

Hydraulic Crawler Crane

KOBELCO

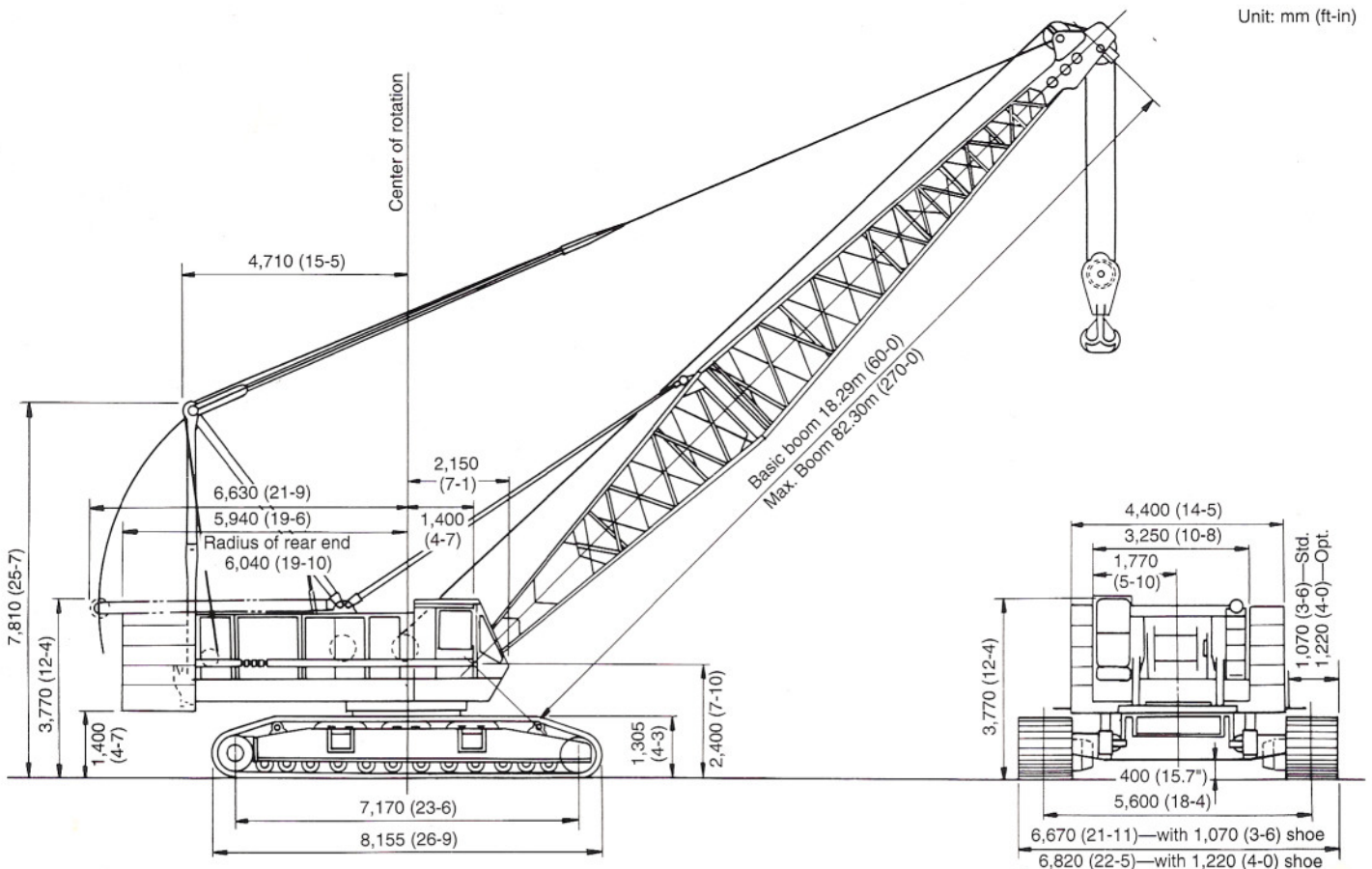
7150

Max. Lifting Capacity: **150** Metric Tons at **5** Meters
Max. Boom & Fixed Jib Length: **73.15 + 30.48** Meters

Specifications

- Advanced winch system delivers a wide range of precisely controlled hoisting speeds, and the fastest hoisting in its class.
- Large main and auxiliary drums can be run simultaneously or independently at different speeds and in opposite directions, according to your needs.
- Two-speed propel system features high speed for travel, low for superior break-out force.
- Precise swing speed control allows for delicate inching operations.
- Direct fuel injection in an intercooled turbo engine delivers dependable performance with top fuel economy.

General Dimensions



Specifications

Upper machinery



Power plant

Model Mitsubishi 6D22-TC

Type Water-cooled, direct fuel injection, intercooled turbo

No. of cylinder 6

Bore and stroke 130mm x 140mm (5.1" x 5.5")

Displacement 11.1 liters

Rated power 294PS (216 kW) at 2,000 rpm (JIS D1005)

285 PS (210 kW) at 2,000 rpm (DIN 6270)

275 HP (205 kW) at 2,000 rpm (SAE J 816b)

Max. torque 117 kg-m at 1,400 rpm (JIS D2005)

Cooling system Liquid, recirculating bypass

Starter 24 V, 5.5 kW

Generator 24 V, 1.5 kW

Cycles 4

Radiator Vertical tube and fin type core, thermostatically controlled

Air cleaner..Dry type with replaceable paper element

Fuel tank capacity 400 liters (105 US gal)

BatteriesTwo 12V, 200A-hr capacity batteries, series connected

Fuel consumption (at 1,400 rpm) 154g/PS-h



Hydraulic system

Pumps: All four variable displacement pumps are driven by heavy-duty pump drive. One of these pumps is used in the right

propel circuit and hook hoist circuit. Another is used in the left propel circuit and hook hoist circuit, and can accommodate an optional 3rd hoist circuit. The third is used in the boom hoist circuit, and the fourth variable displacement pump is used in the swing circuit. In addition, two gear pumps are used in the control system.

One of these serves the clutch and brakes. The second pump can be used at the operator's discretion for a translifter, a cylinder for gantry lift, or a cylinder for boom foot pin or axle-pin coupling and decoupling.

Control: Fuel-flow hydraulic control system for infinitely variable pressure to front and rear drums, boom hoist brakes and clutches. Controls respond instantly to the touch, delivering smooth function operation.

Pressure: 280 kg/cm² (3,980 psi) maximum relief valve pressure

Load hoist, boom hoist and propel system 280kg/cm² (4,000 psi)

Swing system 230kg/cm² (3,290 psi)

Control system 60kg/cm² (860 psi)

Hoist drum service brake system 60kg/cm² (860 psi)

Reservoir capacity: 500 liters (132 US gal)

Cooling: Oil-to-air heat exchanger

Filtration: Fuel-flow and bypass type with replaceable paper element



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 drums.

Drums: Two in-line drums, each grooved for 20mm (0.79") wire rope.

Line speed: Single line on first drum layer

Hoisting (max.) 25m/min (each)

Lowering (max.) 25m/min (each)



Load hoist system

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

Clutches: Internally expanding band clutches.

Brakes: Externally contracting band brakes, each using positive and negative actuation.

Drums: (front and rear): 588mm (23") P.D. x 864mm (34") wide drums, each grooved for 26mm (1.02") wire rope. Rope capacity of 370m (1,213') working length and 490m (1,607') storage length.

Line speed: Single line on the first drum layer

Hoisting 90/60/45/30m/min

Lowering 90/60/45/30m/min



Swing system

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

Swing speed 2.2/1.1 rpm

Swing brakes: A spring-set, hydraulically released multiple-disc brake is mounted on each swing motor.

Swing circle: Single-row ball bearing with an integral internally cut swing gear.

House lock: Four 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, windshield wiper, inspection lamp socket and safety lock-lever 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 brake 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, low and high speed control for front drum, rear drum and propel; and creep speed control for hoist and propel. A swing brake switch and a signal horn button are on the swing lever.

Gauges: Fuel, engine water temperature, engine oil pressure, hour meter.

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

Safety devices: 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

Five-piece stack, mounted behind the machinery compartment.

Total weight54,000kg (119,000 lb)



Tools

Tool set and accessories for routine machine maintenance are provided.

Lower machinery

Carbody: Steel-welded carbody with an integral seat designed for pin-connected axles.

Crawler: Crawler assemblies designed with a quick 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: 12 lower rollers and 2 upper rollers are fitted to each side frame, all permanently sealed and maintenance-free.

Shoes:

Number 62 each side
 Standard flat shoe width 1,070mm (42")
 (optional extra 1,220mm (48"))

Max. travel speed:

High range 1.2km/h (0.75mph)
 Low range 0.6km/h (0.37mph)

Max. gradeability: 30%

Carbody counterweight (optional)

A two-piece carbody counterweight and an additional counterweight can be optionally specified for mounting on the carbody to increase lifting capacity.

Carbody counterweight 20,000kg (44,100lb)

Additional counterweight 8,300kg (18,300lb)

Trans-Lifter (optional): Trans-Lifter system allows quick and easy crawler side frame removal and trailer loading. 4 vertical cylinders lift the basic machine for self-loading onto trailer. 2 horizontal cylinders facilitate side frames for removal or replacement.

Crane attachment



Boom:

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

Max. lifting capacity	150,000kg (330,000lb)
Basic boom length	18.29m (60')
Max. boom length	82.30m (270')



Jib (optional):

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

	Fixed jib
Max. lifting capacity (kg)	15,000
Max. jib length (kg)	30.48
Max. total length (m) (Boom length + jib length)	73.15 + 30.48



Hook blocks

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

Lifting capacity	150 tons	65 tons	25 tons	12 tons
No. of sheaves	7	3	1	0
Weight (kg)	2,200	1,100	700	450

Diameter of wire ropes

Standard:

Hook hoist 26mm (1.02")
 Boom hoist (16-part line) 20mm (0.79")
 Boom pendants (4-part line) 32mm (1.26")

Optional:

Jib hook hoist 26mm (1.02")
 Jib back stay pendants (2-part line) 26mm (1.02")
 Boom midpoint suspension 22mm (0.08")

Weight

Working weight: Approx. 150,000kg (330,000lb) (including 18.29m (60ft) boom and 150ton hook block)

Ground pressure: 0.93kg/cm² with 1,070mm (42") shoes.

Line pull

(for crane, clamshell, diaphragm wall bucket)

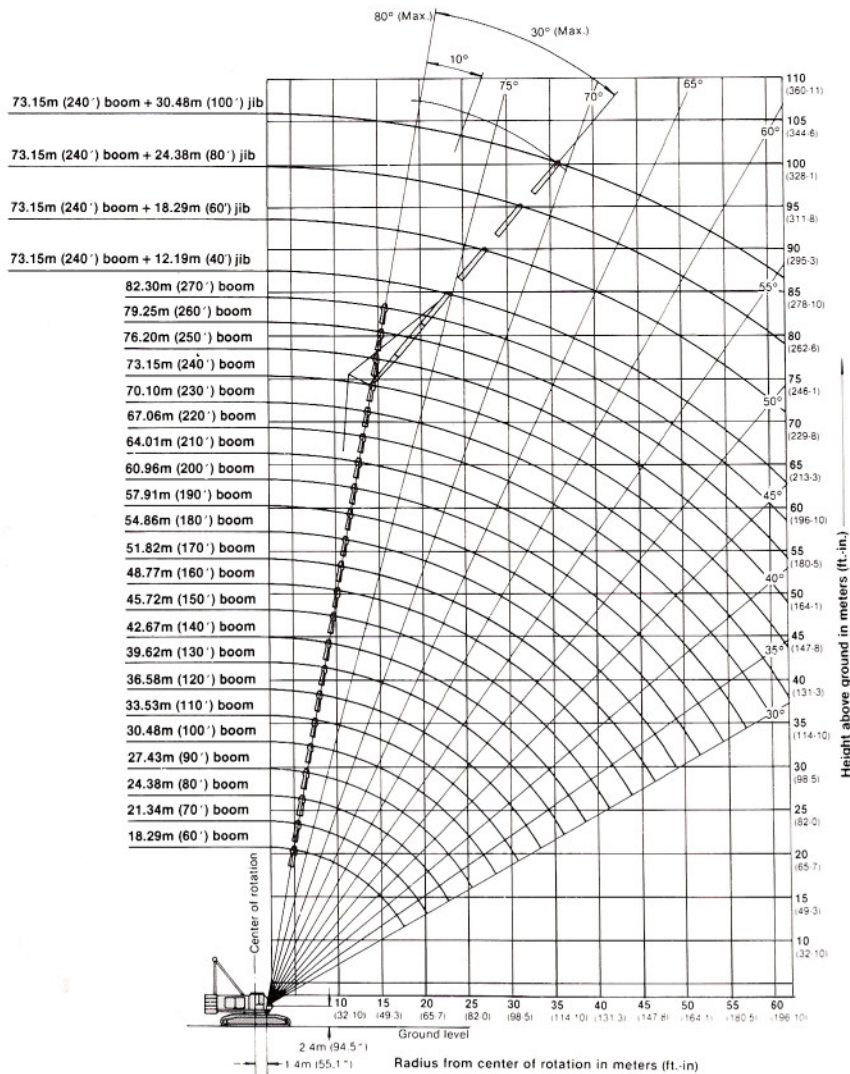
	Max. permissible	Max. available
Front:	10.7ton	19.7ton
Rear:	10.7ton	19.7ton

Lifting Capacities

The following points should be kept in mind when interpreting the ratings given below.

- Operating radius is the horizontal distance from center of rotation to the hoist load line or tackle with load applied.
- Rated loads do not exceed 78% of tipping loads, and include weights of the load, hook blocks, slings and other lifting devices.
- Rated loads are for stationary and level cranes lifting a freely suspended load, and have been determined for ideal operating conditions. The user must limit or derate lifted loads to allow for adverse conditions (such as soft or uneven ground, out-of-level conditions, winds, side loads, pendulum action, jerking or sudden stopping of loads, inexperience of personnel, multiple machine lifts and traveling with a load.)
- Gantry must be in fully raised position for all operations.
- Crawlers must be leveled to within 1% on a firm supporting surface.
- When lifting over boom must be deducted 450kg.
- Midpoint suspensions are required for booms 64.01m (210') and longer.
- Boom lengths for jib mounting are 45.72m (150') to 73.15m (240').
- The boom should be erected over the front of the crawlers, not laterally.
- At radii and boom length where no ratings are shown on-plate operation is not intended or approved.
- Mast required when boom length is 60.96m (220') or longer.
- Boom insert and guy cables must be arranged as shown in the "Owner and Operator's Manual."
- Lifting capacities shown within the heavy lines are limited by the strength of the boom.
- Do not operate the machine with loads that exceed those shown.

Working Ranges (with fixed jib)



Boom Component Chart

Boom Length m (ft)	Boom arrangement
18.29 (60)	Base-Tip
21.34 (70)	Base-A-Tip
24.38 (80)	Base-B-Tip
27.43 (90)	Base-C-Tip
30.48 (100)	Base-A-C-Tip
33.53 (110)	Base-B-C-Tip
36.58 (120)	Base-A-B-C-Tip
39.62 (130)	Base-A-C-C-Tip
42.67 (140)	Base-B-C-C-Tip
45.72 (150)	Base-C-C-C-Tip
48.77 (160)	Base-A-C-C-C-Tip
51.82 (170)	Base-B-C-C-C-Tip
54.86 (180)	Base-A-B-C-C-C-Tip
57.91 (190)	Base-A-A-B-C-C-C-Tip
60.96 (200)	Base-A-C-C-C-D-Tip
64.01 (210)	Base-A-A-C-C-C-D-Tip
67.06 (220)	Base-A-A-C-C-D-D-Tip
70.10 (230)	Base-A-B-C-C-D-D-Tip
73.15 (240)	Base-A-B-C-C-A-D-D-Tip
76.20 (250)	Base-A-A-C-C-C-D-D-Tip
79.25 (260)	Base-A-B-C-C-C-D-D-Tip
82.30 (270)	Base-A-B-C-C-A-C-D-D-Tip

Base = 7.62m (25'), Tip = 10.7m (35')
 Inserts: A = 3.05 m (10'), B = 6.10 m (20')
 C = 9.14m (30'), D = 12.19 m (40')

Jib Component Chart

Jib Length m (ft)	Jib arrangement
12.19 (40)	Base-A-Tip
18.29 (60)	Base-A-B-Tip
24.38 (80)	Base-A-B-B-Tip
30.48 (100)	Base-A-B-B-B-Tip

Base = 4.57 m (15'), Tip = 4.57 m (15')
 Inserts: A = 3.05m (10'), B = 6.10 m (20')

Boom Lifting Capacities (Standard)

Rated Loads in Metric Tons for 360° Working Area (with standard counterweights)

Unit: metric ton

Boom length m (ft) Operating radius m (ft-in)	18.29 (60)	21.34 (70)	24.38 (80)	27.43 (90)	30.48 (100)	33.53 (110)	36.58 (120)	39.62 (130)	42.67 (140)	45.72 (150)	48.77 (160)	Boom length m (ft) Operating radius m (ft-in)
5 (16-5)	150.0											5 (16-5)
6 (19-8)	140.0	128.1	116.8									6 (19-8)
7 (23-0)	123.6	121.7	111.5	102.5	94.4							7 (23-0)
8 (26-3)	99.1	98.8	98.7	96.2	90.7	83.8	77.8					8 (26-3)
9 (29-6)	82.5	82.3	82.2	82.0	81.8	78.8	75.2	69.6				9 (29-6)
10 (32-10)	70.5	70.3	70.2	70.1	69.9	69.8	69.2	66.5	62.3	57.8		10 (32-10)
12 (39-4)	54.6	54.3	54.2	54.0	53.8	53.7	53.5	53.3	53.2	52.2	49.6	12 (39-4)
14 (45-11)	44.5	44.2	44.0	43.9	43.6	43.5	43.2	43.1	42.9	42.7	42.6	14 (45-11)
16 (52-6)	37.5	37.1	37.0	36.8	36.5	36.4	36.1	35.9	35.8	35.6	35.5	16 (52-6)
18 (59-0)		32.0	31.8	31.6	31.3	31.1	30.8	30.7	30.6	30.4	30.2	18 (59-0)
20 (65-7)			27.8	27.6	27.3	27.1	26.8	26.7	26.5	26.3	26.2	20 (65-7)
22 (72-2)			24.7	24.4	24.2	24.0	23.7	23.5	23.4	23.1	23.0	22 (72-2)
24 (78-9)				21.9	21.6	21.4	21.1	20.9	20.8	20.6	20.4	24 (78-9)
26 (85-4)					19.5	19.3	19.0	18.8	18.7	18.4	18.2	26 (85-4)
28 (91-10)						17.5	17.2	17.0	16.9	16.6	16.4	28 (91-10)
30 (98-5)						16.1	15.7	15.5	15.4	15.1	14.9	30 (98-5)
32 (105-0)							14.4	14.2	14.0	13.8	13.6	32 (105-0)
34 (111-7)								13.1	12.9	12.7	12.5	34 (111-7)
36 (118-1)									11.9	11.7	11.5	36 (118-1)
38 (124-8)									11.1	10.8	10.6	38 (124-8)
40 (131-3)										10.1	9.8	40 (131-3)
42 (137-10)											9.1	42 (137-10)

Unit: metric ton

Boom length m (ft) Operating radius m (ft-in)	51.82 (170)	54.86 (180)	57.91 (190)	60.96 (200)	64.01 (210)	67.06 (220)	70.10 (230)	73.15 (240)	76.20 (250)	79.25 (260)	82.30 (270)	Boom length m (ft) Operating radius m (ft-in)
12 (39-4)	46.9	43.5	40.0									12 (39-4)
14 (45-11)	41.8	40.3	38.1	37.0	36.2	33.5	30.3					14 (45-11)
16 (52-6)	35.2	35.1	33.8	35.6	35.2	32.7	29.6	27.1	25.0	22.8	20.3	16 (52-6)
18 (59-1)	30.0	29.8	29.6	30.3	30.1	30.1	28.8	26.4	24.4	22.1	19.7	18 (59-1)
20 (65-7)	25.9	25.7	25.5	26.2	25.9	25.9	25.9	25.7	23.8	21.6	19.2	20 (65-7)
22 (72-2)	22.8	22.5	22.3	22.9	22.6	22.7	22.6	22.4	22.3	21.0	18.6	22 (72-2)
24 (78-9)	20.2	19.9	19.7	20.2	20.0	20.0	20.0	19.7	19.6	19.4	18.0	24 (78-9)
26 (85-4)	18.0	17.7	17.6	18.0	17.8	17.8	17.7	17.5	17.4	17.2	16.7	26 (85-4)
28 (91-10)	16.2	15.9	15.8	16.2	15.9	15.9	15.9	15.6	15.5	15.3	15.2	28 (91-10)
30 (98-5)	14.7	14.4	14.3	14.6	14.3	14.3	14.3	14.0	13.9	13.7	13.6	30 (98-5)
32 (105-0)	13.4	13.1	12.9	13.2	13.0	13.0	12.9	12.6	12.5	12.3	12.3	32 (105-0)
34 (111-7)	12.2	11.9	11.8	12.0	11.8	11.8	11.7	11.4	11.3	11.1	11.1	34 (111-7)
36 (118-1)	11.2	10.9	10.8	11.0	10.7	10.7	10.7	10.4	10.3	10.1	10.0	36 (118-1)
38 (124-8)	10.3	10.1	9.9	10.1	9.8	9.8	9.8	9.5	9.3	9.1	9.1	38 (124-8)
40 (131-3)	9.6	9.3	9.1	9.3	9.0	9.0	8.9	8.6	8.5	8.3	8.2	40 (131-3)
42 (137-10)	8.9	8.6	8.4	8.5	8.2	8.2	8.2	7.9	7.8	7.6	7.5	42 (137-10)
44 (144-4)	8.2	7.9	7.7	7.9	7.6	7.6	7.5	7.2	7.1	6.9	6.8	44 (144-4)
46 (150-11)	7.7	7.4	7.2	7.3	7.0	7.0	6.9	6.6	6.5	6.2	6.1	46 (150-11)
48 (157-6)		6.9	6.6	6.7	6.4	6.4	6.4	6.0	5.9	5.6	5.4	48 (157-6)
50 (164-1)			6.2	6.2	5.9	5.9	5.9	5.5	5.3	5.0	4.9	50 (164-1)
52 (170-7)				5.8	5.4	5.4	5.3	4.9	4.7	4.5	4.3	52 (170-7)
54 (177-0)				5.4	5.0	5.0	4.8	4.4	4.2	4.0	3.8	54 (177-0)
56 (183-9)					4.5	4.5	4.4	4.0	3.8	3.5	3.4	56 (183-9)
58 (190-3)						4.1	4.0	3.6	3.4	3.1	2.9	58 (190-3)
60 (196-10)							3.6	3.2	3.0	2.7	2.5	60 (196-10)
62 (203-5)							3.2	2.8	2.6	2.4	2.2	62 (203-5)

Boom Lifting Capacities

(with carbody counterweights and an additional counterweight)

Rated Loads in Metric Tons for 360° Working Area (with carbody counterweights and an additional counterweight)

Unit: metric ton

Boom length m (ft) Operating radius m (ft-in)	18.29 (60)	21.34 (70)	24.38 (80)	27.43 (90)	30.48 (100)	33.53 (110)	36.58 (120)	39.62 (130)	42.67 (140)	45.72 (150)	48.77 (160)	Boom length m (ft) Operating radius m (ft-in)
5 (16-5)	150.0											5 (16-5)
6 (19-8)	140.0	128.1	116.8									6 (19-8)
7 (23-0)	123.6	121.7	111.5	102.5	94.4							7 (23-0)
8 (26-3)	104.8	104.6	102.3	96.2	90.7	83.8	77.8					8 (26-3)
9 (29-6)	90.0	90.4	89.8	87.1	82.7	79.5	75.2	69.6				9 (29-6)
10 (32-10)	78.4	79.3	79.1	78.5	75.6	72.7	69.4	66.5	62.3	57.8		10 (32-10)
12 (39-4)	61.1	62.9	63.4	63.3	62.6	61.8	59.3	56.8	54.7	52.2	50.2	12 (39-4)
14 (45-11)	48.5	51.2	52.3	52.6	52.3	51.8	51.1	49.5	47.7	45.5	43.8	14 (45-11)
16 (52-6)	38.4	42.1	43.9	44.4	44.2	44.0	43.7	43.3	42.1	40.2	38.7	16 (52-6)
18 (59-0)		34.6	37.1	38.2	37.9	37.7	37.5	37.4	37.1	36.0	34.7	18 (59-0)
20 (65-7)			31.3	32.9	33.1	32.9	32.7	32.5	32.3	32.2	31.2	20 (65-7)
22 (72-2)			26.0	28.3	29.3	29.1	28.9	28.7	28.5	28.4	28.1	22 (72-2)
24 (78-9)				24.1	25.5	26.1	25.8	25.7	25.4	25.3	25.0	24 (78-9)
26 (85-4)					22.1	23.2	23.3	23.1	22.9	22.7	22.5	26 (85-4)
28 (91-10)						20.3	21.0	21.0	20.8	20.6	20.3	28 (91-10)
30 (98-5)						17.6	18.6	19.1	18.9	18.8	18.5	30 (98-5)
32 (105-0)							16.3	17.1	17.4	17.2	16.9	32 (105-0)
34 (111-7)								15.1	15.7	15.9	15.6	34 (111-7)
36 (118-1)									14.0	14.4	14.4	36 (118-1)
38 (124-8)									12.3	12.9	13.1	38 (124-8)
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16 (52-6)	36.9	35.6	33.8	35.6	35.2	32.7	29.6	27.1	25.0	22.8	20.3	16 (52-6)
18 (59-1)	33.0	31.8	30.2	32.9	33.7	31.3	28.8	26.4	24.4	22.1	19.7	18 (59-1)
20 (65-7)	29.8	28.7	27.2	29.5	31.8	30.5	27.6	25.7	23.8	21.6	19.2	20 (65-7)
22 (72-2)	27.1	26.0	24.7	26.6	27.9	27.9	26.8	24.6	22.7	21.0	18.6	22 (72-2)
24 (78-9)	24.7	23.8	22.5	24.2	24.7	24.7	24.7	23.9	21.4	19.6	18.0	24 (78-9)
26 (85-4)	22.3	21.8	20.7	22.0	22.1	22.1	22.1	21.8	20.1	18.2	16.9	26 (85-4)
28 (91-10)	20.2	19.9	19.0	20.1	19.9	19.9	19.8	19.6	18.8	17.0	15.7	28 (91-10)
30 (98-5)	18.4	18.1	17.5	18.3	18.0	18.0	18.0	17.7	17.6	15.8	14.6	30 (98-5)
32 (105-0)	16.8	16.5	16.1	16.6	16.4	16.4	16.3	16.1	15.9	14.8	13.5	32 (105-0)
34 (111-7)	15.4	15.1	14.9	15.2	15.0	15.0	14.9	14.6	14.5	13.8	12.5	34 (111-7)
36 (118-1)	14.2	13.9	13.8	14.0	13.7	13.7	13.7	13.4	13.3	12.7	11.5	36 (118-1)
38 (124-8)	13.2	12.9	12.7	12.9	12.6	12.6	12.6	12.3	12.2	11.6	10.4	38 (124-8)
40 (131-3)	12.0	11.9	11.7	11.9	11.6	11.6	11.6	11.3	11.2	10.6	9.7	40 (131-3)
42 (137-10)	10.8	10.8	10.7	11.1	10.8	10.8	10.7	10.4	10.3	9.9	9.0	42 (137-10)
44 (144-4)	9.7	9.8	9.7	10.3	10.0	10.0	9.9	9.6	9.5	9.3	8.5	44 (144-4)
46 (150-11)	8.6	8.8	8.8	9.6	9.3	9.3	9.2	8.9	8.8	8.6	7.8	46 (150-11)
48 (157-6)		7.8	7.9	8.9	8.6	8.6	8.5	8.2	8.1	7.9	7.4	48 (157-6)
50 (164-1)			7.0	8.3	8.0	8.0	7.9	7.6	7.5	7.3	6.8	50 (164-1)
52 (170-7)				7.8	7.5	7.5	7.4	7.1	7.0	6.8	6.3	52 (170-7)
54 (177-0)				7.3	7.0	7.0	6.9	6.6	6.4	6.2	5.8	54 (177-0)
56 (183-9)					6.5	6.5	6.4	6.1	5.9	5.6	5.4	56 (183-9)
58 (190-3)						6.1	6.0	5.6	5.4	5.1	4.9	58 (190-3)
60 (196-10)							5.5	5.2	5.0	4.7	4.5	60 (196-10)
62 (203-5)								5.1	4.7	4.5	4.3	62 (203-5)
64 (210-0)									4.3	4.1	3.9	64 (210-0)

Fixed Jib Lifting Capacities

Jib Rated Loads in Metric Tons for 360° Working Area

Unit: metric ton

Operating radius m (ft-in)	45.72m (150') boom								Operating radius m (ft-in)
	12.19m (40') jib		18.29m (60') jib		24.38m (80') jib		30.48m (100') jib		
	Offset angle								
	10°	30°	10°	30°	10°	30°	10°	30°	
14 (45-11)	15.0								14 (45-11)
16 (52-6)	15.0								16 (52-6)
18 (59-0)	15.0	13.0	12.0						18 (59-0)
20 (65-7)	15.0	13.0	12.0		8.0				20 (65-7)
22 (72-2)	15.0	13.0	12.0	8.0	8.0		4.0		22 (72-2)
24 (78-9)	15.0	13.0	12.0	8.0	8.0		4.0		24 (78-9)
26 (85-4)	15.0	13.0	12.0	8.0	7.8	6.0	4.0		26 (85-4)
28 (91-10)	15.0	12.6	12.0	8.0	7.6	6.0	4.0		28 (91-10)
30 (98-5)	15.0	12.3	12.0	8.0	7.4	6.0	4.0		30 (98-5)
34 (111-7)	12.7	11.5	11.5	8.0	7.1	6.0	4.0	3.0	34 (111-7)
38 (124-8)	10.8	10.8	10.6	7.6	6.7	5.7	3.7	3.0	38 (124-8)
40 (131-3)	10.1	10.1	10.1	7.4	6.5	5.5	3.6	3.0	40 (131-3)

Unit: metric ton

Operating radius m (ft-in)	57.91m (190') boom								Operating radius m (ft-in)
	12.19m (40') jib		18.29m (60') jib		24.38m (80') jib		30.48m (100') jib		
	Offset angle								
	10°	30°	10°	30°	10°	30°	10°	30°	
14 (45-11)									14 (45-11)
16 (52-6)	15.0								16 (52-6)
18 (59-0)	15.0								18 (59-0)
20 (65-7)	15.0	13.0	12.0						20 (65-7)
22 (72-2)	15.0	13.0	12.0		8.0				22 (72-2)
24 (78-9)	15.0	13.0	12.0	8.0	8.0		4.0		24 (78-9)
26 (85-4)	15.0	13.0	12.0	8.0	8.0		4.0		26 (85-4)
28 (91-10)	15.0	13.0	12.0	8.0	8.0	6.0	4.0		28 (91-10)
30 (98-5)	14.3	13.0	12.0	8.0	8.0	6.0	4.0		30 (98-5)
34 (111-7)	11.8	11.8	11.8	8.0	7.6	6.0	4.0	3.0	34 (111-7)
38 (124-8)	9.9	9.9	9.9	8.0	7.2	6.0	4.0	3.0	38 (124-8)
42 (137-10)	8.4	8.4	8.4	7.7	6.8	5.7	3.9	3.0	42 (137-10)
46 (150-11)	7.2	7.2	7.2	7.2	6.4	5.4	3.6	2.9	46 (150-11)
50 (164-1)	6.2	6.2	6.2	6.2	6.0	5.1	3.3	2.8	50 (164-1)

Unit: metric ton

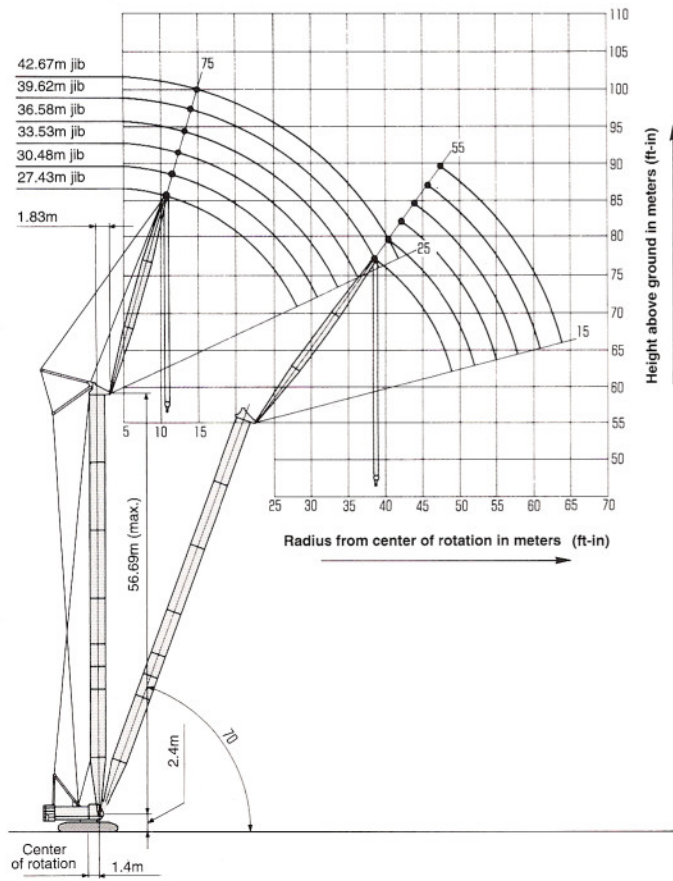
Operating radius m (ft-in)	73.15m (240') boom								Operating radius m (ft-in)
	12.19m (40') jib		18.29m (60') jib		24.38m (80') jib		30.48m (100') jib		
	Offset angle								
	10°	30°	10°	30°	10°	30°	10°	30°	
18 (59-0)	15.0								18 (59-0)
20 (65-7)	15.0								20 (65-7)
22 (72-2)	15.0	13.0	12.0						22 (72-2)
24 (78-9)	15.0	12.7	12.0		8.0				24 (78-9)
26 (85-4)	15.0	12.4	12.0		8.0		4.0		26 (85-4)
28 (91-10)	15.0	12.1	12.0	8.0	8.0		4.0		28 (91-10)
30 (98-5)	14.0	11.8	12.0	8.0	8.0		4.0		30 (98-5)
34 (111-7)	11.4	10.4	11.4	8.0	8.0	6.0	4.0		34 (111-7)
38 (124-8)	9.5	9.5	9.5	8.0	7.7	6.0	4.0	3.0	38 (124-8)
42 (137-10)	7.9	7.9	7.9	7.8	7.4	6.0	4.0	3.0	42 (137-10)
46 (150-11)	6.6	6.6	6.6	6.6	6.6	5.6	4.0	3.0	46 (150-11)
50 (164-1)	5.5	5.5	5.5	5.5	5.5	5.1	3.7	3.0	50 (164-1)
54 (177-0)	4.4	4.4	4.4	4.4	4.4	4.4	3.5	2.8	54 (177-0)
58 (190-3)	3.6	3.6	3.6	3.6	3.6	3.6	3.2	2.7	58 (190-3)
62 (203-5)	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.5	62 (203-5)

Note: This chart presents rated jib loads for three possible boom lengths. Data for boom lengths from 150 to 240 feet at 10-foot intervals is available upon request.

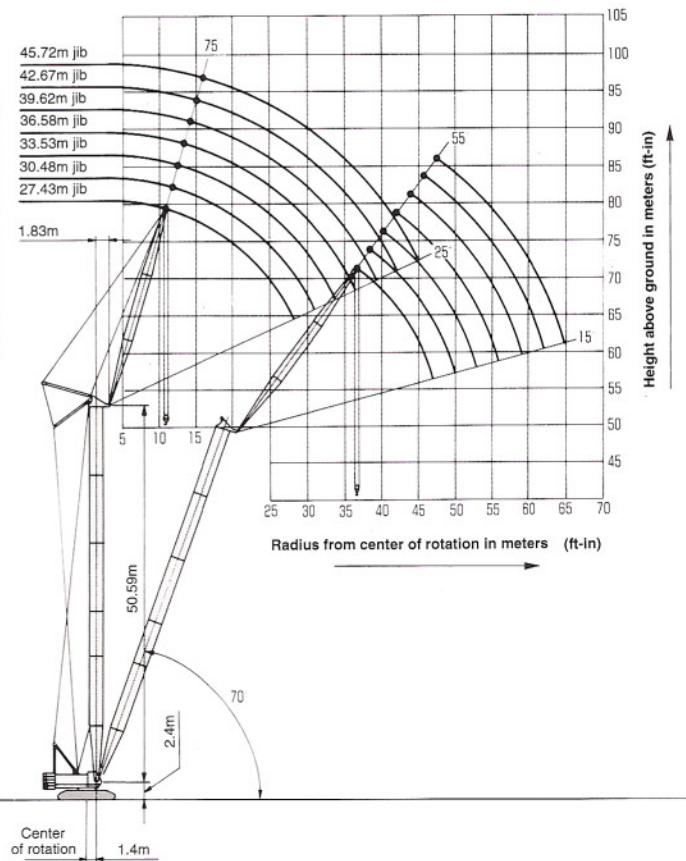
Luffing Tower Lifting Capacities

Working Ranges

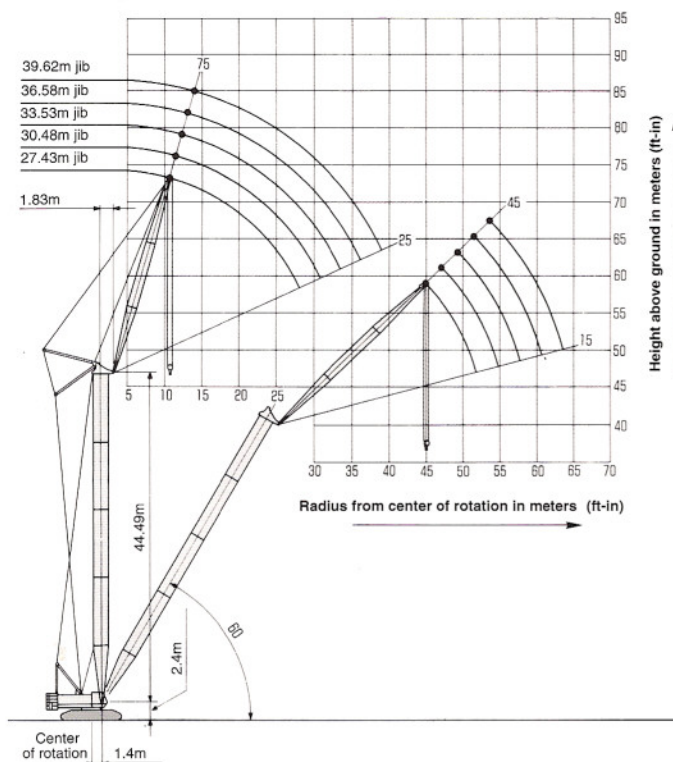
• Luffing Tower Length: 56.69m



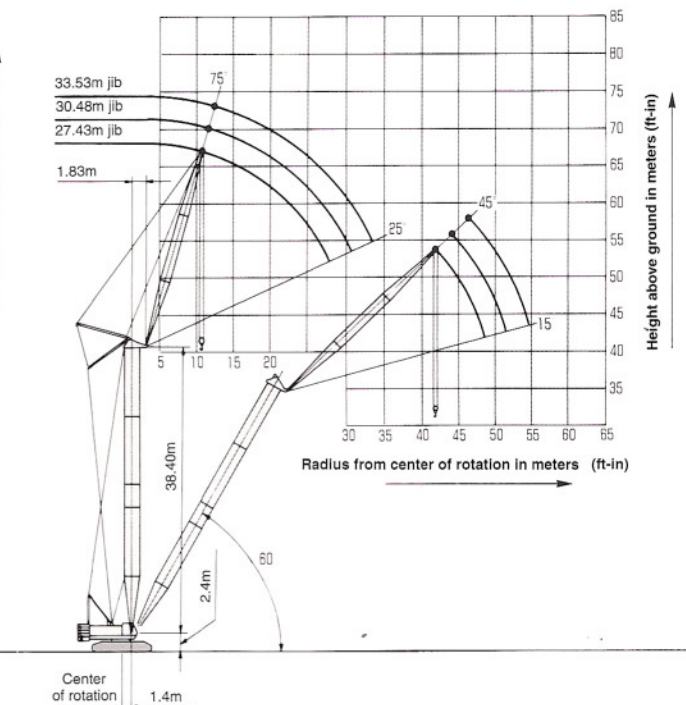
• Luffing Tower Length: 50.09m



• Luffing Tower Length: 44.99m



• Luffing Tower Length: 38.40m



Luffing Tower Lifting Capacities

Rated Loads in Metric Tons for 360° Working Area

Tower length m(ft.)		35.35(116)					
Jib length m(ft.)		27.43(90)			30.48(100)		
Operating radius m	Tower angle	90°	75°	60°	90°	75°	60°
		10.0(32-10)	10.8m 20.0				11.6m 20.0
12.0(39-4)	20.0				20.0		
14.0(45-11)	15.8m 20.0				15.8m 20.0		
16.0(52-6)	19.6				19.6		
18.0(59-1)	17.8				17.8		
20.0(65-7)	16.2				16.2		
22.0(72-2)	14.8				14.8		
24.0(78-9)	13.5				13.5		
26.0(85-4)	12.2	26.4m 12.0			12.2		
28.0(91-10)	11.0	11.0			11.0	11.0	
30.0(98-5)	28.1m 10.8	9.9			9.9	9.9	
32.0(105-0)		9.1			30.9m 9.5	9.1	
34.0(111-7)		8.4			8.4		
36.0(118-1)		7.7			7.7		
38.0(124-8)		7.1			7.1		
40.0(131-3)		38.8m 6.9	40.4m 6.4		6.5		
42.0(137-10)			6.0		47.1m 6.1	42.6m 5.9	
44.0(144-4)			5.6			5.6	
46.0(150-11)			5.1			5.1	
48.0(157-6)			47.2m 4.9			4.7	
50.0(164-1)						4.4	
52.0(170-7)						50.1m 4.5	
54.0(177-0)							
56.0(183-9)							

Configuration of luffing tower and jib

Jib length m(ft.)	27.43 (90)	30.48 (100)	33.53 (110)	36.58 (120)	39.62 (130)	42.67 (140)	45.72 (150)	Tower angle	Steel plate
35.35(116)	○	○	×	×	×	×	×	60°~90°	×
38.40(126)	○	○	○	×	×	×	×	60°~90°	×
41.44(136)	○	○	○	○	×	×	×	60°~90°	×
44.49(146)	○	○	○	○	○	×	×	60°~90°	×
47.54(156)	○	○	○	○	○	○	×	70°~90°	×
50.59(166)	○*	○	○	○	○	○	○	70°~90°	×
53.64(178)	○*	○*	○	○	○	○	○	70°~90°	○
56.69(186)	○*	○*	○	○	○	○	×	70°~90°	○
Hook	65ton	65ton	25ton	25ton	25ton	25ton	25ton		

○ : Available × : Not available

○* : Should be equipped with weight (400kg) for jib tip to tip of upper jib.

Notes:

- Rated loads are within 78% of minimum tipping load with the machine standing on firm level ground, and include the weight of lifting devices such as hook blocks, slings etc.
- With 27.43m(90') or 30.48m(100') jibs, a 65ton hook should be used.
- For the self-erection or dismantling of a 53.64m(178') or 56.69m(186') tower, be sure to support the machine on the special self-erection steel plate.
- When using a 27.43m(90') jib and a tower height exceeding 50.59m(166'), or with a 30.48m(100') jib and a tower height exceeding 53.64m(178'), attach a jib tip weight(400kg) to the top of the jib.

Tower Component Chart

Tower length meters(ft)	Tower arrangement
35.35(116)	Base-C'-C-C-Cap
38.40(126)	Base-C'-A-C-C-Cap
41.44(136)	Base-C'-B-C-C-Cap
44.49(146)	Base-C'-C-C-C-Cap
47.54(156)	Base-C'-A-C-C-C-Cap
50.59(166)	Base-C'-B-C-C-C-Cap
53.64(176)	Base-C'-A-B-C-C-C-Cap
56.69(186)	Base-C'-A-A-B-C-C-C-Cap

Base = 7.62 m(25'), Cap = 0.31 m(1')

Inserts: B = 6.10 m(20'), C = 9.14 m(30')

A = 3.05 m(10'), C' = 9.14 m(30')

Note: C' 9.14 m(30') boom is for luffing tower use only.

Jib Component Chart

Jib length meters(ft)	Jib arrangement	NO. of rollers for insert lines
27.43(90)	Base-C-Tip	-
30.48(100)	Base-A-C-Tip	-
33.53(110)	Base-B-C-Tip	1
36.58(120)	Base-C-C-Tip	1
39.62(130)	Base-A-C-C-Tip	1
42.67(140)	Base-B-C-C-Tip	2
45.72(150)	Base-A-B-C-C-Tip	2

Base = 9.14m(30'), Tip = 9.14m(30')

Inserts: A = 3.05m(10'), B = 6.10m(20')

C = 9.14m(30')

- During operation, the luffing tower can be angled according to the following table.

Tower height	Permissible tower angle
More than 47.54m(156')	70° - 90°
Less than 44.49m(146')	60° - 90°

- Maximum rated load values assume that 26mm diameter nafx cable is used.

Luffing tower attachment

Luffing tower & jib:

Max. lifting capacity	20,000kg (44,000lb)
Basic total length (Tower length + jib length)	35.35m (116') + 27.43m (90')
Max. total length (Tower length + jib length)	56.69 (186') + 42.67 (140') 53.64 (176') + 45.72 (150')

Hook block weight and max. hoisting loads (metric ton)

Hook Capacity	Max. hoisting loads		Hook weight
	1-line	2-line	
65 ton	11 ton	20 ton	1.1 ton
25 ton	11 ton	20 ton	0.7 ton

Diameter of wire ropes

Main hook hoist	26mm (1.02")
Tower jib hoist	26mm (1.02")
Tower hoist	20mm (1.26")
Tower jib pendants (2-part line)	36mm (1.02") - Tower 22mm (0.08") - Jib

Weight

Working weight: Approx. 168,000kg (370,400lb)
(including 56.69m boom and 42.67m jib)

Ground pressure: 1.03kg/cm²

Luffing Tower Lifting Capacities

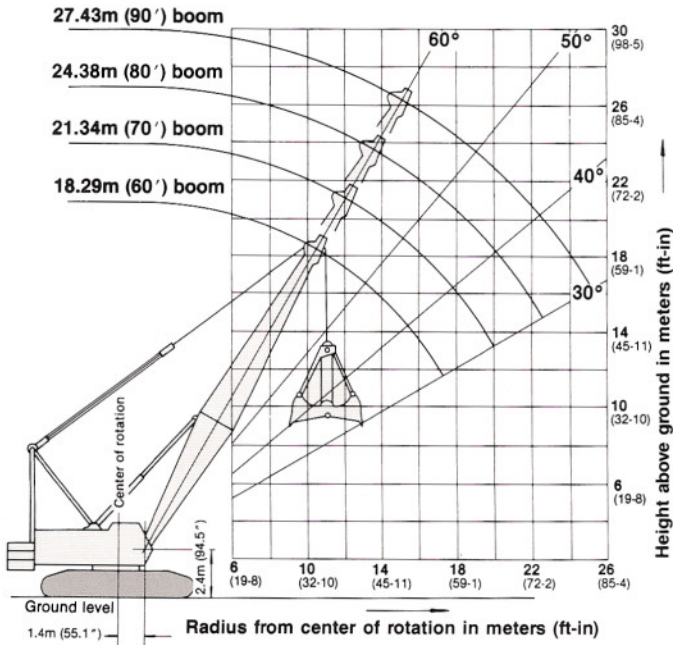
Tower length m(ft)		53.64(176)																					
Jib length m(ft)		27.43(90)			30.48(100)			33.53(110)			36.58(120)			39.62(130)			42.67(140)			45.72(150)			
Operating radius m(ft-in)	Boom angle	90°	80°	70°	90°	80°	70°	90°	80°	70°	90°	80°	70°	90°	80°	70°	90°	80°	70°	90°	80°	70°	
		10.0	10.8m 20.0				11.6m 20.0																
12.0	20.0				20.0			12.4m 19.3			13.2m 17.8												
14.0	15.8m 20.0				15.8m 20.0			15.8m 19.3			17.8			16.3			14.8m 14.8			15.6m 13.3			
16.0	19.6				19.6			19.0			16.4m 17.8			17.5m 16.3			14.8			13.3			
18.0	17.8				17.8			17.8			17.1			16.1			18.6m 14.8			18.7m 13.3			
20.0	16.2				16.2			16.2			16.2			15.3			14.3			13.2			
22.0	14.8				14.8			14.8			14.8			14.4			13.7			12.6			
24.0	13.5	24.5m 13.1			13.5	25.8m 12.2		13.5			13.5			13.5			12.8			12.2			
26.0	12.2	12.2			12.2	12.2		12.2	27.1m 11.5		12.2			12.2			12.2			11.5			
28.0	11.0	11.0			11.0	11.0		11.0	11.0		11.0	28.4m 10.8		11.0	29.7m 10.1		11.0			11.0			
30.0	28.1m 10.8	9.9			9.9	9.9		9.9	9.9		9.9	9.9		9.9	9.9		9.9			9.9	30.9m 9.5		9.9
32.0		9.1			30.9m 9.5	9.1		9.1	9.1		9.1	9.1		9.1	9.1		9.1	9.1		9.1	9.1		32.2m 9.0
34.0		8.4			8.4			33.7m 8.5	8.4		8.4	8.4		8.4	8.4		8.4	8.4		8.4	8.4		8.4
36.0		7.7	37.6m 7.2		7.7			7.7			7.7	7.7		7.7	7.7		7.7	7.7		7.7	7.7		7.7
38.0		7.1	7.1		7.1	39.4m 6.7		7.1			36.4m 7.6	7.1		7.1	7.1		7.1	7.1		7.1	7.1		7.1
40.0		39.0m 6.7	6.5		6.5	6.5		6.5	41.2m 6.2		6.5		6.5	39.2m 6.7	6.5		6.5	6.5		6.5	6.5		6.5
42.0			6.0		6.0	6.0		6.0	6.0		6.0	43.0m 5.8		6.0		6.0			6.0	6.0		6.0	
44.0			5.6		5.6	5.6		5.6	5.6		5.6	5.6		5.6	44.8m 5.4		5.6		5.6	5.6		5.6	
46.0			5.1		5.1	44.9m 5.3		5.1	5.1		5.1	5.1		5.1	5.1		5.1	5.1		46.5m 5.0	44.7m 5.4		5.1
48.0			4.7		4.7			4.7			47.9m 4.7	4.7		4.7	4.7		4.7	4.7		4.7	4.7		48.2m 4.7
50.0					4.4			4.4			4.4	4.4		4.4	4.4		4.4	4.4		4.4	4.4		4.4
52.0					50.9m 4.3			4.1			4.1			50.8m 4.3	4.1		4.1	4.1		4.1	4.1		4.1
54.0								53.9m 3.8			3.8			3.8			53.7m 3.8	3.8		3.8	3.8		3.8
56.0											3.5			3.5			3.5			3.5	3.5		3.5
58.0											56.8m 3.4			3.2			3.2			3.2	3.2		56.7m 3.4
60.0														59.7m 3.0			3.0			3.0	3.0		3.0
62.0																	62.7m 2.7			2.8	2.8		2.8
64.0																				2.6	2.6		2.6
66.0																					65.6m 2.4		2.4

Tower length m(ft)		56.69(186)																					
Jib length m(ft)		27.43(90)			30.48(100)			33.53(110)			36.58(120)			39.62(130)			42.67(140)						
Operating radius m(ft-in)	Boom angle	90°	80°	70°	90°	80°	70°	90°	80°	70°	90°	80°	70°	90°	80°	70°	90°	80°	70°	90°	80°	70°	
		10.0	10.8m 20.0				11.6m 20.0																
12.0	20.0				20.0			12.4m 19.3			13.2m 17.8												
14.0	15.8m 20.0				15.8m 20.0			15.8m 19.3			17.8			16.3			14.8m 14.8						
16.0	19.6				19.6			19.0			16.4m 17.8			17.5m 16.3			14.8						
18.0	17.8				17.8			17.8			17.1			16.1			18.6m 14.8						
20.0	16.2				16.2			16.2			16.2			15.3			14.3						
22.0	14.8				14.8			14.8			14.8			14.4			13.7						
24.0	13.5	25.0m 12.8			13.5			13.5			13.5			13.5			12.8						
26.0	12.2	12.2			12.2	26.3m 12.0		12.2	27.6m 11.2		12.2			12.2			12.2						
28.0	11.0	11.0			11.0	11.0		11.0	11.0		11.0	28.9m 10.5		11.0			11.1						
30.0	28.1m 10.8	9.9			9.9	9.9		9.9	9.9		9.9	9.9		9.9	30.2m 9.8		9.9			31.5m 9.3			
32.0		9.1			30.9m 9.5	9.1		9.1	9.1		9.1	9.1		9.1	9.1		9.1	9.1		9.1	9.1		
34.0		8.4			8.4			33.7m 8.5	8.4		8.4	8.4		8.4	8.4		8.4	8.4		8.4	8.4		
36.0		7.7			7.7			7.7			7.7	7.7		7.7	7.7		7.7	7.7		7.7	7.7		
38.0		7.1	38.6m 6.9		7.1			7.1			36.4m 7.6	7.1		7.1	7.1		7.1	7.1		7.1	7.1		
40.0		39.5m 6.6	6.5		6.5	40.4m 6.4		6.5			6.5			39.2m 6.7	6.5		6.5	6.5		6.5	6.5		
42.0			6.0		6.0	6.0		6.0	42.2m 6.0		6.0			6.0			6.0	6.0		6.0	6.0		
44.0			5.6		5.6	42.5m 5.9		5.6	5.6		5.6	5.6		5.6	5.6		5.6	48.8m 5.2		5.6	5.6		
46.0			5.1		5.1			5.1	45.4m 5.2		5.1	5.1		5.1	5.1		5.1	5.1		5.1	47.8m 4.8		
48.0			4.7		4.7			4.7			4.7	4.7		4.7	4.7		4.7	4.7		4.7	4.7		
50.0			49.0m 4.6		4.4			4.4			4.4	48.4m 4.6		4.4	4.4		4.4	4.4		4.4	4.4		
52.0					4.1			4.1			4.1			4.1			51.3m 4.2	4.1		4.1	4.1		
54.0								3.8			3.8			3.8			3.8			3.8	3.8		
56.0								54.8m 3.7			3.5			3.5			3.5			54.3m 3.7	3.5		
58.0											57.8m 3.2			3.2			3.2			3.2	3.2		
60.0														3.0			3.0			3.0	3.0		
62.0																	60.8m 2.9			2.8	2.8		
64.0																				63.7m 2.6	2.6		

Clamshell

10.5 Metric Ton (23,100 lb) Rated Load

24.37m Maximum Boom



Rated Loads in kg (standard)

Operating radius m(ft-in)	Boom length m (ft)	18.29 (60) boom	21.34 (70) boom	24.38 (80) boom	27.43 (90) boom
10.0 (32-10)		10,500			
12.0 (39-4)		10,500	10,500		
14.0 (45-11)		10,500	10,500	10,500	
16.0 (52-6)		10,500	10,500	10,500	10,500
18.0 (59-1)			10,500	10,500	10,500
20.0 (65-7)				10,500	10,500
22.0 (72-2)					10,500
24.0 (78-9)					10,500

Note: Table shows loads using standard 26 mm wire and standard drums.

Rated Loads in kg (optional)

Operating radius m(ft-in)	Boom length m (ft)	18.29 (60) boom	21.34 (70) boom	24.38 (80) boom	27.43 (90) boom
10.0 (32-10)		12,500			
12.0 (39-4)		12,500	12,500		
14.0 (45-11)		12,500	12,500	12,500	
16.0 (52-6)		12,500	12,500	12,500	12,500
18.0 (59-1)			12,500	12,500	12,500
20.0 (65-7)				12,500	12,500
22.0 (72-2)					12,500
24.0 (78-9)					12,500

Note: Table shows loads using optional 28 mm wire and optional drums.

Above ratings are combined weights of bucket and material. Clamshell ratings shown also apply to grapple and all other material handling buckets except dragline. For clamshell operations, the weight of bucket is considered a part of the load and the total weight of bucket plus contents must not exceed the corresponding rating shown.

- Limit on clamshell rating 10,500 kg (23,100 lb)
- Limit on clamshell rating (using 28 mm dia. wire rope—opt.)....
..... 12,500 kg (27,600 lb)
- Maximum allowable bucket 3.0 m³ (3.9 cu yd)
- Maximum allowable bucket weight 6,000 kg (13,200lb)

Note:

To select the bucket size best suited for your application, use the following formula: refer to the above charts to obtain clamshell capacity in kg. Clamshell capacity = (cubic meter capacity of bucket) x (weight of material per cubic meter) + (weight of specific clamshell bucket).