

HEAVY DUTY BASE MACHINE FOR FOUNDATION WORK

BM 600

KOBELCO

Max. Lifting Capacity: 55 Metric Tons at 3.7 Meters

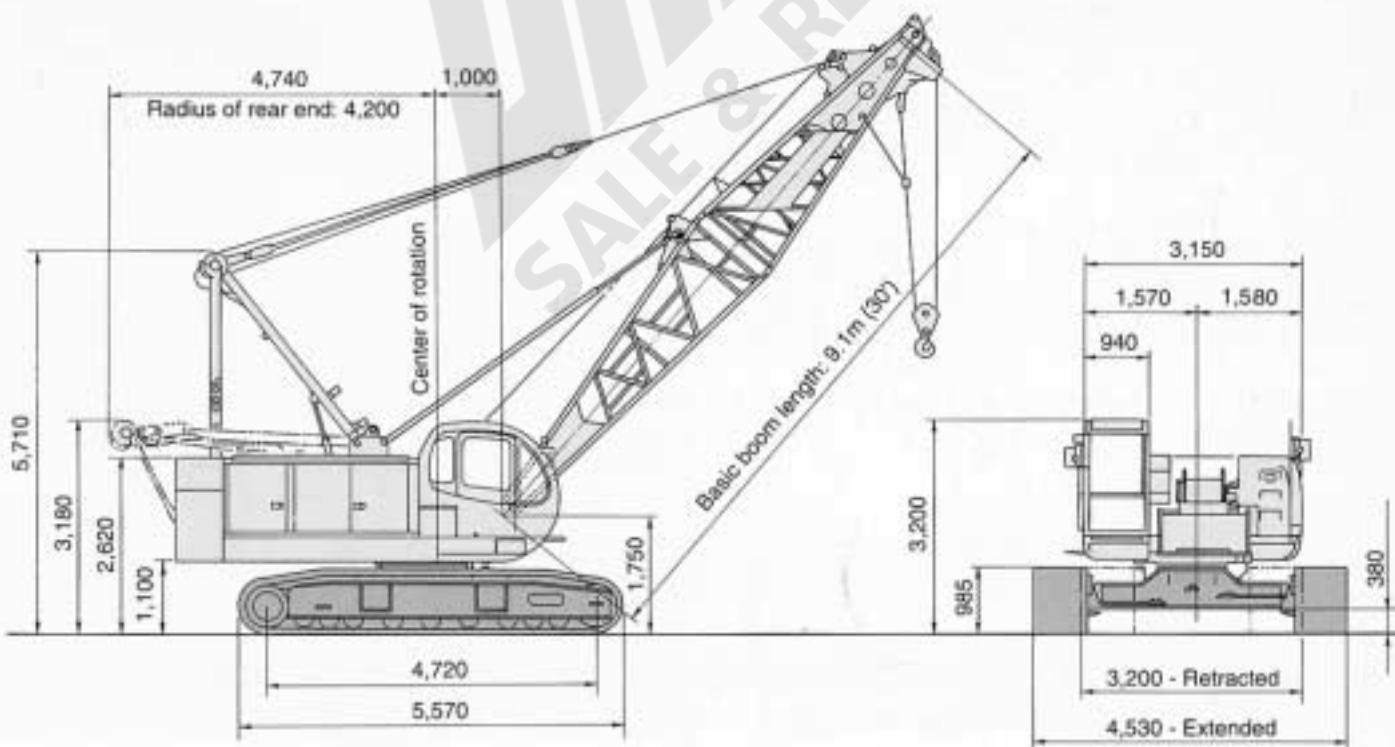
Max. Boom Length: 51.8 Meters

Specifications

- A mega-powered crane equipped with precision control capability.
- Engine Speed Sensing (ESS) System makes efficient 100% use of engine power for steady, effortless operation.
- Powerful engine and strong line pull make light work of heavy-duty tasks such as diaphragm wall construction.
- Precise, full hydraulic control gives crane performance ideal for construction tasks demanding high precision.
- Powerful winch first layer maximum line pull of 17 tons, and wide, large-diameter drum with maximum rope capacity of 32 m at first layer.
- Maximum line speed of 100 m/min for main and auxiliary winches.
- Extra hydraulic outlets provided to power additional foundation construction machinery. (opt.)

General Dimensions

Unit: mm



Specifications

Upper machinery



Power plant

Model	Mitsubishi 6D22-T
Type	Water-cooled, direct fuel injection, with turbocharger
No. of cylinder	6
Bore and stroke	130 mm x 140 mm (5.1" x 5.5")
Displacement	11.15 liters
Rated power	230 PS (170 kW) at 1,800 rpm (JIS D1005)
Max. torque	102 kg-m at 1,200 rpm (JIS D1005)
Cooling system	Liquid, recirculating bypass
Starter	24 V, 5.5 kW
Generator	24 V, 2 kW
Cycles	4
Radiator	Plate fin type core, thermostatically controlled
Air cleaner	Dry type with replaceable paper element
Fuel tank capacity	360 liters
Batteries	Two 12V, 170 A-hr capacity batteries, series connected
Fuel consumption (at 1,300 rpm)	154 g/PS-h



Load hoist system

Powered by the hydraulic axial piston motors, driven through a planetary reducer.

Clutches: Internally expanding band clutches.

711 mm dia. x 102 mm wide

Brakes: Externally contracting band brakes, each using positive and negative actuation. 900 mm dia. x 120 mm wide with additional spring set hydraulically released brake.

Safety pawls (external ratchet) are fitted for locking the drums. Both positive and negative brake systems are available. Air cooling fins mounted on brake drum.

Drums: (front and rear): 462 mm P.C.D. x 522 mm wide drums, each grooved for 22 mm wire rope.

Rope capacity of 175 m working length and 278 m storage length.

Line speed: Single line on the first drum layer

Hoisting 100/70, 50/35 m/min

Lowering 100/70, 50/35 m/min



Swing system

Swing unit: Powered by hydraulic axial piston motor driving spur gears through planetary reducers, the swing system provides 360° rotation.

Swing speed 3.7 rpm

Swing 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: Two position pin-hole lock (manually engaged)



Operator's cab

Totally enclosed, full-vision cab fitted with safety glass and a sliding front window. A fully adjustable, high-backed seat permits operators to set their ideal working position. A signal horn, cigarette lighter and windshield wiper are standard features.



Controls

In front of the operator are foot pedals for front and rear drum brakes. At the operator's right are console-mounted adjustable short levers for front and rear drum control, boom hoist control lever and positive/negative break select switch for front and rear drum brakes. Beside the operator's seat on the right are two short levers for propel control. At the operator's left are: a console-mounted swing lever, an optional third drum control lever, and front and rear drum pawl control switches; switches for ignition, engine stop, a down speed adjusting knobs for front drum, rear drum, boom, and propel; Creep speed control switch for hoist is on the hoist lever. A swing brake switch and a signal horn button are on the swing lever.

Lights: Two front flood lights and one cab inside light

Gauges: Fuel, water temperature for engine, hour meter, tachometer

Warning lamps: Engine oil pressure, hydraulic oil pressure, battery charge, air cleaner and engine oil filter.



Boom hoisting system

Powered by a hydraulic axial piston 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. Safety pawls (external ratchet) are fitted for locking the drum.

Drum: Single drum, grooved for 16mm dia. wire rope.

Line speed: Single line on first drum layer

Hoisting (max.) 65m/min

Lowering (max.) 65m/min

Safety devices: Function lock lever, hook over-hoist alarm and shut-off switch, boom over-hoist limit switch, boom angle indicator, signal horn, boom hoist and front and rear drum locks, swing lock, boom back stop, hook safety latch and optional load moment limiter (overload protection device) are provided.



Gantry

Folding type, fitted with sheave frame for boom hoist reeving, lowers toward rear onto cab roof. Hydraulic lift is standard. Full up, full down positions with linkage.

Counterweight

Two-piece stack, mounted behind the machinery compartment.

Total weight 14,900 kg



Tools

Tool set and accessories for routine machine maintenance are provided.

Lower machinery

Carbody: Steel-welded carbody with axles.

Crawler: Crawler assemblies designed with an easy disconnect feature that allows complete individual removal from the axles. Crawler belt tension is maintained by hydraulic jack force on the track-adjusting bearing block.

Crawler drive: Independent hydraulic propel drive is built into each side frame, each with a hydraulic motor propelling a driving tumbler through a planetary gear box.

Crawler brakes: Spring-set, hydraulically released multiple-disc 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 tracks in opposite directions).

Track rollers: 9 lower rollers and 2 upper rollers are fitted to each side frame, sealed and maintenance-free.

Shoes:

Number 59 each side
Standard flat shoe width 760 mm

Max. travel speed:

High range 2.2 km/h
Low range 1.4 km/h

Max. gradeability: 30%

Crane attachment



Boom:

Welded lattice construction using tubular, high-tensile steel cords with pin connections between sections.

Max. lifting capacity	55,000 kg
Basic boom length	9.1m (30')
Max. boom length	51.8m (170')



Jib (optional):

Welded lattice construction using tubular, high-tensile steel cords with pin connections between sections.

Fixed jib	
Max. lifting capacity	6,600 kg
Max. jib length	18.3 m (60')
Max. total length (Boom length + jib length)	42.7m (140') + 12.2 (40') 39.6m (130') + 18.3 (60')



Hook blocks

A range of hook blocks can be specified, each with a safety latch.

Lifting capacity	55tons	45tons	32tons	19tons	6.6tons ball hook
No. of sheaves	5	3	2	1	0
Weight (kg)	650	500	500	400	160

Diameter of wire ropes

Standard:

Hook hoist 22 mm
Boom hoist (12-part line) 16 mm
Boom pendants (2-part line) 30 mm

Optional:

Jib hook hoist 22 mm
Jib back stay pendants (2-part line) 20 mm
Boom hoist reeving: 12 parts of 16 mm dia. wire rope
Boom backstops: recommended for all boom lengths

Line pull

(for crane, clamshell, diaphragm wall bucket)

	Max. permissible	Max. available
Front:	6,600 kg	17,000 kg
Rear:	6,600 kg	17,000 kg



Weight

Operating weight:

Approx. 55,000 kg
(including 9.1 m (30') boom and 55 ton hook block)

Ground pressure: 0.71 kg/cm² with 760 mm shoes

Lifting capacities

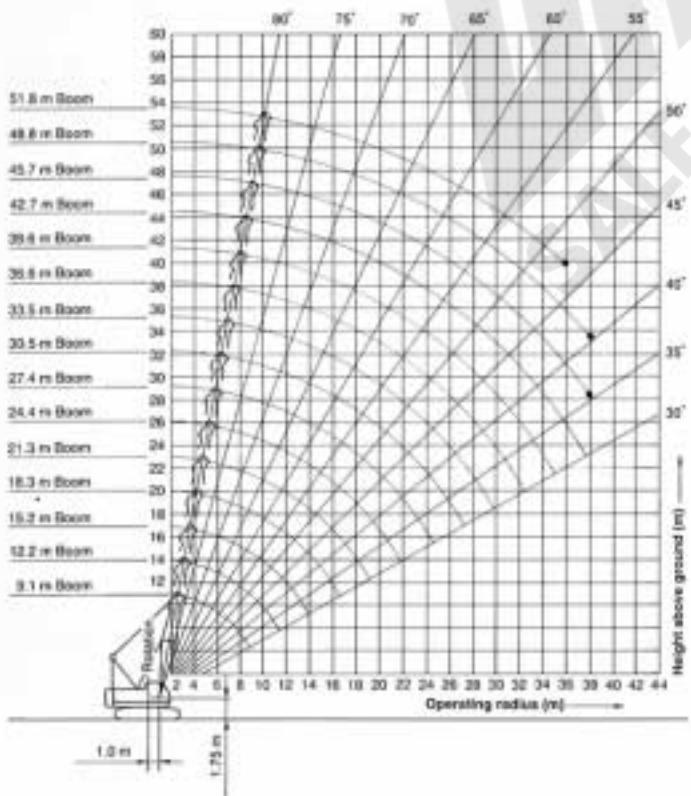
BM 600**Notes:**

1. Working radius is the horizontal from the center of rotation through the center of gravity of load.
2. Ratings do not exceed 78% of tipping load on the hard horizontal ground and includes weight of hook block, slings and all other load handling accessories from main boom or jib rating shown.
3. Ratings shown are based on freely suspended load and make no allowance for such factors as wind effect on lifted load, out-of-level ground conditions, operating speeds or any other condition that could be detrimental to the safe operation of this equipment.
4. No operation is possible in the range indicated by blank spaces in the chart.
5. The actual hoistable loads using main boom must be calculated by deducting the weight of main hook, slings and all other load handling accessories etc. from the ratings shown.
6. Configurations of main Boom/Jib inserts and guy cables installations must be arranged as per the instruction of the owner and operator's manual, to be provided with machine.
7. Hook block weight and capacity (metric ton).

Capacity of hook	55 ton	45 ton	32 ton	19 ton	6.6 ton (ball-hook)
Weight (metric ton)	0.65	0.5	0.5	0.4	0.16

8. Max. hoisting load

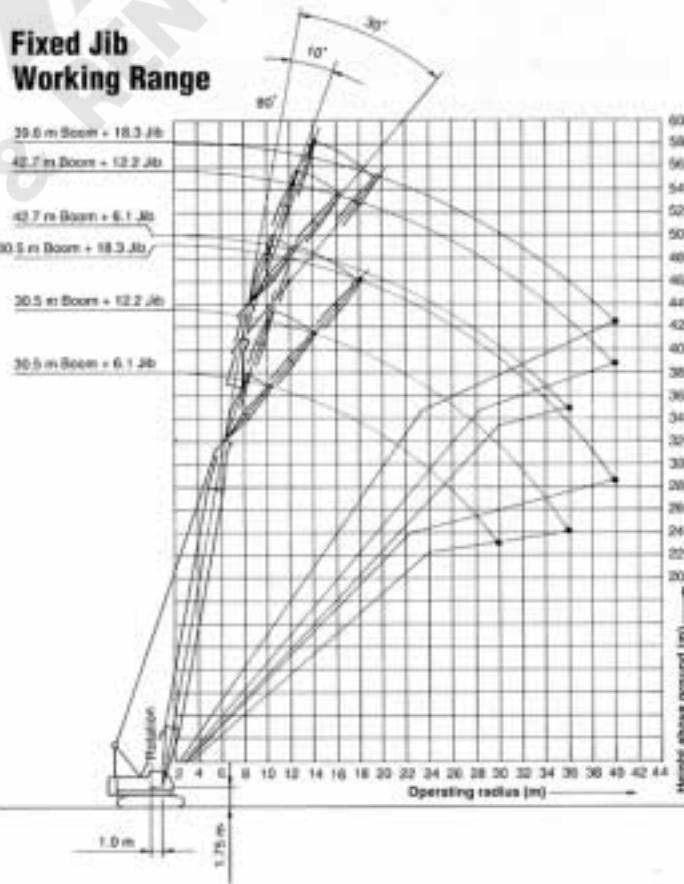
No. of parts of line	1	2	3	4	5
Max. load (metric ton)	6.6	13.2	19.8	26.4	33.0
No. of parts of line	6	7	8	9	
Max. load (metric ton)	39.6	46.2	52.8	55.0	

Working Ranges

9. Auxiliary sheave rating is determined by deducting weight of auxiliary sheave (300kg) and weight of main hook from main boom rating. It must not exceed 6.6 tons. Minimum ratings 1.1 tons.

Jib length m (ft)	6.1 (20)	12.2 (40)	18.3 (60)	Aux. sheave
Deduct (metric ton)	1.1	1.6	2.1	0.46

10. Actual hoistable loads using auxiliary sheave can be calculated by deducting weight of 6.6 ton ball-hook and weight of slings and other loads handling accessories from auxiliary sheave rating.
11. Main boom rating when it is equipped with auxiliary sheave is determined by deducting the weight of the auxiliary sheave and ball-hook (460kg) from the rating for main boom without auxiliary sheave.
12. Actual hoistable load with main boom being equipped with auxiliary sheave can be calculated by deducting weight of main hook, and any other slings and accessories from the main boom rating with auxiliary sheave.
13. Auxiliary sheave can be attached to boom between 9.1m and 48.8 m in length.
14. Maximum working radius with auxiliary sheave attached must not exceed maximum working radius of main boom. Minimum working radius is working radius of auxiliary sheave at boom angle for minimum working radius of boom.
15. Do not use hook on main boom and hook on auxiliary sheave simultaneously.
16. Boom should in principle be erected over front of crawlers.

**Fixed Jib
Working Range**

Boom Lifting Capacities

BM600

Unit: metric ton

Rated loads in metric tons for 360° working area

Working radius m	Crawler fully extended														Working radius m	
	9.1 (30)	12.2 (40)	15.2 (50)	18.3 (60)	21.3 (70)	24.4 (80)	27.4 (90)	30.5 (100)	33.5 (110)	36.6 (120)	39.6 (130)	42.7 (140)	45.7 (150)	48.8 (160)	51.8 (170)	
3.0	55.0	55.0/3.5														3.0
3.7	55.0	55.0														3.7
4.0	50.7	50.7	50.7													4.0
4.5	44.5	44.4	44.4	44.3												4.5
5.0	38.5	38.4	38.3	38.3	37.7											5.0
5.5	32.7	32.6	32.6	32.6	32.5	31.6/5.6										5.5
6.0	28.7	28.6	28.5	28.5	28.4	28.4	27.6/6.1	24.2/6.6								6.0
7.0	22.8	22.7	22.6	22.6	22.5	22.4	22.4	22.3	21.3/7.2	19.2/7.7						7.0
8.0	18.9	18.8	18.6	18.6	18.5	18.5	18.4	18.4	18.3	18.2	17.4/8.2	15.8/8.7				8.0
9.0	16.1	15.9	15.8	15.8	15.7	15.6	15.6	15.6	15.4	15.4	15.3	15.2	13.2/9.3	13.2/9.8		9.0
10.0	15.9/9.1	13.8	13.7	13.6	13.5	13.5	13.4	13.4	13.3	13.2	13.1	13.1	13.0	12.9	11.8/10.3	10.0
12.0		11.2/11.7	10.7	10.7	10.6	10.5	10.4	10.4	10.3	10.2	10.1	10.0	10.0	9.9	9.8	12.0
14.0			8.8	8.7	8.6	8.5	8.4	8.4	8.3	8.2	8.1	8.0	8.0	7.9	7.8	14.0
16.0			6.5/14.4	7.3	7.2	7.1	7.0	7.0	6.9	6.8	6.7	6.6	6.5	6.5	6.3	16.0
18.0				6.8/17.0	6.2	6.1	6.0	5.9	5.8	5.7	5.6	5.5	5.5	5.4	5.3	18.0
20.0					5.4/19.7	5.3	5.2	5.1	5.0	4.9	4.8	4.7	4.6	4.5	4.4	20.0
22.0						4.6	4.5	4.4	4.3	4.2	4.1	4.0	3.9	3.9	3.7	22.0
24.0						4.5/22.3	4.0	3.9	3.8	3.7	3.6	3.5	3.4	3.3	3.2	24.0
26.0							3.8/24.9	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.7	26.0
28.0								3.1/27.6	3.0	2.9	2.8	2.7	2.6	2.5	2.4	28.0
30.0									2.6	2.5	2.4	2.3	2.2	2.1	2.0	30.0
32.0									2.5/30.2	2.3	2.2	2.1	2.0	1.9	1.8	32.0
34.0										2.1/32.9	1.9	1.8	1.7	1.6	1.5	34.0
36.0											1.7/35.5	1.5	1.4	1.3	1.1	36.0
38.0												1.3	1.2	1.1		38.0

Note: Ratings inside shown in are determined by the strength of the boom or other structural components.

Boom Component Chart

Boom length m (ft)	Boom arrangement	Boom length m (ft)	Boom arrangement
9.1 (30)	Base-Tip	33.5 (110)	Base-B-C-C-Tip, Base-A-B-B-C-Tip, Base-A-A-B-B-C-Tip, Base-A-A-C-C-Tip
12.2 (40)	Base-A-Tip	36.6 (120)	Base-A-B-C-C-Tip, Base-A-A-B-B-C-Tip, Base-B-B-B-C-Tip
15.2 (50)	Base-B-Tip, Base-A-A-Tip	39.6 (130)	Base-B-B-C-C-Tip, Base-A-A-B-C-C-Tip
18.3 (60)	Base-A-B-Tip, Base-C-Tip	42.7 (140)	Base-A-A-B-B-C-C-Tip, Base-B-B-B-C-C-Tip
21.3 (70)	Base-A-C-Tip, Base-B-B-Tip, Base-A-A-B-Tip	45.7 (150)	Base-A-A-B-B-B-C-C-Tip, Base-B-B-B-C-C-Tip
24.4 (80)	Base-B-C-Tip, Base-A-B-B-Tip, Base-A-A-C-Tip, Base-C-C-Tip	48.8 (160)	Base-A-B-B-B-C-C-Tip
27.4 (90)	Base-A-B-C-Tip, Base-B-B-B-Tip, Base-A-A-B-B-Tip, Base-A-A-B-B-Tip	51.8 (170)	Base-A-A-B-B-B-C-C-Tip
30.5 (100)	Base-B-B-C-Tip, Base-A-C-C-Tip, Base-A-A-C-C-Tip, Base-A-A-B-C-Tip		

Base = 5.1m(17'), Tip=4.0m(13')
Inserts: A = 3.0 m (10'), B = 6.1 m (20'), C = 9.1m (30')

Fixed Jib Lifting Capacities

BM 600

Unit: metric ton

Jib Rated loads in metric tons for 360° working area (Jib offset angle 10°/with main hook)

Crawler fully extended

Boom Length m (ft)	30.5 (100)			33.5 (110)			36.6 (120)			39.6 (130)			42.7 (140)		
	Jib Length m (ft)	6.1 (20)	12.2 (40)	18.3 (60)	6.1 (20)	12.2 (40)	18.3 (60)	6.1 (20)	12.2 (40)	18.3 (60)	6.1 (20)	12.2 (40)	18.3 (60)	6.1 (20)	12.2 (40)
9	6.6			6.6											
10	6.6			6.6			6.6			6.6					
12	6.6	6.6	4.5	6.6	6.6	4.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
14	6.6	6.6	4.5	6.6	6.6	4.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
16	6.6	6.6	4.5	6.6	6.6	4.5	6.6	6.6	6.6	6.6	6.6	6.6	6.5	6.5	6.3
18	5.7	6.0	4.5	5.6	5.9	4.5	5.5	5.8	4.5	5.4	5.7	4.5	5.3	5.6	
20	4.8	5.1	4.5	4.7	5.0	4.5	4.8	4.9	4.5	4.5	4.8	4.5	4.4	4.7	
22	4.1	4.4	4.5	4.0	4.3	4.4	3.9	4.2	4.3	3.8	4.1	4.2	3.7	4.0	
24	3.6	3.8	3.9	3.4	3.7	3.8	3.4	3.6	3.7	3.2	3.5	3.6	3.1	3.4	
26	3.1	3.3	3.4	2.9	3.2	3.3	2.9	3.1	3.2	2.7	3.0	3.1	2.6	2.9	
28	2.7	2.9	3.0	2.5	2.8	2.9	2.4	2.7	2.8	2.3	2.6	2.7	2.1	2.4	
30	2.3	2.5	2.7	2.1	2.4	2.5	2.0	2.3	2.5	1.8	2.2	2.3	1.7	2.0	
32	1.9	2.2	2.4	1.8	2.1	2.2	1.7	2.0	2.1	1.5	1.8	1.9	1.4	1.7	
34		1.9	2.1	1.5	1.7	1.9	1.3	1.6	1.8	1.2	1.5	1.6		1.3	
36		1.6	1.8	1.2	1.5	1.6	1.1	1.4	1.5		1.2	1.3		1.1	
38		1.4	1.6		1.2	1.4		1.1	1.3			1.1			
40			1.3			1.2									

Note: Ratings inside shown in are determined by the strength of the boom or other structural components.

Jib Rated loads in metric tons for 360° working area (Jib offset angle 30°/with main hook)

Crawler fully extended

Boom Length m (ft)	30.5 (100)			33.5 (110)			36.6 (120)			39.6 (130)			42.7 (140)		
	Jib Length m (ft)	6.1 (20)	12.2 (40)	18.3 (60)	6.1 (20)	12.2 (40)	18.3 (60)	6.1 (20)	12.2 (40)	18.3 (60)	6.1 (20)	12.2 (40)	18.3 (60)	6.1 (20)	12.2 (40)
12	6.6			6.6			6.6			6.6					
14	6.6			6.6			6.6			6.6					6.6
16	6.6	5.0		6.6	5.0		6.6	5.0		6.6	5.0				6.4
18	5.9	5.0	3.2	5.8	5.0	3.2	5.8	5.0		5.7	5.0				5.6
20	5.0	5.0	3.2	4.9	5.0	3.2	4.8	5.0	3.2	4.7	5.0	3.2			4.3
22	4.3	4.7	3.2	4.2	4.6	3.2	4.1	4.5	3.2	4.0	4.5	3.2			4.1
24	3.7	4.1	3.2	3.6	4.0	3.2	3.5	3.9	3.2	3.4	3.8	3.2			3.7
26	3.2	3.5	3.2	3.1	3.4	3.2	3.0	3.4	3.2	2.9	3.3	3.2			3.2
28	2.7	3.1	3.2	2.6	3.0	3.2	2.6	2.9	3.2	2.4	2.8	3.1			2.8
30	2.4	2.7	2.9	2.2	2.6	2.8	2.1	2.5	2.8	2.0	2.4	2.7			2.3
32		2.4	2.6	1.8	2.3	2.5	1.7	2.2	2.4	1.6	2.1	2.3			1.9
34		2.1	2.3		1.9	2.2	1.4	1.8	2.1	1.3	1.7	2.0			1.6
36		1.8	2.0		1.6	1.9		1.5	1.8		1.4	1.7			1.3
38		1.6			1.3	1.6		1.3	1.5		1.1	1.4			
40		1.5				1.4			1.3			1.2			

Note: Ratings inside shown in are determined by the strength of the boom or other structural components.

Jib Component Chart

Jib length m (ft)	Jib arrangement
6.1 (20)	Base-Tip
12.2 (40)	Base-A-Tip
18.3 (60)	Base-A-A-Tip

Base = 3.0m(10'), Tip = 3.0m(10')
Inserts: A = 6.10 m (20')

Note:

1. Jib can be fitted to main boom between 30.5 m (100') and 42.7 m (140') in length.
2. Fitting a jib requires an insert boom with lugs.
3. Actual hoistable loads using jib can be calculated by deducting the total weight of jib hook and slings and all other load handling accessories from jib ratings.
(Weight of main hook does not need to be deducted.)

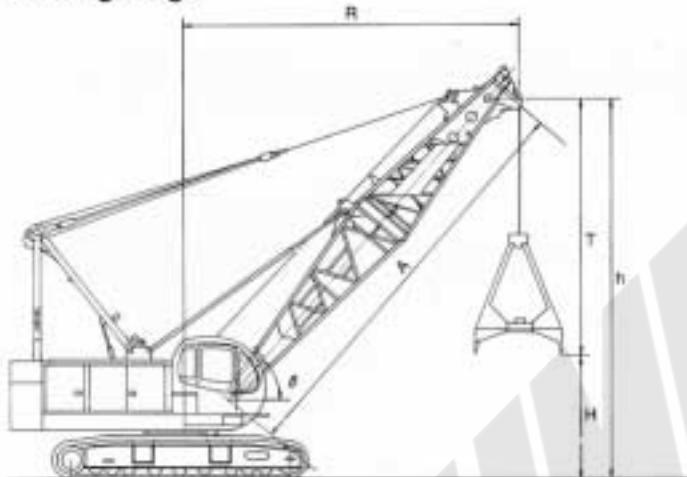
Clamshell ratings in metric tons for 360° working area

Crawler fully extended

Boom length	m (ft)	A	9.1 (30)				12.2 (40)				15.2 (50)				18.3 (60)			
Boom angle	(°)	#	35	45	55	65	35	45	55	65	35	45	55	65	35	45	55	65
Operating radius	(m)	R	8.7	7.7	6.5	5.2	11.2	9.9	8.3	6.5	13.7	12.0	10.0	7.7	16.2	14.2	11.8	9.0
Dumping height (m)	0.8	H	0.9	2.2	3.2	4.1	2.7	4.3	5.7	6.9	4.4	6.5	8.2	9.6	6.2	8.6	10.7	12.4
	1.0		0.9	2.2	3.2	4.1	2.7	4.3	5.7	6.9	4.4	6.5	8.2	9.6	6.2	8.6	10.7	12.4
	1.2		0.5	1.8	2.8	3.7	2.3	3.9	5.3	6.5	4.0	6.1	7.8	9.2	5.8	8.2	10.3	12.0
	1.6		0.6	1.9	2.9	3.8	2.4	4.0	5.4	6.6	4.1	6.2	7.9	9.3	5.9	8.3	10.4	12.1
Boom point height	(m)	H	6.7	8.0	9.0	9.9	8.5	10.1	11.6	12.7	10.2	12.3	14.0	15.4	12.0	14.4	16.5	18.2
Rated load	(ton)													5.5				

- Note:
1. Working radius is the horizontal distance between the center of rotation and the bucket's center of gravity.
 2. Total weight of bucket and materials must not exceed rated load.
Bucket capacity (m^3) x specific gravity of material [ton/ m^3] + bucket weight [ton] ≤ rated load
 3. Rated load must not be exceeded, even when using bucket of different capacity for separate task.
 4. Bucket unit weight must not exceed 3.1 tons. Bucket weight must also be decreased according to operating cycle and bucket lowering height.
 5. Rated loads are determined by degree of stability. During simultaneous operations of boom and swing, rapid acceleration or deceleration must be avoided. Particular care is required with long boom lengths.
 6. The 1.6 m^3 bucket is for loading operations.

Working Range



Clamshell Bucket

Bucket capacity (m^3)	Approximate weight (ton)	Bucket clearance (m)
		T
0.8	2.1	3.3
1.0	2.5	3.3
1.2	3.1	3.7
1.6	2.8	3.6

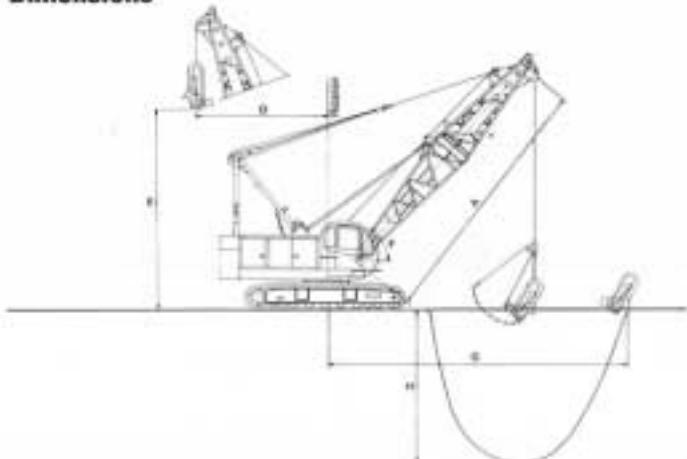
Dragline

Dragline ratings in metric tons for 360° working area

Crawler fully extended

A	Boom length m (ft)	12.2 (40)			15.2 (50)			18.3 (60)		
F	Boom angle (°)	30	40	50	30	40	50	30	40	50
D	Dumping radius (m)	12.0	10.9	9.4	14.7	13.2	11.3	17.3	15.5	13.3
E	Max. dumping height (m)	5.1	6.8	8.3	6.6	8.8	10.7	8.1	10.8	13.0
G	Max. digging reach (m)	16.8	15.3	13.3	20.2	18.3	15.7	23.6	21.3	18.2
H	Max. digging depth (m)	9.4	8.2	6.6	12.0	10.5	8.6	11.1	8.5	6.2
	Rated load (ton)	6.6	6.6	6.0	4.9	6.3	6.6	4.0	4.8	6.0

Dimensions



Note:

1. Dimension G may vary considerably depending on digging conditions and the skill of the operator.
2. Dimension H may vary depending on digging material.
3. Above ratings are for combined weight of bucket, accessories, and material.
4. Maximum boom length recommended for dragline operation is 18.3m (60').
5. A 9.9-ton counterweight should be attached for dragline operation.
6. Maximum allowable bucket weight is 2.1 tons.
7. Maximum allowable digging bucket size:
Heavy-duty type: 1.5 m^3
Light-duty type: 2.0 m^3

KOBELCO

**HEAVY DUTY BASE MACHINE
FOR FOUNDATION WORK
BM 600**

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NOTE: Due to our policy of continual product improvement, all designs and specifications are subject to change without advance notice.

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