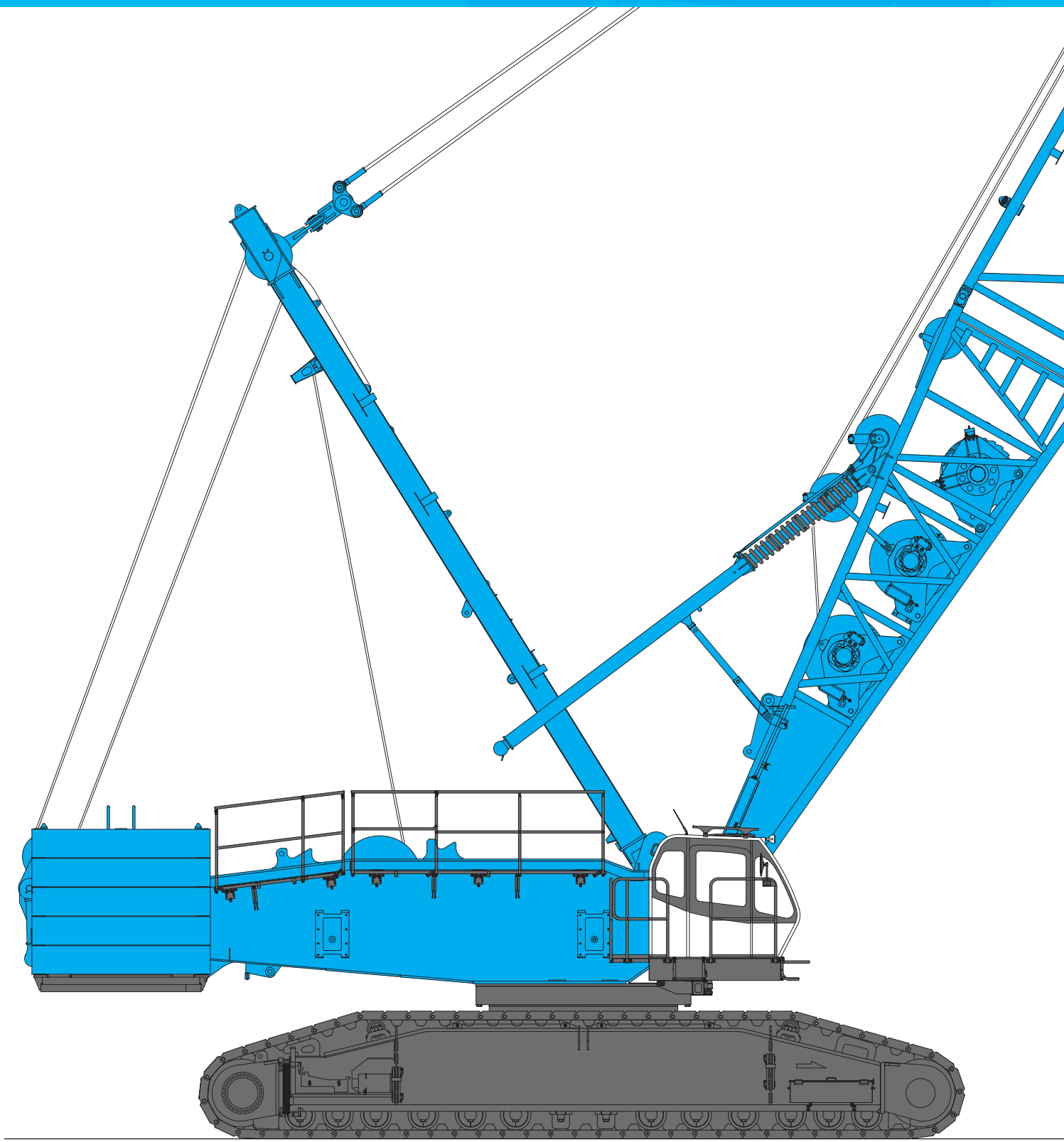
KOBELCO

HYDRAULIC CRAWLER CRANE

SL4500

LIGHT CONFIGURATION

Model: SL4500



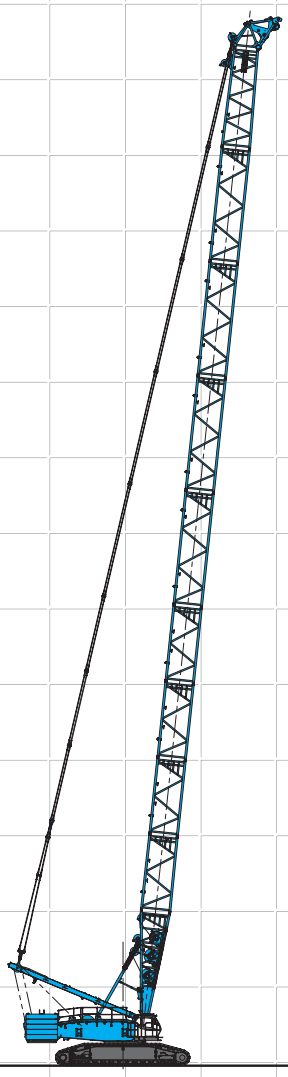
Max. Lifting Capacity: 300* ton x 6.0 m
Max. Boom Length: 96 m
Max. Luffing Jib Combination: 66 m + 66 m

* with Standard Boom Configuration (width 3.0 m boom)

CONFIGURATION

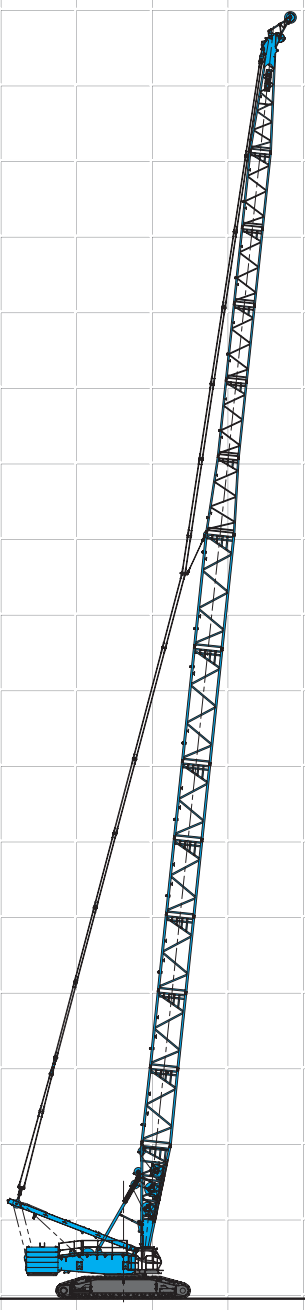
Luffing Boom

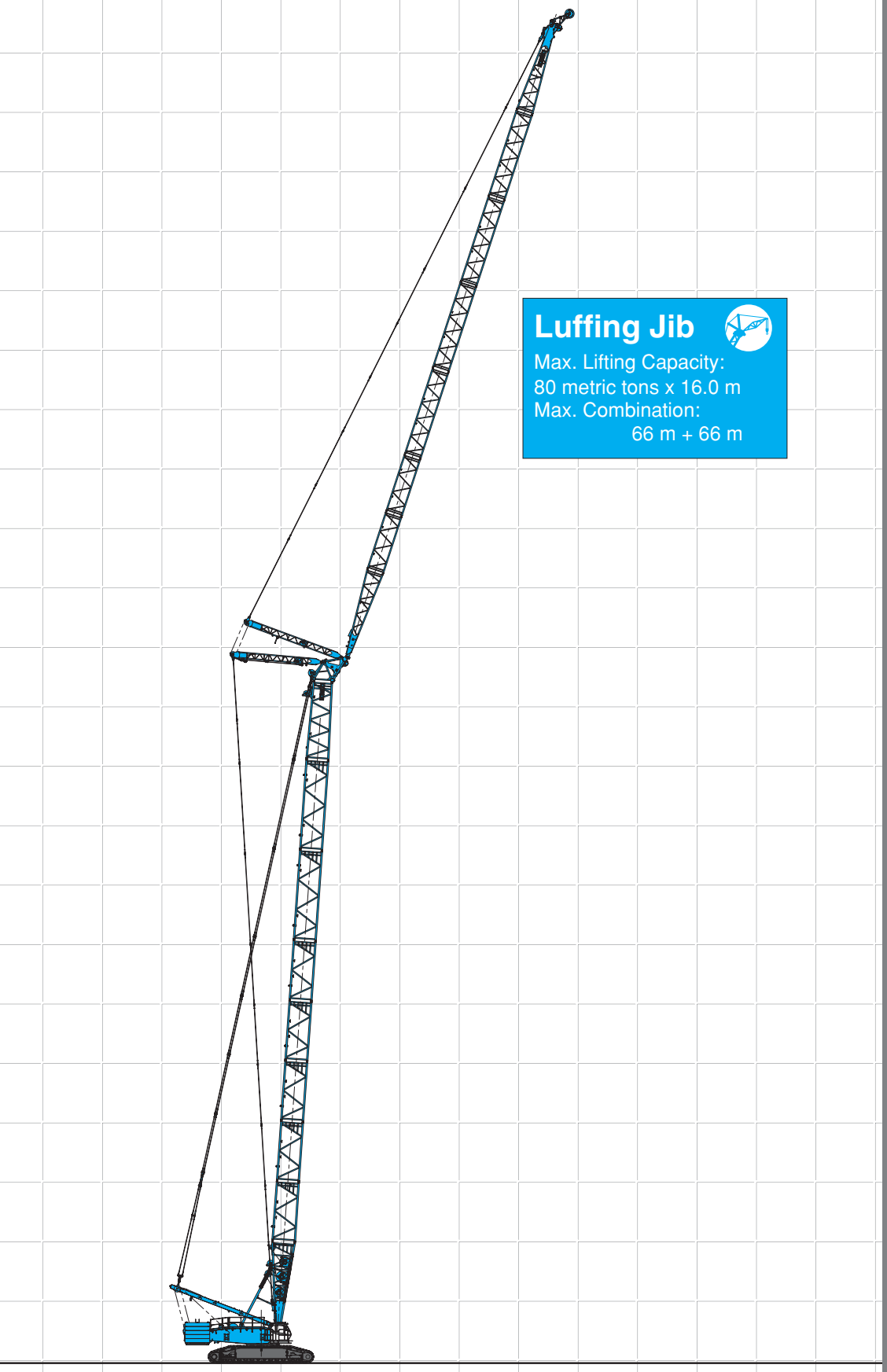
Max. Lifting Capacity:
180 metric tons x 10.0 m
Max. Boom Length: 78 m



Long Boom

Max. Lifting Capacity:
90 metric tons x 14.0 m
Max. Boom Length: 96 m





Luffing Jib

Max. Lifting Capacity:
80 metric tons x 16.0 m
Max. Combination:
66 m + 66 m

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SPECIFICATIONS

Power Plant

Model: Hino diesel engine E13C-UV
Type: Water-cooled, direct fuel injection, with turbocharger
Complies with NRMM (Europe) Stage IIIA and US EPA Tier III.
Displacement: 12.913 liters
Rated Power: 320 kW/2,000 min^{-1}
Max. torque: 1,650 N·m/1,300 min^{-1}
Cooling system: Liquid, recirculating bypass
Starter: 24 V/6 kW
Radiator: Corrugated type core, thermostatically controlled
Air cleaner: Dry type with replaceable paper element
Throttle: Twist grip type hand throttle, electrically actuated
Fuel filter: Replaceable paper element
Batteries: Two 12V x 136Ah/5HR capacity batteries, parallel connected.
Fuel tank capacity: 600 liters

Hydraulic System

Six variable displacement piston pumps are driven by heavy-duty pump drive. Two variable displacement pumps are used in H1 (main hook hoist) and left hand side propel circuit. Two variable displacement pumps are used in H2 (auxiliary hook hoist) and right hand side propel circuit. One of the other two pumps is used in W1 (boom), W2 (jib) hoist circuit, and the other is used in the swing circuit.
Control: Full-flow hydraulic control system for infinitely variable pressure to all winches, propel and swing.
Controls respond instantly to the touch, delivering smooth function operation.
Cooling: Oil-to-air heat exchanger (plate-fin type)
Filtration: Full-flow and bypass type with replaceable element
Electrical system: All wiring corded for easy servicing, individual fused branch circuits.

Max. relief valve pressure: 32.0 MPa {326 kgf/cm^2}
Reservoir capacity: 710 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 28 mm dia. wire rope.
Line speed: Double line on first drum layer
Hoisting/Lowering: 40~2 m/min x 2
Boom hoist reeving: 28 parts of 28 mm dia.high strength wire rope
Boom backstops: Required for all boom lengths

Load Hoist System

H1 and H2 drums for load hoist powered by a hydraulic variable plunger motors, driven through planetary reducers.
Brake: A spring-set, hydraulically released multiple-disc brake is mounted on the hoist motor and operated through a counter-balance valve.
Drum lock: External ratchet for locking drum.
Drums:
H1 and H2:
630 mm P.C.D. x 1,014 mm Lg. wide drum,
grooved for 28 mm wire rope. Rope capacity is 790 m working length.
Note: Rope lengths listed above denote drum capacity and may differ from actual rope lengths supplied when machinery is shipped.
Line speed: 110 ~ 3 m/min*1
Single line on the first layer
*1: Line speeds based on single line, no load and 5th layer of rope drum.
Rated line pull: 137 kN {14.0 tf}

Swing System

Swing unit is powered by hydraulic motor driving spur gears through planetary reducers (3 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: Triple-row roller bearing with an integral internally cut swing gear.
Swing speed: 1.2 min^{-1} {rpm}

Upper Structure

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

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 (roof 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:
Five adjustable levers for all winches and swing controls

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.
Crawler drive: Two 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.
Shoes (flat): 1,220 mm wide each crawler
Max. travel speed: 1.0/0.6 km/h
Max. gradeability: 20%

Weight

Including upper and lower machines, counterweights =120 ton,carbody weights =31 ton, 24 m luffing boom, and 180 t hook block.

Weight: 310 t
Ground pressure: 134 kPa {1.4 kgf/cm^2}

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)
Luffing Boom		
Length	24 m	78 m
Long Boom		
Length	48 m	96 m
Luffing Jib		
Length	30 m + 24 m	66 m + 66 m

Main Specifications (Model: SL4500)

Luffing Boom	
Max. Lifting Capacity	300 t x 6.0 m*1/180 t x 10.0 m
Length	24 ~ 78 m
Long Boom	
Max. Lifting Capacity	90 t x 14.0 m
Length	48 ~ 96 m
Luffing Jib	
Max. Lifting Capacity	80 t x 16.0 m
Boom Length (Min. ~ Max.)	30 ~ 66 m
Jib Length (Min. ~ Max.)	24 ~ 66 m
Luffing Angle	66˚ ~ 86˚
Power Plant	
Model	Hino E13C-UV
Engine Output	320 kW/2,000 min^{-1} {rpm}
Fuel Tank Capacity	600 liters
Hoist Winch (H1, H2)	
Max. Line Speed	110 m/min (1st layer)
Rated Line Pull (Single line)	137 kN {14.0 tf}
Wire Rope Diameter	28 mm

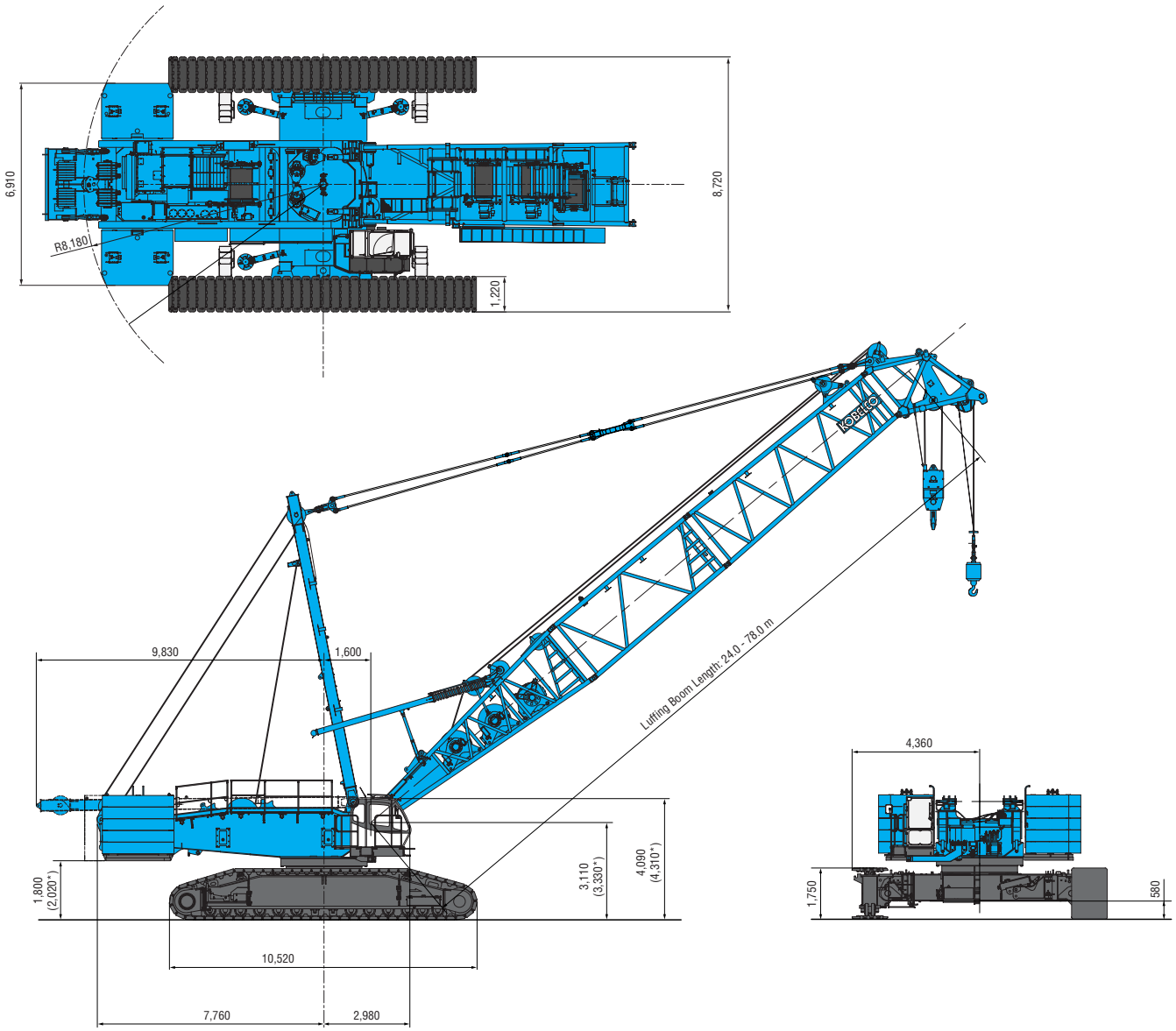
Working Speed	
Swing	1.2 min^{-1} {rpm}
Travel	1.0/0.6 km/h
Hydraulic System	
Pumps	6 variable displacement
Max. Pressure	32.0 MPa {326 kgf/cm^2}
Hydraulic Tank Capacity	710 liters
Weight	
Operating Weight*2	Approx. 310 t
Ground Pressure*2	134 kPa {1.4 kgf/cm^2}*2
Counterweight	Upper: 120 metric tons
	Lower: 31 metric tons

*1: equipped with Standard Boom Configuration (width 3.0 m boom)
*2: Including upper and lower machines, counterweights (=120 ton), carbody weights (=31 ton), 24 m luffing boom, and 180 t hook block.
Units are SI units. { } indicates conventional units.

GENERAL DIMENSIONS

Luffing Boom

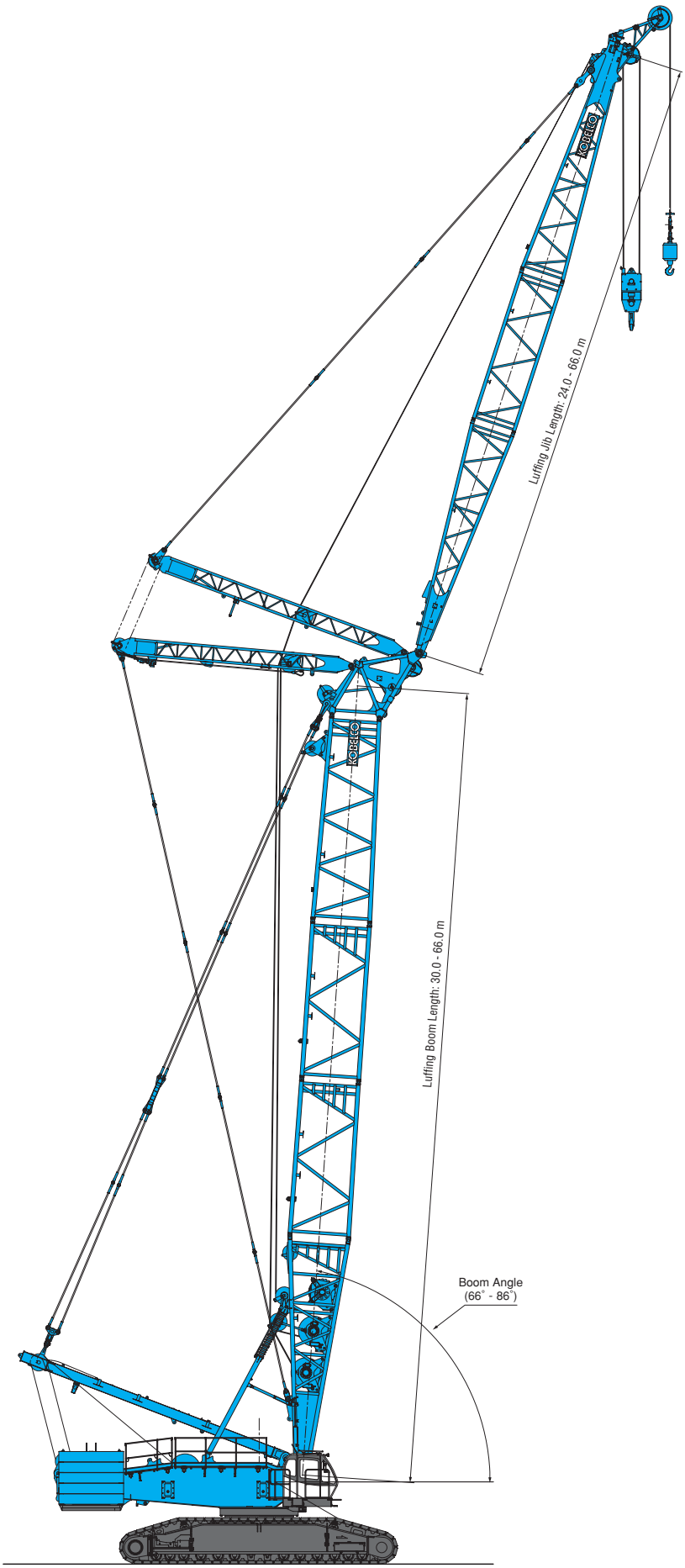
Unit: mm



(*) with quick connection device

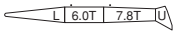
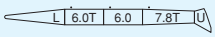
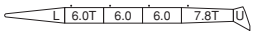
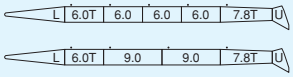
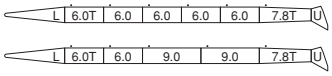
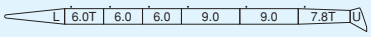
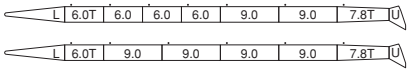
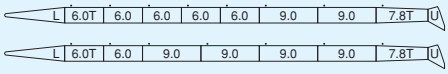
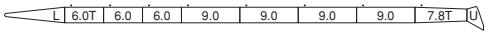
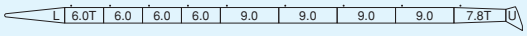
Luffing Jib

Unit: mm



BOOM AND JIB ARRANGEMENTS

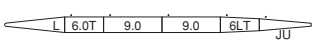
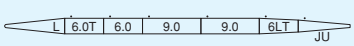
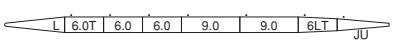
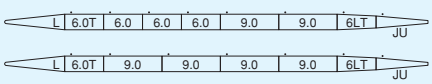
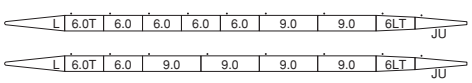
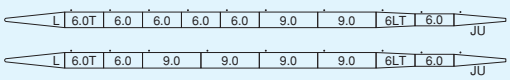
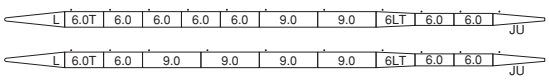
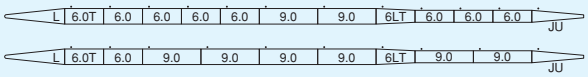
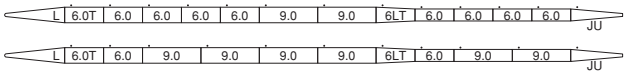
Luffing Boom Arrangements for Crane

Boom length (m)	Boom arrangement
24 m	
30 m	※ 
36 m	※ 
42 m	※ 
48 m	※ 
54 m	※ 
60 m	※ 
66 m	※ 
72 m	※ 
78 m	※ 

Symbol	Boom Length	Remarks
L	9.0 m	Boom Base
6.0T	6.0 m	Tapered Boom
7.8T	7.8 m	Tapered Boom (W: 2.5 m)
6.0	6.0 m	Insert Boom (W: 2.5 m)
9.0	9.0 m	Insert Boom (W: 2.5 m)
U	1.2 m	Boom Top

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

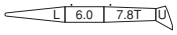
Long Boom Arrangements

Boom length (m)	Boom arrangement
48 m	※ 
54 m	※ 
60 m	※ 
66 m	※ 
72 m	※ 
78 m	※ 
84 m	※ 
90 m	※ 
96 m	※ 

Symbol	Boom Length	Remarks
L	9.0 m	Boom Base
6.0T	6.0 m	Tapered Boom
6.0	6.0 m	Insert Boom (W: 2.5 m)
9.0	9.0 m	Insert Boom (W: 2.5 m)
6LT	6.0 m	Long Tapered Boom (W: 2.5 m)
6.0	6.0 m	Luffing Insert Jib
9.0	9.0 m	Luffing Insert Jib
JU	9.0 m	Jib Top

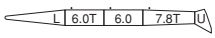
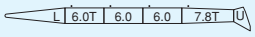
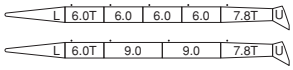
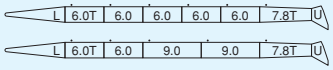
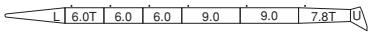
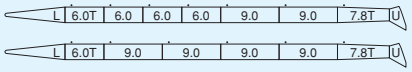
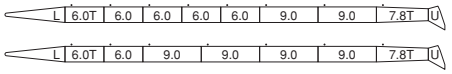
※ indicates the most flexible combination of insert long booms, which can be modified to form all shorter long boom arrangements.

Standard Boom Configuration (width 3.0 m Boom)

Boom length (m)	Boom arrangement
24m	

Symbol	Boom Length	Remarks
L	9.0 m	Boom Base
7.8T	7.8 m	Tapered Boom (W: 3.0 m)
6.0	6.0 m	Insert Boom (W: 3.0 m)
U	1.2 m	Boom Top (W: 3.0 m)

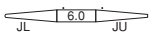
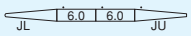
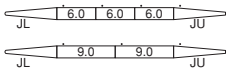
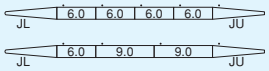
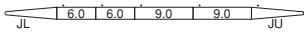
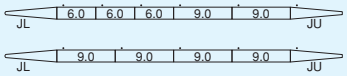
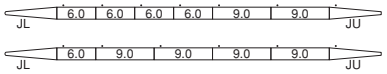
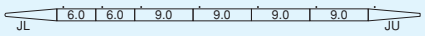
Luffing Boom Arrangements for Luffing

Boom length (m)	Boom arrangement
30 m	※ 
36 m	※ 
42 m	※ 
48 m	※ 
54 m	※ 
60 m	※ 
66 m	※ 

Symbol	Boom Length	Remarks
L	9.0 m	Boom Base
6.0T	6.0 m	Tapered Boom
7.8T	7.8 m	Tapered Boom (W: 2.5 m)
6.0	6.0 m	Insert Boom (W: 2.5 m)
9.0	9.0 m	Insert Boom (W: 2.5 m)
U	1.2 m	Boom Top

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

Luffing Jib Arrangements

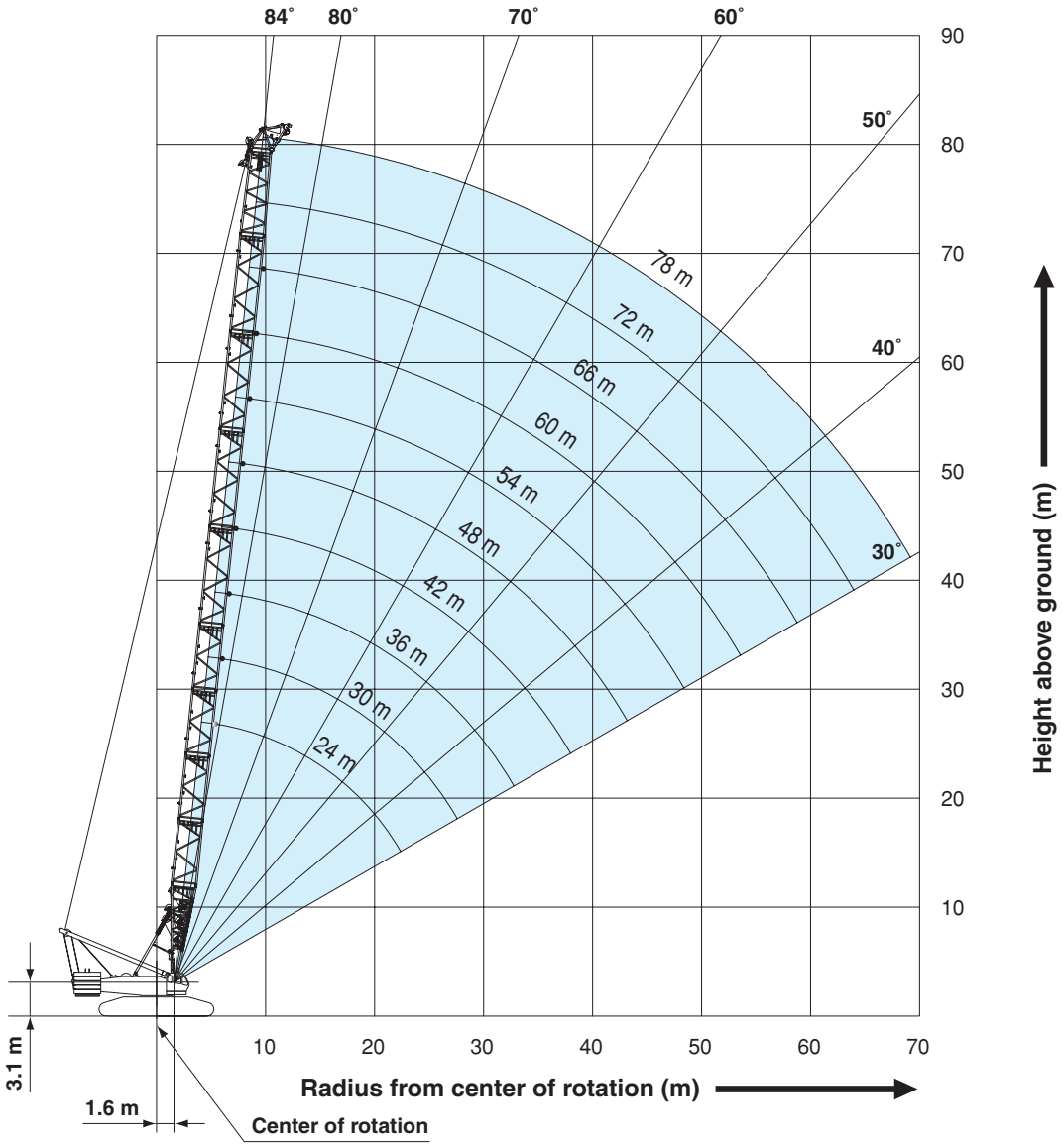
Jib length (m)	Jib arrangement
24 m	
30 m	※ 
36 m	※ 
42 m	※ 
48 m	※ 
54 m	※ 
60 m	※ 
66 m	※ 

Symbol	Jib Length	Remarks
JL	9.0 m	Jib Base
6.0	6.0 m	Luffing Insert Jib
9.0	9.0 m	Luffing Insert Jib
JU	9.0 m	Jib Top

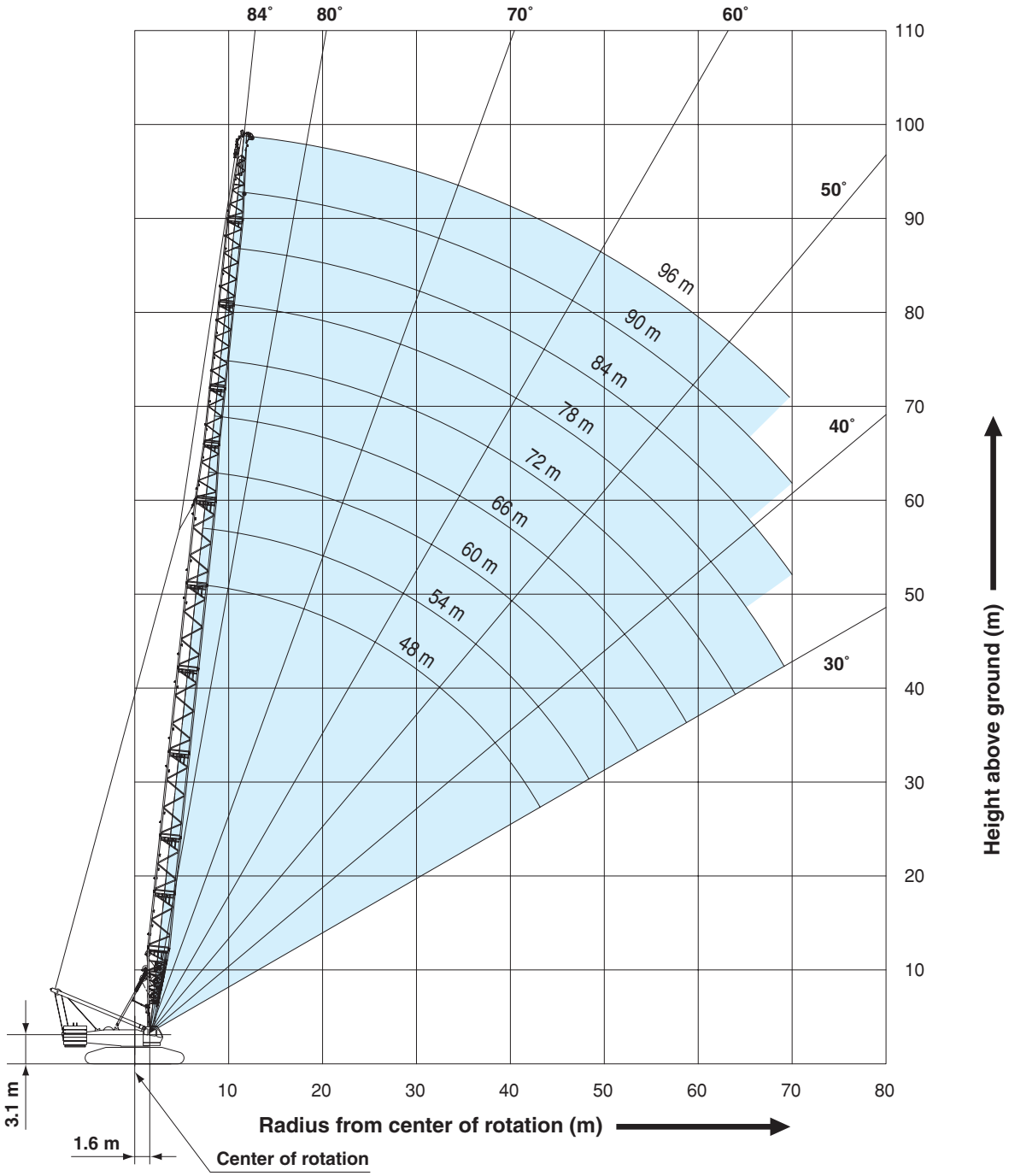
※ indicates the most flexible combination of insert luffing jibs, which can be modified to form all shorter luffing jib arrangements.

WORKING RANGES

Luffing Boom



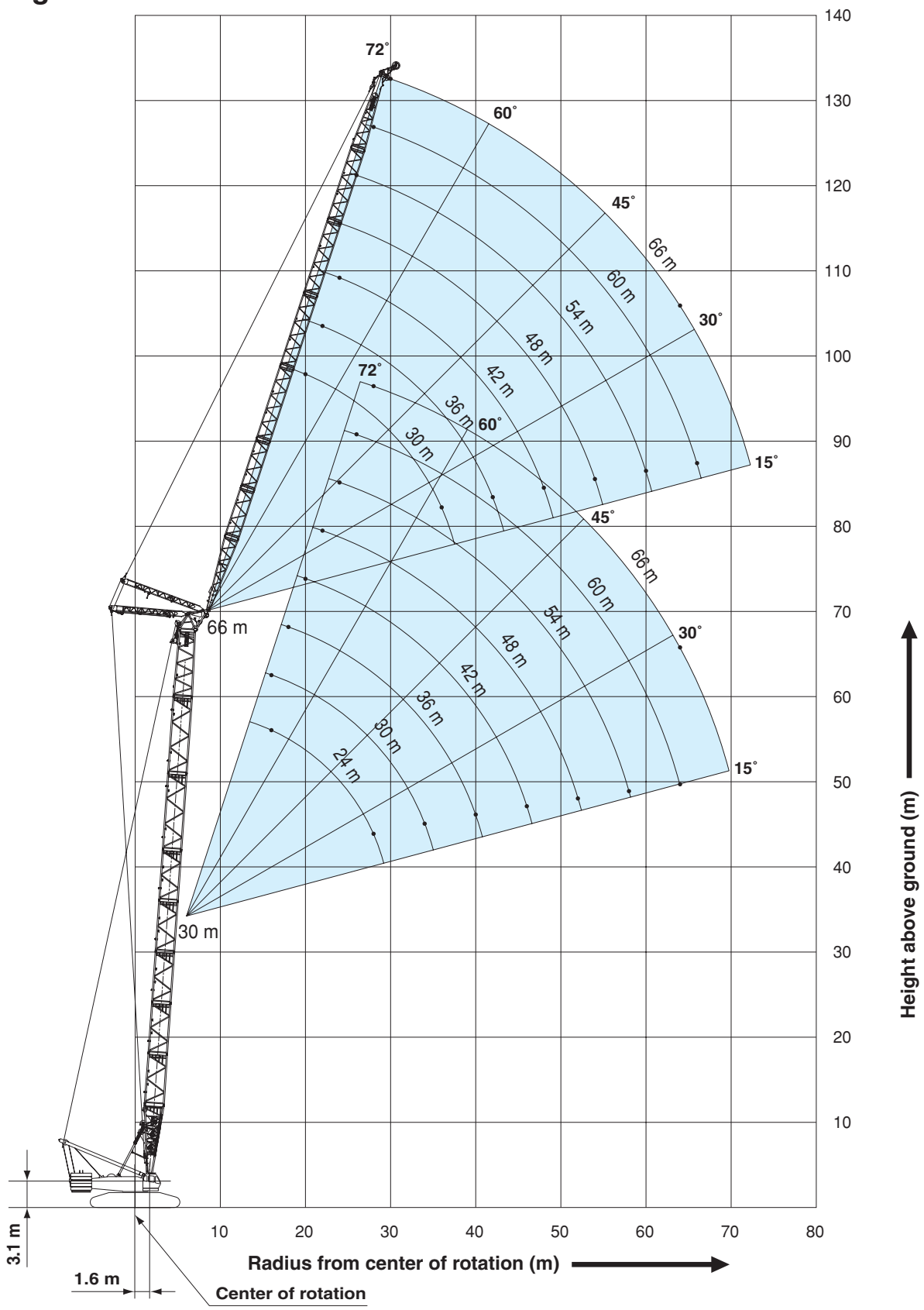
Long Boom


84°
80°
70°
60°
50°
40°
30°
96 m
90 m
84 m
78 m
72 m
66 m
60 m
54 m
48 m
110
100
90
80
70
60
50
40
30
20
10
10
20
30
40
50
60
70
80
Height above ground (m)
Radius from center of rotation (m)
3.1 m
1.6 m
Center of rotation

WORKING RANGES

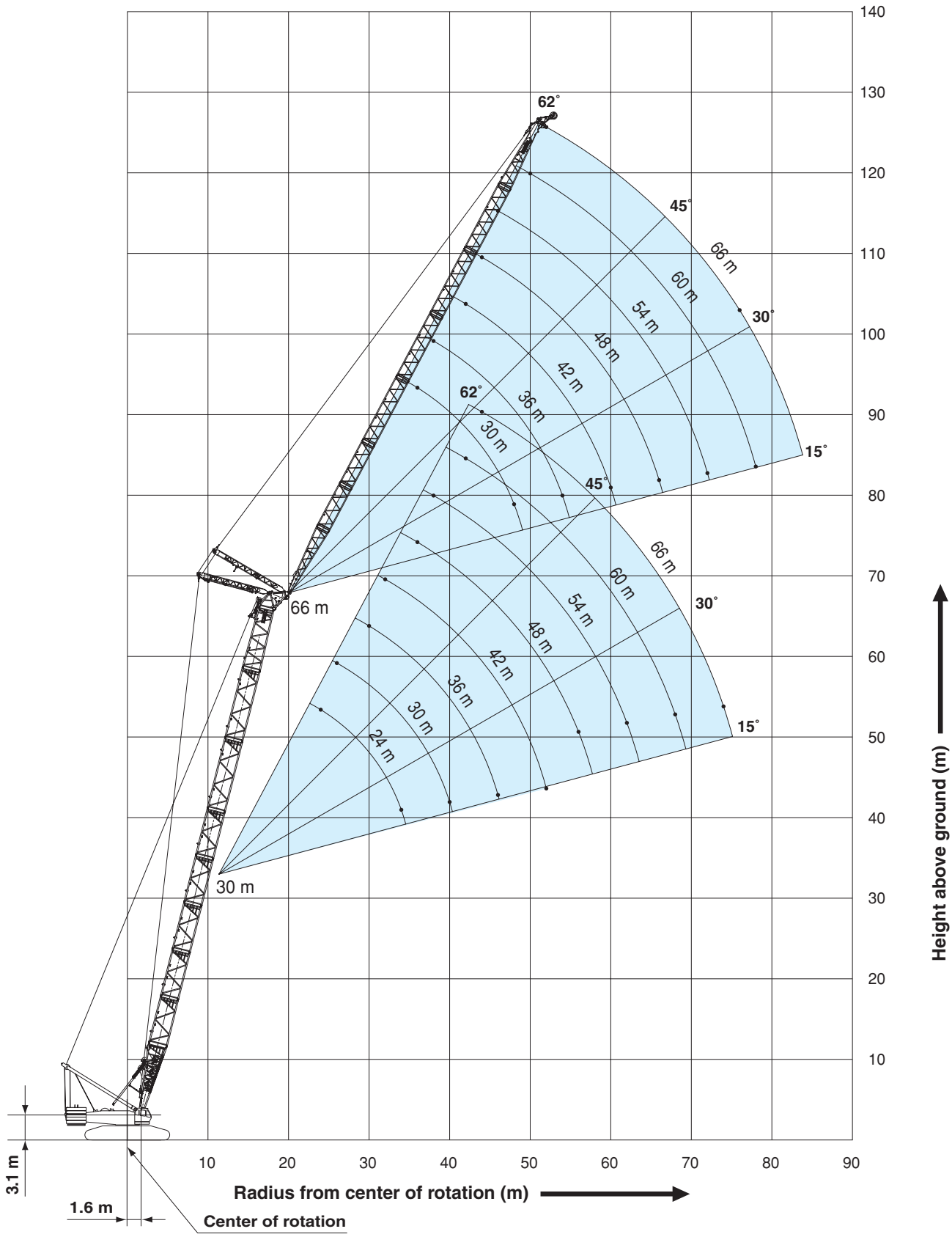
Luffing Jib

Boom Angle: 86°



Luffing Jib

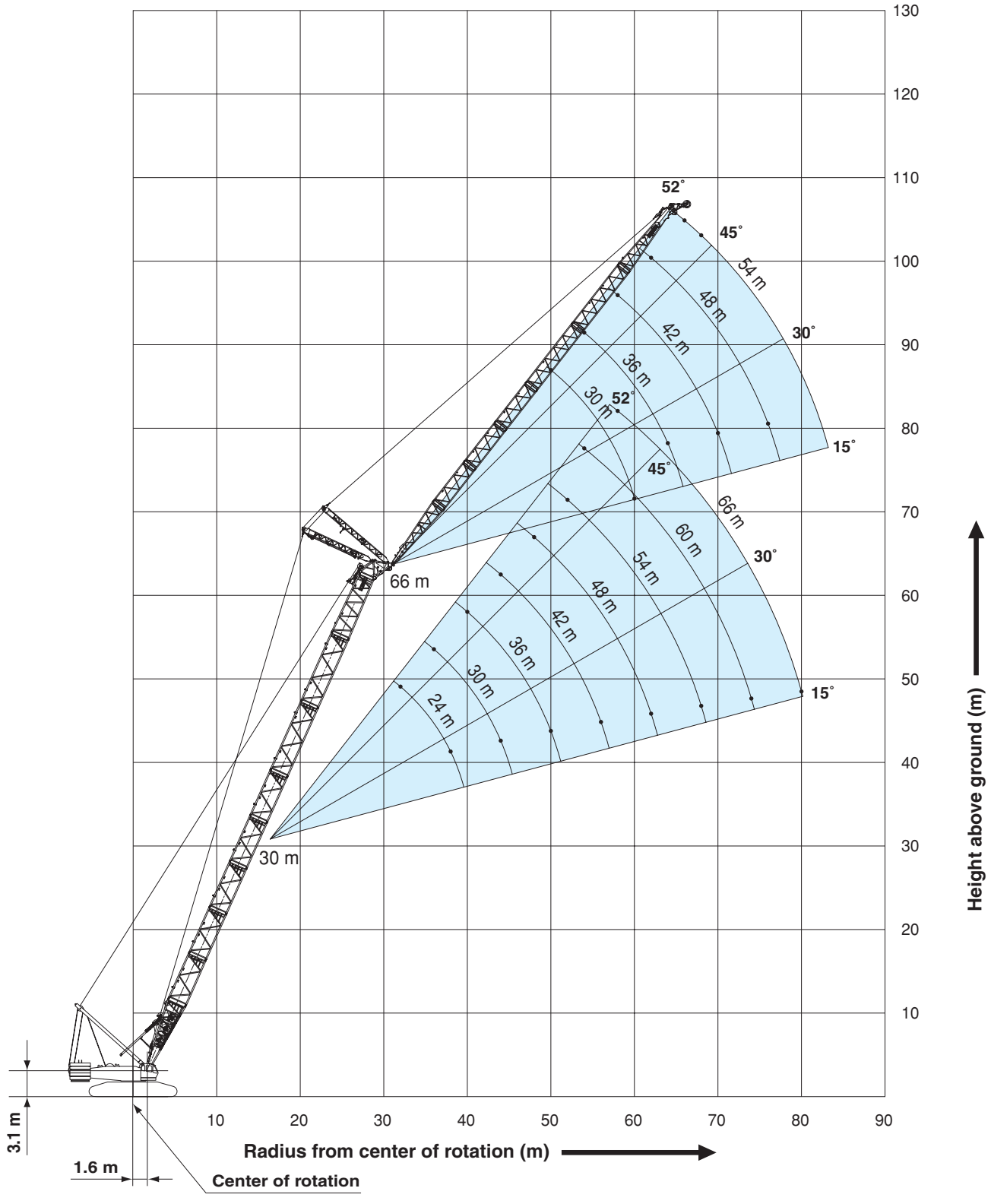
Boom Angle: 76°



WORKING RANGES

Luffing Jib

Boom Angle: 66°



LUFFING BOOM SUPPLEMENTAL DATA

1. Raitings according to ASME code B30.5, EN13000.
2. Operating radius is the horizontal distance from centerline of rotation to a vertical line through the center of gravity of the load.
3. Deduct weight of hook block(s), slings and all other load handling accessories from main boom ratings shown.
4. 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. The operator, therefore, has the responsibility to judge the existing conditions and reduce lifted load and operating speeds accordingly.
5. Ratings are for operation on a firm and level surface, up to 1 % gradient.
6. At radii and boom lengths where no ratings are shown on chart, operation is not intended nor approved.
7. Boom inserts and guy lines must be arranged as shown in the "OPERATOR'S MANUAL".
8. Boom hoist reeving is 28 part line.
9. Boom backstops are required for all boom lengths.
10. The boom should be erected over the front of the crawlers, not laterally.
11. Ratings inside of boxes ☐ are limited by strength of materials.
12. **(Luffing Boom Lifting)**
    The total load that can be lifted is the value for weight of hook block, slings, and all other load handling accessories deducted from main boom rating shown.
13. **(Luffing Boom Lifting with Auxiliary Sheave Frame)**
    The total load that can be lifted is weight of auxiliary sheave frame, main hook block, slings, and all other load handling accessories deducted from main boom ratings shown.

Deduction auxiliary sheave frame	
Luffing Boom	Long
–	1.2 ton

14. **(Auxiliary Sheave Lifting)**
    The total load that can be lifted is weight of auxiliary sheave frame, main hook block, slings, and all other load handling accessories deducted from main boom ratings shown, but it should not exceed 14 ton.
15. Auxiliary sheave ratings at any radius from center of rotation are the same as crane ratings shown in table for luffing boom when operated at the same radius. But maximum angle is the same main boom maximum angle.
16. Boom lengths for auxiliary sheave mounting show below.

Luffing Boom	Long Boom
24 m ~ 78 m	48 m ~ 96 m

17. Maximum hoist load for number of reeving parts of line for hoist rope.

Main Hoist Loads (Single Drum)

No. of Parts of Line	1	2	3	4	5
Maximum Loads (kN)	137	275	412	549	686
Maximum Loads (t)	14.0	28.0	42.0	56.0	70.0

No. of Parts of Line	6	7	8	9	10
Maximum Loads (kN)	824	961	1098	1236	1373
Maximum Loads (t)	84.0	98.0	112.0	126.0	140.0

No. of Parts of Line	11	12	13	14
Maximum Loads (kN)	1491	1608	1706	1765
Maximum Loads (t)	152.0	164.0	174.0	180.0

Auxiliary Hoist Loads

No. of Parts of Line	1
Maximum Loads (kN)	137
Maximum Loads (t)	14.0

18. Weight of hook block

Weight of hook block					
Hook block	180 ton	120 ton	70 ton	40 ton	14.0 ton Ball hook
Weight (t)	3.10	3.50	3.10	2.00	0.90