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KATO

NK-550VR

FULLY HYDRAULIC TRUCK CRANE

【SPECIFICATION】

■CRANE

Description	Truck crane with maximum lifting capacity 55 ton	
Model	NK-550VR	

●Specification

Maximum rated lifting capacity	11.0 m Boom	55,000 kg × 3.0 m	(Parts of line : 14)
	11.0 m Boom	40,000 kg × 3.5 m	(Parts of line : 10)
	15.0 m Boom	28,000 kg × 5.0 m	(Parts of line : 8)
	19.0 m Boom	28,000 kg × 5.0 m	(Parts of line : 8)
	23.0 m Boom	24,000 kg × 6.0 m	(Parts of line : 6)
	27.0 m Boom	20,000 kg × 6.5 m	(Parts of line : 5)
	35.0 m Boom	14,000 kg × 8.0 m	(Parts of line : 4)
	43.0 m Boom	8,000 kg × 10.0 m	(Parts of line : 4)
	9.2 m Jib	3,500 kg × 80°	(Parts of line : 1)
	15.0 m Jib	2,500 kg × 80°	(Parts of line : 1)
	Rooster	4,000 kg	(Parts of line : 1)

Boom length	11.0 m — 43.0 m	
Fly jib length	9.2 m, 15.0 m	
Maximum lifting height	43.0 m (Boom)	
	58.0 m (Jib)	
Hoisting line speed	Main winch	114 m/min. (at 3rd layer)
	Auxiliary winch	105 m/min. (at 2nd layer)
Hoisting hook speed	Main winch	(part of line; 14) : 8.1 m/min. (at 3rd layer)
	Auxiliary winch	(part of line; 1) : 105 m/min. (at 2nd layer)
Boom derricking angle	-2.5° — 81°	
Boom derricking time	70 sec. (-2.5° — 81°)	
Boom extending time	170 sec. (11.0 m — 43.0 m)	
Slewing speed	1.85 min^{-1}	
Tail slewing radius	3,480 mm	

●Equipment and structure

Boom type	Box-shaped, 5-section hydraulically telescopic type (boom sections 2/3 and 4/5 simultaneously operated)	
Jib type	2 sections (2nd section of draw-out type, 3-step inclination type (offset angles 5° , 25° and 45°))	
Boom extension/ retraction equipment	Three hydraulic cylinders and wire ropes used together	
Boom derricking/ lowering equipment	One hydraulic cylinder of direct acting type with pressure-compensated flow control valve	
Winch system Main & Auxiliary winches	Driven by axial plunger type hoisting motor through planetary gear reduction. Controlled independently by operating lever. Equipped with automatic brake.	
Slewing equipment	Ball bearing type	
Wire rope for hoisting	Main winch	Diameter : 18 mm × Length : 235 m
	Auxiliary winch	Diameter : 18 mm × Length : 125 m

●Hydraulic equipment

Oil pump	4 section gear type	
Hydraulic motor	Hoisting motor	Axial plunger type
	Slewing motor	Axial plunger type
Control valve	3 position 4 way double acting with integral check and relief valves	
Cylinder	Double acting type	
Oil reservoir capacity	695 L	

●Safety devices

	ACS (Automatic crane stopper), Boom falling prevention device, Winch hoisting limiter, Winch drum lock device, Winch drum turning indicator, Automatic winch brake, Irregular winding prevention device, Hydraulic safety valve, Outrigger lock device, Joystick control safety stop system, Slewing lock device

●Standard equipment

	Front jack, Fly jib, Rooster sheave, Independent two winches control system, Irregular winding prevention device,Winch automatic brake,Sub hook sheave for 55t, Hooks (40 ton, 20 ton, 4 ton), Hydraulic oil cooler, Full size fender, Large size steps, 3 working lights, Moment limiter with voice alarm, Winch drum turning indicator, Sun visor, Cigar lighter, Ashtray, Cab floor mat, Tool kit

●Optional equipment

	Winch over-unwinding device, Winch drum mirror (hoist mirror), Yellow rev. light, Cab heater, Cab cooler, Fan, Radio AM FM, Fire extinguisher, Roof visor

■CARRIER

Maker and model	FAW CA5420JQZ

●Specification

Maximum traveling speed	71 km/h
Gradeability	63% (theoretical value)
Minimum turning radius	11.75 m

●General dimensions & G.V.W.

Overall length		approx.13,370 mm
Overall width		approx. 2,800 mm
Overall height		approx. 3,780 mm
Wheel base		1,450 mm + 3,900 mm + 1,350 mm = 6,700 mm
Treads	Front	2,282 mm
	Rear	2,059 mm
Outriggers	Type	Hydraulic H-beam type (with float and vertical cylinder in single unit)
	Extension width	7,000 mm (Fully extended)
		4,800 mm (Intermediately extended)
		2,500 mm (Fully retracted)
Gross machine weight	Gross weight	approx. 41,600 kg
	Front weight	approx. 15,650 kg
	Rear weight	approx. 25,950 kg

●Engine

Model	CA6DL2-35 (EURO-Ⅱ) (turbo charged)
Type	6-inline, 4 cycle, direct injection water cooled, diesel
Piston displacement	8.6 L
Max. power	258 kW/ 2,100 min^{-1} (350 PS/ 2,100 min^{-1})
Max. torque	1,475 N･m/ 1,450 min^{-1} (150 kg･m/ 1,450 min^{-1})

●Equipment and structure

Drive system		8 × 4
Clutch		Single dry plate, hydraulic control with air booster
Transmission		Manual transmission type
Number of speeds		9 forward & 1 reverse speed
Axles	Front	Reverse "ELLIOT" type
	Rear	Full floating type with hub reduction
Suspension	Front	Leaf springs with shock absorber
	Rear	Equalizer beams & torque rods with leaf springs (with lockout device)
Brake	Service	2 circuit air brake, 8 wheels internal expanding type
	Parking	Spring loaded brake
	Auxiliary	Exhaust brake
Steering	Type	Ball nut type with power booster
Tire size	Front	315 / 80R 22.5
	Rear	315 / 80R 22.5
Fuel tank capacity		380 L
Seating capacity		2 persons
Battery		(12V-6-QAW-180) × 2

●Standard equipment

	Towing hook (front and rear, eye type), Spare tire & wheel, Air dryer, Radio AM FM with cassette deck, Cigar lighter, Ashtray, Cab heater, Cab cooler

- Stow the hooks in place before traveling.
- Before you use this machine, read the precautions in the instruction manual thoroughly to operate it correctly.
- KATO products and specifications are subject to improvements and changes without notice.

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■RATED LIFTING CAPACITY

Based on ISO 4305

11.0 m — 43.0 m Boom

(Unit : Metric ton)

Outriggers fully extended with front jack − 360° full range Outriggers fully extended without front jack − over side and over rear								
Working radius (m)	11.0m Boom	11.0m Boom	15.0m Boom	19.0m Boom	23.0m Boom	27.0m Boom	35.0m Boom	43.0m Boom
3.0	55.00	40.00	28.00	28.00	24.00			
3.5	43.70	40.00	28.00	28.00	24.00			
4.0	38.50	38.50	28.00	28.00	24.00	20.00		
4.5	34.20	34.20	28.00	28.00	24.00	20.00		
5.0	30.80	30.80	28.00	28.00	24.00	20.00		
5.5	27.80	27.80	27.40	27.20	24.00	20.00	14.00	
6.0	25.40	25.40	25.00	24.80	24.00	20.00	14.00	
6.5	23.20	23.20	22.80	22.60	22.50	20.00	14.00	8.00
7.0	21.40	21.40	21.00	20.80	20.60	19.60	14.00	8.00
7.5	19.70	19.70	19.30	19.10	19.00	18.00	14.00	8.00
8.0	17.90	17.90	17.75	17.50	17.30	17.25	14.00	8.00
8.5	16.20	16.20	15.90	15.70	15.50	15.45	13.80	8.00
9.0	14.60	14.60	14.40	14.15	14.00	13.90	13.60	8.00
10.0			11.90	11.65	11.50	11.45	12.30	8.00
11.0			10.00	9.75	9.60	9.50	10.40	7.80
12.0			8.40	8.15	8.10	8.00	8.85	7.10
13.0			7.15	6.90	6.80	6.75	7.55	6.65
14.0				5.90	5.80	5.75	6.50	6.15
16.0				4.30	4.20	4.10	4.95	5.35
18.0					3.00	2.95	3.75	4.20
20.0					2.10	2.05	2.80	3.30
22.0						1.30	2.10	2.55
24.0						0.75	1.50	2.00
26.0							1.05	1.50
28.0							0.65	1.05
30.0								0.70
31.0								0.50
Standard hook	for 40 ton + sub hook sheave	for 40 ton				for 20 ton		
Hook mass	450 + 150 kg	450 kg				320 kg		
Parts of line	14	10	8	8	6	5	4	4
Critical boom angle	—	—	—	—	—	—	*33°*	*40°*

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(Unit : Metric ton)

Outriggers intermediately extended without front jack - 360° full range Outriggers fully extended without front jack - over front							
Working radius (m)	11.0m Boom	15.0m Boom	19.0m Boom	23.0m Boom	27.0m Boom	35.0m Boom	43.0m Boom
3.0	32.00	28.00	28.00	24.00			
3.5	32.00	28.00	28.00	24.00			
4.0	32.00	28.00	28.00	24.00	20.00		
4.5	29.00	28.00	28.00	24.00	20.00		
5.0	22.00	21.90	21.50	21.40	20.00	14.00	
5.5	17.30	17.20	16.90	16.80	16.70	14.00	
6.0	14.10	14.00	13.70	13.60	13.50	14.00	8.00
6.5	11.80	11.65	11.35	11.30	11.20	12.30	8.00
7.0	10.00	9.85	9.55	9.50	9.45	10.45	8.00
7.5	8.55	8.40	8.15	8.10	8.05	9.00	8.00
8.0	7.40	7.25	7.00	6.95	6.90	7.85	8.00
9.0	5.70	5.55	5.30	5.25	5.20	6.05	6.50
10.0		4.25	4.00	3.90	3.85	4.75	5.20
11.0		3.20	2.95	2.90	2.80	3.70	4.20
12.0		2.40	2.20	2.10	2.05	2.90	3.40
13.0		1.80	1.55	1.45	1.40	2.25	2.70
14.0						1.70	2.15
15.0							1.70
Standard hook	for 40 ton				for 20 ton		
Hook mass	450 kg				320 kg		
Parts of line	8	8	8	6	5	4	4
Critical boom angle	—	—	*35°*	*48°*	*58°*	*64°*	*68°*

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43 m Boom + 9.2 m Jib

43 m Boom + 15 m Jib

(Unit : Metric ton)

Outriggers fully extended with front jack - 360° full range
Outriggers fully extended without front jack - over side and over rear

43m Boom + 9.2m Jib							43m Boom + 15m Jib						
Boom angle (°)	Offset 5°		Offset 25°		Offset 45°		Boom angle (°)	Offset 5°		Offset 25°		Offset 45°	
	Working radius (m)	Load (t)	Working radius (m)	Load (t)	Working radius (m)	Load (t)		Working radius (m)	Load (t)	Working radius (m)	Load (t)	Working radius (m)	Load (t)
81.0	10.00	3.50	12.75	2.30	14.60	1.25	*81.0*	11.75	2.50	16.20	1.20	19.40	0.70
80.0	11.05	3.50	13.70	2.30	15.45	1.25	*80.0*	12.95	2.50	17.20	1.20	20.35	0.69
79.0	12.05	3.48	14.65	2.30	16.30	1.24	*79.0*	14.10	2.49	18.15	1.19	21.25	0.69
78.0	13.00	3.40	15.60	2.25	17.20	1.23	*78.0*	15.10	2.45	19.10	1.17	22.15	0.68
77.0	13.90	3.23	16.50	2.19	18.05	1.21	*77.0*	16.20	2.30	20.10	1.15	23.05	0.67
76.0	14.85	3.04	17.40	2.12	18.90	1.19	*76.0*	17.25	2.17	21.10	1.12	24.00	0.67
75.0	15.75	2.90	18.25	2.06	19.75	1.17	*75.0*	18.25	2.06	22.15	1.10	24.85	0.65
74.0	16.70	2.75	19.15	1.99	20.55	1.16	*74.0*	19.20	1.95	23.15	1.07	25.70	0.64
72.0	18.50	2.49	20.90	1.85	22.25	1.12	*72.0*	21.10	1.76	25.05	1.02	27.45	0.62
70.0	20.15	2.28	22.60	1.73	23.90	1.09	*70.0*	23.00	1.59	26.80	0.97	29.10	0.61
68.0	21.85	2.09	24.20	1.62	25.40	1.06	*68.0*	24.90	1.47	28.60	0.93	30.65	0.59
66.0	23.55	1.91	25.80	1.53	26.85	1.04	*66.0*	26.75	1.35	30.30	0.90	32.25	0.58
64.0	25.05	1.68	27.40	1.43	28.35	1.02	*64.0*	28.60	1.24	32.00	0.87	33.80	0.57
62.0	26.55	1.41	28.85	1.24	29.85	1.00	*62.0*	30.40	1.10	33.70	0.84	35.30	0.56
60.0	28.00	1.13	30.20	1.00	31.15	0.85	*60.0*	32.00	0.87	35.25	0.72	36.75	0.55
59.0	28.75	1.00	30.85	0.89	31.80	0.77	*59.0*	32.80	0.76	36.00	0.66	37.45	0.55
58.0	29.45	0.86	31.50	0.77	32.45	0.69	*58.0*	33.60	0.64	36.60	0.58	38.20	0.54
57.0	30.20	0.73	32.20	0.66	33.05	0.61							
56.0	30.85	0.63	32.85	0.56	33.70	0.53							
Standard hook	for 4 ton						Standard hook	for 4 ton					
Hook mass	120 kg						Hook mass	120 kg					
Parts of line	1						Parts of line	1					
Critical boom angle	*55°*						Critical boom angle	*57°*					

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43 m Boom + 9.2 m Jib

43 m Boom + 15 m Jib

(Unit : Metric ton)

Outriggers intermediately extended without front jack - 360° full range
Outriggers fully extended without front jack - over front

43m Boom + 9.2m Jib							43m Boom + 15m Jib						
Boom angle (°)	Offset 5°		Offset 25°		Offset 45°		Boom angle (°)	Offset 5°		Offset 25°		Offset 45°	
	Working radius (m)	Load (t)	Working radius (m)	Load (t)	Working radius (m)	Load (t)		Working radius (m)	Load (t)	Working radius (m)	Load (t)	Working radius (m)	Load (t)
81.0	10.00	3.50	12.75	2.30	14.60	1.25	*81.0*	11.75	2.50	16.20	1.20	19.40	0.70
80.0	11.05	3.50	13.70	2.30	15.45	1.25	*80.0*	12.95	2.50	17.20	1.20	20.35	0.69
79.0	12.05	3.42	14.65	2.30	16.30	1.24	*79.0*	14.10	2.49	18.15	1.19	21.25	0.69
78.0	12.90	3.05	15.60	2.25	17.20	1.23	*78.0*	15.10	2.45	19.10	1.17	22.15	0.68
77.0	13.65	2.67	16.45	2.06	18.05	1.21	*77.0*	16.05	2.06	20.10	1.15	23.05	0.67
76.0	14.50	2.27	17.20	1.76	18.90	1.19							
Standard hook	for 4 ton						Standard hook	for 4 ton					
Hook mass	120 kg						Hook mass	120 kg					
Parts of line	1						Parts of line	1					
Critical boom angle	*75°*						Critical boom angle	*76°*					

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(Unit : Metric ton)

Outriggers fully retracted (blocked on vertical cyls.) - 360° full range	
Working radius (m)	11.0 m Boom
3.0	8.00
3.5	6.40
4.0	5.10
4.5	4.20
5.0	3.40
5.5	2.80
6.0	2.30
6.5	1.90
7.0	1.60
7.5	1.25
8.0	1.00
Standard hook	for 40 ton
Hook mass	450 kg
Parts of line	10

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■Notes for the rated lifting capacity chart

Precautions

1. The rated lifting capacities are the maximum load guaranteed on a firm level ground and include the mass of hook block and other lifting equipment. The capacities enclosed with bold lines are based on the structural strength of machine and the others are based on the stability of machine.
2. The working radii as given in the table are the actual values including the deflection of the boom. Therefore, operate the machine based on the working radius. However, the working radii shown for jib operations are based on the values obtained when the boom is fully extended (43 m).
   Jib operations should be performed on the basis of boom angle only, regardless of boom length when the boom is not fully extended.
3. The rated lifting capacities for the rooster sheave are equivalent to the rated lifting capacities for the main boom to a maximum of 4000 kg. At all times the mass of all lifting equipment in use (including main hook block suspended from boom head)forms part of load and must be subtracted from the rated lifting capacity.
4. If the boom length exceeds the specified value, the rated lifting capacities for the boom length above and below the present boom length should be referred to, and the crane should be operated within the smaller lifting capacity.
5. When using the main boom with the jib installed, 4000 kg plus the mass of hook block and other lifting equipment, etc., should be subtracted from the rated lifting capacities.
   When performing the above operation, do not use the rooster sheave.
6. Critical boom angles for each boom length are shown on bottommost line of lifting capacity table.
   If the boom angle is lowered to less than the critical boom angle, the machine will tip over without load. Therefore, never lower the boom below these angles.
7. The standard number of parts of line is shown in the rated lifting capacity table.
   If you work with a non-standard number of parts of line, take 39.2kN (4tf) as the maximum load on any part of the wire rope.
8. Over front lifting performance without front jack is inferior to over side and over rear lifting performance. Great care should be taken when transferring from over side to over front since there is a danger of overloading.
9. Crane operation is permissible up to a wind speed of 10m/s.
   Even in relatively light wind conditions, extra care should be taken when handling loads presenting large wind catching areas.
10. The machine will tip over or be damaged if operated with a load exceeding that specified in the rated lifting capacity table or not conforming to correct handling.
    If such trouble occurs, the machine will not be guaranteed.

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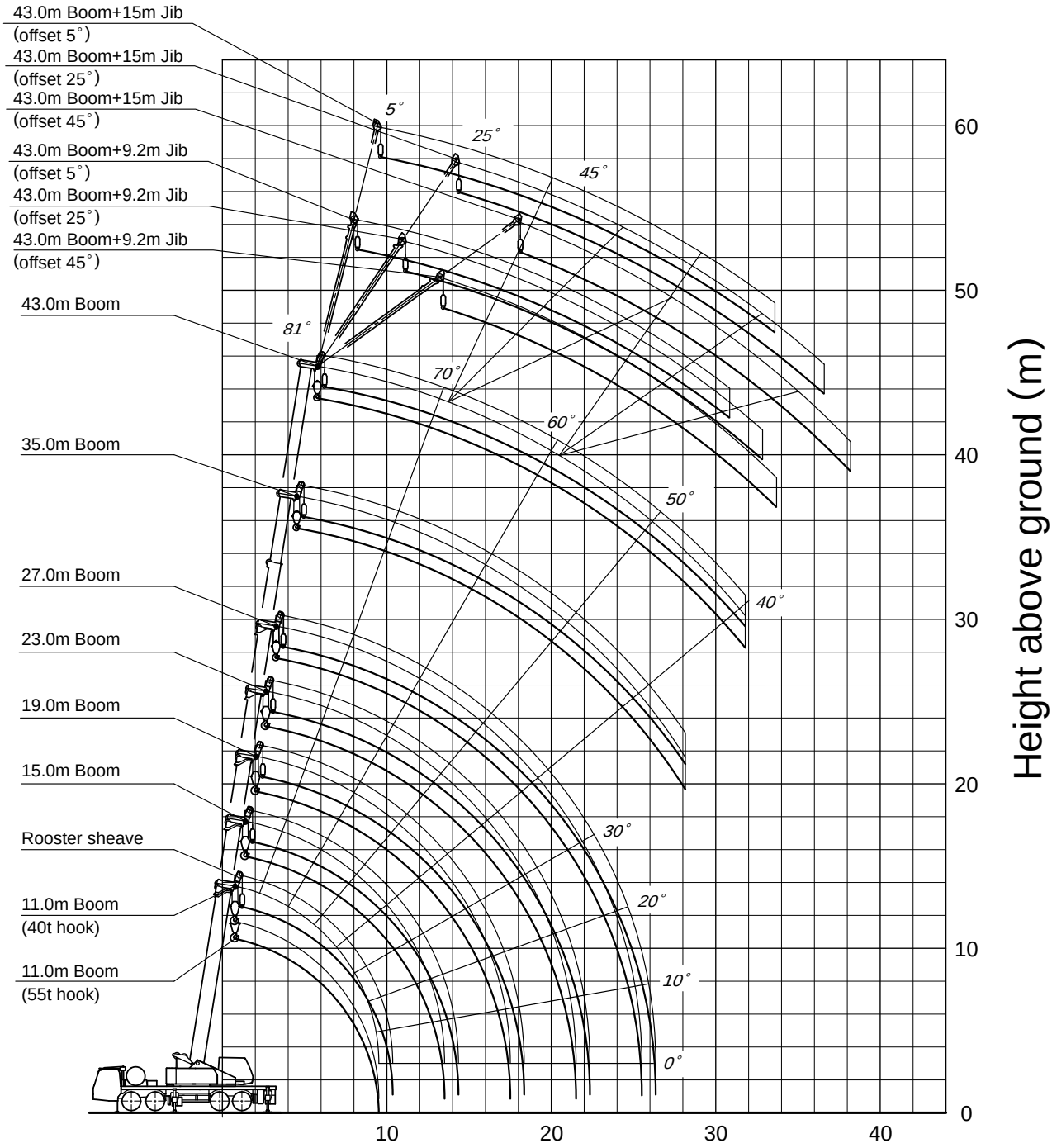
■WORKING RANGE



Note : Deflection of boom and jib is excluded

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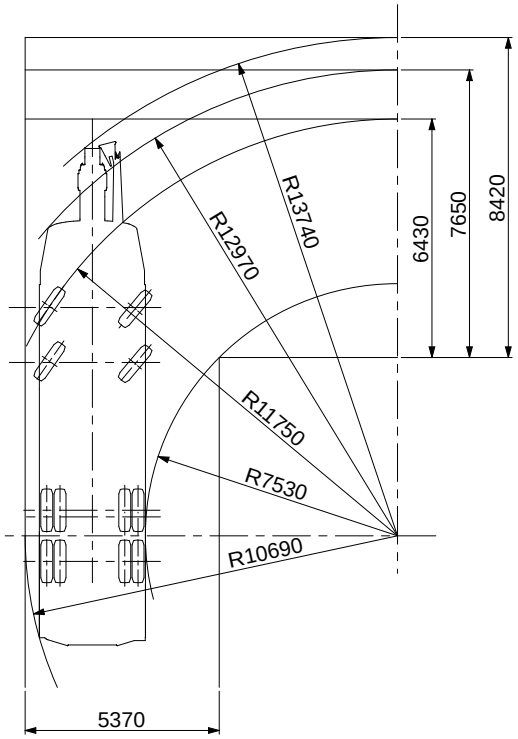
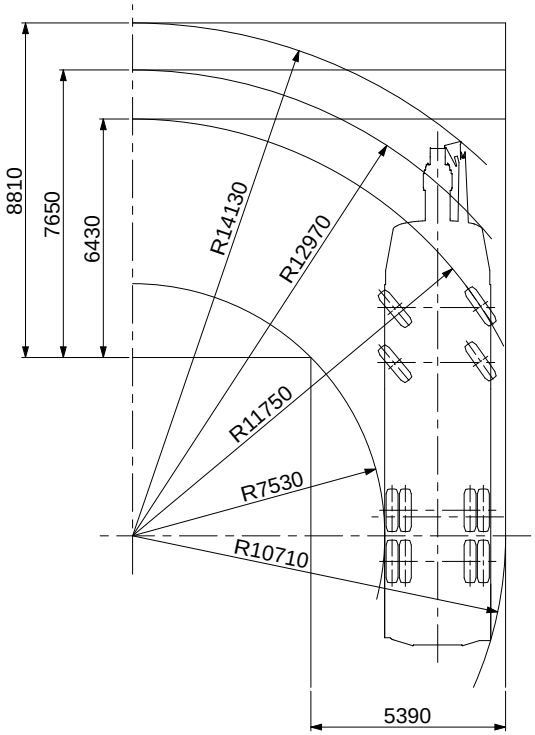
■Minimum path width

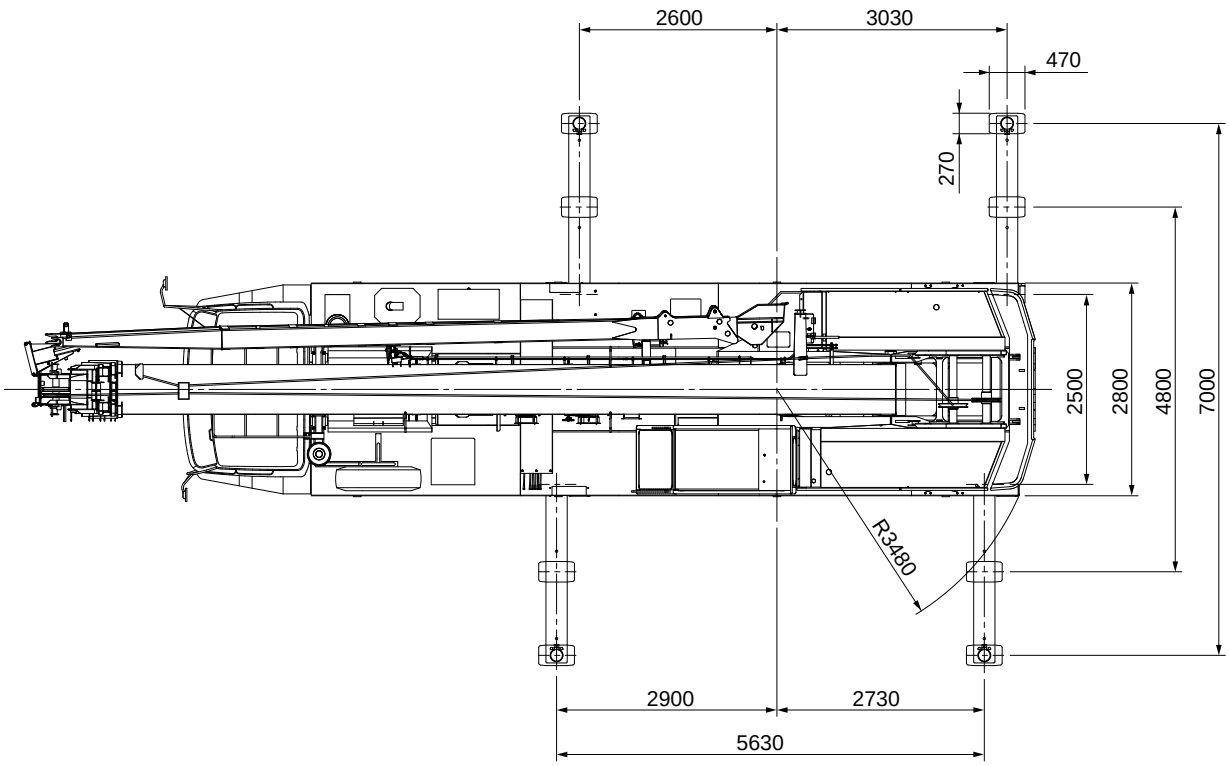
●Right turn



●Left turn



■Overall view



Reduced scale : 1/100 Unit (mm)

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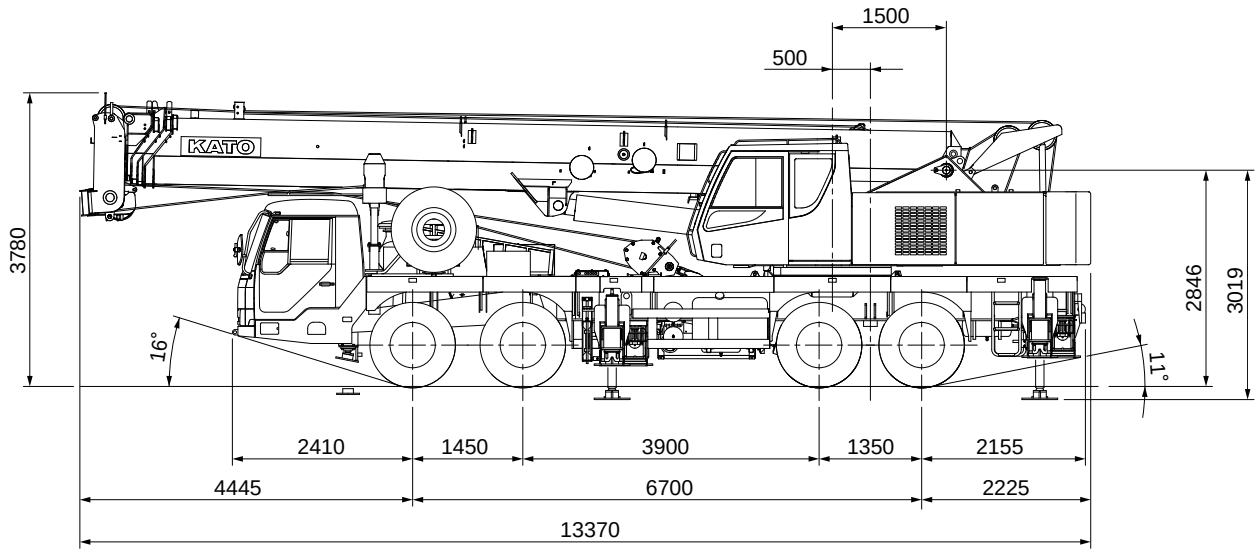
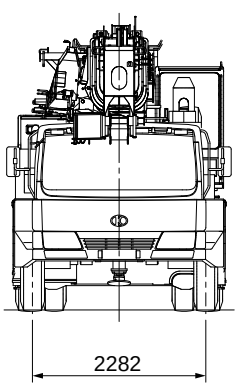
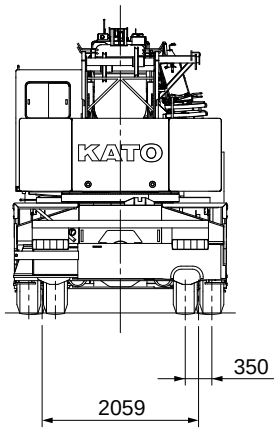
■Overall view







Reduced scale : 1/100 Unit (mm)

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ISO 9001 BUREAU VERITAS Certification

We acquired the "ISO 9001" certification which is an international standard for quality assurance.