ROUGH TERRAIN CRANE

GR-120NL
GR-120N

(Power Tilt Jib)

JAPANESE SPECIFICATIONS

GR

CARRIER MODEL	OUTLINE	SPEC. NO.
GR-120NL	Max. total rated load 12ton X-type outrigger Winch without free-fall device	GR-120N-1-00111
GR-120NL	Max. total rated load 12ton X-type outrigger Winch with free-fall device	GR-120N-1-00112
GR-120NL	Max. total rated load 12ton H-type outrigger Winch without free-fall device	GR-120N-1-00113
GR-120NL	Max. total rated load 12ton H-type outrigger Winch with free-fall device	GR-120N-1-00114
GR-120N	Max. total rated load 4.9ton X-type outrigger Winch without free-fall device	GR-120N-1-00115
GR-120N	Max. total rated load 4.9ton X-type outrigger Winch with free-fall device	GR-120N-1-00116
GR-120N	Max. total rated load 4.9ton H-type outrigger Winch without free-fall device	GR-120N-1-00117
GR-120N	Max. total rated load 4.9ton H-type outrigger Winch with free-fall device	GR-120N-1-00118

Control No. JA-03

Courtesy of Crane.Market

GR-120NL, GR-120N

CRANE SPECIFICATIONS

CRANE CAPACITY

5.3m Boom	12,000kg	at 2.0m	(8part-line)	···GR-120NL
	4,900kg	at 4.0m	(4part-line)	···GR-120N
9.0m Boom	6,000kg	at 4.0m	(4part-line)	···GR-120NL
	4,900kg	at 4.5m	(4part-line)	···GR-120N
12.7m Boom	6,000kg	at 4.0m	(4part-line)	···GR-120NL
	4,900kg	at 4.5m	(4part-line)	···GR-120N
16.4m Boom	5,000kg	at 4.5m	(4part-line)	···GR-120NL
	4,900kg	at 4.5m	(4part-line)	···GR-120N
20.1m Boom	4,500kg	at 4.0m	(4part-line)	
23.8m Boom	3,000kg	at 5.5m	(4part-line)	
3.6m Jib	1,500kg	at 75°	(1part-line)	
5.5m Jib	850kg	at 70°	(1part-line)	
Single top	1,800kg		(1part-line)	

MAX.LIFTING HEIGHT
Boom: 24.5m Single top: 30.0m

MAX.WORKING RADIUS
Boom: 22.3m Single top: 23.2m

BOOM LENGTH
5.3m – 23.8m

BOOM EXTENSION
18.5m

BOOM EXTENSION SPEED
18.5m/52s

JIB LENGTH
3.6m, 5.5m

MAIN WINCH SINGLE LINE WINDING SPEED
124m/min (5th layer)

MAIN WINCH HOOK SPEED
31.0m/min (4 part-line)

MAIN WINCH SINGLE LINE UNWINDING SPEED
<Reference>
Standard 110m/min (5th layer)
High speed 185m/min (5th layer) --- only on cranes fitted with winches without free-fall device

AUXILIARY WINCH SINGLE LINE WINDING SPEED
105m/min (3th layer)

AUXILIARY WINCH HOOK SPEED
105m/min (1 part-line)

AUXILIARY WINCH SINGLE LINE UNWINDING SPEED
<Reference>
Standard 100m/min (3rd layer)
High speed 160m/min (3rd layer) --- only on cranes fitted with winches without free-fall device

BOOM ELEVATION ANGLE
-3° – 82°

BOOM ELEVATION SPEED
-3° – 82°/30s

SWING ANGLE
360° continue

SWING SPEED
2.4min^{-1}(rpm)

WIRE ROPE
Main Winch: 11.2mm x 132m (Diameter x Length)
Spin-resistant wire rope
Auxiliary Winch: 11.2mm x 65m (Diameter x Length)
Spin-resistant wire rope

BOOM
6-section hydraulically telescoping boom of box construction
(stages 2,3: synchronized; stages 4,5,6: synchronized)

BOOM EXTENSION
2 double-acting hydraulic cylinders
2 wire rope type telescoping devices

JIB
2 stage which swings from and stores under the boom (with 2nd stage being a pull-out type)
Hydraulic non-stage offset (5° - 45°) type

SINGLE TOP
Mounted and fixed on the top boom section.

HOIST
Driven by hydraulic motor and via bevel gear reducer.
Automatic brake
High-speed unwind function - only on cranes fitted with winches without free-fall device
Free-fall device (with foot brake) - only on cranes fitted with winches with free-fall device
2 single winches
With flow regulator valve with pressure compensation

BOOM ELEVATION
1 double-acting hydraulic cylinder
With flow regulator valve with pressure compensation

SWING
Hydraulic motor driven planetary gear reducer
Swing bearing
Negative brake

OUTRIGGERS
Fully hydraulic X-type or H-type(floats mounted integrally)
Slides and jacks each provided with independent operation device.

Fully extended width	4.7m
Middle extended width	4.3m, 3.5m, 2.5m
Minimum extended width	1.7m (X-type), 1.64m (H-type)

OPERATION METHOD
Hydraulic pilot valve operation

MAX. VERTICAL LOAD CAPACITY OF OUTRIGGER
12.9t ···GR-120NL
10.3t ···GR-120N

POWER TAKE-OFF
PTO wet multi-plate clutch

HYDRAULIC PUMPS
2 variable piston pumps
2 gear pumps

HYDRAULIC OIL TANK CAPACITY
172 liters

SAFETY DEVICES
Automatic moment limiter (AML)
Swing automatic stop device
Elevation slow down and stop device
Over-winding cutout device
Working area control device
Free-fall interlock device - only on cranes fitted with winches with free-fall device
Outrigger extension width detector
Level gauge
Hook safety latch
Hydraulic safety valve
Telescopic counterbalance valve
Elevation counterbalance valve
Power tilt counterbalance valve
Jack pilot check valve
Hydraulic oil temperature indication lamp

EQUIPMENT
Air-conditioner with dehumidifier
Radio
Oil cooler
Operation pedals
ISO arrangement: for telescoping/auxiliary hoisting
TADANO arrangement: for elevating/telescoping

Courtesy of Crane.Market

CARRIER SPECIFICATIONS

ENGINE
Model MITSUBISHI 4M50-TLE2A (with turbo charger and air cooler)
Type 4-cycle, 4-cylinder, direct-injection, water-cooled diesel engine
Piston displacement 4,899cc
Max. output 125kW (170PS) at 2,800min^{-1}(rpm)
Max. torque 451N·m (46.0kgf·m) at 1,800min^{-1}(rpm)

TORQUE CONVERTER
3-element, 1-stage unit (with automatic lock-up mechanism)

TRANSMISSION
Automatic and manual transmission
Power shift type (wet multi-plate clutch)
3 forward and 1 reverse speeds (with Hi/Low settings)

REDUCER
Single reduction type hypoid gear

DRIVE
2-wheel drive (4X2) / 4-wheel drive (4X4) selection

FRONT AXLE
Full floating type

REAR AXLE
Full floating type

SUSPENSION
Front Parallel leaf spring type
Rear Parallel leaf spring type
Spring lock device (option)

STEERING
Fully hydraulic power steering
With reverse steering correction mechanism

BRAKE SYSTEM
Service Brake
Hydro-pneumatic disk brake
Parking Brake
Mechanically operated, internal expanding duo-servo shoe type acting on drum at transmission case rear.
Auxiliary Brake
Electro-pneumatic operated exhaust brake
Auxiliary braking device for operations

FRAME
Welded box-shaped structure

ELECTRIC SYSTEM
12 V DC. 2 batteries of 24V (100Ah)

FUEL TANK CAPACITY
189 liters

TIRES
Front 275/80 R22.5 149/146J
Rear 275/80 R22.5 149/146J

CAB
One-man type
With interior equipment
Rubber mounted type
Fully adjustable foldable seat
(with headrest, armrest and seat belt)
Adjustable handle (tilt, telescoping)
Intermittent type windshield/roof wiper (with washer)
Power window Side visor
Emergency steering device
Suspension lock device

SAFETY DEVICES
Rear wheel steering lock device
Engine over-run alarm
Overshift prevention device
Parking brake alarm

EQUIPMENT
Centralized oiling device

GENERAL DATA

DIMENSIONS

Overall length	7,430mm
Overall width	2,000mm
Overall height	2,800mm
Wheel base	2,750mm
Tread Front	1,680mm
Rear	1,680mm

WEIGHTS

Gross vehicle weight	(X-type)	(H-type)
Total	13,495kg	13,365kg
Front	6,960kg	6,900kg
Rear	6,535kg	6,465kg

PERFORMANCE

Max. traveling speed	49km/h
Gradeability (tan θ)	0.46
Min. turning radius	3.8m (4-wheel steering)
	6.5m (2-wheel steering)

Courtesy of Crane.Market

TOTAL RATED LOADS

(1) With outriggers set
[BOOM]

Unit:ton

Outriggers fully extended (4.7m)						
B \ A	5.3m	9.0m	12.7m	16.4m	20.1m	23.8m
1.0m	12.00(4.90)	6.00(4.90)				
1.5m	12.00(4.90)	6.00(4.90)	6.00(4.90)			
2.0m	12.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)		
2.5m	10.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	
3.0m	8.20(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	
3.5m	7.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	3.00
4.0m	6.10(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	3.00
4.5m		5.20(4.90)	5.10(4.90)	5.00(4.90)	4.10	3.00
5.0m		4.65	4.60	4.50	3.80	3.00
5.5m		4.15	4.10	4.00	3.50	3.00
6.0m		3.75	3.70	3.60	3.25	2.80
7.0m		3.05	3.00	2.90	2.75	2.40
8.0m		2.70(7.7m)	2.45	2.40	2.35	2.15
9.0m			1.90	2.05	2.05	1.90
10.0m			1.55	1.70	1.75	1.65
11.0m			1.25	1.45	1.55	1.45
12.0m			1.20(11.4m)	1.25	1.35	1.30
13.0m				1.00	1.15	1.15
14.0m				0.85	1.00	1.05
15.0m				0.70	0.85	0.95
16.0m					0.70	0.80
17.0m					0.60	0.70
18.0m					0.50	0.60
19.0m					0.45(18.7m)	0.50
20.0m						0.45
22.0m						0.30
22.3m						0.27
a (°)	0 ~ 82					

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)

Courtesy of Crane.Market

[BOOM]

Unit:ton

Outriggers middle extended (4.3m)						
A / B	5.3m	9.0m	12.7m	16.4m	20.1m	23.8m
1.0m	12.00(4.90)	6.00(4.90)				
1.5m	12.00(4.90)	6.00(4.90)	6.00(4.90)			
2.0m	12.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)		
2.5m	10.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	
3.0m	8.20(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	
3.5m	7.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	3.00
4.0m	6.10(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	3.00
4.5m		5.20(4.90)	5.10(4.90)	5.00(4.90)	4.10	3.00
5.0m		4.65	4.60	4.50	3.80	3.00
5.5m		4.15	4.10	4.00	3.50	3.00
6.0m		3.75	3.70	3.60	3.25	2.80
7.0m		2.90	3.00	2.90	2.75	2.40
8.0m		2.50(7.7m)	2.30	2.40	2.35	2.15
9.0m			1.80	1.90	2.05	1.90
10.0m			1.45	1.55	1.65	1.65
11.0m			1.15	1.25	1.35	1.45
12.0m			1.05(11.4m)	1.10	1.10	1.20
13.0m				0.80	0.90	1.00
14.0m				0.60	0.75	0.85
15.0m				0.50	0.60	0.75
16.0m					0.50	0.60
17.0m					0.40	0.50
18.0m					0.30	0.43
19.0m					0.25(18.7m)	0.35
20.0m						0.25
a (°)	0 ~ 82					

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)

Courtesy of Crane.Market

[BOOM]

Unit:ton

Outriggers middle extended (3.5m)						
A / B	5.3m	9.0m	12.7m	16.4m	20.1m	23.8m
1.0m	12.00(4.90)	6.00(4.90)				
1.5m	12.00(4.90)	6.00(4.90)	6.00(4.90)			
2.0m	12.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)		
2.5m	10.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	
3.0m	8.20(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	
3.5m	7.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	3.00
4.0m	6.10(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	3.00
4.5m		4.75	4.70	5.00(4.90)	4.10	3.00
5.0m		3.85	3.85	4.10	3.80	3.00
5.5m		3.25	3.25	3.50	3.50	3.00
6.0m		2.75	2.75	3.00	3.15	2.80
7.0m		2.05	2.00	2.25	2.40	2.40
8.0m		1.65(7.7m)	1.50	1.70	1.85	1.90
9.0m			1.10	1.30	1.45	1.50
10.0m			0.80	1.00	1.15	1.20
11.0m			0.60	0.80	0.90	0.97
12.0m			0.40(11.4m)	0.60	0.70	0.77
13.0m				0.45	0.55	0.62
14.0m				0.30	0.40	0.50
15.0m				0.25	0.30	0.40
16.0m					0.20	0.30
17.0m						0.20
a (°)	0 ~ 82				21 ~82	36 ~82

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)

Courtesy of Crane.Market

[BOOM]

Unit:ton

Outriggers middle extended (2.5m)						
A / B	5.3m	9.0m	12.7m	16.4m	20.1m	23.8m
1.0m	12.00(4.90)	6.00(4.90)				
1.5m	12.00(4.90)	6.00(4.90)	6.00(4.90)			
2.0m	12.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)		
2.5m	8.00(4.90)	6.00(4.90)	6.00(4.90)	5.00(4.90)	4.50	
3.0m	5.70(4.90)	5.50(4.90)	5.50(4.90)	5.00(4.90)	4.50	
3.5m	4.25	4.30	4.30	4.50	4.50	3.00
4.0m	3.45	3.35	3.35	3.55	3.70	3.00
4.5m		2.60	2.65	2.90	3.05	3.00
5.0m		2.10	2.15	2.35	2.55	2.60
5.5m		1.75	1.75	1.95	2.15	2.25
6.0m		1.45	1.40	1.65	1.80	1.95
7.0m		1.00	0.95	1.15	1.30	1.40
8.0m		0.70(7.7m)	0.65	0.85	0.95	1.05
9.0m			0.40	0.60	0.70	0.77
10.0m			0.20	0.40	0.50	0.60
11.0m				0.25	0.35	0.40
12.0m					0.20	0.30
13.0m						0.20
a (°)	0 ~ 82		19 ~82	33 ~82	44 ~82	50 ~82

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)

Courtesy of Crane.Market

[BOOM]

Unit:ton

Outriggers minimum extended (*)						
A / B	5.3m	9.0m	12.7m	16.4m	20.1m	23.8m
1.0m	8.00(4.90)	6.00(4.90)				
1.5m	7.00(4.90)	6.00(4.90)	6.00(4.90)			
2.0m	5.50(4.90)	5.40(4.90)	5.50(4.90)	5.00(4.90)		
2.5m	3.70	3.80	3.55	3.20	3.20	
3.0m	2.70	2.85	2.65	2.60	2.60	
3.5m	2.10	2.00	2.00	2.05	2.10	2.10
4.0m	1.60	1.55	1.55	1.60	1.70	1.75
4.5m		1.20	1.20	1.25	1.40	1.45
5.0m		0.90	0.95	1.00	1.15	1.25
5.5m		0.70	0.75	0.80	0.95	1.05
6.0m		0.55	0.55	0.65	0.80	0.90
7.0m		0.25	0.20	0.40	0.55	0.60
8.0m						0.35
a (°)	0 ~ 82	18 ~ 82	50 ~82	56 ~82	60 ~82	63 ~82

A= Boom length B= Working radius
a= Boom angle range (for the unladen condition)
* 1.7 m---X-type outrigger
1.64m---H-type outrigger

Courtesy of Crane.Market

[JIB]

Unit:ton

Outriggers fully extended (4.7m) −360°−												
C	23.8m Boom + 3.6m Jib						23.8m Boom + 5.5m Jib					
D	5°		25°		45°		5°		25°		45°	
E (°)	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
82	3.8	1.50	4.7	1.20	5.9	0.90	3.9	0.85	6.2	0.70	7.2	0.60
80	4.8	1.50	5.7	1.20	6.8	0.90	5.0	0.85	7.3	0.70	8.2	0.60
75	7.3	1.50	8.1	1.20	9.2	0.90	7.7	0.85	9.9	0.70	10.6	0.55
70	9.7	1.25	10.4	1.00	11.4	0.85	10.3	0.85	12.2	0.65	12.8	0.53
65	12.0	1.05	12.5	0.90	13.4	0.77	12.6	0.80	14.3	0.60	15.0	0.50
60	14.2	0.90	14.6	0.80	15.4	0.70	14.8	0.66	16.3	0.55	17.0	0.48
55	16.2	0.71	16.4	0.66	17.0	0.65	16.9	0.58	18.0	0.50	18.9	0.45
50	18.0	0.53	18.2	0.50	18.5	0.50	18.8	0.47	19.6	0.42	20.5	0.40
45	19.7	0.38	19.8	0.36	19.8	0.36	20.5	0.34	21.1	0.31	22.0	0.31
40	21.1	0.25	21.2	0.25			22.3	0.23	23.2	0.21		
35	22.3	0.16	22.4	0.16								
a (°)	34 ~ 82				44 ~ 82		39 ~ 82				44 ~ 82	

Unit:ton

Outriggers middle extended (4.3m) −Over sides−												
C	23.8m Boom + 3.6m Jib						23.8m Boom + 5.5m Jib					
D	5°		25°		45°		5°		25°		45°	
E (°)	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
82	3.8	1.50	4.7	1.20	5.9	0.90	3.9	0.85	6.1	0.70	7.1	0.60
80	4.8	1.50	5.7	1.20	6.9	0.90	5.0	0.85	7.2	0.70	8.2	0.60
75	7.3	1.50	8.1	1.20	9.2	0.90	7.7	0.85	9.9	0.70	10.6	0.55
70	9.7	1.25	10.4	1.00	11.4	0.85	10.2	0.85	12.2	0.65	12.8	0.53
65	12.0	1.05	12.5	0.90	13.4	0.77	12.6	0.80	14.3	0.60	15.0	0.50
60	14.2	0.80	14.5	0.77	15.3	0.65	14.8	0.66	16.3	0.55	17.0	0.48
55	16.1	0.55	16.4	0.55	16.9	0.53	16.8	0.52	18.0	0.45	18.8	0.40
50	17.9	0.38	18.1	0.38	18.4	0.37	18.7	0.36	19.6	0.33	20.5	0.32
45	19.6	0.26	19.7	0.26	19.8	0.24	20.5	0.24	21.1	0.22	21.9	0.21
40	21.0	0.15	21.1	0.15								
a (°)	39 ~ 82				44 ~ 82		44 ~ 82					

B= Working radius C= Jib length D= Jib offset
E= Boom angle M= Total rated loads
a= Boom angle range (for the unladen condition)

Courtesy of Crane.Market

[JIB]

Unit:ton

Outriggers middle extended (3.5m) –Over sides–												
C	23.8m Boom + 3.6m Jib						23.8m Boom + 5.5m Jib					
D	5°		25°		45°		5°		25°		45°	
E (°)	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
82	3.8	1.50	4.7	1.20	5.9	0.90	3.9	0.85	6.1	0.70	7.2	0.60
80	4.8	1.50	5.7	1.20	6.8	0.90	5.0	0.85	7.3	0.70	8.2	0.60
75	7.3	1.50	8.1	1.20	9.2	0.90	7.7	0.85	9.9	0.70	10.6	0.55
70	9.6	1.10	10.3	1.00	11.4	0.85	10.2	0.85	12.2	0.65	12.8	0.53
65	11.8	0.74	12.4	0.70	13.3	0.65	12.5	0.68	14.2	0.52	14.9	0.45
60	13.9	0.48	14.4	0.46	15.2	0.43	14.6	0.42	16.2	0.37	16.9	0.35
55	15.9	0.28	16.2	0.27	16.8	0.26	16.9	0.25	17.9	0.22	18.7	0.21
a (°)	54 ~ 82						54 ~ 82					

Unit:ton

Outriggers middle extended (2.5m) –Over sides–												
C	23.8m Boom + 3.6m Jib						23.8m Boom + 5.5m Jib					
D	5°		25°		45°		5°		25°		45°	
E (°)	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M	B (m)	M
82	3.8	1.50	4.7	1.20	5.9	0.90	3.9	0.85	6.1	0.70	7.2	0.60
75	7.2	1.10	8.0	0.90	9.1	0.80	7.7	0.85	9.8	0.65	10.5	0.50
70	9.5	0.58	10.1	0.50	11.1	0.45	10.0	0.50	12.0	0.40	12.7	0.35
65	11.6	0.25	12.1	0.22	13.1	0.20	12.2	0.20				
a (°)	64 ~ 82						64 ~ 82		69 ~ 82			

B= Working radius C= Jib length D= Jib offset
E= Boom angle M= Total rated loads
a= Boom angle range (for the unladen condition)

Courtesy of Crane.Market

PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE EXTENDED:

1. The values in parentheses are for GR-120N.
2. The total rated loads shown are for the case where the crane is set horizontally on firm level ground. They include the weights of the slings and hooks.
   The values above the bold lines are based on the crane strength while those below are based on the crane stability.
3. Since the total rated loads are based on the actual working radii including the deflection of the boom, operations should be performed in accordance with the working radii.
4. Perform jib operations in accordance with the boom angle, irrespective of the boom length.
   The working radii are reference values for the case where the jib is mounted to a 23.8m boom.
5. The total rated load for the single top shall be the value obtained by subtracting the weight of the main hook from the total rated load of the boom and must not exceed 1.8t.
6. High-speed unwind function (only on cranes fitted with winches without free-fall device) should be performed only when lowering the hook alone and sudden braking operations must be avoided.
7. As a rule, free-fall operation (only on cranes fitted with winches with free-fall device) should be performed only when lowering the hook alone. If a hoisted load must be lowered by free-fall operation, the load must be kept below 1/5th of the total rated load and sudden braking operations must be avoided.
8. The table below shows the standard number of part lines for each boom length. When using with other than this number of part lines, the load per line should not exceed 1.5t for the main winch, and 1.8t for the auxiliary winch.

A	5.3m	9.0m	12.7m	16.4m	20.1m	23.8m	Jib/Single top
H	8(4)	4	4	4	4	4	1
K	12t Hook (4.9t Hook)						1.8t Hook
L	90kg (90kg)						25kg

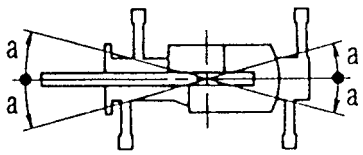
The values in parentheses are for GR-120N.

A= Boom length H= No. of part-lines
K= Hook type L= Hook weight

9. The hoisting performance for the "Over sides" range will differ according to the extended width of the outriggers. Operations should be performed in accordance with the performance corresponding to the extended width.
   Also, although the hoisting performances for the "Over front" and "Over rear" ranges are equivalent to those of the "outriggers fully extended" condition, the front and rear ranges (angle a) will differ according to the width to which the outriggers are extended in the left and right directions.

Extended width	Middle extended (4.3m)	Middle extended (3.5m)	Middle extended (2.5m)	Minimum extended (*)
Angle a°	35	25	15	5

*= 1.7m X-type outrigger 1.64m H-type outrigger



Courtesy of Crane.Market

(2) Without outriggers

Unit:ton

B (m)	Stationary					
	5.3m Boom		9.0m Boom		12.7m Boom	
	K	G	K	G	K	G
1.0	3.60	2.80	3.60	2.80		
1.5	3.60	2.80	3.60	2.80	3.60	2.80
2.0	3.40	2.80	3.40	2.80	3.40	2.80
2.5	3.10	2.15	3.10	2.10	3.10	2.05
3.0	2.65	1.60	2.60	1.55	2.55	1.50
3.5	2.30	1.25	2.20	1.20	2.10	1.10
4.0	2.00	0.90	1.90	0.80	1.70	0.70
4.5			1.60	0.50	1.40	0.40
5.0			1.30		1.10	
5.5			1.10		0.95	
6.0			0.90		0.80	
7.0			0.50		0.50	
a (°)	0 ~ 82		26 ~ 82	50 ~ 82	52 ~ 82	63 ~ 82

Unit:ton

B (m)	Creep (travelling at 1.6km/h or less)					
	5.3m Boom		9.0m Boom		12.7m Boom	
	K	G	K	G	K	G
1.0	3.20	2.00	3.20	2.00		
1.5	3.20	2.00	3.20	2.00	3.20	2.00
2.0	3.00	2.00	3.00	2.00	3.00	2.00
2.5	2.80	1.55	2.75	1.50	2.65	1.45
3.0	2.40	1.10	2.30	1.05	2.20	1.00
3.5	2.00	0.85	1.90	0.75	1.80	0.65
4.0	1.70	0.60	1.65	0.50	1.50	0.40
4.5			1.40	0.30	1.25	
5.0			1.15		1.00	
5.5			0.95		0.85	
6.0			0.80		0.70	
7.0			0.45		0.45	
a (°)	0 ~ 82		26 ~ 82	50 ~ 82	52 ~ 82	66 ~ 82

B= Working radius K= Front G= 360°
a= Boom angle range (for the unladen condition)

Courtesy of Crane.Market

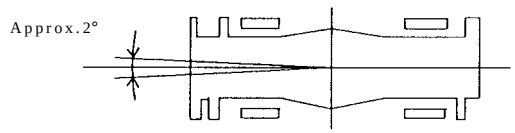
PRECAUTIONS TO BE TAKEN WHEN THE OUTRIGGERS ARE NOT MOUNTED:

1. The total rated loads shown are for the case where the tire air pressure on firm level ground is as specified 875kPa (8.75kgf/cm^2)., and the crane is completely spring-locked.They include the weights of the slings and hooks (main hook: 90kg, auxiliary hook: 25kg).
   The values above the bold lines are based on the crane strength while those below are based on the crane stability.The foundation, working conditions, etc. should be taken into consideration for actual work.
2. Since the total rated loads are based on the actual working radii including the deflection of the boom and the tires, operations should be performed in accordance with the working radii.
3. The table below shows the standard number of part lines for each boom length. When using with other than this number of part lines, the load per line should not exceed 1.5t for the main winch, and 1.8t for the auxiliary winch.

A	5.3m	9.0m	12.7m	Single top
H	4	4	4	1

A= Boom length H= No. of part-lines

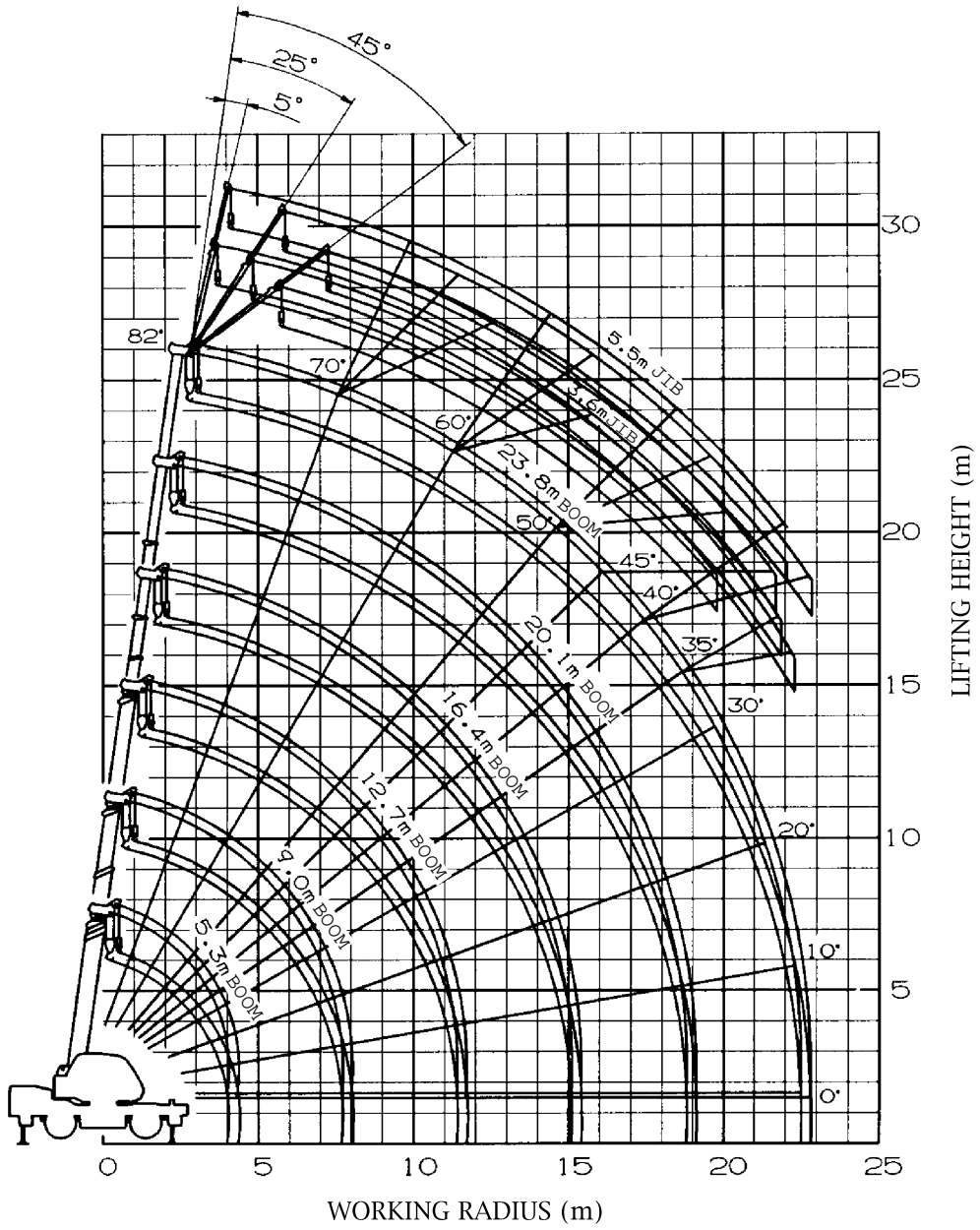
4. If the spring lock is not available or not used, no load can be hoisted in the over-side area. "Over front" crane operations should be performed only when the AML "over-front area indicator lamp" is lit. The boom must be kept inside a 2° area over front of the carrier when performing "Over front" crane operations without the outriggers.



5. The total rated load for the single top shall be the value obtained by subtracting the weight of the main hook from the total rated load of the boom and must not exceed 1.8t.
6. High-speed unwind function (only on cranes fitted with winches without free-fall device) and free-fall operations (only on cranes fitted with winches with free-fall device) should not be performed without outriggers.
   Booms over 12.7m in length and jibs should not be used without outriggers.
7. The "Drive, Speed Selection" switch should be set to "4-wheel / Lo" for creeping while hoisting a load.
8. When creeping while hoisting a load, the swing brake should be applied, the load should be kept as close to the ground as possible but not touching the ground and the speed should be kept at 1.6km/h or less. In particular, any abrupt steering, starting or braking must be avoided.
9. Crane operations should not be performed when creeping while hoisting a load.

Courtesy of Crane.Market

WORKING RADIUS - LIFTING HEIGHT



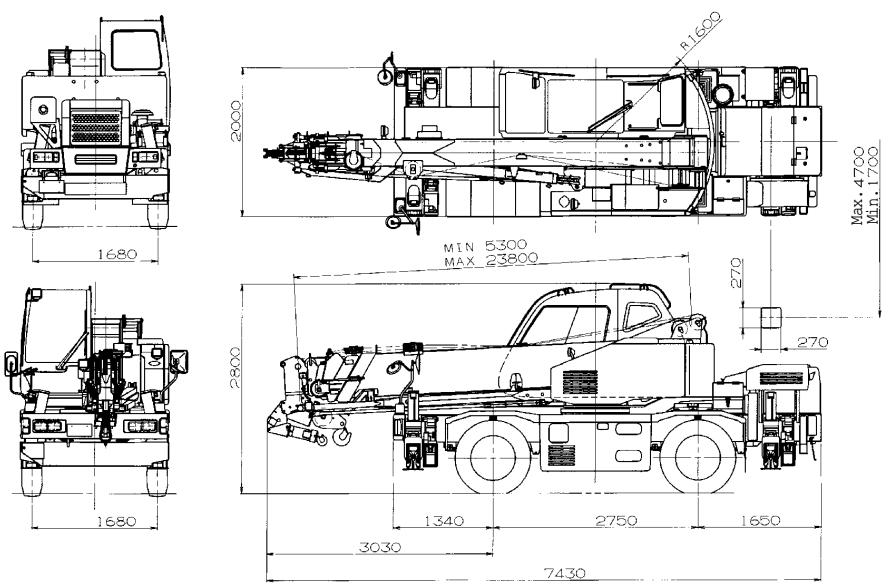
NOTES:

1. The deflection of the boom is not incorporated in the figure above.
2. The figure above is for the case where the outriggers are fully extended (360°).

Courtesy of Crane.Market

DIMENSIONS (1/100)

[X-type outrigger crane]



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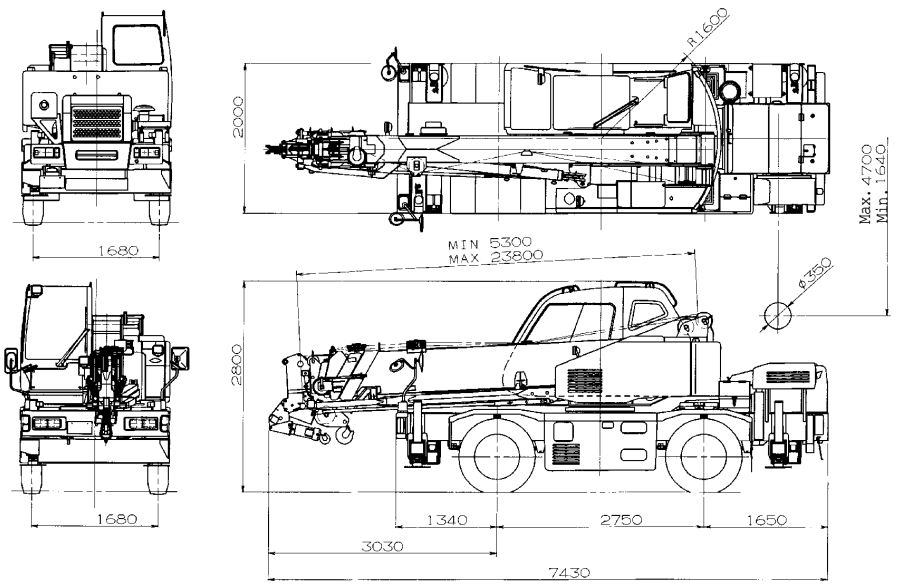
DIMENSIONS (1/100)

[H-type outrigger crane]



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