

Hydraulic Crawler Crane

ROBELLO

7080 Specifications

Max. lifting capacity: **80** metric tons at **4.0** meters

Max. boom length: **57.91** meters

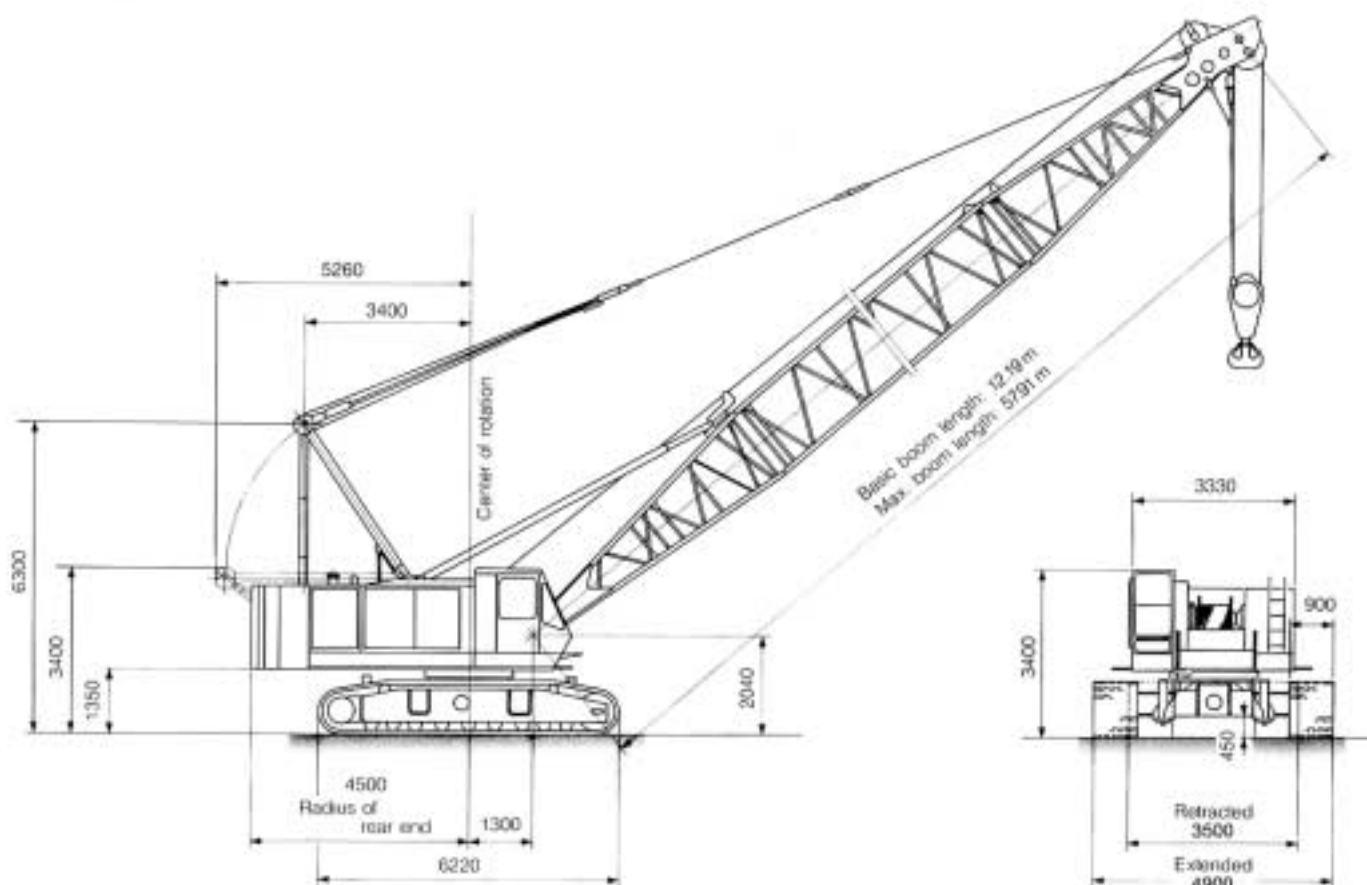
Max. total length (boom+jib) **70.11** meters

Max. total length (boom+luffing jib) **79.25** meters

- 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.
- Hoisting, lowering, neutral free-fall and neutral braking can be controlled by one lever.

General Dimensions

Unit: mm



Bulletin No. 7080 Spec.-201

Specifications

Upper machinery



Power plant

Model Mitsubishi 6D22CT diesel
Type Water cooled, direct fuel injection,
with turbo

No. of cylinders 6
Bore and stroke 130 mm x 140 mm
Displacement 11,149 liters
Rated power 245 PS (180kW) at 2,000 rpm

(JIS D1005)

238 PS (175kW) at 2,000 rpm (DIN 6270)

Max. torque 105kg-m at 1,200 rpm (JIS D1005)
102kg-m at 1,200 rpm (DIN 6270)

Cooling system Liquid, recirculating bypass

Starter 24V, 5.5kW

Generator 24V, 1,000W

Cycles 4

Radiator Corrugated fin type core, thermostat
controlled

Air cleaner Two stage, dry

Fuel tank capacity 400 liters

Batteries Two 12V, 150A-hr capacity batteries,
series connected

Fuel consumption (at 2,000 rpm) 175gr/PS, hr



Hydraulic system

Pumps: Two variable displacement plunger pumps and one fixed displacement plunger pump are used. One variable displacement

plunger pump is used in the left propel circuit, boom hoist circuit and hook hoist circuit. The other is used in the right propel circuit and hook hoist circuit, and can accommodate an optional third hoist circuit. The fixed displacement plunger pump is in the swing circuit. In addition, there are two gear pumps: one in the control system and one in the Trans-Lifter system.

Control: Full-flow hydraulic control system provides infinitely variable pressure to front and rear drums, boom, hoist brakes and clutches. Response to the operator's touch is instant, positive and smooth.

Pressure:

Load hoist, boom hoist and propel system, 280 kg/cm²

Swing system 250 kg/cm²

Control system 65 kg/cm²

Hoist drum service brake system 65 kg/cm²

Reservoir capacity: 300 liters

Cooling: Oil-to-air heat exchanger, mounted in front of radiator.

Filtration: Suction with full-flow and drain filters



Boom hoisting system

Powered by a hydraulic plunger motor through a planetary reducer.

Brake: Spring-set, hydraulically released multiple-disk brake, mounted on the boom hoist motor and operated through a counter-balance valve.

Drum lock: Spring-set hydraulically released drum pawl, automatically actuated when boom is stopped.

Drum: One-piece cast drum, grooved for 18mm dia. wire rope.

Line speed (Single line on first drum layer):

Hoisting (max.) 50m/min

Lowering (max.) 50m/min



Load hoist system

Tandem drums powered independently by two hydraulic variable displacement plunger motors through a planetary reducer.

Clutches: Internally expanding band clutches (splined on shaft).

Brakes: Brake valves and externally contracting, hydraulically set band brakes with both positive and negative actuation.

Drum locks: Safety pawls (external ratchets).

Drums (front and rear): 588mm P.D. x 617mm wide drums, each grooved for 26mm wire rope. Rope capacity of 234m working length and 348m 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: Independently powered by a hydraulic plunger motor through a planetary reducer; 360° of rotation.

Max. swing speed 3.3 rpm

Swing brakes: Spring-set, hydraulically released multiple-disk brake, mounted on the swing motor.

Swing circle: Single-row ball bearings with internal swing gear. Bolted to both upper structure and under-carriage.

Swing lock: Four-position pin-in-hole lock



Operator's cab

Totally enclosed, full-vision cab fitted with safety glass and a sliding front window and a sliding door. A fully adjustable, high-backed seat with new-type suspension permits all operators to set ideal working position. Signal horn, cigarette lighter, ashtray, windshield wipers, floor mat and cab heater are standard features.



Controls

In front of operator are foot pedals for front and rear drum brakes. At operator's right are console-mounted semi-short levers for front and rear drum control, boom hoist control lever, and positive/negative brake select switch for front and rear drum brakes, and switch for creep speed control for hoist, boom hoist and propel. Beside the operator's seat on the right are two short levers for propel control. At operator's left are console-mounted swing lever, swing lock control lever, front and rear drum pawl control knobs; switches for ignition, engine stop, low and high speed control for front drum, rear drum and propel.

Gauges: Fuel, engine water temperature, engine oil pressure, hydraulic oil temperature, hourmeter and optional tachometer.



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

Safety devices: Boom hoist limiter, hook over-hoist limiter, and optional load moment limiter.



Gantry

Two-position, telescopic gantry, raised and lowered by hydraulic cylinder.

Counterweight

Three-piece stack (10 tons + 7 tons + 6.5 tons), mounted behind the machinery compartment.

Total weight 23,500kg



Tools

Tool set and accessories for routine machine maintenance.

Lower machinery

Carbody: Steel-welded carbody with axles.

Crawler: Side frames can be hydraulically extended for wide-track operation or retracted for transportation. Extension cylinders operated with a valve in the upper control system. Crawler belt tension adjusted with hydraulic jack and maintained by shims between idler block and frame.

Crawler drive: Independent hydraulic propel drive built into each side frame, each with a two-speed plunger motor propelling a driving wheel through a planetary gear box.

Crawler brakes: Brake valves and spring-set, hydraulically released multiple-disc parking brakes.

Steering mechanism: Differential speed steering (driving one track faster than the other), counter-rotating steering (driving tracks in opposite directions) and skid steering (driving one track only) with lever control.

Track rollers: 9 lower rollers and 2 upper rollers in each side frame, with life-time lubrication for maintenance-free operation.

Shoes:

Number 58 each side

Standard flat shoe width 900mm

Max. travel speed:

High 1.4 km/h

Low 0.9km/h

Max. gradeability: 30%

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 attachments (standard use)



Boom:

Welded lattice construction using tubular, high tensile steel chords with pin connections between sections. Mid-point suspension (center-hitch) is required for boom lengths longer than 48.77 m.

Max. lifting capacity	80,000kg
Basic boom length	12.19m
Max. boom length	57.91



Jib (optional)

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

Max. lifting capacity	10,000kg
Max. jib length	21.34m
Max. total length (Boom length+jib length)	48.77+21.34m



Hook blocks

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

Lifting capacity	80tons	50tons	30tons	10tons
No. of sheaves	4	2	1	0
Weight (kg)	1,150	850	700	300

Diameter of wire ropes

Standard:

Hook hoist 26mm (dia.)

Boom hoist (12-part line) 18mm (dia.)

Boom pendants (2-part line) 32mm (dia.)

Optional:

Jib hook hoist 26mm (dia.)

Jib pendants 20mm (dia.)

Boom midpoint suspension 18mm (dia.)

Boom backstops are required for all boom lengths.

Weight

Working weight: Approx. 77,900kg (including 12.19m boom, 80ton hook block and standard counter-weights)

Ground pressure: 0.77kg/cm²

Line speed and line pull

	Max. line speed m/min		Max. starting line pull	Max. running line pull
	Hoisting	Lowering		
Main hoist drum	H 90/45 L 60/30	H 90/45 L 60/30	18.1 ton	19.7 ton
Aux. hoist drum	H 90/45 L 60/30	H 90/45 L 60/30	18.1 ton	19.7 ton



Luffing jib attachments (optional)



Tower:

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

Basic tower length	22.86m
Max. tower length	44.20m

Note: Tower head can be substituted for boom tip, on standard crane, but lifting capacities are affected. Please compare standard boom and luffing jib boom ratings.



Luffing Jib

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

	Luffing jib
Max. lifting capacity	15.0 tons
Max. jib length	35.05m
Max. total length (Tower length+jib length)	44.20+35.05m



Hook blocks

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

Lifting capacity	30 tons	10 tons
No. of sheaves	1	0
Weight (kg)	700	300

Diameter of wire ropes

Standard:

Hook hoist	26mm (dia.)
Tower hoist (12-part line)	18mm (dia.)
Luffing jib hoist	26mm (dia.)
Tower pendants (2-part line)	32mm (dia.)

Optional:

Luffing Jib pendants	30mm (dia.)
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Weight

Working weight (luffing jib): Approx. 83,600kg (including 22.86m tower boom, 19.81m luffing jib, 30ton hook block and standard counterweights)

Ground pressure: 0.82kg/cm² (standard trim with 22.86m boom (tower) and 19.81m luffing jib)

Line speed and line pull

	Max. line speed m/min		Max. starting line pull	Max. running line pull
	Holding	Lowering		
Main hoist drum	H 90/45	H 90/45	18.1 ton	19.7 ton
	L 60/30	L 60/30		

Note: All tonnage figures listed in these specifications are in metric tons.

Boom Lifting Capacities

Rated Loads in Metric Tons for 360° Working Area (Standard)

Unit: metric ton

Boom length m (ft) Operating radius (m)	12.19 (40)	15.24 (50)	18.29 (60)	21.34 (70)	24.38 (80)	27.43 (90)	30.48 (100)	33.53 (110)	36.59 (120)	39.62 (130)	42.67 (140)	45.72 (150)	48.77 (160)	51.82 (170)	54.86 (180)	57.91 (190)	Boom length m (ft) Operating radius (m)
4.0	80.0																4.0
4.5	71.9	71.2															4.5
5.0	59.7	59.6	59.5														5.0
5.5	51.0	50.9	50.8	50.7													5.5
6.0	44.5	44.3	44.2	44.1	44.0	28.0 9.5m											6.0
7.0	35.3	35.2	35.1	35.0	34.9	34.8	34.7	31.3 7.5m									7.0
8.0	29.2	29.1	29.0	28.8	28.8	28.7	28.6	28.4	28.3	25.0 8.5m							8.0
9.0	24.8	24.7	24.6	24.5	24.4	24.3	24.2	24.0	23.9	23.8	23.4	20.8 9.6m					9.0
10.0	21.6	21.4	21.3	21.2	21.1	21.0	20.9	20.7	20.6	20.5	20.3	20.2	20.0 10.1m	17.3 10.8m			10.0
12.0	17.0	16.9	16.8	16.6	16.5	16.4	16.2	16.1	16.0	16.0	15.9	15.8	15.5	15.4	15.3	14.0	12.0
14.0		13.8	13.7	13.6	13.4	13.3	13.2	13.1	13.0	12.9	12.9	12.7	12.5	12.4	12.3	12.2	14.0
16.0			11.5	11.4	11.2	11.2	11.0	10.9	10.8	10.7	10.7	10.5	10.4	10.3	10.2	10.1	16.0
18.0			10.1 17.9m	9.8	9.6	9.5	9.4	9.3	9.2	9.1	9.0	8.9	8.8	8.7	8.6	8.5	18.0
20.0				8.5	8.3	8.3	8.1	8.0	7.9	7.8	7.7	7.6	7.5	7.4	7.3	7.2	20.0
22.0					7.3	7.2	7.1	7.0	6.9	6.8	6.7	6.6	6.5	6.4	6.3	6.2	22.0
24.0					6.0 23.0m	6.4	6.3	6.2	6.1	6.0	5.9	5.8	5.6	5.5	5.5	5.3	24.0
26.0						5.0 25.0m	5.6	5.5	5.4	5.3	5.1	5.0	4.9	4.8	4.7	4.6	26.0
28.0							5.0	4.9	4.8	4.7	4.5	4.4	4.3	4.2	4.1	4.0	28.0
30.0								4.4	4.3	4.2	4.0	3.9	3.8	3.7	3.6	3.5	30.0
32.0									3.9	3.7	3.6	3.5	3.3	3.2	3.1	3.0	32.0
34.0									3.0 33.0m	3.3	3.2	3.1	2.9	2.8	2.7	2.6	34.0
36.0										3.0	2.8	2.7	2.6	2.5	2.3	2.2	36.0
38.0											2.5	2.4	2.3	2.2	2.0	1.9	38.0
40.0												2.1	2.0	1.7	1.7	1.6	40.0

Max. Jib Rated Loads in Metric Tons for 360° Working Area

Unit: metric ton

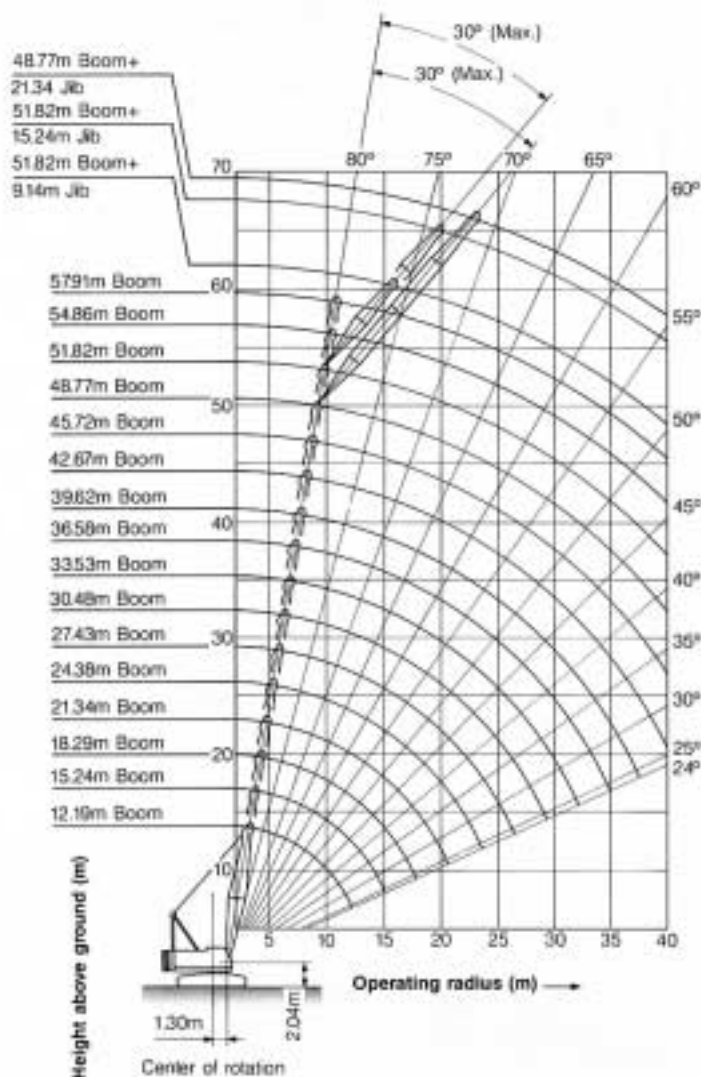
Offset angle (°)	Jib length m (ft)	9.14 (30)	15.24 (50)	21.34 (70)	Aux. sheave
10		10.0	8.0	4.3	10.0
30		5.0	5.0	3.1	

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

- 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.)
- Rated loads apply only to upper, lower, boom, jib, auxiliary sheave, and 23,500kg counterweight manufactured by Kobe Steel, Ltd.
- Boom backstops are required for all boom lengths.
- Gantry must be in fully raised position for all operations.
- Crawlers must be fully extended and be locked in position.
- The crane must be leveled to within 1% on a firm supporting surface.
- The total load that can be lifted with the jib at any radius is limited by the lower of the following two ratings: 1) the rated jib load, or 2) the rated load at that radius for the boom on which the jib is mounted.
- When lifting over the boom point with a jib or auxiliary sheave, the combined weight of boom hook block, jib hook block, slings and other lifting devices is part of the total load. Their total weight must therefore be subtracted from the rated load to obtain the weight that can be lifted.
- Boom lengths for jib mounting are 33.53m to 51.82m.
- An auxiliary sheave cannot be used on a 57.91m boom.
- The boom should be erected over the front of the crawlers, not laterally.



Working Range (with fixed jib)



Boom Component Chart

Boom length meters (ft)	Boom arrangement
12.19 (40)	BaseTip
15.24 (50)	Base-ATip
18.29 (60)	Base-A-ATip, Base-BTip
21.34 (70)	Base-CTip, Base-A-BTip
24.38 (80)	Base-A-A-BTip, Base-B-BTip, Base-A-CTip
27.43 (90)	Base-A-A-Ctip, Base-A-B-BTip, Base-B-Ctip
30.48 (100)	Base-C-Ctip, Base-A-A-B-BTip, Base-B-B-BTip Base-A-B-Ctip
33.53 (110)	Base-A-A-B-Ctip, Base-B-B-A-BTip, Base-A-C-Ctip Base-B-B-Ctip
36.58 (120)	Base-A-B-B-Ctip, Base-B-C-Ctip
39.62 (130)	Base-C-C-Ctip, Base-A-B-C-Ctip
42.67 (140)	Base-A-C-C-Ctip, Base-A-A-B-C-Ctip Base-B-B-C-Ctip
45.72 (150)	Base-A-B-B-C-Ctip, Base-B-C-C-Ctip
48.77 (160)	Base-A-B-C-C-Ctip
51.82 (170)	Base-B-B-C-C-Ctip, Base-A-A-B-C-C-Ctip
54.86 (180)	Base-A-B-B-C-C-Ctip
57.91 (190)	Base-A-A-B-B-C-C-Ctip

Base = 6.10m (20'), Tip = 6.10m (20')
 Inserts: A = 3.05m (10'), B = 6.10m (20')
 C = 9.14m (30')

Jib Component Chart

Jib length meters (ft)	Jib arrangement
9.14 (30)	BaseTip
15.24 (50)	Base-ATip
21.34 (70)	Base-A-ATip

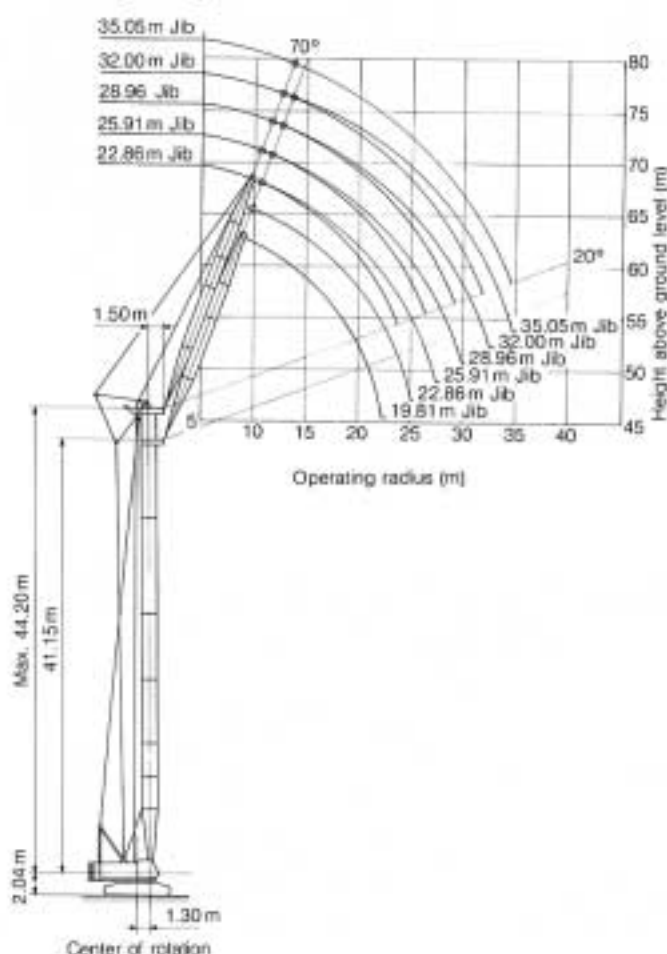
Base = 7.62m (25'), Tip = 7.62m (25')
 Inserts: A = 6.10m (20')

Main Hoist Reeving

No. of parts of line	1	2	3	4
Max. load (tons)	10.0	20.0	30.0	40.0
No. of parts of line	5	6	7	8
Max. load (tons)	50.0	60.0	70.0	80.0

Luffing Jib

Working Ranges



Rated Loads in Metric Tons for 360° Working Area

Unit: metric ton

Main boom length m (ft)	22.86 (75)-44.20 (145)						Main boom length m (ft)
Jib length m (ft)	19.81 (65)	22.86 (75)	25.91 (85)	28.96 (95)	32.00 (105)	35.05 (115)	Jib length m (ft)
Operating radius m							Operating radius m
10.5	15.0						10.5
11.5	15.0	15.0	*15.0				11.5
13	15.0	15.0	15.0				13
13.5	15.0	15.0	15.0	13.8			13.5
14	14.3	14.3	14.3	13.8	**12.5		14
15	13.0	13.0	13.0	13.0	12.3		15
16	11.9	11.9	11.9	11.9	11.9	10.1	16
18	10.2	10.2	10.2	10.2	10.2	9.4	18
20	8.9	8.9	8.9	8.9	8.9	8.6	20
22	***8.4	7.9	7.9	7.9	7.9	7.8	22
24		7.1	7.1	7.1	7.1	7.1	24
26			6.4	6.4	6.4	6.4	26
28			***6.3	5.8	5.8	5.8	28
30				5.4	5.4	5.4	30
32					5.0	5.0	32
34						4.6	34
35						4.5	35

* These figures correspond to an operating radius of 12.5m.

** These figures correspond to an operating radius of 14.5m.

*** These figures correspond to an operating radius of 21.0m.

†† These figures correspond to an operating radius of 26.5m.

Tower Component Chart

Tower length meters (ft)	Arrangement
22.86 (75)	Base-B-C-Cap
25.91 (85)	Base-A-B-C-Cap
28.96 (95)	*Base-B-B-C-Cap, Base-A-A-B-C-Cap
32.00 (105)	*Base-B-C-C-Cap, Base-A-B-B-C-Cap
35.05 (115)	*Base-A-B-C-C-Cap, Base-A-A-B-B-C-Cap
38.10 (125)	Base-A-A-B-C-C-Cap
41.15 (135)	*Base-A-B-B-C-C-Cap, Base-A-A-A-B-B-C-C-Cap
44.20 (145)	Base-A-A-B-B-C-C-Cap

Base = 6.10m (20'), Cap = 1.52m (5')

Inserts: A = 3.05m (10'), B = 6.10m (20'), C = 9.14m (30')

* indicates recommended component combination.

Jib Component Chart

Jib length meters (ft)	Jib arrangement
19.81 (65)	Base-B'-A-Tip
22.86 (75)	Base-B'-A-Tip, *Base-B'-B-Tip
25.91 (85)	Base-B'-A-Tip, *Base-B'-C-Tip
28.96 (95)	Base-B'-A-C-Tip
32.00 (105)	Base-B'-A-A-C-Tip, *Base-B'-B-C-Tip
35.05 (115)	Base-B'-A-B-C-Tip

Base = 6.10m (20'), Tip = 7.62m (15')

Inserts: A = 3.05m (10'), B, B' = 6.10 (20'), C = 9.14 (30')

Note: B' insert jib is a taper jib.

* indicates recommended component combination.

Combinations of Main Boom and Jib

Main boom length m (ft)	Jib length m (ft)						Support blocks
	19.81 (65)	22.86 (75)	25.91 (85)	28.96 (95)	32.00 (105)	35.05 (115)	
22.86 (75)	○	×	×	×	×	×	×
25.91 (85)	○	○	×	×	×	×	×
28.96 (95)	○	○	○	×	×	×	×
32.00 (105)	○	○	○	○	×	×	×
35.05 (115)	○	○	○	○	○	×	×
38.10 (125)	○	○	○	○	○	○	×
41.15 (135)	○	○	○	○	○	○	○
44.20 (145)	×	○	○	○	○	○	○

○ usable × unusable

Weight of Hook Block

Hook block	kg
30 metric ton block with single sheave	700

Hoist Reeving

No. of parts of line	2
Max. load	150 ton

Boom Lifting Capacities (for luffing jib use)

Rated Loads in Metric Tons for 360° Working Area (for luffing jib use)

Unit: metric ton

Boom length m (ft) Operating radius (m)	12.19 (40)	15.24 (50)	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)	51.82 (170)	54.86 (180)	57.91 (190)	Boom length m (ft) Operating radius (m)
4.0	80.0																4.0
4.5	71.9	71.2															4.5
5.0	59.7	59.6	59.5														5.0
5.5	51.0	50.9	50.8	50.7													5.5
6.0	44.5	44.3	44.2	44.1	44.0	38.0 11.5m											6.0
7.0	35.3	35.2	35.1	35.0	34.9	34.8	34.7	31.9 7.5m									7.0
8.0	29.2	29.1	29.0	28.8	28.8	28.7	28.6	28.4	28.3	23.7 8.5m							8.0
9.0	24.8	24.7	24.6	24.5	24.4	24.3	24.2	24.0	23.9	23.8	23.4	21.4 9.5m					9.0
10.0	21.6	21.4	21.3	21.2	21.1	21.0	20.9	20.7	20.6	20.5	20.4	20.3	20.0 10.1m	18.7 16.5m			10.0
12.0	17.0	16.9	16.8	16.6	16.5	16.4	16.2	16.1	16.0	16.0	15.9	15.6	15.5	15.4	15.3	15.2	12.0
14.0		13.8	13.7	13.6	13.4	13.3	13.2	13.1	13.0	12.9	12.8	12.8	12.7	12.6	12.4	12.2	14.0
16.0			11.5	11.4	11.2	11.2	11.0	10.9	10.8	10.7	10.7	10.7	10.5	10.5	10.3	10.2	16.0
18.0			10.7 17.0m	9.8	9.6	9.5	9.4	9.3	9.2	9.1	9.0	9.0	8.9	8.9	8.7	8.6	18.0
20.0				8.5	8.3	8.3	8.1	8.0	7.9	7.8	7.7	7.7	7.6	7.6	7.4	7.3	20.0
22.0					7.3	7.2	7.1	7.0	6.9	6.8	6.7	6.7	6.5	6.5	6.3	6.2	22.0
24.0					6.9 23.0m	6.4	6.3	6.2	6.1	6.0	5.9	5.8	5.6	5.6	5.4	5.3	24.0
26.0						6.0 25.0m	5.6	5.5	5.4	5.3	5.1	5.1	4.9	4.8	4.7	4.5	26.0
28.0							5.0	4.9	4.8	4.7	4.5	4.4	4.3	4.2	4.0	3.8	28.0
30.0								4.4	4.3	4.2	4.0	3.9	3.7	3.6	3.4	3.2	30.0
32.0									3.9	3.7	3.6	3.4	3.2	3.1	2.9	2.7	32.0
34.0									3.7 25.0m	3.3	3.2	3.0	2.8	2.7	2.5	2.2	34.0
36.0										3.0	2.8	2.6	2.4	2.3	2.1	1.8	36.0
38.0											2.5	2.2	2.1	1.9	1.7	1.4	38.0
40.0												1.9	1.8	1.6	1.4	1.1	40.0

Fixed Jib Rated Loads in Metric Tons for 360° Working Area

Unit: metric ton

Jib length m (ft) Offset angle (°)	9.14 (30)	15.24 (50)	21.34 (70)	Aux. sheave
10	10.0	8.0	4.3	10.0
30	5.0	5.0	3.1	

Note:

Please refer to explanation provided under table on page 4.

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

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