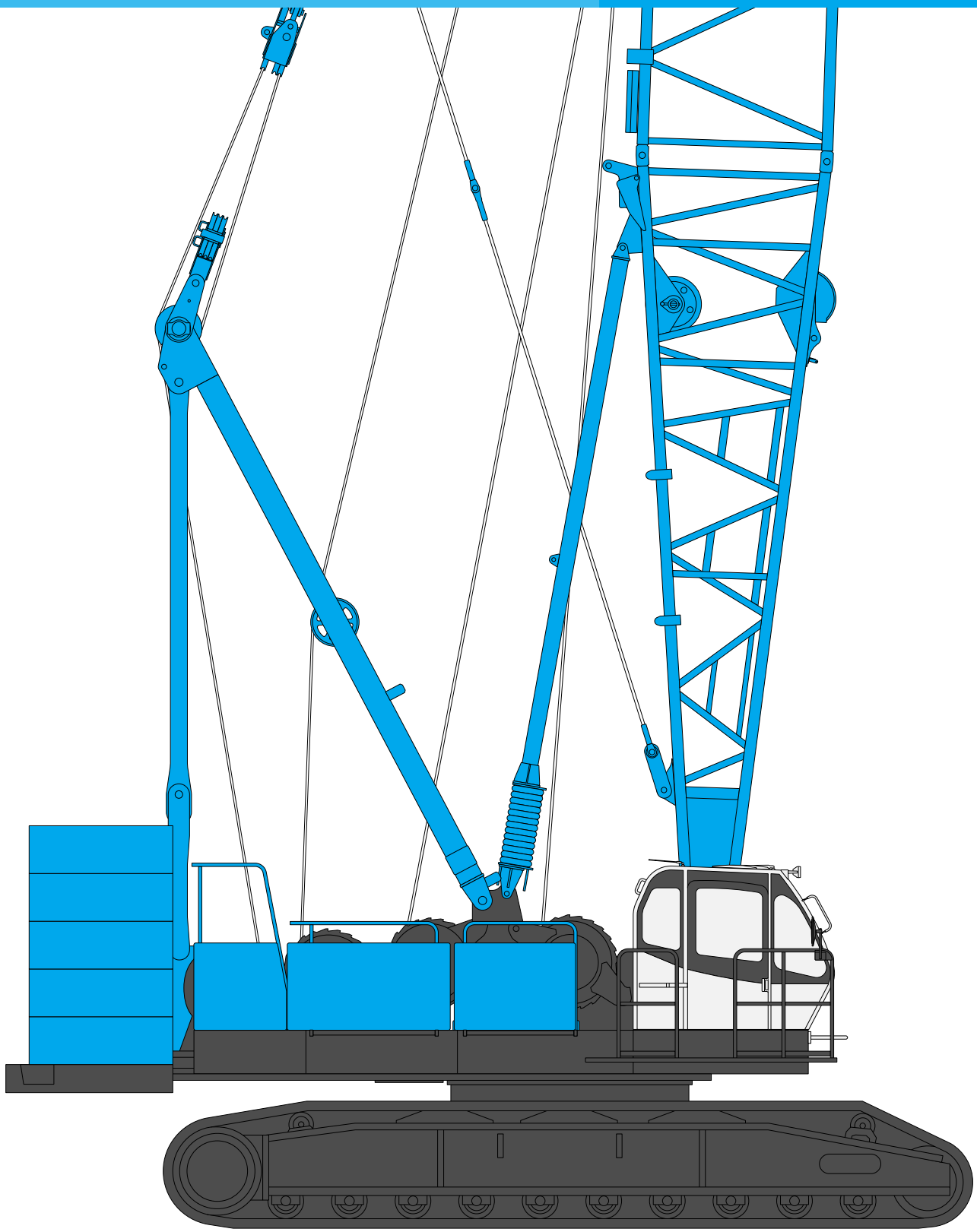
KOBELCO

HYDRAULIC CRAWLER CRANE

CKE1800

Model: CKE1800-1F



Max. Lifting Capacity: 180 ton x 3.75 m
Max. Crane Boom Length: 85.3 m
Max. Long Boom Length: 85.3 m
Max. Fixed Jib Combination: 73.2 m + 30.5 m
Max. Luffing Jib Combination: 54.9 m +51.8 m

SPECIFICATIONS

Power Plant

Model: Hino diesel engine P11C-UN
Type: Water-cooled, direct fuel injection, with turbocharger
Complies with NRMM (Europe) Tier III and USA EPA Tier III
Displacement: 10.520 liters
Rated Power: 247 kW/ 2,000 min^{-1} {rpm} (ISO)
Max. torque: 1,300 N·m/1,500 min^{-1}
Cooling system: Liquid, re-circulating bypass
Starter: 24V / 6.0 kW
Radiator: Corrugated type core, thermostatically controlled
Air cleaner: Dry type with replaceable paper element
Throttle: Electric throttle control, twist grip type
Fuel filter: Replaceable paper element.
Batteries: Two 12 V, 170 Ah/20 HR capacity batteries, series connected.
Fuel tank capacity: 400 liters

Hydraulic System

Four variable displacement piston pumps are driven by heavy-duty pump drive. Two of variable displacement pumps are used in the main hook hoist circuit, auxiliary hook hoist circuit, third hoist circuit and each propel circuit. One of the other two pumps is used in the boom hoist circuit, and the other is used in the swing circuit.
Control: Full-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.
Cooling: Oil-to-air heat exchanger (plate-fin type)
Filtration: Full-flow and bypass type with replaceable element
Electrical system: All wiring corded for easy servicing, individual fused branch circuits.

Max. relief valve pressure:
Load hoist, boom hoist and propel system:
31.9 MPa {325 kgf/cm^2}
Swing system: 27.5 MPa {280 kgf/cm^2}
Control system: 7.0 MPa {71.3 kgf/cm^2}
Reservoir capacity: 550 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: Double drum, grooved for 22 mm dia. wire rope.
Line speed: Double line on first drum layer
Hoisting/Lowering: 54 m/min

Diameter of wire ropes
Boom guy line: 30 mm
Boom hoist reeving: 16 parts of 22 mm dia. high strength wire rope
Boom backstops: Telescopic type with spring bumper
Required for all boom lengths

Load Hoist 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 item.)
Drum lock: External ratchet for locking drum
Drums:
Front drum:
617.4 mm P.C.D. x 833.7 mm Lg. wide drum, grooved for 25.4 mm wire rope. Rope capacity is 430 m working length and 510 m storage length.
Rear drum:
617.1 mm P.C.D. x 833.7 mm Lg. wide drum, grooved for 25.4 mm wire rope. Rope capacity is 335 m working length and 510 m storage length.
Note: Rope lengths listed above denote drum capacity and may differ from actual rope lengths supplied when machinery is shipped.
Line speed: Single line on the first drum layer
Hoisting/Lowering: 100 m/min
Line Pull (Single-line):
Rated line pull: 132 kN {13.5 tf}

Swing System

Swing unit is powered by hydraulic motor driving spur gears through planetary reducers (2 sets), 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: 2.6 min^{-1} {rpm}

Upper Structure

Torsion-free precision machined upper frame. All components are located clearly and service friendly. Engine with low noise level. Complies with European Noise Regulations.
Counterweight: 60.0 ton

Cab & Control

Totally enclosed, full vision cab with safety glass, fully adjustable, high backed seat with a head-rest and armrests, and intermittent wiper and window washer (skylight and front window).

Cab fittings:

Air conditioner, convenient compartment (for tool), cup holder, ashtray, cigarette lighter, sun visor, roof blind, tinted glass, floor mat, foot-rest, shoe tray

Controls:

Four adjustable levers for front drum, rear drum, boom drum and swing controls, and boom hoist pedal.

Lower Structure

Steel-welded carbody with axles. Crawler assemblies are designed with quick disconnect feature for individual removal as a unit from axles. Crawler belt tension is maintained by hydraulic jack force on the track-adjusting bearing block.

Carbody weight: 20.0 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.
Shoes (flat): 64 shoes, 1,070 mm wide each crawler
Max. travel speed: 1.1/0.7 km/h
Max. gradeability: 30%

Weight

Including upper and lower machine, 60.0 ton counterweight and 20.0 ton carbody weight, basic boom (or basic boom + basic jib), hook, and other accessories.

Specification	Weight	Ground pressure
Crane boom	Approx. 164 ton,	103 kPa {1.06 kgf/cm²}
Luffing jib	Approx. 171 ton,	95 kPa {0.97 kgf/cm²}

Attachment

Boom and Jib:

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

Boom and Jib Length

	Min. Length (Min. Combination)	Max. Length (Max. Combination)
Crane Boom	15.2 m	85.3 m
Luffing Boom	15.2 m	54.9 m
Long Boom	61.0 m	85.3 m
Fixed Jib	24.4 m + 12.2 m	73.2 m + 30.5 m
Luffing Jib	21.3 m + 21.3 m	54.9 m + 51.8 m

Main Specifications (Model: CKE 1800-1F)

Heavy Duty Crane Boom	
Max. Lifting Capacity	180 t/3.75 m
Max. Length	42.7 m
Crane Boom	
Max. Lifting Capacity	160 t/4.4 m
Max. Length	85.3 m
Luffing Boom	
Max. Lifting Capacity	110 t/5.2 m
Max. Length	54.9 m
Long Boom	
Max. Lifting Capacity	40.1 t/12.0 m
Max. Length	85.3 m
Fixed Jib	
Max. Lifting Capacity	26.8 t/15.2 m
Max. Length	30.5 m
Max. Combination	73.2 m + 30.5 m
Luffing Jib	
Max. Lifting Capacity	48.6 t/9.14 m
Jib Length	21.3 m ~ 51.8 m
Max. Combination	54.9 m + 51.8 m
Luffing Angle	60° ~ 88°
Working Speed	
Swing Speed	2.6 min⁻¹ {rpm}
Travel Speed	1.1/0.7 km/h

Power Plant	
Model	Hino P11C-UN
Engine Output	247 kW/2,000 min⁻¹ {rpm}
Fuel Tank Capacity	400 liters
Main & Aux. Winch	
Max. Line Speed	100 m/min (1st layer)
Rated Line Pull	132 kN {13.5 tf}
Wire Rope Diameter	25.4 mm
Wire Rope Length	430 m (Main) 335 m (Aux.)
Brake Type	Spring set hydraulically released (Negative)
Free Fall Brake	Wet-type multiple disc brake (Optional)
Hydraulic System	
Pumps	4 variable displacement
Max. Pressure	31.9 MPa {325 kgf/cm²}
Hydraulic Tank Capacity	550 liters
Self Erection Device	Standard
Weight	
Operating Weight*	Approx. 164 t
Ground Pressure*	103 kPa {1.06 kgf/cm²}
Counterweight	60.0 t (Upper), 20.0 t (Lower)
Transportation Weight**	Approx. 44.0 t

* Including upper and lower machine, 60.0 ton counterweight, 20.0 ton carbody weight, basic boom, hook, and other accessories.

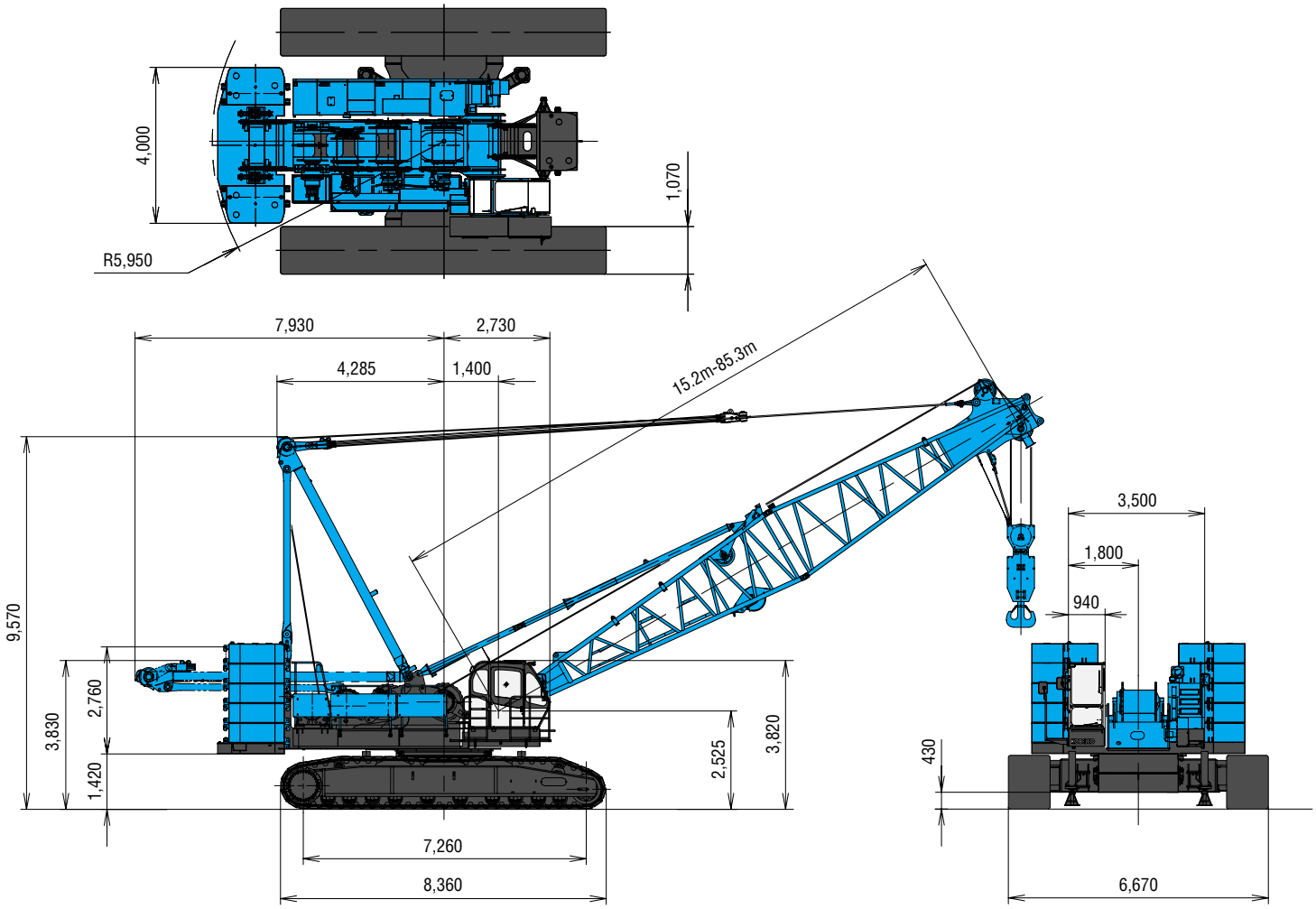
** Base machine with boom base, trans-lifter, main and aux. winches (non-freefall) including wire rope, self removal device.

Units are SI units. { } indicates conventional units.

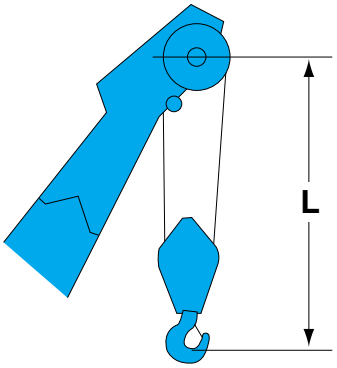
GENERAL DIMENSIONS

Crane Boom

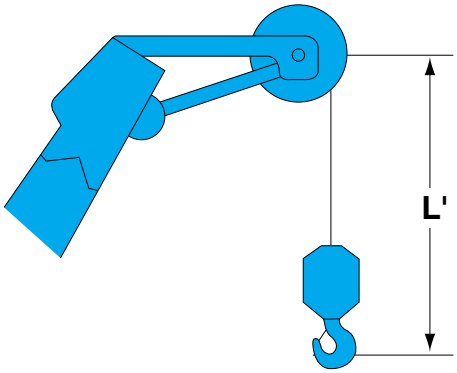
(Unit: mm)



Limit of Hook Lifting



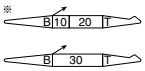
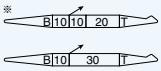
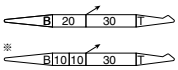
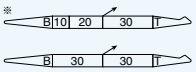
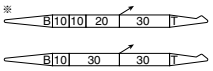
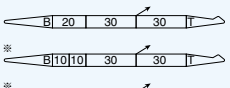
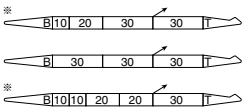
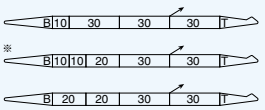
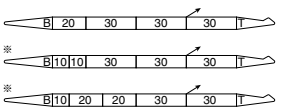
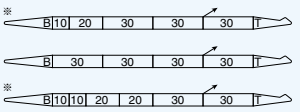
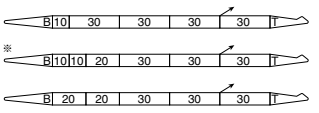
Hook	L
180 t/160 t hook	5.2 m
110 t hook	5.1 m
70 t hook	4.9 m
35 t hook	4.7 m

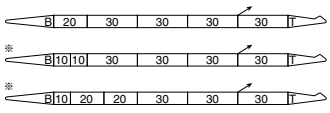
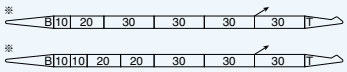
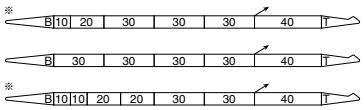
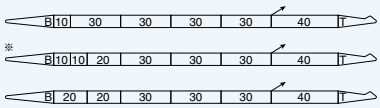
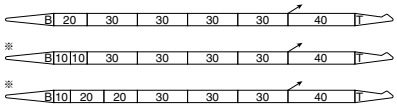
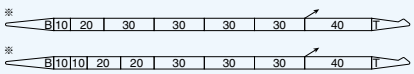
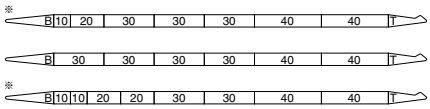
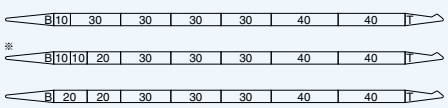
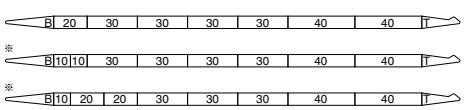
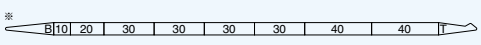


Hook	L'
13.5 t ball hook	3.5 m

BOOM AND JIB ARRANGEMENTS

Crane Boom Arrangements

Boom length m (ft)	Boom arrangement
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)	
54.9 (180)	

Boom length m (ft)	Boom arrangement
57.9 (190)	
61.0 (200)	
64.0 (210)	
67.1 (220)	
70.1 (230)	
73.2 (240)	
76.2 (250)	
79.3 (260)	
82.3 (270)	
85.3 (280)	

Symbol	Boom Length	Remarks
B	8.5 m	Boom Base
HT	3.7 m	Heavy Duty Crane Boom Top
T	6.7 m	Boom Top
10	3.0 m	Insert Boom
20	6.1 m	Insert Boom
30	9.1 m	Insert Boom
40	12.2 m	Insert Boom

mark shows the guy line installing position when the fixed jib is used.

※ Indicates the most flexible combination of insert booms, which can be modified to form all shorter boom arrangements.

Hook Blocks

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

Hooks	Weight (kg)	No. of sheaves	No. of lines and max. rated loads (tons)					
			1	2	3	4	5	6
180/160-ton	2,800	8	-	26.8	40.1	53.5	66.9	80.3
110-ton	1,800	4	-	26.8	40.1	53.5	66.9	80.3
70-ton	1,200	3	-	26.8	40.1	53.5	66.9	70.0
35-ton	900	1	-	26.8	35.0	-	-	-
13.5-ton ball hook	460	0	13.5	-	-	-	-	-

Hooks	Weight (kg)	No. of sheaves	No. of lines and max. rated loads (tons)					
			7	8	9	10	12	14
180/160-ton	2,800	8	93.7	107.0	120.4	133.8	160.0	180.0
110-ton	1,800	4	93.7	107.0	110.0	-	-	-
70-ton	1,200	3	-	-	-	-	-	-
35-ton	900	1	-	-	-	-	-	-
13.5-ton ball hook	460	0	-	-	-	-	-	-

Main Hoist Drum Rated Loads in Metric Tons

No. of Parts of Line	1	2	3	4	5	6
Max. Loads (ton)	13.5	26.8	40.1	53.5	66.9	80.3

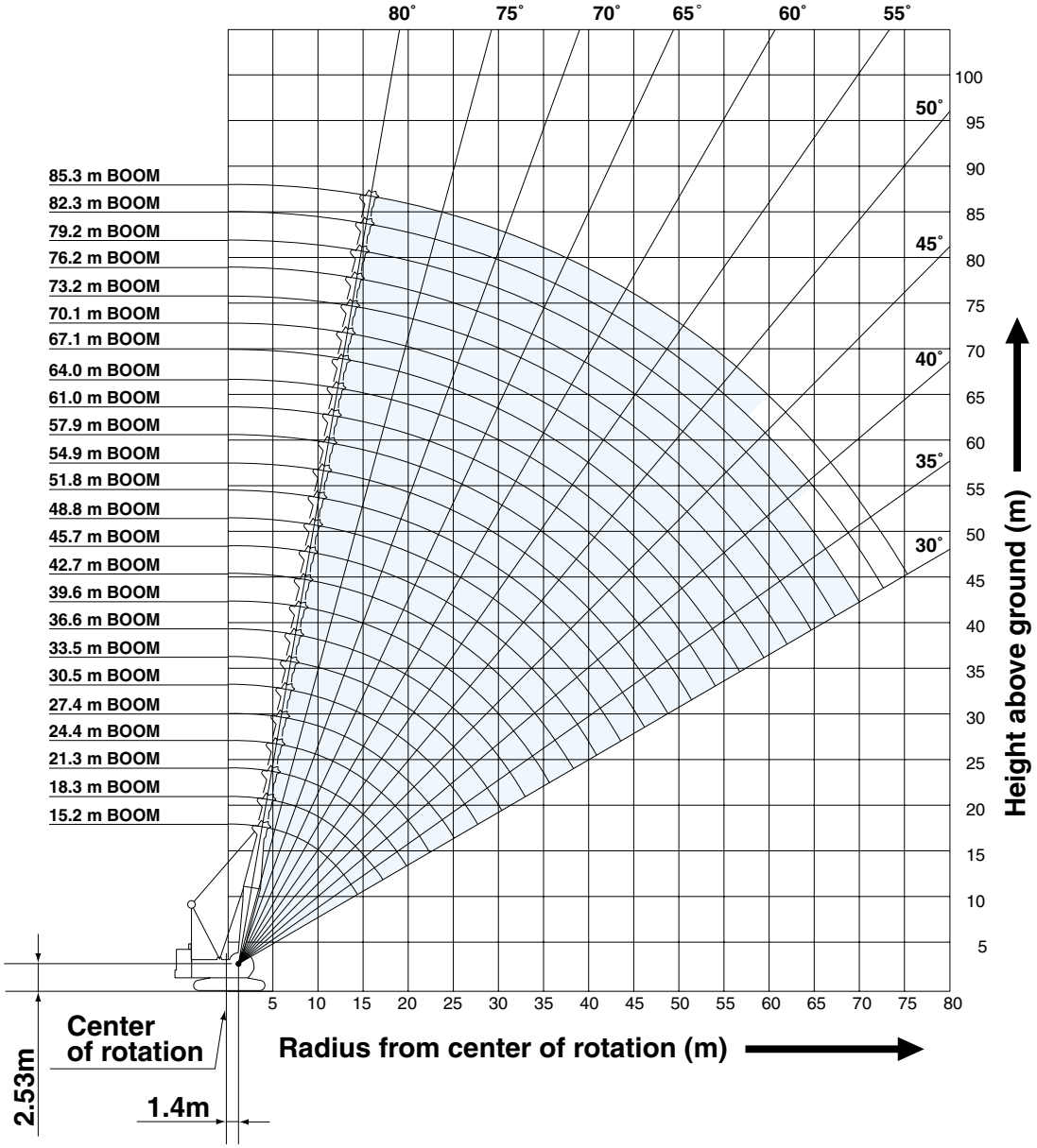
No. of Parts of Line	7	8	9	10	12	14
Max. Loads (ton)	93.7	107.0	120.4	133.8	160.0	180.0

Symbols for Attachments:

Crane Boom	Auxiliary Sheave for Crane Boom	Luffing Boom	Aux. Sheave for Luffing Boom	Long Boom	Aux. Sheave for Long Boom	Fixed Jib	Luffing Jib	Luffing Boom with Luffing Jib

WORKING RANGES AND LIFTING CAPACITIES

Crane Boom Working Ranges



NOTES:

1. Ratings according to EN13000.
2. Ratings in metric tons for 360˚ working area.
3. Operating radius is the horizontal distance from center of rotation to a vertical line through the center of gravity of the load.
4. Deduct weight of hook block(s), slings and all other load handling accessories from main boom or auxiliary sheave ratings shown.
5. 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.
6. Ratings are for operation on a firm and level surface, up to 1% gradient.
7. At radii and boom lengths where no ratings are shown on chart, operation is not intended nor approved.
8. Boom inserts and guy lines must be arranged as shown in the “Operator's Manual”.
9. Boom hoist reeving is 16 part line.
10. Gantry must be in raised position for all conditions.
11. Boom backstops are required for all boom lengths.
12. The boom should be erected over the front of crawlers, not laterally.
13. Ratings shown in [ ] are determined by the strength of the boom or other structural component.
14. Instruction in the “Operator's Manual” must be strictly observed when operating the machine.
15. Crane boom ratings: Deduct weight of hook block(s), slings, and all other load handling accessories from crane boom ratings shown.
16. Auxiliary sheave ratings: Deduct 0.6 ton (weight of auxiliary sheave frame), weight of hook block(s), slings and all other load handling accessories from crane boom ratings shown, but should not exceed 26.8 tons.
    Crane boom lengths for auxiliary sheave mounting are 15.2 m to 82.3 m.
17. Crane boom ratings with auxiliary sheave: Deduct 0.6 ton, weight of hook block(s), slings and all other load handling accessories from crane boom ratings shown. Minimum ratings is 1.6 tons.
18. Heavy duty crane boom ratings: Deduct weight of hook block(s), slings and all other load handling accessories from crane boom ratings shown.

Crane Boom Lifting Capacity

Unit: metric ton

Counterweight: 60.0 t, Carbody weight: 20.0 t

Working radius (m) \ Boom Length (m)	12.2*	15.2	18.3	21.3	24.4	27.4	30.5	33.5	36.6	39.6	42.7	45.7	48.8	51.8	Boom Length (m) \ Working radius (m)
3.0	3.75m /180.0														**3.0**
4.0	171.5	4.4m /160.0	4.9m /144.2												**4.0**
5.0	140.5	141.6	141.6	5.4m /131.4	5.9m /121.3										**5.0**
6.0	119.1	119.3	119.3	119.3	119.3	6.4m /112.0	6.9m /103.9								**6.0**
7.0	102.0	102.7	102.7	102.7	102.7	102.7	102.5	7.4m / 97.1	7.9m / 90.6						**7.0**
8.0	88.1	89.5	89.5	89.5	89.5	89.5	89.5	89.5	89.5	8.4m / 80.3	8.9m / 76.8				**8.0**
9.0	76.8	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	78.4	76.3	9.4m / 70.6			**9.0**
10.0	67.7	71.5	71.5	71.5	71.5	71.5	71.5	71.5	71.5	70.2	68.4	66.6	10.0m / 65.4	10.5m / 60.7	**10.0**
12.0	51.4	58.8	58.7	58.6	58.5	58.4	58.3	58.2	58.2	57.8	56.5	55.1	54.0	52.8	**12.0**
14.0	12.4m / 50.0	47.2	47.7	47.6	47.4	47.3	47.2	47.0	47.0	46.9	46.7	46.5	46.0	45.0	**14.0**
16.0		14.8m / 41.9	40.2	40.1	39.9	39.8	39.6	39.4	39.4	39.3	39.1	38.9	38.8	38.6	**16.0**
18.0			17.5m / 35.9	34.4	34.2	34.1	34.0	33.7	33.7	33.6	33.3	33.2	33.1	32.9	**18.0**
20.0				30.1	29.8	29.6	29.5	29.3	29.2	29.1	28.9	28.7	28.6	28.4	**20.0**
22.0				20.1m / 29.9	26.5	26.3	26.2	25.9	25.8	25.7	25.5	25.3	25.3	25.0	**22.0**
24.0					22.7m / 25.4	23.6	23.4	23.2	23.0	22.9	22.7	22.5	22.4	22.2	**24.0**
26.0						25.4m / 22.0	21.1	20.9	20.7	20.6	20.4	20.2	20.1	19.9	**26.0**
28.0							28.0m / 19.2	19.0	18.8	18.7	18.5	18.3	18.2	18.0	**28.0**
30.0								17.4	17.2	17.1	16.9	16.7	16.6	16.4	**30.0**
32.0								30.7m / 16.9	15.8	15.7	15.4	15.2	15.1	14.9	**32.0**
34.0									33.3m / 15.0	14.4	14.2	14.0	13.9	13.6	**34.0**
36.0										35.9m / 13.4	13.1	13.0	12.8	12.6	**36.0**
38.0											12.2	12.1	11.8	11.7	**38.0**
40.0											38.6m / 12.0	11.1	11.0	10.7	**40.0**
42.0												41.2m / 10.7	10.3	10.0	**42.0**
44.0													43.8m / 9.7	9.4	**44.0**
46.0														8.7	**46.0**
48.0														46.5m / 8.6	**48.0**
Reeves	14	12	12	10	10	9	8	8	7	6	6	6	5	5	**Reeves**

* Values of 12.2 m boom length are lifting capacities for heavy duty crane boom.

Working radius (m) \ Boom Length (m)	54.9	57.9	61.0	64.0	67.1	70.1	73.2	76.2	79.2	82.3	85.3	Boom Length (m) \ Working radius (m)
10.0	11.0m / 56.4	11.5m / 52.4										**10.0**
12.0	51.5	50.5	12.0m / 48.3	12.5m / 44.7	13.0m / 41.2	13.5m / 38.0						**12.0**
14.0	43.9	43.2	42.3	41.5	40.1	37.5	14.0m / 34.5	14.5m / 31.8	15.0m / 29.0	15.5m / 25.9		**14.0**
16.0	38.1	37.5	36.7	36.1	35.3	34.8	32.2	30.1	27.9	25.3	16.1m / 21.0	**16.0**
18.0	32.7	32.7	32.3	31.8	31.1	30.7	29.8	27.8	25.9	22.9	19.0	**18.0**
20.0	28.3	28.2	28.0	27.9	27.7	27.3	26.7	25.8	23.9	20.9	17.2	**20.0**
22.0	24.9	24.8	24.6	24.5	24.4	24.2	24.0	23.6	22.0	19.1	15.6	**22.0**
24.0	22.1	22.0	21.9	21.7	21.6	21.4	21.4	21.3	20.3	17.5	14.2	**24.0**
26.0	19.7	19.7	19.4	19.4	19.2	19.0	19.0	18.9	18.7	16.0	13.0	**26.0**
28.0	17.8	17.7	17.5	17.5	17.3	17.1	17.0	17.0	16.8	14.7	11.8	**28.0**
30.0	16.2	16.1	15.9	15.8	15.6	15.5	15.4	15.3	15.2	13.5	10.8	**30.0**
32.0	14.7	14.6	14.4	14.3	14.2	14.0	13.9	13.8	13.7	12.4	9.9	**32.0**
34.0	13.5	13.4	13.2	13.1	12.9	12.8	12.7	12.6	12.4	11.4	9.0	**34.0**
36.0	12.4	12.3	12.1	12.0	11.9	11.7	11.6	11.5	11.3	10.4	8.2	**36.0**
38.0	11.4	11.3	11.2	11.1	10.9	10.8	10.7	10.5	10.3	9.6	7.4	**38.0**
40.0	10.6	10.4	10.2	10.2	10.0	9.8	9.7	9.6	9.4	8.7	6.7	**40.0**
42.0	9.9	9.7	9.5	9.4	9.3	9.1	9.0	8.9	8.7	8.0	6.0	**42.0**
44.0	9.2	9.0	8.9	8.8	8.5	8.4	8.3	8.2	8.0	7.3	5.4	**44.0**
46.0	8.5	8.4	8.2	8.1	7.9	7.7	7.6	7.5	7.4	6.6	4.8	**46.0**
48.0	8.0	7.9	7.6	7.6	7.4	7.2	7.1	7.0	6.8	6.0	4.2	**48.0**
50.0	49.1m / 7.7	7.4	7.1	7.0	6.9	6.7	6.6	6.5	6.3	5.4	3.7	**50.0**
52.0		51.8m / 6.9	6.7	6.6	6.4	6.2	6.0	5.9	5.8	4.8	3.2	**52.0**
54.0			6.2	6.2	6.0	5.7	5.6	5.5	5.3	4.3	2.7	**54.0**
56.0			54.4m / 6.1	5.8	5.5	5.3	5.2	5.0	4.8	3.8	2.2	**56.0**
58.0				57.0m / 5.5	5.1	4.9	4.7	4.6	4.4	3.3	1.8	**58.0**
60.0					59.7m / 4.8	4.5	4.4	4.2	4.0	2.8	59.0m / 1.6	**60.0**
62.0						4.2	4.0	3.9	3.7	2.4		**62.0**
64.0						62.3m / 4.1	3.7	3.6	3.3	1.9		**64.0**
66.0							65.0m / 3.5	3.2	2.9	65.0m / 1.7		**66.0**
68.0								67.6m / 3.0	2.4			**68.0**
70.0									70.0m / 2.0			**70.0**
reeves	5	4	4	4	4	3	3	3	3	2	2	**reeves**

Note: Ratings according to EN13000.

Ratings shown in [ ] are determined by the strength of the boom or other structural components.

Refer to notes P12.