

MR-100Lsp-V

Mini-Roughter[®]

KR-10H-LII

Special

[Major Specification Data]

■ Crane Section

Name	10-ton Hanging Rough Terrain Crane
Type	KATO KR-10H-LII

● Crane Performance

Maximum rated load	5.5 m boom	10,000 kg× 2.5 m (8 pieces hanging)
	9.1 m boom	5,000 kg× 4.5 m (4 pieces hanging)
	12.7 m boom	5,000 kg× 4.0 m (4 pieces hanging)
	16.3 m boom	4,000 kg× 4.5 m (4 pieces hanging)
	19.9 m boom	4,000 kg× 4.0 m (4 pieces hanging)
	23.5 m boom	2,300 kg× 6.0 m (1 piece hanging)
	3.3 m jib	1,200 kg× 70° (1 piece hanging)
	5.5 m jib	750 kg× 68° (1 piece hanging)
Rooster sheave	1,400 kg	(1 piece hanging)
Boom length	5.5 m ~ 23.5 m	
Jib length	3.3 m ~ 5.5 m	
Maximum above grade lifting range	24.5 m (boom) 30.0 m (jib)	
Hoisting rope speed	Main hoisting	112 m/min. (4 th layer)
	Aux. hoisting	104 m/min. (3 rd layer)
Hook speed	Main	(No. of ropes hung: 4) 28 m/min (4 th layer)
	Auxiliary	(No. of ropes hung: 1) 104 m/min (3 rd layer)
Boom derricking range	-9° ~ 81°	
Boom uprising speed	-9° ~ 81°/30 sec.	
Boom extension speed	5.5 m ~ 23.5 m/56 sec	
Swiveling speed	2.3 rpm	
Swiveling rear end radius	1,780 mm	

● Equipment and Structure of the Crane Section

Boom type	Box-type, 6-step, hydraulic telescopic type (2-3 steps simultaneous and 4-5-6 steps simultaneous)	
Jib type	2-step type 3-step slanting type (offset 5°, 25°, 45°)	
Boom telescopic device	Hydraulic cylinders (2 units) & wire rope combination type	
Boom derricking device	Hydraulic cylinder direct pushing type; incorporating flow regulating valve with pressure compensation facility	
Hoisting device	2 units of hydraulic motor-driven single winch; hydraulic motor driven; incorporating spur gear 2-step reducer; auto-brake (with foot-operated brake; free fall & power descending unit); power-compensated flow regulator	
Swiveling device	Hydraulic motor-driven; incorporating epicycle reduction gear (with built-in negative brake)	
Swiveling circle	Ball bearing type	
Outrigger device	Type	Full hydraulic H-type
	Outrigger extension width	4,500 mm (Max. extension)
		3,500 mm (Medium extension)
		2,500 mm (Medium extension)
Wire rope	Main	SeS (39) + 6×WS (26), φ10 mm × 130 m
	Auxiliary	IWRC 6×WS (26), φ10 mm × 65 m

● Hydraulic System

Oil pump	Variable plunger + gear type; variable plunger + gear type	
Oil motor	For hoisting	Axial plunger type
	For swiveling	Axial plunger type
Control valve	Multiple automatically resetting type (incorporating flow regulating valve with pressure compensation facility)	
Cylinder	Double-acting type	
Oil reservoir	150 ℓ	

● Safety System

	ACS (incorporating fully automatic overload prevention device with voice alarm); work area limiting device; automatic outrigger extension width detection device; by-itself boom descending- prevention mechanism; over wind prevention device; drum-hold safety mechanism; automatic braking system; hydraulic safety valve; outrigger lock device; swiveling alarm lamp; hydraulic oil overheating alarm device;	
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● Standard System

	Hydraulic dehumidifying air-conditioning system; AM-FM radio with clock; drum rotation indication system; intermittent ceiling wiper with washer	
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● Optional System

	Random winding prevention system, ACS external display system, loud speaker system, motorized storage side mirrors, tachograph, door visor	
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■ Carrier Section

● Traveling Performance

Maximum speed	49 km/h
Hill-climbing capability	0.60 (tan θ)
Minimum turning radius	6.5 m (2-wheel steering)
	3.92 m (4-wheel steering)

● Dimensions and Weight

Overall length	7,395 mm	
Maximum width	1,995 mm	
Overall height	2,815 mm	
Wheelbase	2,750 mm	
Tread	Front wheel	1,680 mm
	Rear wheel	1,680 mm
No. of persons on board	1 person	
Vehicle total weight	12,930 kg	
	Front axle	6,540 kg
	Rear axle	6,390 kg

● Engine

Model	Hino W04C-TV (with intercooled turbo)
Engine type	Water-cooled inline 4-cylinder direct-injection type diesel engine
Total emission	3,839 cc
Maximum power output	160 ps/3,000 rpm
Maximum torque	47 kg-m/1,600 rpm

● Equipment and Structure of the Lower Traveling Unit

Travel driving system	2-WD (4×2), 4-WD (4 × 4) switching type	
Torque converter type	3 elements; 1-step (with automatic lock-up mechanism)	
Gearbox type	Fully automatic and manual transmission type	
Gear settings	4 shifts forward; 2 shifts rearward (with Hi/Low switching)	
Axle type	Full floating type with 2-step reducer (front & rear axles)	
Main brake	2-system of pneumatic-hydraulic compound type; 4-wheel disk brakes	
Parking brake	Pneumatic type; drive shaft braking internal expanding type	
Auxiliary brake	Torque converter lock-up interlocked exhaust brake Auxiliary braking system for working	
Suspension system	Front axle	Taper leaf spring
	Rear axle	Taper leaf spring
Steering system	Type	Fully automatic power steering
	Mode	Front 2-wheels, Rear 2-wheels, Front & rear wheels independent (Rear steering automatic lock mechanism incorporated)
Tires	Front wheel	275/80 R22.5 149/146J
	Rear wheel	275/80 R22.5 149/146J
Fuel tank	250 ℓ	

● Safety System

	Emergency steering system; rear-wheel steering lock system; missed-shift prevention device; brake fluid leakage alarm system; auxiliary brake system for work execution; overrun alarm system	
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■ Required Qualifications for Operation and Work Executions

Crane operation	Driving license for traveling crane
Slinging operation	Having completed the slinging expertise course
Driving the vehicle	Driving license for large-sized special motor vehicle

- For crane operation, the Industrial Safety and Health Law applies.
- Please be sure to start using this vehicle after making the report to the local competent Labor Standards Supervision Office of the installation of the vehicle.
- Before traveling on a public road, this vehicle must have passed the public automobile safety inspection.

Total Lifting Load

5.5 m ~ 23.5 m Boom

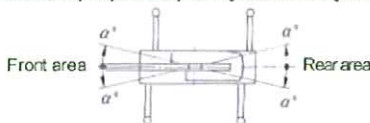
Operating radius (m)	 (4.5 m)						 (3.5 m)						 (2.5 m)						 (1.64 m)					
	Outrigger maximum extension (circumference)						Outrigger medium extension (lateral)						Outrigger medium extension (lateral)						Outrigger minimum extension (lateral)					
	5.5 m boom	9.1 m boom	12.7 m boom	16.3 m Boom	19.9 m boom	23.5 m boom	5.5 m boom	9.1 m boom	12.7 m boom	16.3 m Boom	19.9 m boom	23.5 m boom	5.5 m boom	9.1 m boom	12.7 m boom	16.3 m Boom	19.9 m boom	23.5 m boom	5.5 m boom	9.1 m boom	12.7 m boom	16.3 m Boom	19.9 m boom	23.5 m boom
1.5	10.00	5.00	5.00				10.00	5.00	5.00				10.00	5.00	5.00				8.00	5.00	5.00			
2.0	10.00	5.00	5.00	4.00			10.00	5.00	5.00	4.00			10.00	5.00	5.00	4.00			5.50	5.00	5.00	4.00		
2.5	10.00	5.00	5.00	4.00			10.00	5.00	5.00	4.00			7.50	5.00	5.00	4.00			3.70	3.50	3.50	3.20		
3.0	8.00	5.00	5.00	4.00	4.00		8.00	5.00	5.00	4.00	4.00		5.40	5.00	5.00	4.00	4.00		2.70	2.60	2.60	2.55	2.55	
3.5	6.10	5.00	5.00	4.00	4.00	2.30	6.10	5.00	5.00	4.00	4.00	2.30	4.10	4.00	3.80	4.00	4.00	2.30	2.10	1.95	1.95	2.05	2.05	2.00
4.0	5.20	5.00	5.00	4.00	4.00	2.30	5.20	5.00	5.00	4.00	4.00	2.30	3.20	3.10	3.00	3.20	3.30	2.30	1.60	1.50	1.50	1.60	1.65	1.70
4.5		5.00	4.55	4.00	3.70	2.30		4.80	4.55	4.00	3.70	2.30		2.50	2.40	2.60	2.75	2.30		1.15	1.15	1.25	1.35	1.40
5.0		4.40	4.10	3.70	3.40	2.30		3.85	3.80	3.70	3.40	2.30		2.05	1.95	2.15	2.30	2.30		0.90	0.90	1.00	1.10	1.20
5.5		3.95	3.70	3.40	3.10	2.30		3.20	3.15	3.40	3.10	2.30		1.70	1.60	1.80	1.90	2.00		0.70	0.70	0.80	0.90	1.00
6.0		3.55	3.35	3.15	2.85	2.30		2.70	2.70	2.90	2.85	2.30		1.40	1.35	1.50	1.65	1.70		0.55	0.50	0.65	0.75	0.85
6.5		3.15	3.05	2.90	2.60	2.15		2.30	2.30	2.50	2.60	2.15		1.20	1.15	1.30	1.42	1.50		0.40	0.30	0.50	0.60	0.70
7.0		2.80	2.80	2.65	2.40	2.00		2.00	1.95	2.15	2.30	2.00		1.00	0.95	1.10	1.25	1.30		0.25		0.40	0.50	0.55
8.0		2.50 (7.5 m)	2.30	2.25	2.05	1.75		1.75 (7.5 m)	1.45	1.65	1.80	1.75		0.85 (7.5 m)	0.65	0.85	0.95	1.00						
9.0			1.90	1.95	1.80	1.55			1.10	1.30	1.40	1.50			0.40	0.60	0.70	0.75						
10.0			1.55	1.70	1.60	1.40			0.80	1.00	1.15	1.25			0.20	0.40	0.50	0.60						
11.0			1.20	1.45	1.40	1.25			0.60	0.80	0.95	1.05				0.25	0.35	0.45						
12.0				1.20	1.25	1.15				0.60	0.75	0.85					0.20	0.30						
13.0				0.95	1.05	1.05				0.45	0.60	0.70												
14.0				0.80	0.90	0.95				0.30	0.45	0.55												
15.0				0.70 (14.5 m)	0.75	0.85				0.25 (14.5 m)	0.35	0.45												
16.0					0.65	0.70					0.25	0.34												
17.0					0.55	0.60					0.17	0.25												
18.0					0.45	0.50						0.17												
19.0						0.42																		
20.0						0.35																		
21.0						0.30																		
22.0						0.25																		
Danger angle	-	-	-	-	-	-	-	-	-	-	-	30°	-	-	-	40°	46°	54°	-	-	52°	59°	64°	68°
STD hook	10 t hook						10 t hook						10 t hook						10 t hook					
Hook mass	75 kg						75 kg						75 kg						75 kg					
No. of hanging	8	4	4	4	4	4	8	4	4	4	4	4	8	4	4	4	4	4	8	4	4	4	4	4

(Unit: ton)

[Matters Requiring Attention Concerning Total Lifting Load]

■ When Outriggers are Used:

- The total lifting load indicates the value of the maximum load, including the mass of hook and other hoisting assembly, which the vehicle can lift when it is positioned on a level, firm ground. The figures enclosed by bold lines are specified on the basis of the machine's strength, while other figures are determined on the basis of the stability of the vehicle.
- The operating radius is based on the actual values including the flexure of the boom. Therefore, make sure your work operation is performed on the basis of the radius.
- The operating radius for the jib indicates the value when work is executed with the jib installed on the 23.5 m boom. Carry out other jib operations with other boom lengths with only the boom angle as the reference.
- Do not carry out any jib operations when the outriggers are extended to their minimum width.
- Depending on the outrigger extension statuses, the lateral hoisting performance will vary. Therefore, be sure to execute your work on the basis of the Total Lifting Load table by referring to the condition how the outriggers are extended. As for the hoisting performance in the front and rear areas, carry out your work by referring to the Total Lifting Load table.



Outrigger extension status	Medium extension (3.5 m)	Medium extension (2.5 m)	Minimum extension
Area a*	25	15	3

- The total lifting load of the rooster sheave is defined as the load value obtained by subtracting the mass of the hoisting assembly, etc. attached to the boom from the total lifting load of the boom, and its limit is specified as 1,400 kg.

■ When Outriggers are Not Used:

- If the boom length should exceed the specified length, be sure to carry out your work by depending on the smaller of the total lifting loads: the value of the specified boom length or the value of the shorter length.
- If the boom operation is to be carried out with the jib being installed, be sure to subtract 700 kg in addition to the mass of the hoisting assembly, etc. from the total lifting load. In this case, do not use the rooster sheave.
- The danger angle of each boom length under individual work conditions is as shown on the table. Should the boom be positioned lower than the danger angle, it is possible that the vehicle should be overturned even under no-load condition.
- The standard number of ropes hanging on the standard hook is as shown on the table. If a number of hanging ropes other than for the standard hook is to be used, be sure to specify 1,300 kg per wire rope as the limit of load.
- The free-fall operation is used as a rule when causing the hook alone to descend. If, however, it is unavoidable that the free fall operation should be used for a hanging load, the load should be limited up to 20% of the total lifting load, and no braking operation should be allowed in this case.
- The Total Lifting Load table does not contain any data on the effect of wind. Do not execute any work operation if the maximum instantaneous wind velocity should exceed 10 m/ses.
- If any operation should be performed over the specified range of the total lifting load, or if this vehicle is used in an improper manner, it is liable that the vehicle should be overturned or be damaged. No guarantee will be provided for such a case.
- The Total Lifting Load table indicates the maximum load value that this machine is guaranteed to lift up, assuming that it is positioned on a level, firm ground with its tires maintained under the specified pressure, including the mass of all hoisting assemblies such as the hook. (The specified tire air pressure: 8.75 kg/cm²)
- The operating radius is based on the actual values including the flexure of the boom. Therefore, make sure your work operation is performed on the basis of the radius.
- Lateral hoisting is not permitted. Hoisting should be performed only in the front area.
- The total lifting load of the rooster sheave is defined as the load value obtained by subtracting the mass of the hoisting assembly, etc. attached to the boom from the total lifting load of the boom, and its limit is specified as 1,400 kg.
- Do not carry out any boom operation, jib operation, or free fall operation with boom length over 9.1 m.
- Do not elevate the boom to cause the boom angle to increase beyond 65°, or else, it is possible that the vehicle may topple over.
- Be sure to carry out any stationary hoisting operation after the hand brake having been firmly applied.
- When hoisting a load with the vehicle traveling, put the gearshift lever into first, and set the high-low switch to the low range.
- When hoisting a load with the vehicle traveling, keep the load low near the ground to prevent it from swinging, and drive the vehicle at a speed lower than 2 km/h. In particular, sudden acceleration or braking while turning at a corner must be avoided.
- Do not perform any crane operation while hoisting a load with the vehicle traveling. In addition, make sure that the swiveling brake has been fully applied.

23.5 m Boom + 3.3 m Jib

(4.5 m)						
Outrigger maximum extension (circumference)						
Boom Angle (°)	Offset 5°		Offset 25°		Offset 45°	
	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)
81	3.6	1.20	4.7	1.00	5.4	0.80
75	6.5	1.20	7.5	1.00	8.1	0.80
70	8.8	1.20	9.7	1.00	10.2	0.80
65	11.1	1.00	11.8	0.88	12.2	0.75
60	13.2	0.88	13.8	0.78	14.1	0.69
57	14.3	0.81	15.0	0.73	15.3	0.65
53	15.8	0.72	16.4	0.64	16.6	0.61
51	16.5	0.63	17.1	0.60	17.3	0.59
46	18.1	0.45	18.6	0.42	18.8	0.42
40	19.9	0.28	20.3	0.27		
36	21.0	0.20	21.3	0.20		
Danger Angle	34°		34°		45°	
Standard hook	1.4 t hook					
Hook Mass	20 kg					
# of ropes hung	1					

(3.5 m)						
Outrigger medium extension (lateral)						
Boom Angle (°)	Offset 5°		Offset 25°		Offset 45°	
	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)
81	3.6	1.20	4.7	1.00	5.4	0.80
75	6.5	1.20	7.5	1.00	8.0	0.80
70	8.8	1.20	9.7	1.00	10.2	0.80
64	11.5	0.95	12.2	0.85	12.6	0.73
62	12.2	0.81	13.0	0.74	13.4	0.71
60	13.0	0.68	13.7	0.63	14.1	0.60
55	14.9	0.41	15.5	0.39	15.8	0.38
50	16.6	0.22	17.2	0.21	17.4	0.22
Danger Angle	48°		48°		48°	
Standard hook	1.4 t hook					
Hook Mass	20 kg					
# of ropes hung	1					

(2.5 m)						
Outrigger medium extension (lateral)						
Boom Angle (°)	Offset 5°		Offset 25°		Offset 45°	
	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)
81	3.6	1.20	4.7	1.00	5.4	0.80
75	6.5	1.20	7.5	1.00	8.0	0.80
73	7.5	1.20	8.4	1.00	8.9	0.80
71	8.3	1.00	9.2	0.87	9.7	0.80
65	10.8	0.48	11.6	0.43	12.1	0.40
Danger Angle	63°		63°		63°	
Standard hook	1.4 t hook					
Hook Mass	20 kg					
# of ropes hung	1					

23.5 m Boom + 5.5 m Jib

(4.5 m)						
Outrigger maximum extension (circumference)						
Boom Angle (°)	Offset 5°		Offset 25°		Offset 45°	
	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)
81	4.1	0.75	5.9	0.60	7.1	0.50
75	7.4	0.75	9.0	0.60	10.0	0.50
68	11.0	0.75	12.2	0.53	13.1	0.46
65	12.3	0.68	13.5	0.51	14.3	0.45
60	14.5	0.58	15.7	0.47	16.3	0.43
55	16.6	0.50	17.6	0.43	18.2	0.40
50	18.5	0.44	19.4	0.39	19.8	0.36
48	19.2	0.42	20.1	0.37	20.4	0.35
46	20.0	0.36	20.8	0.36	21.0	0.34
43	20.9	0.30	21.7	0.29		
38	22.4	0.20	23.0	0.20		
Danger Angle	36°		36°		45°	
Standard hook	1.4 t hook					
Hook Mass	20 kg					
# of ropes hung	1					

(3.5 m)						
Outrigger medium extension (lateral)						
Boom Angle (°)	Offset 5°		Offset 25°		Offset 45°	
	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)
81	4.1	0.75	5.9	0.60	7.1	0.50
75	7.4	0.75	9.0	0.60	10.0	0.50
68	11.0	0.75	12.2	0.53	13.1	0.46
65	12.3	0.68	13.5	0.51	14.3	0.45
61	14.1	0.60	15.2	0.48	15.9	0.43
59	14.9	0.51	16.1	0.46	16.7	0.42
55	16.4	0.35	17.5	0.32	18.1	0.31
52	17.6	0.24	18.6	0.23	19.0	0.23
Danger Angle	50°		50°		50°	
Standard hook	1.4 t hook					
Hook Mass	20 kg					
# of ropes hung	1					

(2.5 m)						
Outrigger medium extension (lateral)						
Boom Angle (°)	Offset 5°		Offset 25°		Offset 45°	
	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)	Oper. rad. (m)	Load (ton)
81	4.1	0.75	5.9	0.60	7.1	0.50
75	7.4	0.75	9.0	0.60	10.0	0.50
70	9.9	0.75	11.3	0.55	12.3	0.47
68.5	10.6	0.63	12.0	0.54	12.9	0.46
65	12.1	0.39	13.4	0.34	14.3	0.31
Danger Angle	63°		63°		63°	
Standard hook	1.4 t hook					
Hook Mass	20 kg					
# of ropes hung	1					

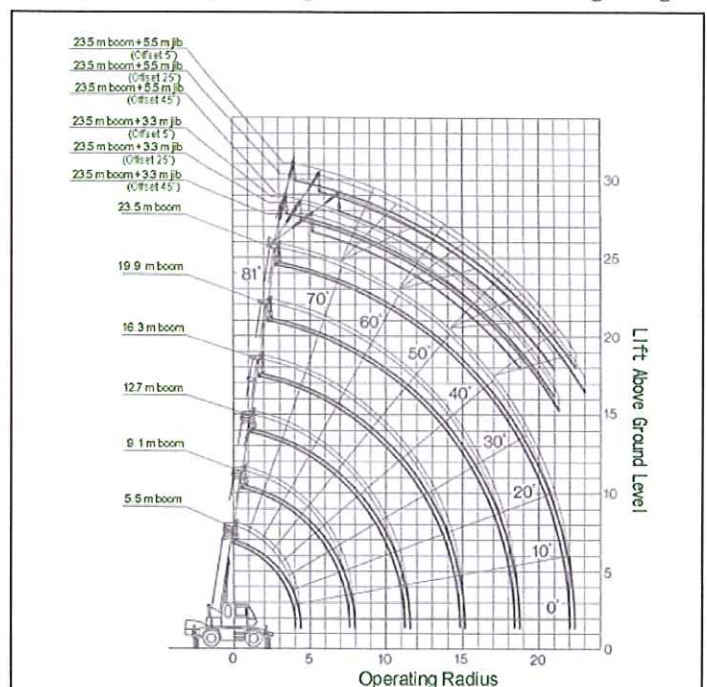
Outrigger Not Used, Stationary/Traveling Hoisting (2 km/h or less)		
Operating radius (m)	Front Hoisting (within 1° right or left)	
	5.5 m boom	9.1 m boom
1.5	1.00	
3.0	1.00	0.50
4.0	1.00	0.50
7.5		0.50
Danger Angle	-	
Standard hook	10 t hook	
Hook mass	75 kg	
# of ropes hung	4	

(Unit: ton)

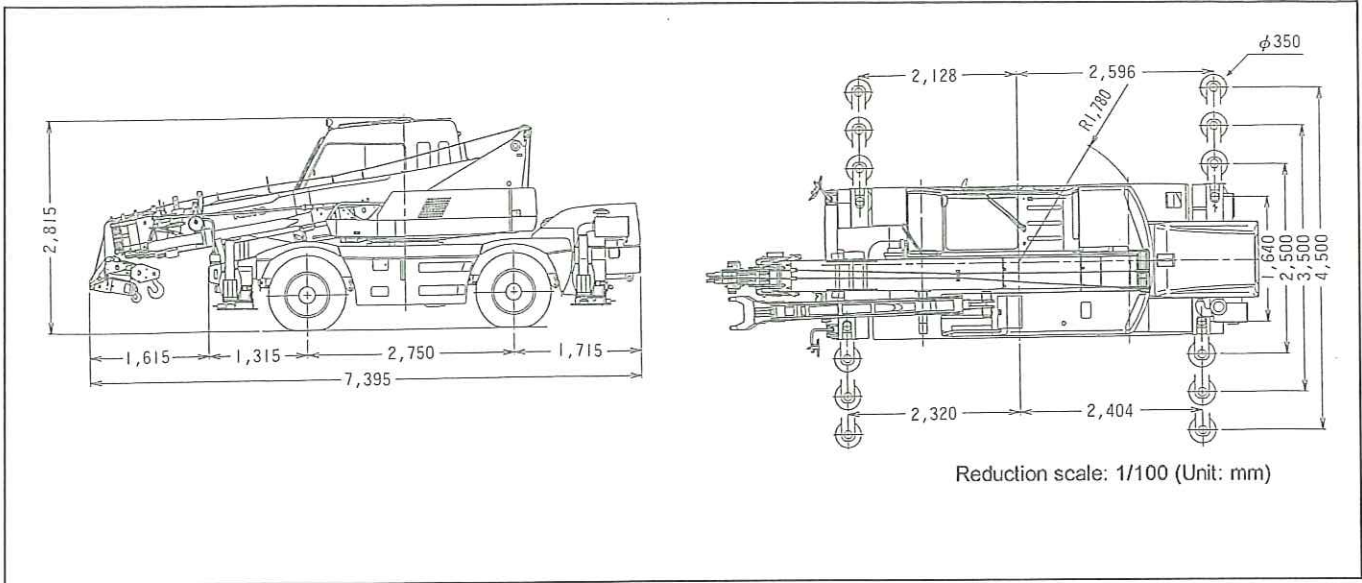
The standard number of ropes anging on the standard hook is as shown in the table. If a number of hanging ropes other than for the standard hook is to be used, be sure to specify 1,300 kg per wire rope as the limit of load.

- The Total Lifting Load table does not contain any data on the effect of wind. Do not execute any work operation if the maximum instantaneous wind velocity should exceed 10 m/sec.
- If any operation should be performed over the specified range of the total lifting load, or if this vehicle is used in an improper manner, it is liable that the vehicle should be overturned or be damaged. No guarantee will be provided for such a case.

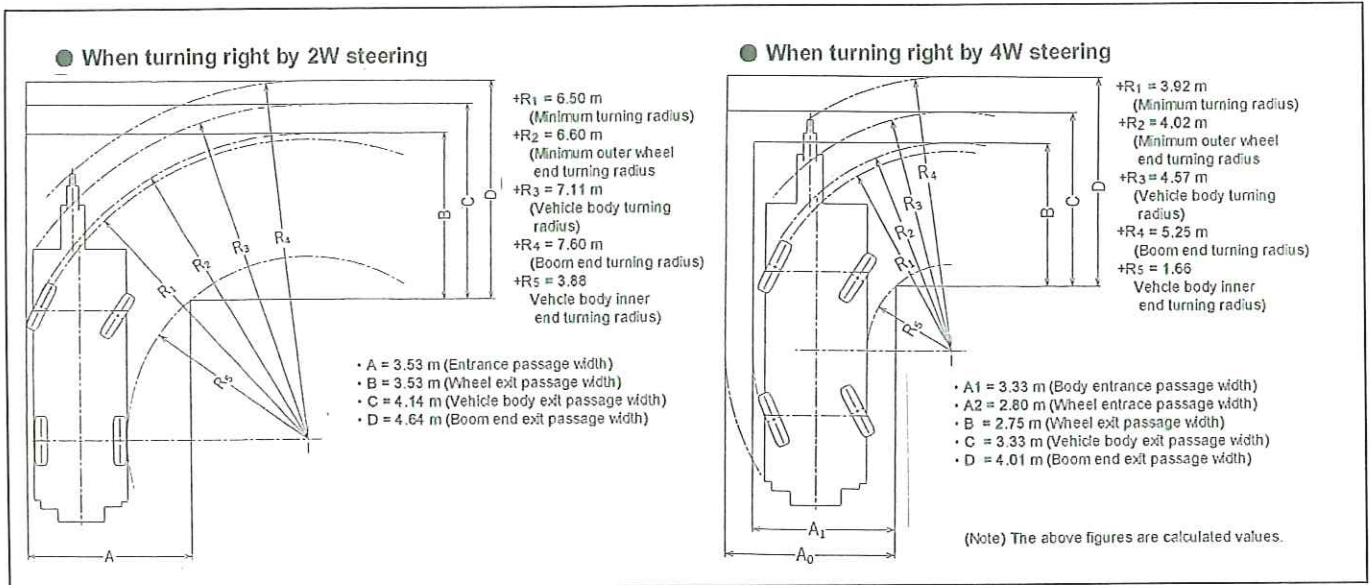
■ Diagram of Operating Radius versus Lifting Height



- (Note) 1) This diagram does not contain the effects of flexure by the boom or the jib.
 2) This diagram is for the outriggers' maximum extension (circumference).



■ Minimum Passage Width for Bending at a Right Angle



※Please understand that the performance and the specifications listed in this catalog are subject to change due to upgrading, etc.

KATO KATO WORKS CO., LTD.

Headquarters: 9-37, Higashi-Ohi 1-chome, Shinagawa-ku, Tokyo
 140-0011, JAPAN
 TELEPHONE: +81 (0) 3 3458-1115
 FACSIMILE: +81 (0) 3 3458-1151

For your enquiry, please contact the following: