

# ZOOMLION ROUGH TERRAIN CRANE ZRT900V532-1



**ZOOMLION**

**Zoomlion Heavy Industry Science & Technology Co.,Ltd.**

**Add: No.677, Lugu Road, Zoomlion Industrial Park, Changsha, Hunan, China, 410205**

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**4.0**  
PRODUCTS



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## PRODUCT INTRODUCTION

ZRT900V532-1 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.

ZRT900V532-1 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: 90 ton at 2.5 m working radius.

Max. lifting height: 65.7m.

Max. driving speed: 37 km/h.

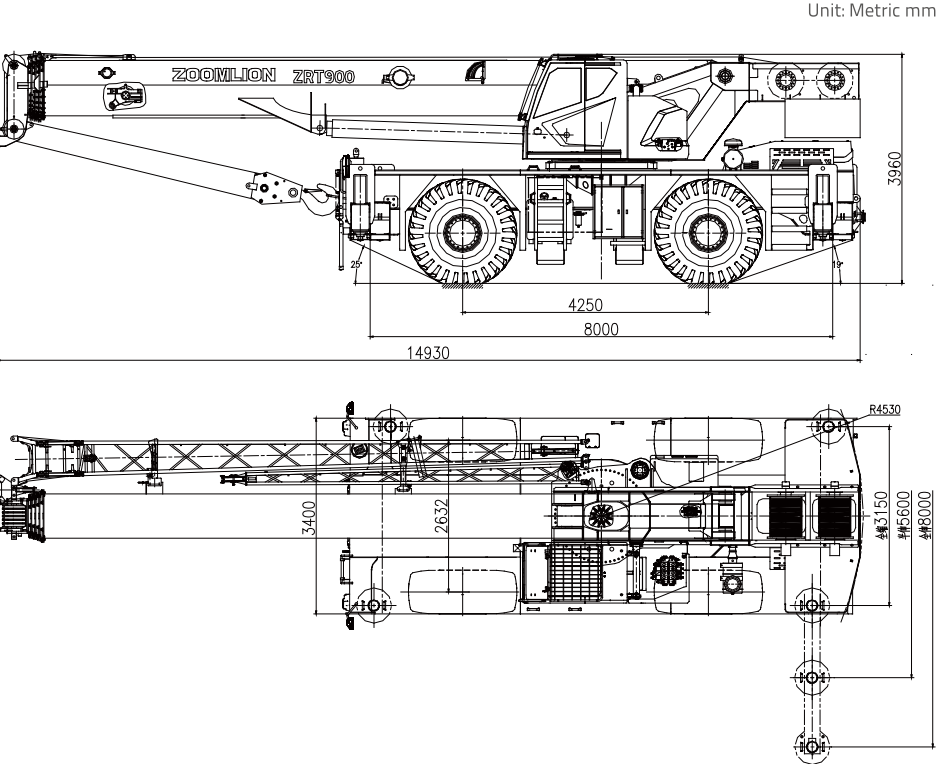
Overall dimensions: 14930 mm x3400 mm x3960mm.

Deadweight: 51 tons.

Ability to pick-and carry loads.

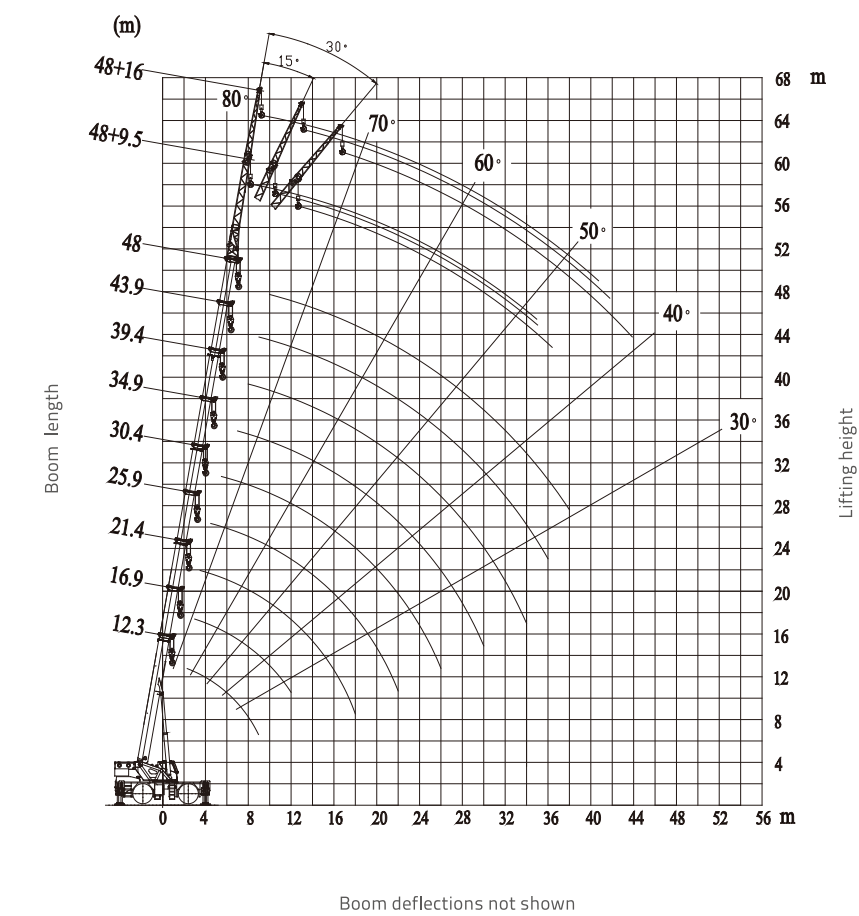
Ability to travel on rough terrains.

## DIMENSIONS



LIFTING HEIGHT CURVE

Lifting height chart on outriggers fully extended with jib installed



LIFTING CAPACITY TABLES

Rated capacity chart with boom on outriggers fully extended

Working radius (m)	TELESCOPIC CYLINDER I FULLY EXTENDED, outriggers fully extended, 8.8t counterweight								
	12,3	16,9	21,4	25,9	30,4	34,9	39,4	43,9	48
2.5	90000*								
3.0	85000*	58000							
3.5	75000*	58000	45000						
4.0	68000	55000	45000						
4.5	63000	54000	45000	31000					
5.0	58000	52500	43200	31000					
5.5	53000	50500	41200	31000	28500				
6.0	50200	47500	39200	31000	28500				
7.0	42000	39500	35200	30000	28000	24500			
8.0	35500	33500	31200	27500	26000	22000	19500		
9.0	27500	27200	26500	25500	23500	21000	18300	15800	
10.0		21600	21500	21500	21500	19000	17000	15000	11800
11.0		17800	17500	17800	18000	17500	15800	14000	11600
12.0		15000	14500	14800	15500	16500	14600	13000	11600
14.0			10500	10800	12000	12000	12600	11500	10300
16.0			7700	8200	9200	9600	9800	10000	9400
18.0			5500	6200	7200	7700	8000	8100	8500
20.0				4800	5700	6100	6400	6600	7000
22.0				3700	4500	4800	5300	5500	5700
24.0					3500	3900	4300	4500	4600
26.0					2700	3100	3500	3700	3800
28.0						2400	2800	3000	3200
30.0						1800	2300	2500	2700
32.0							1800	2000	2200
34.0							1300	1500	1700
36.0								1100	1300
38.0									1000
I	0	4,6	9,1	9,1	9,1	9,1	9,1	9,1	9,1
II	0	0	0	4,5	9,0	13,5	18,0	22,5	26,6
Reeving	12	10	8	6	6	5	4	3	3
Hook	70t								

LIFTING CAPACITY TABLES

Rated capacity chart with boom on outriggers fully extended

Working radius (m)	TELESCOPIC CYLINDER I INTERMEDIATELY EXTENDED, outriggers fully extended, 8.8t counterweight								
	12,3	16,9	21,4	25,9	30,4	34,9	39,4	43,5	
2.5	90000*								
3.0	85000*	58000							
3.5	75000*	58000	31000						
4.0	68000	55000	31000						
4.5	63000	54000	31000	30000					
5.0	58000	52500	31000	30000	26500				
5.5	53000	50500	31000	30000	26500				
6.0	50200	47500	31000	30000	26500				
7.0	42000	39500	31000	30000	26500	21000			
8.0	35500	33500	27000	28500	26500	20000	17000		
9.0	27500	27200	24000	25000	26000	18500	16000	13000	
10.0		21600	21000	22000	24000	17500	15000	12500	
11.0		17800	18000	19000	20000	16500	14000	12000	
12.0		15000	15000	16000	17000	15300	13000	11500	
14.0			11000	12500	12800	13300	11300	10000	
16.0			8500	9800	10000	10000	10000	9000	
18.0				7600	8000	8300	8500	8000	
20.0				6000	6500	6700	7000	7200	
22.0				4800	5100	5500	5800	5900	
24.0					4200	4500	4800	5000	
26.0					3400	3800	4000	4200	
28.0						3000	3300	3500	
30.0						2500	2800	3000	
32.0							2200	2500	
34.0							1500	2000	
36.0								1700	
38.0								1300	
I	0	4,6	4,6	4,6	4,6	4,6	4,6	4,6	
II	0	0	4,5	9,0	13,5	18,0	22,5	26,6	
Reeving	12	10	6	6	5	4	3	3	
Hook	70t								


Rated capacity chart with boom on outriggers fully extended

Working radius (m)	TELESCOPIC CYLINDER I FULLY RETRACTED, outriggers fully extended, 8.8t counterweight						
	12,3	16,8	21,3	25,8	30,3	34,8	38,9
2.5	90000*						
3.0	85000*	31000					
3.5	75000*	31000	30000				
4.0	68000	31000	30000				
4.5	63000	31000	30000	26500			
5.0	58000	31000	30000	26500	21000		
5.5	53000	31000	30000	26500	21000		
6.0	50200	31000	30000	26500	21000		
7.0	42000	30500	30000	26500	19500	17000	
8.0	35500	28000	28000	24500	18000	16500	13500
9.0	27500	26000	26500	22500	16800	15000	13200
10.0		22000	22000	20500	15500	14000	12700
11.0		19000	19500	19000	14200	13000	12000
12.0		16000	17500	17500	13200	12000	11000
14.0			13200	13500	11500	10500	9500
16.0			10500	10800	10000	9200	8400
18.0				8600	9000	8200	7500
20.0				7000	7500	7300	6600
22.0					6200	6200	6000
24.0					5200	5200	5400
26.0					4200	4300	4600
28.0						3500	4000
30.0						3000	3500
32.0							2800
34.0							2300
I	0	0	0	0	0	0	0
II	0	4,5	9,0	13,5	18,0	22,5	26,6
Reeving	12	6	6	5	4	3	3
Hook	70t						




LIFTING CAPACITY TABLES

Rated capacity chart with boom + 9.5m jib on outriggers fully extended



BOOM+9.5M JIB


360° slewing  
(UNIT: KG)



OUTRIGGERS FULLY  
EXTENDED

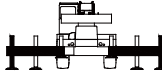
Boom angle (°)	Outriggers fully extended, 8.8t counterweight		
	0°	15°	30°
80	5000	3300	2500
78	5000	3300	2500
76	4800	3200	2500
74	4500	3100	2500
72	4200	3000	2500
70	3900	2900	2400
68	3600	2800	2300
66	3400	2600	2200
64	3200	2500	2000
62	2900	2400	1950
60	2500	2100	1900
58	2200	1800	1700
56	1900	1500	1500
54	1600	1300	1200
52	1400	1100	1000
50	1200	900	
48	900		
Reeving	1		
Hook	6.5t		

Rated capacity chart with boom + 16m jib on outriggers fully extended



BOOM+16M JIB

360° slewing  
(UNIT: KG)



OUTRIGGERS FULLY  
EXTENDED

Boom angle (°)	Outriggers fully extended, 8.8t counterweight		
	0°	15°	30°
80	3000	2000	1500
78	3000	2000	1450
76	2800	1900	1400
74	2600	1800	1350
72	2400	1700	1300
70	2200	1650	1250
68	2100	1600	1250
66	2000	1550	1200
64	1900	1500	1200
62	1800	1450	1150
60	1700	1400	1100
58	1500	1350	1050
56	1300	1200	1000
54	1200	1100	950
52	1000	900	
50	800		
Reeving	1		
Hook	6.5t		

LIFTING CAPACITY TABLES

Rated capacity chart on tires


Boom length(m)	12.3		16.8		21.3		25.8	
Working radius(m)	360°	Travel over front	360°	Travel over front	360°	Travel over front	360°	Travel over front
4,0	14000	14300						
4,5	12300	12800						
5,0	10400	11300	11000	11000				
5,5	8600	10000	9500	9800				
6	7200	9200	8000	9000	8500	8500		
7	5200	7500	6000	7000	6200	7500	6500	7500
8	3800	6000	4500	5500	5000	5600	5000	5800
9	2700	4000	3500	4300	4000	4400	4000	4500
10			2500	3700	3000	4000	3100	4000
11			2000	3000	2300	3200	2500	3300
12			1500	2300	1800	2300	2000	2500
14				1200	1000	1500	1000	1600
16						900		1000
I	0		0		0		0	
II	0		4,5		9		13,5	
Reeving	4		4		4		4	
Hook	70t							

Note: 360° working range is applicable to crane standstill.

NOTES

- a)A 90t hook should be used for OMs marked with \*, and an additional device should be installed.
- b)Crane load ratings are based on the crane being leveled and standing on a firm and uniform supporting surface.
- c)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.
- 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 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)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.
- j)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.
- k)The load should be restrained from swinging.
- l)Creep speed is crane movement of less than 200 ft (61 m) in 30-minutes period and not exceeding 1 mph (1,6 km/h).
- m)Consult appropriate section of the Operator's Manual for more exact description of hoist line reeving.
- n)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.
- o)Properly maintained wire rope is essential for safe crane operation. Consult the Operator's Manual and Maintenance Manual for proper maintenance and inspection requirements.
- p)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.

SPECIFICATIONS, SUPERSTRUCTURE




**BOOM AND TELESCOPING MECHANISM**

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.

Min. boom length (with telescopic sections completely retracted): 12300mm.

Max. boom length (with telescopic sections completely extended): 48000mm.

Min. telescoping out time:110 s.




**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.

Angle: 0°, 15° and 30° .

Jib length: 9.5m, 16 m.



**HOIST MECHANISM**

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 is optional.

Wire rope.

High strength wire rope.

Max. hoist rope tensile force: 6500 kg.

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

Rope diameter: Φ20 mm.

Main winch rope length: 260 m.


Auxiliary winch rope length: 140m

Hook block

Rotatable main hook: 70 t, with 6 pulleys and a hook latch, secured at the chassis frame in front of slewing table.

Rotatable auxiliary hook: 6.5 t, with a hook latch, used with the rooster sheave and jib, secured at the auxiliary hook holder on the chassis frame.

Rotatable hook: 90 t (optional), with 6 pulleys and a hook latch, secured at the chassis frame in front of the slewing table.




**DERRICKING MECHANISM**

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

Derricking angle range: -1° - 80°.

Derricking speed: ~1° - 80° /55s.



**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.


Hydraulically controlled usually-closed brake realizes controlled slewing function of the slewing mechanism.

Slewing speed: 0 - 2r/min.



**TURNTABLE**

The turntable adopts a wall plate structure.



**HYDRAULIC SYSTEM**

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.

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 1000 L.

The return oil filter can eliminate bubbles. The filtering accuracy is 12µm.

SPECIFICATIONS, SUPERSTRUCTURE




**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.

Derricking and telescoping movements can be executed simultaneously.



**CAB**

There is only one cab for ZRT900 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.


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: 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): 8000mm

Outrigger spread (Width): 8000 mm (fully extended).

5600 mm (half extended).


3150 mm (fully retracted).



**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.

Performance

Max. output power: 194 KW / 2200 RPM (Dongfeng Cummins).

194 KW / 2400 RPM (US Cummins).

Max. output torque: 990 Nm / 1500 RPM.

SPECIFICATIONS, SPECIAL PURPOSE CHASSIS FOR ROUGH TERRAIN CRANE

DRIVE SYSTEM

Front axle  
Steering and driving axle, rigidly 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: rigidly mounted to the chassis frame .  
Rear axle: a swing axle, connecting to the chassis frame via a hydraulic suspension cylinder.

BRAKE SYSTEM

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

ELECTRIC SYSTEM

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

Fuel tank

Capacity: 300 L .

TIRE

Size: 29,5-25-34PR .

SAFETY DEVICE

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 braking mechanism.  
Slewing lockout device.  
Boom angle indicator.  
Outrigger beam retaining pin.  
Emergency stop button.

TECHNICAL PARAMETERS

Type	Item	Unit	Value
Working performance	Max. rated lifting capacity × working radius	kg.m	90000×2.5
	Max. load moment of the boom	kN.m	2950
	Max. load moment of the boom (fully extended)	kN.m	1500
	Max. lifting height of the boom (fully extended)	m	49
	Max. lifting height of the jib	m	65.7
Dimensions	Overall dimensions (L × W × H)	mm	14930×3400×3960
	Outrigger spread(Height × Width)	mm	8000×8000
	Boom length	mm	12300-48000
	Jib length	mm	9500, 16000
	Boom angle	°	-1-80
	Slewing range		360° unlimited slewing (Full range)
Working speeds	Max. hoist rope speed (Main winch)	m/min	145
	Min. boom telescoping out time	s	110
	Min. boom telescoping in time	s	120
	Min. boom derricking up time	s	55
	Min. boom derricking down time	s	75
	Slewing speed	r/min	0-2
Hydraulic system	Maximum working pressure	MPa	28
	Rate working flow	L/min	320
	Hydraulic oil tank capacity	L	1000
Gross vehicle mass	Gross weight	kg	51000
	Front weight	kg	25200
	Rear weight	kg	25800
Driving	Max. driving speed	km/h	37/37
	Wheelbase	mm	4250
	Treads(Front / Rear)	mm	2632
	Max. gradeability	%	65% (for Hande axles) / 75% (for Meritor axles)

MAINPARTSTABLE

Type	Item	Unit	Main configuration
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/r/min	194KW/2200rpm (Dongfeng Cummins) 194KW/2400rpm (US Cummins)
	Engine rated torque	N.m/r/min	990N.m/1500rpm
	Fuel tank capacity		300 L
Drive system	Transmission drive mode		4×2, 4×4
	Model or brand of transmission		ZF
	Transmission gear stage		6 forward and 3 reverse speeds
Travel system	Suspension		Rigid (front) / Flexible (rear)
	Model or brand of axles		Hande/Meritor
	Steering mode		2-wheel steering (front wheels) 2-wheel steering (rear wheels) 4-wheel steering Crab steering
	Tire size		29.5-25-34PR
	Tire number		4
Electrical system	Rated capacity indicator		ZOOMLION/HIRSCHMANN
Emission			TIII