

SANY[®]

SPECIFICATION



160t



74.8m



87.9m/103.9m* (*optional)

SAC1600T7

SANY ALL TERRAIN CRANE

QUALITY CHANGES THE WORLD

www.sanyglobal.com

It is one of the core business units in SANY Group, specializing in the development and manufacturing of high-end wheel cranes, crawler cranes and tower cranes.

BETTER WORLD, BETTER SANY CRANE

SANY CRANE

QUALITY CHANGES THE WORLD



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SAC1600T7

**SANY ALL TERRAIN CRANE
160 TON LIFTING CAPACITY**

7-section oval shape 74.8m boom, max. lifting moment 550t.m, standard 18m jib (8m*2 extensions optional), ensuring unmatched lifting range, height and capacity.

Double engine drive: DF Cummins QSB6.7-C260 powering crane operation, fuel consumption lowered by 30% than hydraulic single engine system.

Mercedes Benz engine + ZF automatic transmission + Kessler transfer case + Kessler axles, max. speed 80km/h, max. gradient 46%.

5-axle all-terrain chassis, H-type outriggers, hydro-pneumatic suspension, all-wheel steering, 6 steering modes. The min. steering radius is as small as 8.8m, delivering 15% higher flexibility among same class in industry.

53t full counterweight, traveling with 20.5t counterweight allowed with well distributed axle load. Crane harness wiring of higher reliability.



**Double
engine drive**

74.8m

Full-extension boom

46%

Max. gradeability

80km/h

Max. travel speed





i-Cab - Driver's cab

Multi-function seat with air suspension, making driving more comfortable.

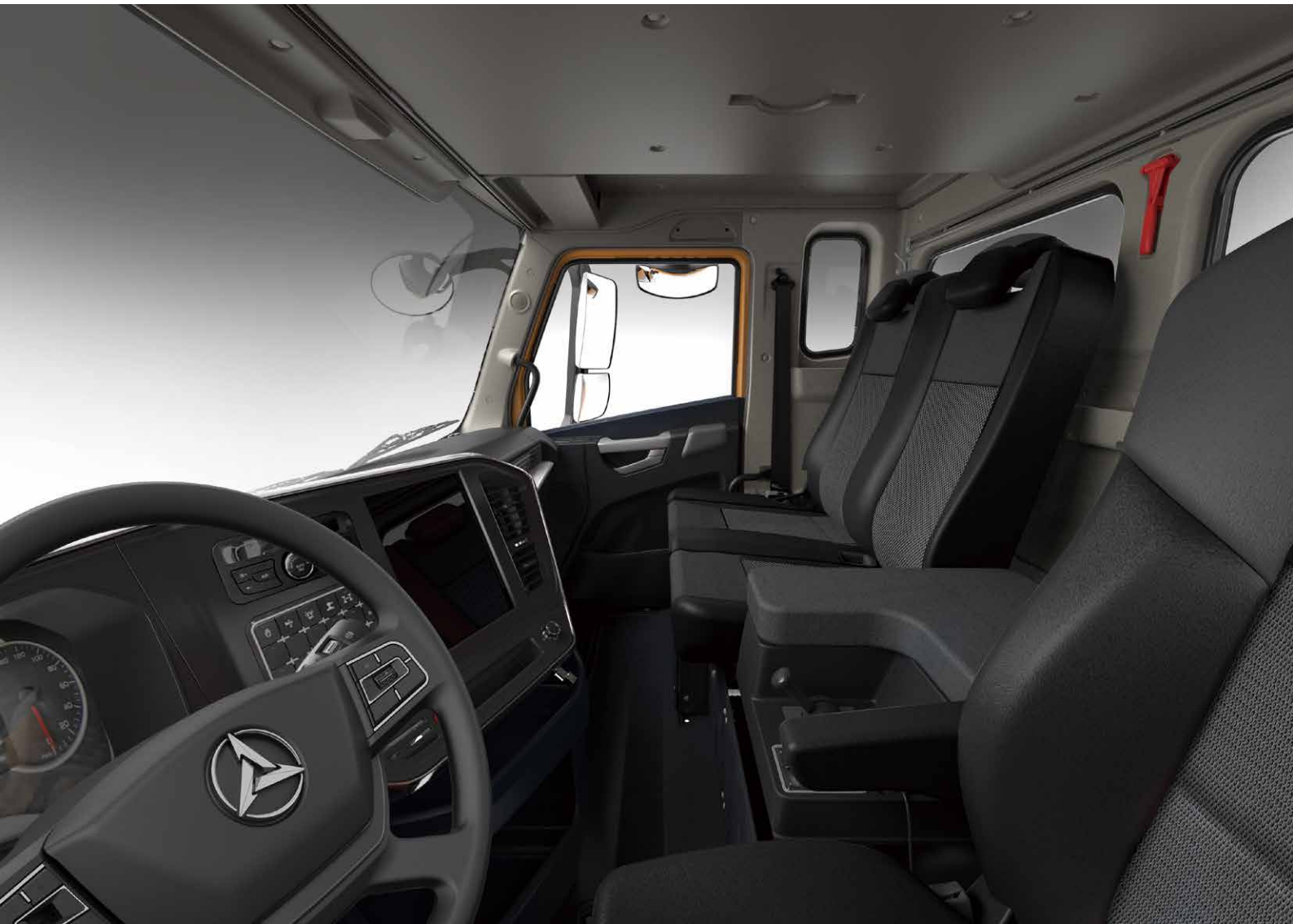
Double seats and foldable berth for the co-driver.

10.1-inch touch screen integrated with back-up image and multi-media.

Electric rearview mirror with electric heating, ensuring good field of view in foul weather.

Adjustable high-brightness LED headlamps/fog lamps, providing clear vision at night.

Full-automatic HVAC, able to automatically adjust indoor temperature as demanded.





i-Cab - Operator's cab

Seat widened by 480mm, and leg room increased by 30%.

Cab tiltable by 0-20°, relieving cervical fatigue during large-angle and long-boom operations.

Adjustable seat with maximum inclination of 140°, allowing the operator to lie flat and rest after work.

Electric seat linked with armrest box, enabling multi-dimensional adjustment for enhanced comfort.

Electronic control joysticks, making operation easier.

45° tilted silicone button panel, easy to reach and operate.

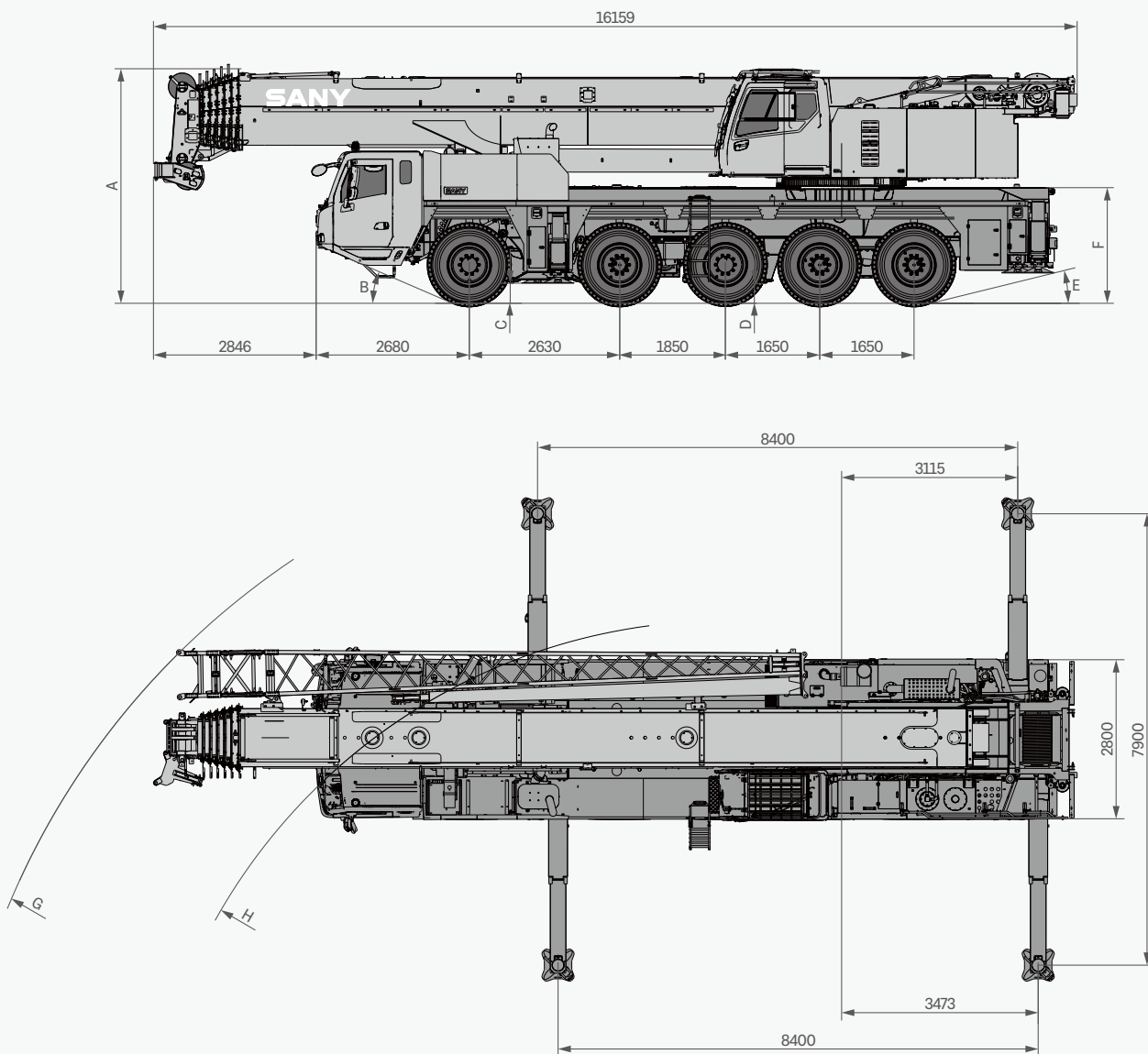
70° openable front window convenient for ventilation and escape; in compliance with CE standards.

Sliding door, more convenient for getting on/off the cab and opening/closing the door.

Full-automatic HVAC, able to automatically adjust indoor temperature as demanded.



Overall Dimensions



Tire size	A	B	C	D	E	F	G	H
Unit	mm	°	mm	mm	°	mm	mm	mm
385	4000	22	298	294	13	1971	12560	8766
445	4050	23	348	344	14	2021	13763	10358

Technical Specification

CATEGORY	ITEM		UNIT	VALUE
CAPACITY	Max. lifting capacity		t	160
WEIGHT	Gross weight		kg	57500
POWER CHASSIS	Engine model		-	Benz OM460LA. E3A/1
	Max. engine power		kW/rpm	360/1800
	Max. engine torque		N · m/rpm	2200/1300
POWER SUPERSTRUCTURE	Engine model		-	QSB6.7-C260 E3A
	Max. engine power		kW/rpm	194/2200
	Max. engine torque		N · m/rpm	990/1500
DIMENSIONS	Overall length		mm	16159
	Overall width		mm	2800
	Overall height		mm	4040 (385/R95 25)
TRAVEL	Max. travel speed		km/h	80
	Steering radius	Min.steering radius	m	8.8
		Min.steering radius of boom tip	m	12.6
	Wheel formula		-	10 × 6 × 10
	Min.ground clearance		mm	294
	Approach angle		°	22
	Departure angle		°	13
	Max.gradeability		-	46%
	Fuel consumption per 100km		L	≤70
MAIN PERFORMANCE	Working temperature range		℃	-20~+40
	Min.rated lifting radius		m	3
	Tail slewing radius		m	4.86
	Boom sections (Qty.)		-	7
	Boom shape		-	U Shape
	Max.lifting moment	Basic boom	kN · m	5174
		Full-extension boom	kN · m	2234
	Boom length	Basic boom	m	14
		Full-extension boom	m	74.8
		Full-extension boom+jib	m	Standard 87.9m, optional 103.9m
	Max. lifting height	Basic boom	m	14.7
		Full-extension boom	m	75.5
		Max. combination of boom + jib	m	Standard 87.2m, optional 103m
	Outrigger span (Longitudinal × Transverse)		m	8.4 × 7.9
	Jib offset		°	0, 15, 30
AIRCONDITIONER	In operator's cab		-	Heating & cooling
	In driver's cab		-	Heating & cooling

Technical Specification



Axle Load

Axle	1	2	3	4	5	Gross weight
Axle load (t)	≤12	≤12	≤12	≤12	≤12	57
Remark	-					



Hook

Rated load (t)	Number of sheaves	Rope rate	Hook weight (kg)
125 ○	7	15	1443
100 ○	5	11	1243
80 ●	3	7	695
32 ○	1	3	484
12.5 ●	-	1	270

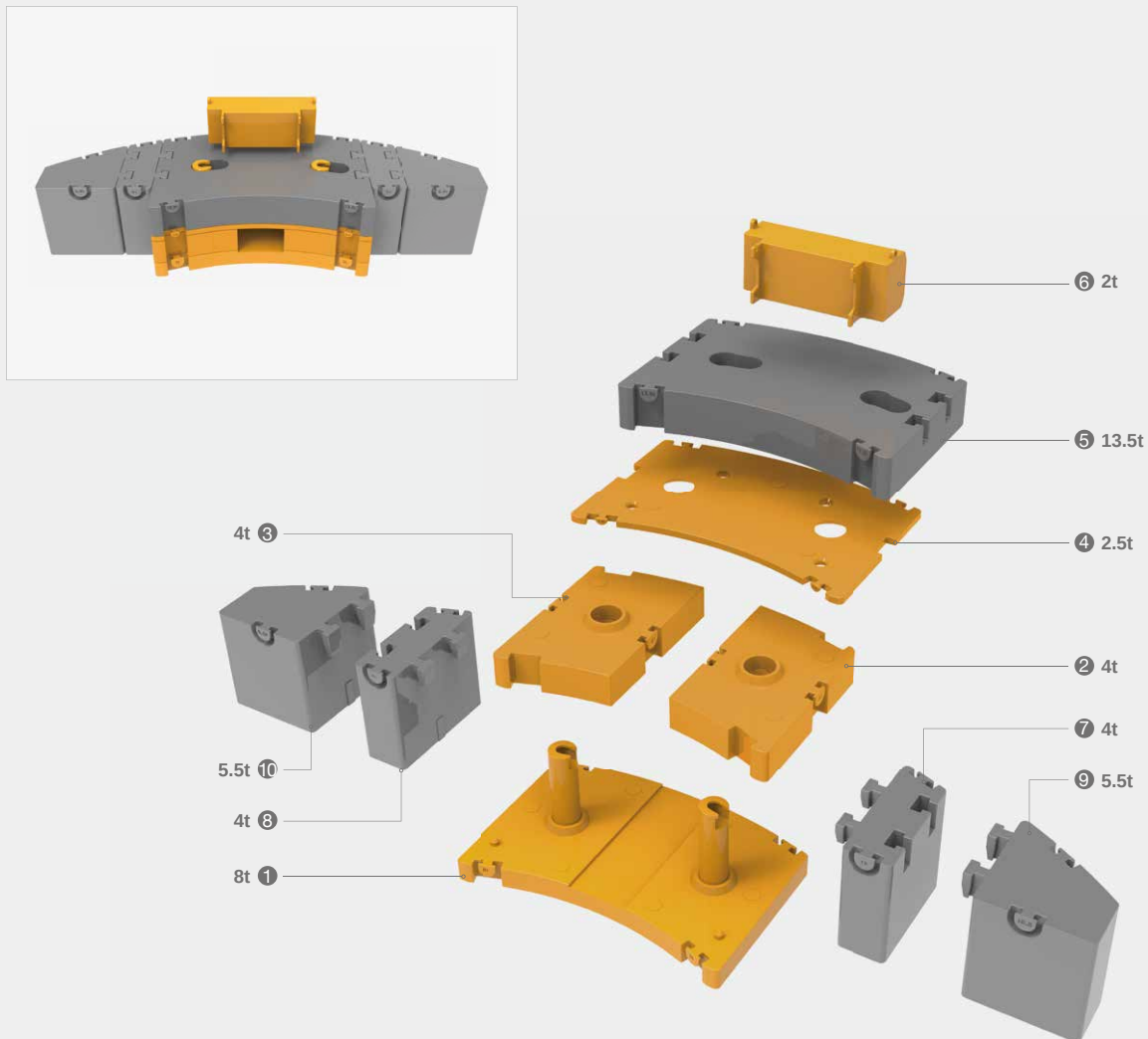
● Standard ○ Optional



Operations

Item		Max.single rope lifting speed (empty load)	Rope diameter / length	Max. single line pull
Main winch		130m/min	22mm/280m	10.5t
Auxiliary winch		130m/min	22mm/210m	10.5t
Slewing speed		1.5r/min		
Full luffing up/down time of boom		55s/115s		
Full extension/retraction time of boom		660s/660s		
Outrigger jack	Extension	30s		
	Retraction	35s		
Outrigger beam	Extension	30s		
	Retraction	25s		

Counterweight Combinations



Total weight	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
	8t	4t	4t	2.5t	13.5t	2t	4t	4t	5.5t	5.5t
2t						•				
10t	•					•				
18t	•	•	•			•				
20.5t	•	•	•	•		•				
34t	•	•	•	•	•	•				
42t	•	•	•	•	•	•	•	•		
53t	•	•	•	•	•	•	•	•	•	•

Crane Introduction

Carrier



Driver's cab

- Three seats with a folding berth. It's soundproofing performance meets the standard of heavy duty trucks. Air suspension seat features shock absorption, back adjustment, lumbar support and other ergonomic designs. Virtual LCD instrument and 12.1" console screen integrate auto control of air conditioning. Indoor temperature can be adjusted precisely and smoothly. LED headlights, electrically heated rear-view mirrors, multifunction steering wheel. The multimedia equipment can be controlled by the buttons integrated in the steering wheel.



Carrier frame

- The frame is a box-shape structure welded by high-strength steel plates with strong bearing capacity.



Engine

- Model: Benz OM460LA.E3A six-cylinder, water-cooled, supercharged intercooler, diesel engine.
- Rated power: 360kW/1800rpm.
- Emission standard: EU Stage IIIA.
- Fuel reservoir capacity: 600L.



Transmission

- ZF AMT (with hydraulic retarder to drive easily down long slope), with 12 forward speeds and 2 reverse speeds.



Axle

- Kessler axle. All axle steering and 3-axle drive (drive axles 2, 4, 5). The axles 1, 2 adopt the hydraulic power steering system with linkage feedback, and the axles 3, 4, 5 adopt the electro-hydraulic control steering, so the assistance for speed control and selectable steering modes can be realized, with easy steering and flexible control.



Suspension system

- All axles equipped with hydro-pneumatic suspension with hydraulic lockout, height adjustable up by 190mm and down by 100mm. Variable modes incl. rigid lockout, auto leveling, whole machine rise & lower, single point rise & lower. Ride comfort and vehicle lateral stability are ensured regardless of any rough terrains.



Steering

- It is equipped with servo power steering, dual-circuit system hydraulic steering with emergency steering pump.
- Six types of steering modes: 1. on-road driving mode (default mode); 2. all-wheel steering mode; 3. crab mode; 4. Reduced swingout steering mode; 5. independent rear axle steering mode; 6. rear axle locking steering mode.



Tires

- Ten radial tires sized 14.00R25.



Wheel formula

- 10×6.



Brake

- Parking brake: actuated by the accumulator on the second to fifth axles.
- Service brake: all wheels use air servo brakes, dual-circuit brake system, and all wheels are equipped with disc brakes.
- Assist brake: the engine is equipped with engine brake, hydraulic retarder brake and exhaust brake, which can reduce the wear of brake components and save the cost.



Outrigger

- With a longitudinal and transverse span of 8.4m × 7.9m, and fully hydraulic telescoping of beam and jack, the H-type outriggers functions automatic levelling.



Electrical system

- CAN bus system, 24V DC power supply, 2 sets of battery packs, 180Ah each. It can cut off the power supply of carrier.
- The chassis adopts CAN bus system; multi-functional integrated display system; LCD, the contrast can be adjusted.

Crane Introduction

superstructure



Operator's cab

- Curved track sliding door, foldable front step and remote-controlled electric side step. The seat and armrest box can be adjusted in multi dimensions. Auto air conditioning system gives out airflow from various outlets once pressing the virtual key. Windshield wiper covers large area, ensuing clear vision in heavy rains. 10.1" frameless display of all new UI is equipped. Operation is made via touchscreen, knob and buttons.



Engine

- Model: DF Cummins QSB6.7-C260 inline six cylinder, water-cooling, turbocharged inter-cooling diesel.
- Emission standard: EU Stage IIIA.
- Fuel reservoir capacity: 265L.



Boom & telescoping system

- Main boom: seven-section 74.8m, made of high-strength welded structural steel, oval shape.
- Jib: standard 18m, with optional extension up to 34m. 0°, 15°, 30° mechanical adjustment.
- Independent hydraulic telescoping, full extending and retracting time 660s, which is simple, efficient, safe and reliable.



Hoist

- The main hoist adopts electro proportional variable motor, featuring stability and inching mobility. Main wire rope diameter 22mm, length 280m.



Luffing system

- Passive luffing down, more energy-efficient. Single-cylinder with front hinge arranged, the force of the boom is optimized. The electric proportional control balance valve is adopted.



Slewing

- Electro proportional variable piston oil pump applied, 360° slewing, 0-1.5r/min. The electric proportional closed hydraulic circuit and the electric proportional pedal can realize emergency braking.



Counterweight

- Movable counterweight totaling 53t, traveling with 20.5t counterweight allowed with well distributed axle load, prolonging service life of axles. CW assembly and disassembly controlled by remote device.



Hydraulics

- With the use of high-quality variable piston main oil pump, slewing pump, main valve, winch motor, balance valve and other key hydraulic components, it ensures that the hydraulic system is stable and reliable; with accurate parameter matching, the operation performance is superior.
- With electric proportional variable displacement piston pump to adjust the displacement of the oil pump in real time through the change of the opening degree of the joystick, it realizes high-precision flow control without energy loss.
- With self-developed double-pump flow confluence / shunt main valve, higher efficiency of single motion and better control of combined motions are realized.
- Passive luffing down with hydraulic compensation ensures excellent inching motion and stability.
- Boom telescopes via single cylinder pin mechanism.



Control system

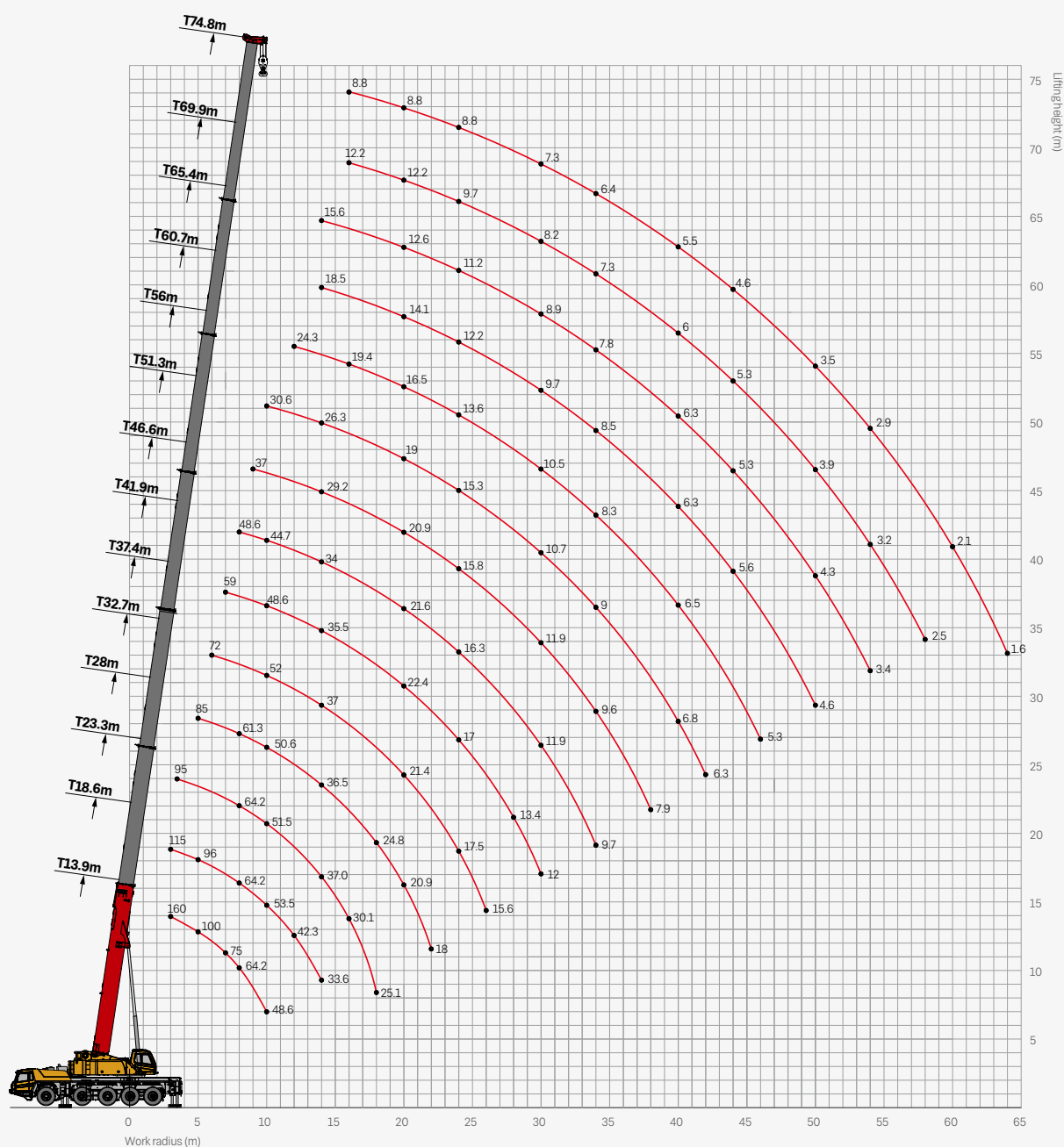
- Electronic control of the crane through the SYMC load moment indicator independently developed by Sany. Crane motion is adjusted by hydraulic pump; and the operation speed is adjusted by engine speed.



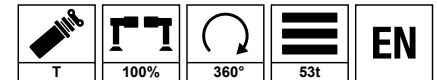
Safety equipment

- LMI: using the analytical mechanics method, the LMI calculation system based on the hoisting mechanics model is built. The rated load accuracy is $\pm 5\%$ by online empty-load calibration, and the hoisting operation is fully protected. When overloading, the system gives auto alarm for 100% safety.
- The hydraulic system is equipped with hydraulic balance valve, relief valve and two-way hydraulic lock to achieve system reliability.
- The main and auxiliary hoists are equipped with three-circle protectors to prevent the wire rope from over-hoisting down.
- Height limit switches are arranged at boom head and jib head to prevent the wire rope from over-hoisting up.
- An anemometer is installed at boom head to detect whether the wind speed exceeds the allowable range of operation.

Operating Range - Telescopic Boom



Load Chart-Telescopic Boom



Unit: t

	13.9*	18.6	23.3	28.0	32.7	37.4	41.9	46.6	51.3	56.0	60.7	65.4	69.9	74.8	
3	160.0	115.0													3
3.5	126.0	110.0	95.0												3.5
4	117.0	106.0	95.0												4
4.5	109.0	101.0	94.0												4.5
5	100.0	96.0	87.0	85.0											5
6	87.0	85.0	78.0	78.0	72.0										6
7	75.0	75.0	72.0	70.0	72.0	59.0									7
8	64.2	64.2	64.2	61.3	62.7	54.5	48.6								8
9	56.4	58.3	58.3	55.4	56.9	52.0	47.7	37.4							9
10	48.6	53.5	51.5	50.6	52.0	48.6	44.7	37.0	30.6						10
12		42.3	43.8	43.8	44.7	41.8	40.4	34.0	28.7	24.3					12
14		33.6	37.0	36.5	37.0	35.5	34.0	29.2	26.3	21.4	18.5	15.6			14
16			30.1	29.7	30.1	30.1	29.7	26.3	23.3	19.4	17.5	14.6	12.2	8.8	16
18			25.1	24.8	25.3	26.3	25.3	23.3	20.9	18.0	16.0	13.6	12.2	8.8	18
20				20.9	21.4	22.4	21.6	20.9	19.0	16.5	14.1	12.6	12.2	8.8	20
22				18.0	19.0	19.4	18.7	18.1	17.0	15.1	13.1	12.2	11.2	8.8	22
24					17.5	17.0	16.3	15.8	15.3	13.6	12.2	11.2	9.7	8.8	24
26					15.6	15.1	14.4	14.1	13.3	12.6	11.2	10.2	9.2	8.3	26
28						13.4	13.1	12.8	11.9	11.7	10.5	9.7	8.8	7.8	28
30						12.0	11.9	11.9	10.7	10.5	9.7	8.9	8.2	7.3	30
32							11.2	10.7	9.7	9.3	9.0	8.3	7.8	6.8	32
34							9.7	9.6	9.0	8.6	8.5	7.8	7.3	6.4	34
36								8.8	8.3	7.8	7.6	7.3	6.8	6.1	36
38								7.9	7.4	7.1	6.8	6.8	6.3	5.8	38
40									6.8	6.5	6.3	6.3	6.0	5.5	40
42									6.3	6.1	5.8	5.6	5.6	5.1	42
44										5.7	5.6	5.3	5.3	4.6	44
46										5.3	5.3	5.0	4.9	4.4	46
48											4.9	4.7	4.4	3.9	48
50											4.6	4.3	3.9	3.5	50
52												3.9	3.4	3.1	52
54												3.4	3.2	2.9	54
56													2.9	2.6	56
58													2.5	2.3	58
60														2.1	60
62														1.8	62
64														1.6	64

*Load over rear

NOTE: Under the working condition of lifting radius 3m and load 160t, auxiliary pulley device should be added.

Load Chart-Telescopic Boom



Unit: t

	13.9	18.6	23.3	28.0	32.7	37.4	41.9	46.6	51.3	56.0	60.7	65.4	69.9	74.8	
3	115.2	113.0													3
3.5	104.2	102.2	88.0												3.5
4	98.0	96.1	88.0												4
4.5	90.4	90.4	88.0												4.5
5	85.1	85.1	85.0	78.0											5
6	73.9	75.4	75.4	75.4	69.0										6
7	66.8	66.8	66.8	66.8	67.0	59.0									7
8	57.0	57.1	59.6	58.2	58.8	51.7	46.2								8
9	49.5	52.4	52.7	52.5	52.6	49.4	45.2	35.1							9
10	43.8	44.6	45.0	44.7	45.7	44.9	42.5	35.1	28.6						10
12		33.3	33.7	33.4	34.3	35.2	34.5	32.3	25.8	22.2					12
14		26.1	26.4	26.2	28.2	28.0	27.2	26.4	23.5	20.3	17.1	14.8			14
16			21.3	22.2	23.2	22.8	22.2	21.3	21.2	18.5	15.7	13.8	11.5	8.3	16
18			17.6	19.4	19.4	19.0	18.4	17.6	17.5	17.1	14.8	12.9	11.1	8.3	18
20				16.6	16.4	16.0	16.7	16.0	15.2	14.7	13.4	12.0	10.2	8.3	20
22				14.2	14.1	13.7	14.4	13.7	13.3	12.9	12.5	11.3	9.7	8.3	22
24					12.3	11.9	12.5	11.9	11.5	11.3	10.9	10.6	9.2	8.3	24
26					10.7	10.4	10.9	10.3	10.6	10.2	9.3	9.7	8.7	7.8	26
28						9.1	9.6	9.4	9.4	9.2	8.8	8.6	8.3	7.4	28
30						8.0	8.5	8.8	8.3	8.4	8.3	7.9	7.7	6.9	30
32							7.6	7.9	7.3	7.5	7.5	7.2	6.7	6.5	32
34							6.8	7.0	6.5	6.6	6.6	6.3	5.9	5.9	34
36							5.0	6.3	5.7	5.9	5.9	5.6	5.2	5.2	36
38								5.6	5.1	5.3	5.3	5.0	4.5	4.5	38
40									4.6	4.6	4.6	4.4	3.9	3.9	40
42									4.0	4.1	4.1	3.8	3.4	3.4	42
44										3.7	3.7	3.4	3.0	3.0	44
46										3.2	3.2	3.0	2.5	2.5	46
48										4.2	2.9	2.6	2.1	2.2	48
50											2.5	2.2	1.8	1.8	50
52											3.3	1.9	1.4	1.4	52
54												1.6	1.2	1.2	54
56												1.9	1.9	1.8	56
58												1.6	1.6	1.4	58
60															60
62															62
64															64

Load Chart-Telescopic Boom



T



100%



360°



20.5t

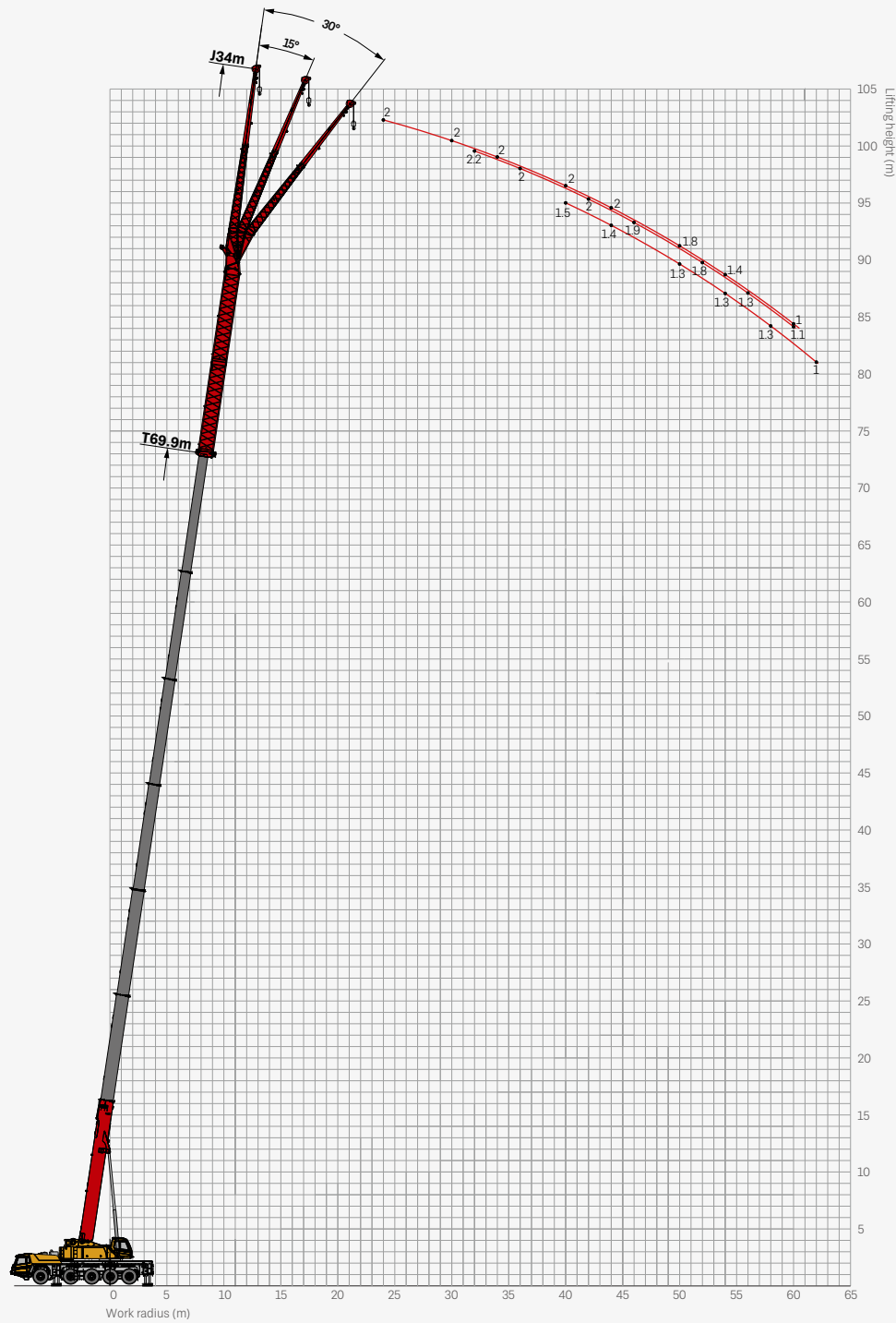


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Unit: t

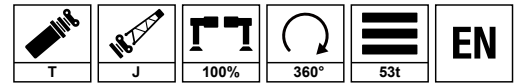
	13.9	18.6	23.3	28.0	32.7	37.4	41.9	46.6	51.3	56.0	60.7	65.4	69.9	74.8	
3	115.2	113.0													3
3.5	104.2	102.2	88.0												3.5
4	98.0	96.1	88.0												4
4.5	90.4	90.4	88.0												4.5
5	85.1	85.1	85.0	78.0											5
6	73.9	75.4	75.4	75.0	69.0										6
7	66.2	66.8	65.0	66.0	67.0	56.0									7
8	51.8	52.7	53.1	52.8	54.0	51.7	46.2								8
9	42.1	42.9	43.3	43.0	44.0	45.1	43.0	35.1							9
10	35.0	35.8	36.2	35.9	37.8	38.0	37.2	33.0	28.6						10
12		26.4	26.7	28.2	28.8	28.3	27.6	26.8	25.8	22.2					12
14		20.3	20.6	22.7	22.6	22.2	21.5	21.2	20.6	20.3	17.1	14.8			14
16			18.0	18.4	18.3	17.9	18.5	17.9	17.4	17.1	15.7	13.8	11.5	8.3	16
18			14.9	15.2	15.1	14.7	15.3	14.7	14.3	14.3	14.3	12.9	11.1	8.3	18
20				12.8	12.7	12.3	12.9	12.9	12.7	12.4	13.4	11.6	10.2	8.3	20
22				10.9	10.8	10.4	10.9	11.4	10.7	10.9	10.6	10.2	9.7	8.0	22
24					9.2	8.8	9.4	9.8	9.2	9.3	9.4	9.0	8.5	8.0	24
26					8.0	7.6	8.1	8.4	7.9	8.0	8.0	7.7	7.3	7.0	26
28						6.4	7.1	7.4	6.8	6.9	6.9	6.7	6.2	6.2	28
30						5.6	6.1	6.5	5.8	6.0	6.0	5.8	5.2	5.3	30
32							5.3	5.7	5.1	5.2	5.2	5.0	4.4	4.5	32
34							4.7	4.9	4.4	4.5	4.5	4.2	3.8	3.8	34
36								4.3	3.8	3.9	3.9	3.7	3.1	3.2	36
38								3.8	3.2	3.3	3.3	3.1	2.5	2.6	38
40									2.7	2.8	2.9	2.6	1.9	1.9	40
42									2.2	2.4	2.4	2.1	1.4	1.5	42
44										1.9	1.9	1.5			44
46										1.4	1.5	1.2			46
48															48
50															50
52															52
54															54
56															56
58															58
60															60
62															62
64															64

Operating Range - Fixed Jib



Load Chart - Fixed Jib

Unit: t



 m	60.7+34			65.4+34			69.9+34			 m
	0°	15°	30°	0°	15°	30°	0°	15°	30°	
22	3.2									22
24	3.0			2.8			2.0			24
26	3.0			2.8			2.0			26
28	3.0			2.8			2.0			28
30	3.0	2.5		2.8			2.0			30
32	3.0	2.4		2.8	2.5		2.0	2.0		32
34	3.0	2.2		2.8	2.5		2.0	2.0		34
36	3.0	2.1	1.5	2.7	2.3		2.0	2.0		36
38	2.9	2.0	1.4	2.7	2.1	1.5	2.0	2.0		38
40	2.9	1.9	1.4	2.7	2.0	1.5	2.0	2.0	1.5	40
42	2.8	1.9	1.4	2.7	1.9	1.4	2.0	2.0	1.5	42
44	2.8	1.8	1.3	2.6	1.9	1.4	2.0	2.0	1.4	44
46	2.7	1.7	1.3	2.5	1.8	1.4	2.0	1.9	1.4	46
48	2.6	1.7	1.3	2.3	1.8	1.4	2.0	1.9	1.4	48
50	2.5	1.7	1.3	2.1	1.7	1.3	1.8	1.8	1.3	50
52	2.3	1.6	1.2	1.8	1.7	1.3	1.6	1.8	1.3	52
54	2.1	1.6	1.2	1.7	1.6	1.2	1.4	1.6	1.3	54
56	1.9	1.5	1.1	1.5	1.6	1.2	1.2	1.3	1.3	56
58	1.7	1.5	1.1	1.3	1.4	1.2	1.1	1.2	1.3	58
60	1.5	1.4	1.0	1.2	1.3	1.1	1.0	1.1	1.2	60
62	1.3	1.4	1.0	1.0	1.2	1.0			1.0	62
64		1.3	1.0		1.0	1.0				64
66		1.0								66
	1	1	1	1	1	1	1	1	1	



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