1						
	5t						