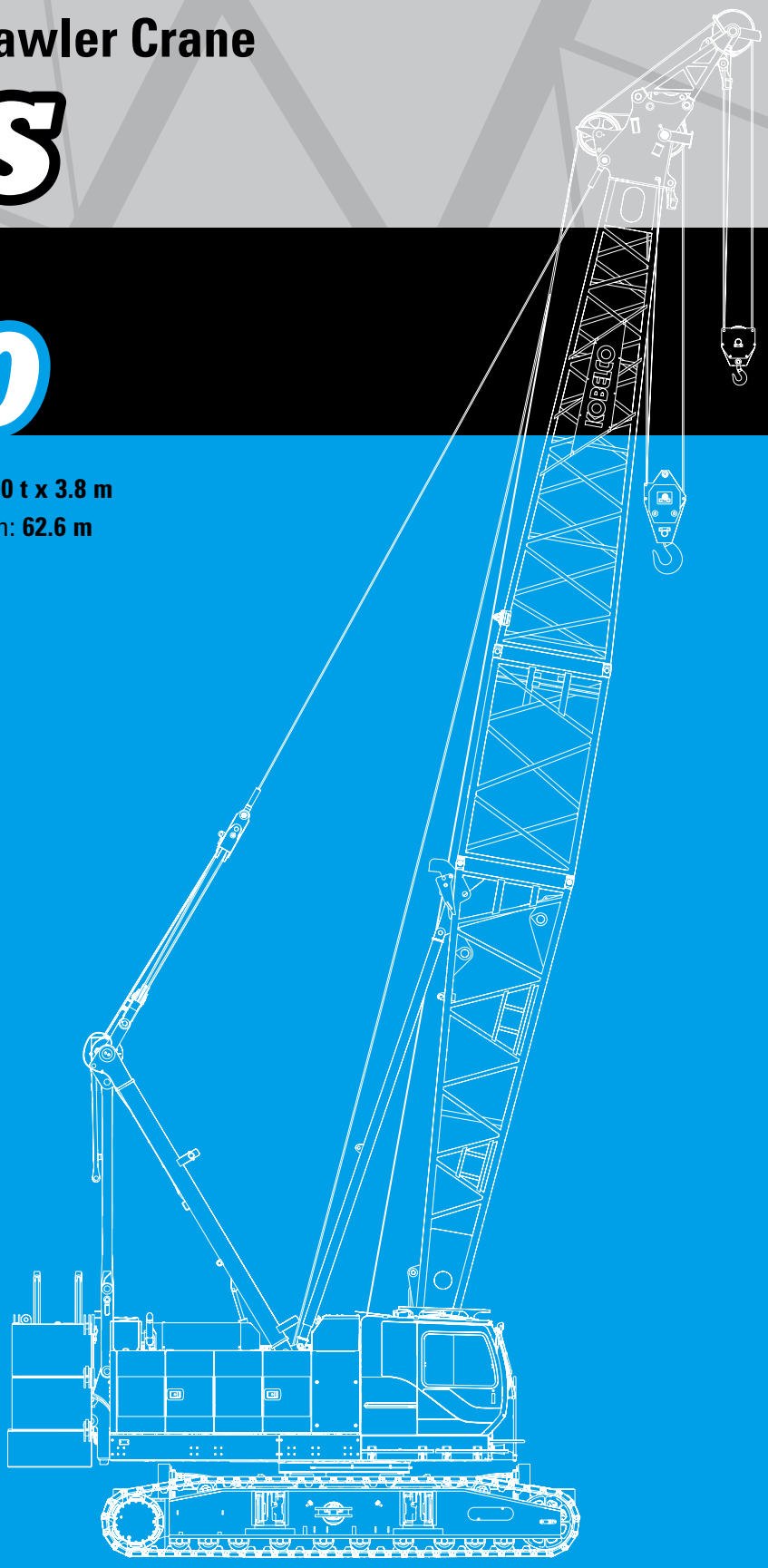
Hydraulic Crawler Crane

BMS

1000

Model : BMS1000

Max. Lifting Capacity: **100 t x 3.8 m**
Max. Crane Boom Length: **62.6 m**



KOBELCO

BMS1000
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SPECIFICATIONS

Power Plant

Model: HINO P11C-VH
Type: 4 cycle, water-cooled, vertical in-line 6, direct injection, turbo-charger, intercooler.
Displacement: 10.520 liters
Rated power: 271 kW / 1,850 min^{-1}
Max. Torque: 1,469 N·m / 1,400 min^{-1}
Cooling System: Water-cooled
Starter: 24 V- 6 kw
Radiator: Corrugated type core, thermostatically controlled
Air cleaner: Dry type with replaceable paper element
Throttle: Twist grip type hand throttle, electrically actuated
Fuel filter: Replaceable paper element
Batteries: Two 12 V x 136 Ah/5HR capacity batteries, series connected
Fuel tank capacity: 400 liters

Hydraulic System

Main pumps: 3 variable displacement piston pumps
Control: Full-flow hydraulic control system for infinitely variable pressure to all winches, propel and swing. Controls respond instantly to the touch, delivering smooth function operation.
Cooling: Oil-to-air heat exchanger (plate-fin type)
Filtration: Full-flow and bypass type with replaceable element
Max. relief valve pressure:
- **Load hoist, boom hoist and propel system:** 31.9 Mpa
- **Swing system:** 27.5 MPa
- **Control system:** 5.4 MPa

Hydraulic Tank Capacity: 440 liters

Boom Hoisting System

Powered by a hydraulic motor through a planetary reducer.
Brake: A spring-set, hydraulically released multiple-disc brake is mounted on the boom hoist motor and operated through a counter-balance valve.
Drum Lock: External ratchet for locking drum
Drum: Single drum, grooved for 20 mm dia. wire rope
Line Speed: Single line on first drum layer
- **Hoisting/Lowering:** 50 to 3 m/min
- **Boom hoisting/lowering:** 20 mm x 140 m
- **Boom guy line:** 34 mm (1-11/32 in.)
- **Boom backstops:** Required for all boom length

Load Hoisting System

Front and rear drums for load hoist powered by a hydraulic variable plunger motors, driven through planetary reducers.
Negative Brake: A spring-set, hydraulically released multiple-disc brake is mounted on the hoist motor and operated through a counter-balance valve. (Positive free fall brake is optional)
Drum Lock: External ratchet for locking drum
Drums:
- **Front Drums:** 616 mm P.C.D x 620 mm wide drum, grooved for 28 mm wire rope. Rope capacity is 200 m working length and 284 m storage length.
- **Rear Drum:** 616 mm P.C.D x 620 mm grooved for 28 mm wire rope. Rope capacity is 130 m working length and 284 m storage length.

Diameter of wire rope
- **Main winch:** 28 mm x 200 m
- **Aux. winch:** 28 mm x 130 m
- **Third winch:** 26 mm x 190 m

Line Speed*:
- **Hoisting/lowering:** 110 to 3 m/min

Line Pull:
- **Max. Line Pull* :** 252 kN (Referential Performance)
- **Rated Line Pull:** 132 kN

*Single line on first drum layer

Swing System

Swing unit is powered by hydraulic motor driving spur gears through planetary reducers, the swing system provides 360° rotation.
Swing parking brakes: A spring-set, hydraulically released multiple-disc brake is mounted on swing motor.
Swing circle: Single-row ball bearing with an integral internally cut swing gear.
Swing lock: Manually, four position lock for transportation
Swing Speed: 3.2 min^{-1}

Upper Structure

Torsion-free precision machined upper frame. All components are located clearly and service friendly. Engine will with low noise level.
Counterweight: 37.1 ton

Cab & Control

Totally enclosed, full vision cab with safety glass, fully adjustable, high backed seat with a headrest and armrests, and intermittent wiper and window washer (skylight and front window).
Cab fittings:
Air conditioner, convenient compartment (for tool), cup holder, cigarette lighter, sun visor, roof blind, tinted glass, floor mat, footrest, and shoe tray

Lower Structure

Steel-welded carbody with axles. Crawler assemblies can be hydraulically extended for wide-track operation or retracted for transportation. Crawler belt tension is maintained by hydraulic jack force on the track-adjusting bearing block.
Carbodyweight: 14.5 ton
Crawler drive: Independent hydraulic propel drive is built into each crawler side frame. Each drive consists of a hydraulic motor propelling a driving tumbler through a planetary gear box. Hydraulic motor and gear box are built into the crawler side frame within the shoe width.
Crawler brakes: Spring-set, hydraulically released parking brakes are built into each propel drive.
Steering mechanism: A hydraulic propel system provides both skid steering (driving one track only) and counter-rotating steering (driving each track in opposite directions).
Track rollers: Sealed track rollers for maintenance-free operation.
Shoe (flat): 900 mm wide each crawler
Max. gradeability: 30 %

Weight

Including upper and lower machine, 37.1 ton counterweight and 14.5 ton carbody weight, basic boom hook, and other accessories.
Weight: 107.0 ton
Ground pressure: 108.8 kPa

Attachment

Boom & Jib:
Welded lattice construction using tubular, high-tensile steel chords with pin connection between sections.

Boom length

	Min. Length	Max. Length
Crane Boom	13.8 m	62.6 m

Main Specifications (Model: BMS1000)

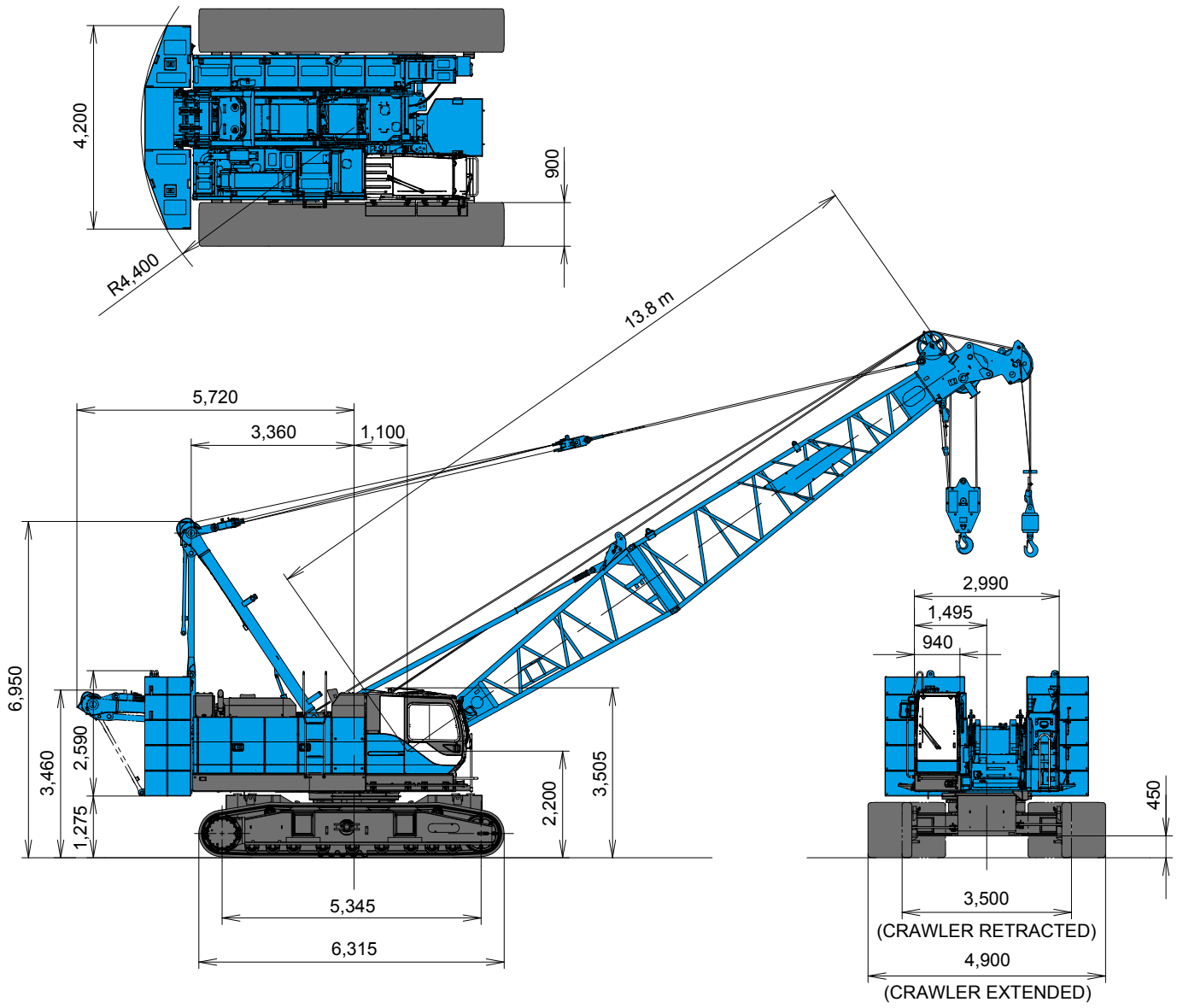
Crane Boom	
Max. Lifting Capacity	100 t x 3.8 m
Max. Length	62.6 m
Main & Aux. Winch	
Max. Line Speed (1st layer)	110 m/min
Rated Line Pull (Single line)	132 kN {13.5 tf}
Wire Rope Diameter	28 mm x 200 m
Wire Rope Length	175 m (Main), 130 m (Aux.)
Brake Type	Wet-type multiple disc brake (Optional)
Working Speed	
Swing Speed	3.2 min^{-1}{rpm}
Travel Speed	1.4/1.0 km/h
Power Plant	
Model	HINO P11C-VH
Engine Output	271 kW / 1,850 min^{-1}
Fuel Tank	400 liters

Hydraulic System	
Main Pumps	3 variable displacement
Max. Pressure	31.9 MPa {325 kgf/cm^2}
Hydraulic Tank Capacity	440 liters
Self-Removal Device	
	NA
Weight	
Operating Weight	107 t *1
Ground Pressure	108.8 kPa
Counterweight	37,140 kg
Transport Weight	31,000 kg *2

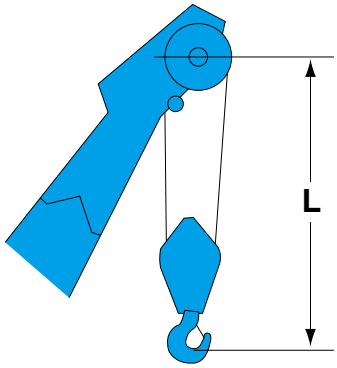
Units are SI units. { } indicates conventional units.
Line speeds in table are for light loads. Line speed varies with load.
*1 Including upper and lower machine, 37.1 ton counterweight, 14.5 ton carbody weight, basic boom, hook, and other accessories.
*2 Base machine with boom base, gantry, and wire ropes (front/rear/third/boom hoist)

GENERAL DIMENSIONS

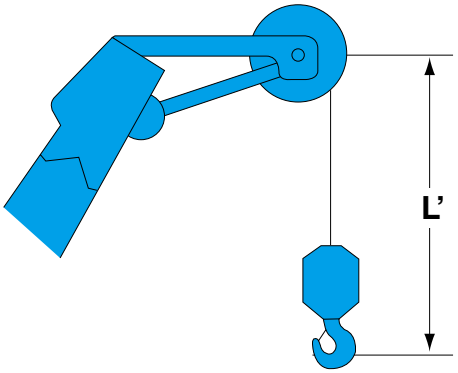
(Unit: mm)



Limit of Hook Lifting



Hook	L
100 t hook	5.0 m
50 t hook	5.0 m
35 t hook	5.0 m



Hook	L'
13.5 t ball hook	4.2 m

Crane Boom Arrangements

Boom length m (ft)	Boom arrangement
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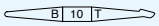
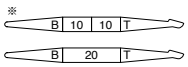
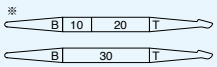
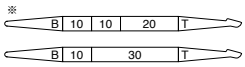
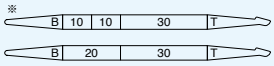
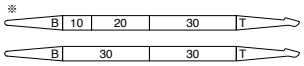
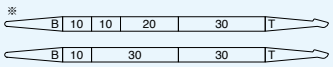
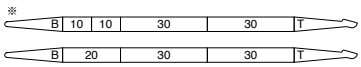
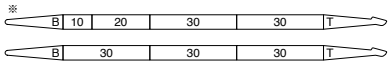
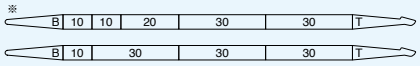
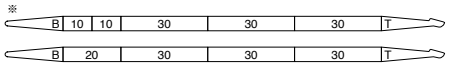
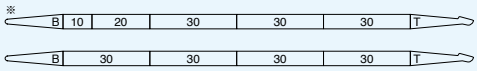
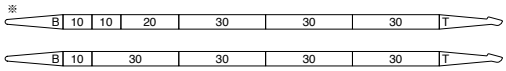
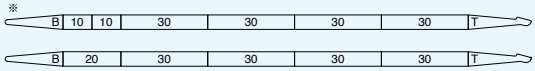
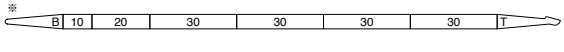
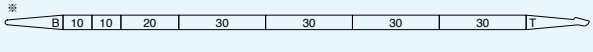
16.9 (55)	
19.9 (65)	
23.0 (75)	
26.0 (85)	
29.1 (95)	
32.1 (105)	
35.2 (115)	
38.2 (125)	

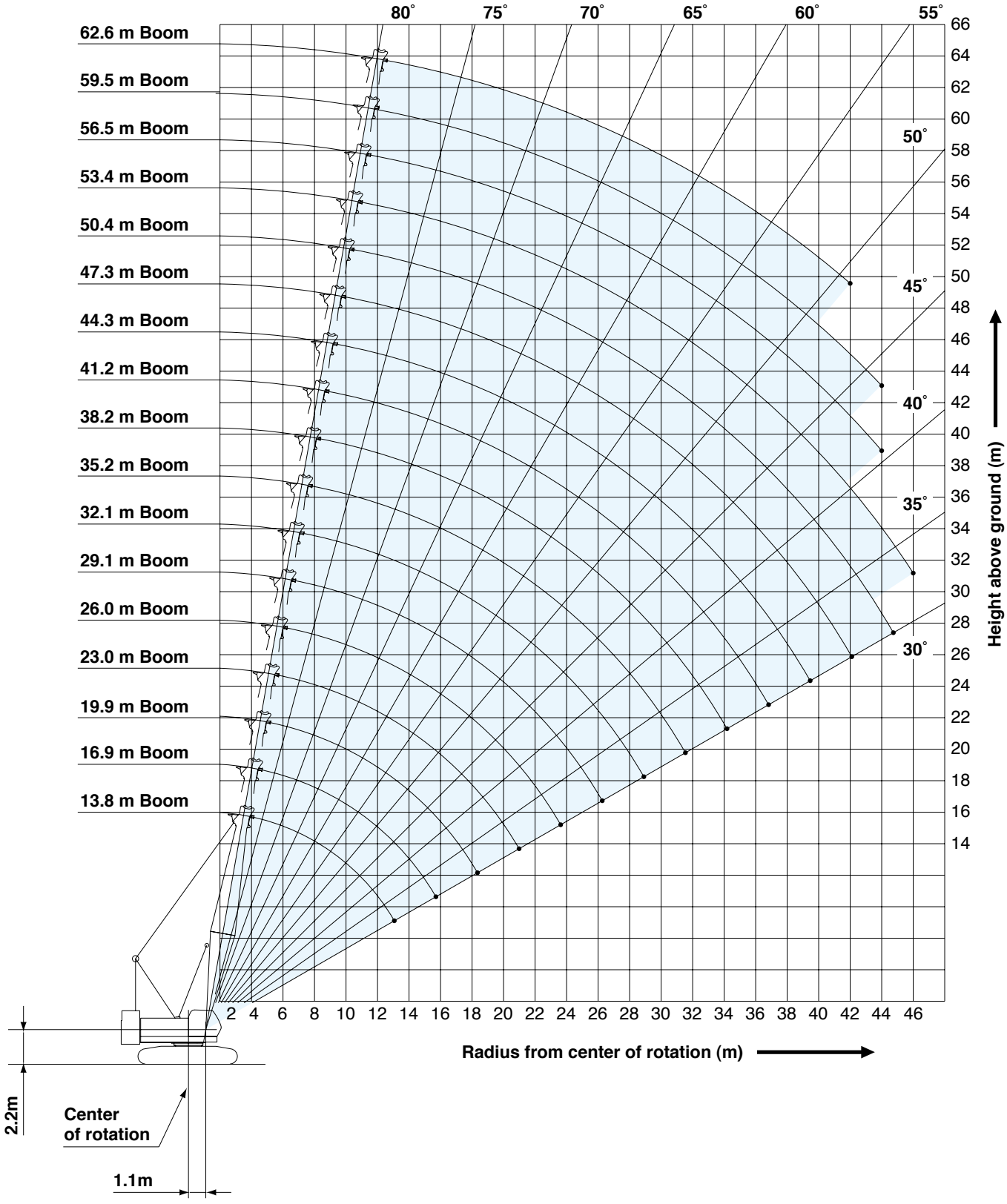
Boom length m (ft)	Boom arrangement
41.2 (135)	
44.3 (145)	
47.3 (155)	
50.4 (165)	
53.4 (175)	
56.5 (185)	
59.5 (195)	
62.6 (205)	

Symbol	Boom Length	Remarks
B	6.2 m	Boom Base
T	7.6 m	Boom Top
10	3.0 m	Insert Boom
20	6.1 m	Insert Boom
30	9.1 m	Insert Boom

※ mark shows the standard boom arrangement which enables each boom length of less than that boom length to be configured.

Crane Boom

Unit : m



SUPPLEMENTAL DATA

- Ratings according to Japanese Construction Codes for Mobile Cranes and Japanese Safety Ordinance on Cranes, etc.
- Ratings in metric tons for 360˚ working area.
- Operating radius is the horizontal distance from center of rotation to a vertical line through the center of gravity of the load.
- Weight of hook block (s), slings and other load handling accessories is included in rated load. Their total weight must be subtracted from rated load to obtain weight that can be lifted.
- Ratings shown are based on freely suspended loads and make no allowance for such factors as wind effect on lifted load, ground conditions, out-of-level, operating speeds or any other condition that could be detrimental to the safe operation of this equipment. Operator, therefore, has the responsibility to judge the existing conditions and reduce lifted loads and operating speeds accordingly.
- Ratings are for operation on a firm and level surface.
- At radii and boom lengths where no ratings are shown on chart, operation is not intended nor approved.
- Boom inserts and guy lines must be arranged as shown in the “Operator's Manual”.
- Boom hoist reeving is 10 part line.
- Gantry must be in raised position for all conditions.
- Boom backstops are required for all boom lengths.
- Crawler frames must be fully extended for all crane operations.
- Ratings shown in ▭ are determined by the strength of the boom or other structural component.
- Instruction in the “Operator's Manual” must be strictly observed when operating the machine.
- Crane boom ratings: Deduct weight of main hook block, slings, and all other load handling accessories from crane boom ratings shown.
- Auxiliary sheave ratings for crane boom: Deduct weight of ball hook, slings, and all other load handling accessories from auxiliary sheave ratings for crane boom shown.
- Crane boom lengths for auxiliary sheave mounting are 13.8 m to 59.5 m.

LIFTING CAPACITIES

Crane Boom Lifting Capacities

Counterweight: 37.1 t
Carbody Weight: 14.5 t
Unit: metric ton

Working radius (m) \ Boom length (m)	13.8	16.9	19.9	23.0	26.0	29.1	32.1	35.2	38.2	41.2	Boom length (m) \ Working radius (m)
3.8	100.0										**3.8**
4.3	4.3m/90.0	4.3m/87.5	4.8m/78.0								**4.3**
5.0	74.0	74.0	73.5	5.4m/70.0	5.9m/61.5						**5.0**
6.0	61.5	61.5	61.5	61.5	61.0	6.4m/56.8					**6.0**
7.0	51.3	51.1	51.0	50.9	50.8	50.8	50.0	7.5m/45.0			**7.0**
8.0	42.4	42.2	42.1	42.0	41.9	41.8	41.8	41.7	41.3	8.5m/37.5	**8.0**
9.0	36.0	35.9	35.7	35.6	35.5	35.5	35.4	35.3	35.2	35.1	**9.0**
10.0	31.3	31.1	31.0	30.9	30.8	30.7	30.6	30.5	30.4	30.3	**10.0**
12.0	22.0	24.5	24.3	24.2	24.1	24.0	24.0	23.8	23.7	23.6	**12.0**
14.0	13.2m/18.7	20.1	19.9	19.8	19.7	19.6	19.5	19.4	19.2	19.2	**14.0**
16.0		15.8m/14.9	16.8	16.7	16.5	16.5	16.4	16.2	16.1	16.0	**16.0**
18.0			13.6	14.3	14.2	14.1	14.0	13.8	13.7	13.7	**18.0**
20.0			18.5m/12.5	12.5	12.4	12.3	12.2	12.0	11.9	11.8	**20.0**
22.0				21.1m/11.1	10.9	10.8	10.7	10.5	10.4	10.3	**22.0**
24.0					23.8m/9.8	9.6	9.5	9.3	9.2	9.1	**24.0**
26.0						8.7	8.5	8.3	8.2	8.1	**26.0**
28.0						26.4m/8.2	7.7	7.5	7.4	7.3	**28.0**
30.0							29.0m/7.3	6.8	6.7	6.6	**30.0**
32.0								31.7m/6.3	6.1	6.0	**32.0**
34.0									5.5	5.4	**34.0**
36.0									34.3m/5.5	4.9	**36.0**
38.0										37.0m/4.7	**38.0**
Reeves	8	7	7	6	5	5	4	4	4	3	**Reeves**

Working radius (m) \ Boom length (m)	44.3	47.3	50.4	53.4	56.5	59.5	62.6	Boom length (m) \ Working radius (m)
9.0	9.1m/34.6	9.6m/31.8						**9.0**
10.0	30.2	30.1	10.1m/25.0	10.7m/25.0	11.2m/21.6	11.7m/20.1		**10.0**
12.0	23.5	23.4	23.3	23.2	19.5	19.4	12.2m/18.0	**12.0**
14.0	19.0	18.9	18.9	18.7	18.6	18.0	15.4	**14.0**
16.0	15.9	15.7	15.7	15.5	15.4	15.0	14.5	**16.0**
18.0	13.5	13.4	13.3	13.2	13.0	12.9	12.7	**18.0**
20.0	11.6	11.5	11.5	11.3	11.2	11.0	10.9	**20.0**
22.0	10.2	10.0	10.0	9.8	9.7	9.6	9.4	**22.0**
24.0	9.0	8.8	8.8	8.6	8.5	8.4	8.2	**24.0**
26.0	8.0	7.8	7.8	7.6	7.5	7.3	7.2	**26.0**
28.0	7.1	7.0	6.9	6.8	6.6	6.5	6.3	**28.0**
30.0	6.4	6.3	6.2	6.0	5.9	5.8	5.6	**30.0**
32.0	5.8	5.6	5.6	5.4	5.3	5.1	5.0	**32.0**
34.0	5.2	5.1	5.0	4.8	4.7	4.6	4.4	**34.0**
36.0	4.8	4.6	4.5	4.4	4.2	4.1	3.9	**36.0**
38.0	4.3	4.2	4.1	3.9	3.8	3.7	3.5	**38.0**
40.0	39.6m/4.0	3.8	3.7	3.6	3.4	3.3	3.0	**40.0**
42.0		3.5	3.4	3.2	3.0	2.9	2.6	**42.0**
44.0		42.2m/3.5	3.1	2.9	2.7	2.5		**44.0**
46.0			44.9m/3.0	2.5				**46.0**
Reeves	3	3	2	2	2	2	2	**Reeves**

Note:
Ratings according to Japanese Construction Codes for Mobile Cranes and Japanese Safety Ordinance on Cranes, etc.
Ratings shown in [ ] are determined by the strength of the boom or other structural components.
Refer to notes P8.
Lifting capacities may vary depending on hook used or with/without auxiliary sheave.
Please refer rated chart in operator's cabin.

Clamshell Bucket Lifting Capacity

Counterweight: 37.1 t
Unit: metric ton

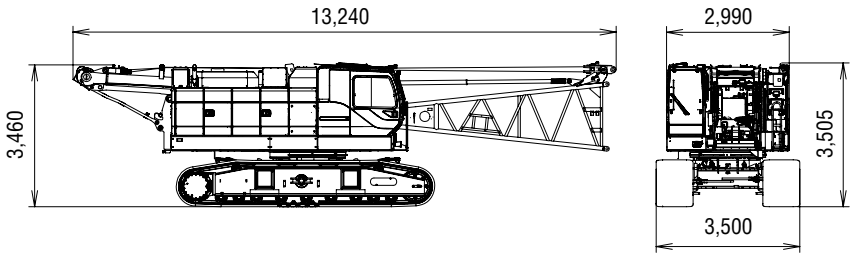
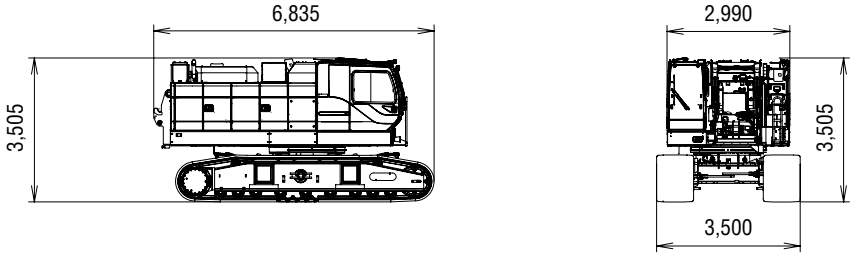
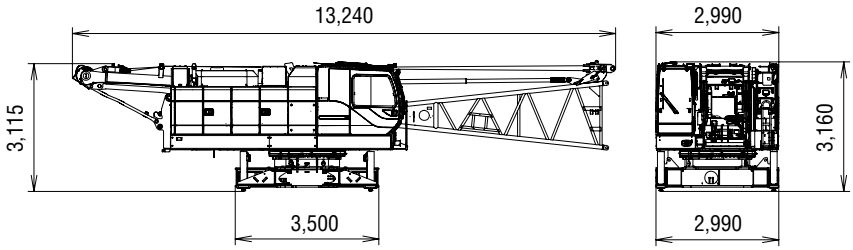
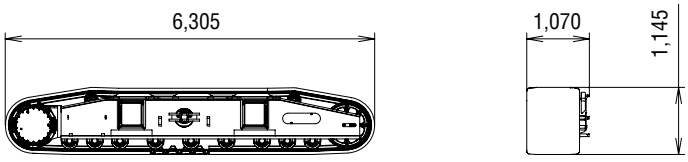
Working radius (m) \ Boom length (m)	13.8	16.9	19.9	23.0	26.0	Boom length (m) \ Working radius (m)
6.0	12.5					**6.0**
7.0	12.5	12.5				**7.0**
8.0	12.5	12.5	12.5			**8.0**
9.0	12.5	12.5	12.5	11.4		**9.0**
10.0	12.5	12.5	12.5	11.4	9.4	**10.0**
11.0	12.5	12.5	12.5	11.4	9.4	**11.0**
12.0	12.5	12.5	12.5	11.4	9.4	**12.0**
13.0		12.5	12.5	11.4	9.3	**13.0**
14.0		12.2	12.2	11.4	9.3	**14.0**
15.0			11.5	11.4	9.3	**15.0**
16.0			10.7	10.7	9.1	**16.0**
17.0			9.9	10.1	8.8	**17.0**
18.0				9.5	8.6	**18.0**
19.0				8.8	8.3	**19.0**
20.0				8.2	8.1	**20.0**
21.0					7.8	**21.0**
22.0					7.3	**22.0**

Clamshell Bucket Specification
(For Reference only)

Bucket Capacity (m^3)	Bucket Weight (t)	Dimension (m)			Use
		A	B	C	
2.0	4.5	3.7	4.5	3.2	Digging
2.5	5.0	3.4	4.2	3.6	Digging
3.0	6.0	3.6	4.6	3.7	Digging

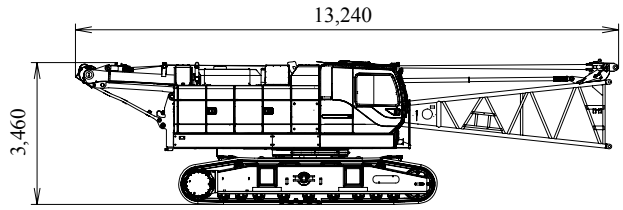
- Working radius is the horizontal distance between the center of rotation and the bucket's center of gravity.
- Total weight of bucket and materials must not exceed rated load.
- Optimal bucket should be required according to material.
  Bucket capacity (m^3) x Specified gravity of material (ton/m^3) + Bucket weight (ton) = Rated load
  Material: sand, gravel, lime (apparent specific gravity: approx. 1 to 1.8)
  Ex.) Bucket capacity: 3.0 m^3, Bucket weight 6.0 tons
  3.0 m^3 x 1.8 + 6.0 tons = 11.4 tons
- Bucket weight must also be decreased according to operating cycle and bucket lowering height.
- Rated loads are determined by stability and boom strength. During simultaneous operations of boom and swing, rapid acceleration or deceleration must be avoided. Particular care is required with long boom length.

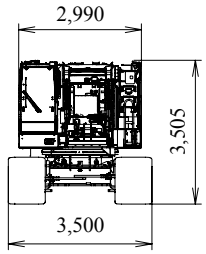
TRANSPORTATION PLAN

Name	Dimension (mm)	Weight (kg)
Base Machine • Boom base • Gantry • Crawler • Crane backstop • Third winch • Wire rope (Front / rear / third boom hoist)		51,600
Base Machine • Crawler • Third winch • Wire rope (Front / rear / third drum)		47,600
Base Machine • Boom base • Gantry • Third winch • Wire rope (Front / rear / third boom hoist) • Crane backstop • Without crawler		31,000
Crawler		10,300

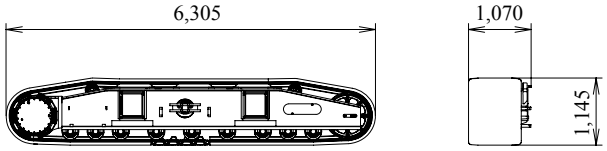
PARTS AND ATTACHMENTS

Base Machine
Boom base, Gantry, Crawler, Crane backstop, Third winch
Wire rope (Front/rear/third/boom hoist),
Weight: 51,600 kg Width: 3,500 mm

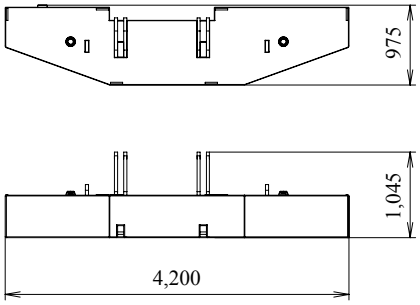




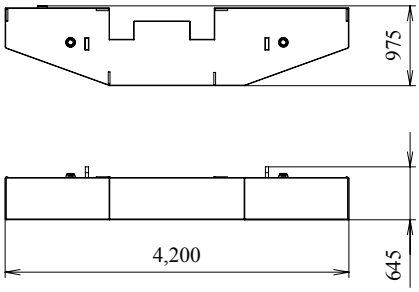
Crawler
Weight: 10,300 kg



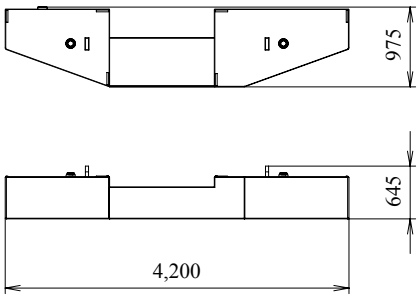
Counterweight No.1
Weight: 9,920 kg



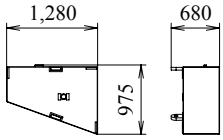
Counterweight No.2
Weight: 8,940 kg



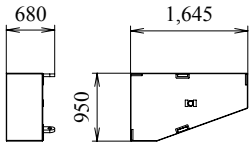
Counterweight No.3
Weight: 7,960 kg



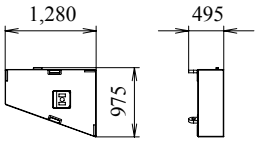
Counterweight No.4 (L)
Weight: 2,350 kg



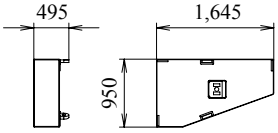
Counterweight No.5 (R)
Weight: 3,740 kg



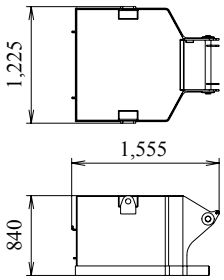
Counterweight No.6 (L)
Weight: 1,740 kg



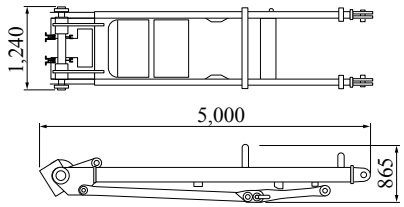
Counterweight No.7 (R)
Weight: 2,490 kg



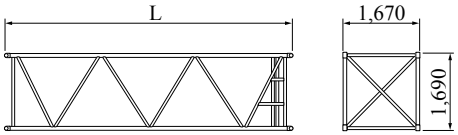
Carbody Weight
Weight: 7,250 kg



Gantry
Weight: 1,400 kg



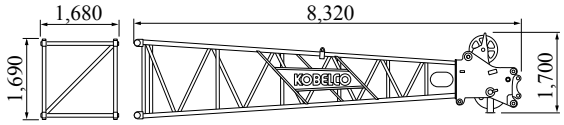
Insert Boom



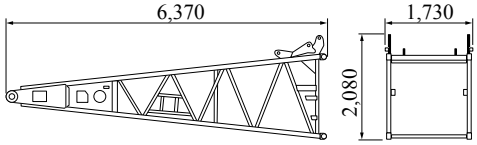
	L (mm)	Weight (kg)*
3.0m	3,170	500
6.1m	6,210	800
9.1m	9,260	1100

*with boom guy cables

Boom Top
Weight: 1,800 kg (with boom guy cables)



Boom Base
Weight: 1,580 kg



Other Attachments

Attachments	Weight	Dimensions (L x W x H)
Trans-lifter	350 kg (1 piece)	1,180 mm x 320 mm x 960 mm
Crane backstop	130 kg (1 piece)	4,900 mm x 145 mm dia.
Upper spreader	300 kg	1,780 mm x 305 mm x 800 mm
Lower spreader	200 kg	905 mm x 255 mm x 710 mm
100-ton hook	1,730 kg	700 mm x 540 mm x 2,140 mm
50-ton hook	850 kg	700 mm x 430 mm x 1,680 mm
35-ton hook	700 kg	700 mm x 470 mm x 1,575 mm
Ball hook	450 kg	380 mm dia x 1,200 mm

Note: Estimated weights may vary ± 2%.

Note: This catalog may contain photographs of machines with specifications, attachments and optional equipment not certified for operation in your country. Please consult KOBELCO for those items you may require. Due to our policy of continual product improvements all designs and specifications are subject to change without advance notice.

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