

SUMITOMO SC 1500-2

Note: We are constantly improving our products and therefore reserve the right to change designs and specifications.
Units in this specification are shown under International System of Units; the figures in parenthesis are under Gravitational System of Units as old one.

SUMITOMO



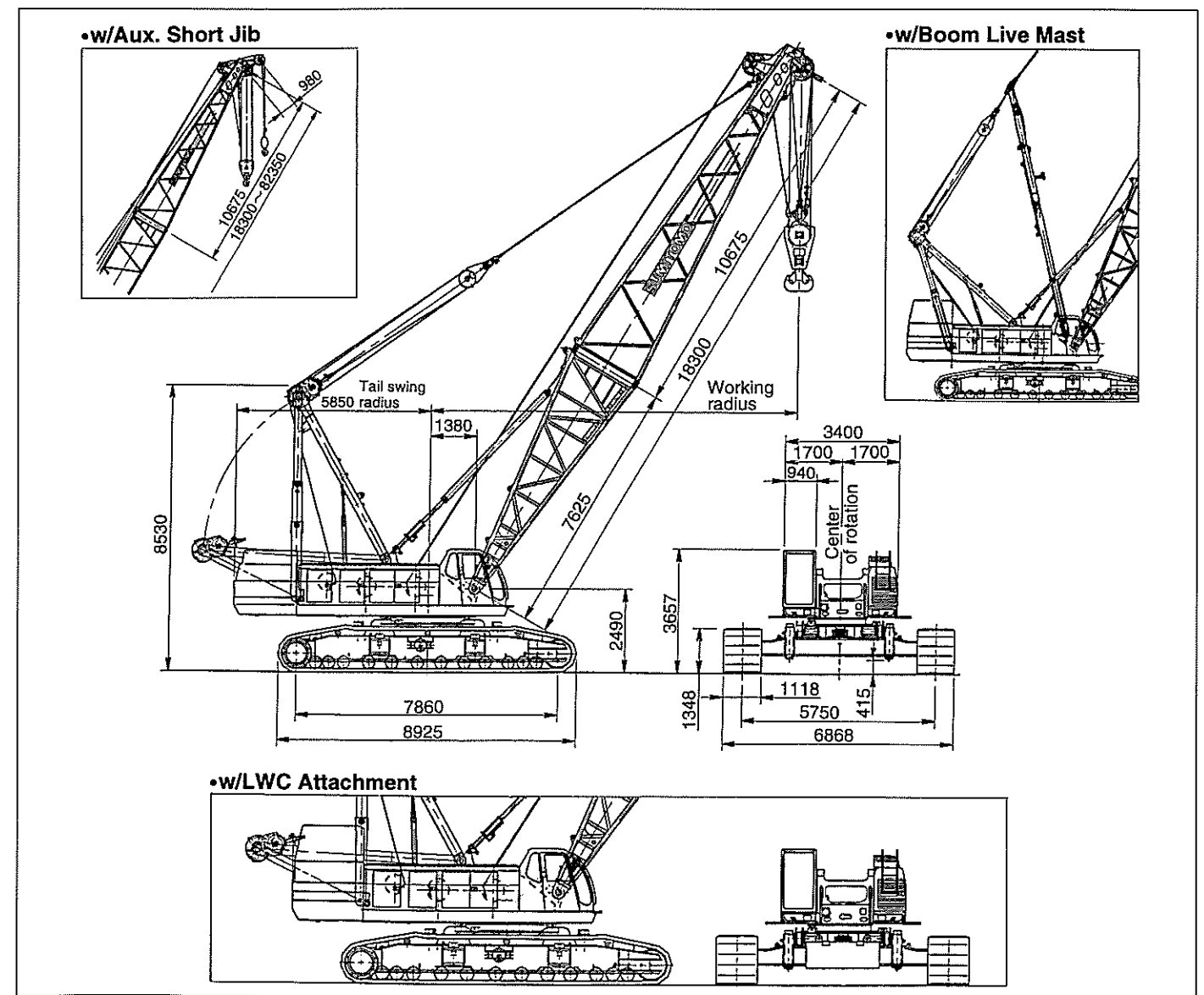
PAX Series

SC 1500-2

150-M ton Hydraulic Crawler Crane

Technical Data

General Dimensions:



SUMITOMO (S.H.L.) CONSTRUCTION MACHINERY CO., LTD.

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Specifications

SUMITOMO

SC 1500-2

Basic Machine

Superstructure

UPPER REVOLVING FRAME:

All-welded, precision machined, robust construction with line-bored integral machinery side housings. A machined surface provided for mounting on turntable bearing.

TURNTABLE BEARING WITH INTERNAL SWING GEAR:

Single shear ball type; inner race of turntable bearing with integral, internal swing (ring) gear bolted to carbody frame, and outer race of turntable bearing bolted to upper revolving frame.

CONTROL SYSTEM:

System contains one set each of triplicate, duplicate and single tandem valves which direct oil to various machine function and are actuated by remote controlled hydraulic servo for all motions through control levers. Working speeds can be precisely controlled by motorcycle type throttle and conventional type floor levers in cooperation with SUMITOMO's patented "SC" controller that varies engine rpm and hyd. pump discharge simultaneously, or varies just hyd. pump discharge while keeping engine rpm.

Pump control system — By SUMITOMO's patented "SC" controller that provides two modes of engine-pump control.

MODE I:

The SC Controller is normally programmed to vary the engine speed and pump discharge simultaneously. Simply twisting the grip advances the engine to maximum speed and the hydraulic pumps to maximum flow at the same time. This mode is suitable to precision crane work.

MODE II:

By activating a switch, it is able to vary just the pump discharge by means of the grip throttle, while keeping engine speed fixed. Mode II is convenient for operations such as lifting magnet and bucket work, where the engine is normally run at full throttle.

Pump balancer — Optional extra; this is available to synchronize front and rear drum rotation speeds in cooperation with independent hydraulic circuits.

HYDRAULIC SYSTEM:

System provided with three variable displacement axial piston pumps and one fixed displacement duplicate tandem gear pump for both independent and combined operations of all functions. Gear pump also used for system valves and cylinder controls.

Main/aux. crane hoist motors — Variable displacement axial piston motor with counterbalance valve.

Boom hoist motor — Axial piston type with counterbalance valve and spring-applied/hydraulically released multiple wet-disc type automatic brake.

Third drum motor — Optional extra; axial piston type with counterbalance valve and spring-applied/hydraulically released multiple wet-disc type automatic brake; required when machine operated with luffing towercrane attachments.

Swing motor — Two-axial piston type with spring-applied/hydraulically released multiple wet-disc type manually controlled brake.

Travel motors — Shoe-in type, 2-speed, axial piston motor with brake valve and spring-applied/hydraulically released multiple wet-disc type automatic brake.

Independent hyd. circuits — Available on three hydraulic circuits of between P1 main pump and front main winch motor/third drum winch motor, and between P2 main pump and rear main winch motor.

Hydraulic oil reservoir — 380 liters capacity.

LOAD HOIST ASSEMBLY:

Front and rear main operating drums driven by independent hydraulic motor of bi-directional, variable displacement axial piston motor through planetary and spur reduction gear units powering the rope drum in either direction for hoisting and lowering load. Each of drum sized in same dimension.

Clutches — Internal expanding, self-adjusting, mono-band design with non-asbestos lining; spring-applied, power hydraulically released.

Brakes — External contracting band type with non-asbestos lining; operated by power hydraulically assisted foot pedal with locking latch. Two brake modes are available; for crane operation, automatic brake, spring-applied, power hydraulically released is applied when control lever is in neutral position, and for bucket operation, free-fall is available in the above control lever position.

Drums — One piece, parallel grooved with locking ratchet wheel cast integral; mounted on drum shaft through anti-friction bearings.

Drum locks — Electrically operated pawl.

Drum rollers — Optional extra; available for right cable winding onto drums.

BOOM HOIST ASSEMBLY:

Twin-drum design; driven by two bi-directional, axial piston hydraulic motor through 2 sets of 2-stage planetary reduction gear unit powering the rope drum in either direction for hoisting and lowering boom.

Brake — Spring-applied, power hydraulically released multiple wet-disc type automatic brake on each motor.

Drum — One piece, twin-designed parallel grooved with locking ratchet wheel cast integral; bolted to each of planetary reduction gear unit outer case.

Drum lock — Electrically operated pawl (w/automatic locking device).

THIRD DRUM WINCH MECHANISM:

Optional extra; driven by bi-directional, axial piston hydraulic motor through 2-stage

planetary reduction gear unit powering the rope drum in either direction for hoisting and lowering tower jib; required when machine operated with luffing towercrane attachment. This third drum winch mechanism mounted on an upper part of tower boom bottom section for more safety and easy erection work of luffing towercrane attachment.

Brake — Spring-applied, power hydraulically released multiple wet-disc type automatic brake; provided within hydraulic motor.

Drum — One piece, parallel grooved with locking ratchet wheel cast integral; bolted to planetary reduction gear unit outer case.

Drum lock — Electrically operated pawl (w/automatic locking device).

SWING:

Driven by two units of bi-directional, axial piston hydraulic motors through a spur-and-planetary reduction gear unit powering swing pinion. Swing pinion meshes with internal teeth of swing (ring) gear of turntable bearing inner race.

Brakes — Manually controlled; spring-applied, power hydraulically released multiple wet-disc type; provided on each of hydraulic motor.

Constant swing speed mechanism — Optional extra; conventional swing speed (as std.) and other three kinds of constant swing speed are available in this mechanism.

Disc type swing brake — Optional extra; this allows smooth and precise swing control especially when working in strong winds or on slopes.

Lock — Mechanically operated drop pin.

Speed — 1.9min.⁻¹ <1.9rpm> (as std.); 1.9/1.4/0.6/0.3min.⁻¹ <1.9/1.4/0.6/0.3rpm> (as available under optional constant swing speed mechanism).

GANTRY:

A-frame type; raised and lowered by power hydraulic cylinders.

OPERATOR'S CAB:

Acoustically treated, all new stamped, automotive type, full-vision, cushion rubber mounted, well-ventilated, full compartment, roomy operator's cab with large curved front window; provided with an arrangement of "SC" control/swing lever, floor type control levers, built-in type air-conditioning, sunvisor, sunshade, rear-view mirrors, intermittent window shield wiper with washer on both front and roof windows, and roll-down window on sliding door.

Instrument panel — Contains engine monitoring lamps, display panel of SUMITOMO Model SML-06 Load Moment Limiter, and other necessary controllers and switches; all located at left-hand side of operator.

Operator's seat — Six way full adjustable reclining seat.

Anemometer — Optional extra; recommended for luffing towercrane attachment.

Stone guard — Optional extra; stainless steel-make. This is available for operator's cab protection from outside obstacles.

- AM/FM radio — Optional extra; provided with clock.
- Fire extinguisher — Optional extra; powder type with 1kg capacity.

MACHINERY CAB:

Equipped with hinged doors on both sides for machinery access and inspection; tape-type non-skid material applied to the roof.

CATWALKS:

Hitched in place along both sides of machinery cab.

WIRE REEVING WINCH:

Optional extra; available for crane hoist cable handling ease.

HYDRAULIC TAGLINE WINDER:

Optional extra; provided in front of upper revolving frame, and this is available for preventing a shake of suspended load like clamshell bucket by an 10mm dia. tug cable with light force.

COUNTERWEIGHTS:

Weighs 64.9ton with cast, 5-block, removable, corner-rounded design. Five blocks consist of "A" (18,500kg), "B" (17,300kg), "C" (8,300kg), "D" (9,800kg), and "E" (11,000kg).

LWC ATTACHMENT:

Optional extra; this is for upgrading crane lifting capacities by around 27% throughout the widely used working range. Following additional counterweight on superstructure, and carbody weight are for this attachment:

Add. counterweight — Weighs 12.0ton with cast, 2-block of "F" (5,600kg) and "G" (6,400kg), removable, corner-rounded design; placed in between counterweight "B" and "C"/"D".

Carbody weight — See "CARBODY WEIGHT" of Undercarriage shown right.

ELECTRICAL SYSTEM:

24-volt negative ground system; provided with two maintenance free 12-volt batteries.

LIGHTING SYSTEM:

- Includes following lights.
- Two 60 W working lights;
- One 15 W interior cab light.

POWER UNIT:

Make & Model	Hino K13C-TJ
Type	Water-cooled, 4-cycle, direct injection, turbo-charged, diesel
No. of Cylinders	Six (6)
Bore & Stroke	135 mm x 150 mm
Displacement	12,882 cc
Rated Output	235 kW/2,050 min ⁻¹ < 320 ps/2,050 rpm >
Maximum Torque	1,324 N-m/1,200 min ⁻¹ < 135 kgf-m/1,200 rpm >
Fuel Tank	500 liters

Undercarriage

CARBODY FRAME:

All-welded, precision machined, box type construction; provided with connecting lug plates in four corners to pin axle beams. A machined surface provided for mounting turntable bearing.

CARBODY JACK-UP DEVICE:

Optional extra; this device contains four hydraulic jack cylinders attached on carbody axle beams for disassembling/assembling ease of crawler side frames.

Pontoon — All-welded construction; four pontoons each stored at an inside part of crawler side frames.

AXLE BEAMS:

All-welded, box construction; pinned to carbody frame. Axle pin placement/displacement manipulated by means of hydraulic pin placement unit as a std. accessory.

Hyd. pin placement unit — Available for placement/displacement ease of axle beam pins. This is also available in the same meaning for four kinds of foot pins of boom, boom live mast, fly jib and fan-shaped post, and track tension adjustment.

CARBODY WEIGHT:

Optional extra; 18ton, made of steel scrap with concrete pouring; 9ton each mounted at front and rear of the carbody. This is also required as one of LWC attachment like a 12ton add. counterweight.

CRAWLER SIDE FRAMES:

All-welded, box type construction, precision machined; positioned on axle beam by plate links and held in place with plate shim adjustment per side frame.

Removal cylinders — Optional extra; available for assisting in removing side frames.

Crawler side steps — Provided at both ends of the frames for easy access to superstructure.

DRIVE SPROCKETS:

Cast steel, heat treated; one per side frame. Track drive sprocket assembly bolt-coupled to 3-stage planetary reduction gear unit outer case as an integral part of shoe-in type traction motor. Sealed between parts of rotation and non-rotation of the motor with floating seal.

IDLER WHEELS:

Cast steel, heat treated; one per side frame. Mounted on two bronze bushings with floating seals for lifetime lubrication.

TRACK ROLLERS:

Twelve per side frame; each double flanged, heat treated, and mounted on two bronze bushings with floating seals for lifetime lubrication.

CARRIER ROLLERS:

Two each of conventional with double flanged,

and cantilever types per side frame; each heat treated, and mounted on bronze bushing, with floating seals for lifetime lubrication.

TRACKS:

1,118mm wide, heat treated, self-cleaning, multiple hinged track shoes joined by full floating pins; 63 pcs. per side frame.

Track adjustment — By manually adjusted with no. of shim plate provided at each idler wheel block in cooperation with hyd. pin placement unit.

TRAVEL AND STEERING:

Hydrostatic drive; a bi-directional, 2-speed, shoe-in type axial piston hydraulic motor bolt-couples drive sprocket thru 3-stage planetary reduction gear unit outer case at each crawler side frame end for travel and steer. Straight-line travel (forward or reverse), pivot or differential turns, and counter-rotation for spin turns available.

Brake — Spring-applied, hydraulically released multiple wet-disc type automatic brake; located within hydraulic motor. Brakes automatically set when travel levers are in neutral or when engine is shut down.

Travel speed — 1.1km/hr. (High), 0.8km/hr. (Low).

Gradeability — 30% (17°) permissible based on basic machine without front-end attachment.

TWO STEEL BLOCKS:

Optional extra; required when boom length is 85.40m or longer, and/or when mounting 30.50m fly jib on 64.05m boom, and/or mounting fly jib from 12.20m thru 30.50m on boom from 67.10m thru 73.20m, and/or when mounting tower jib from 27.45m thru 48.80m on 56.40m tower for self-erection. This block to be placed under track idler wheels each of crawler mounting.

Safety Devices

SUMITOMO MODEL SML-06 LOAD MOMENT LIMITER:

This is a fully computerized total safe operation control system, and automatic overload preventing system as standard equipment.

Construction (standard version) — Comprises (1) load detecting device with amplifier for general crane applications (except luffing towercrane applications), (2) angle detector for crane main boom/luffing tower boom (except tower jib) (3) computerized Micro Processing Unit (M.P.U.), and (4) display panel.

Functions — This system functions that if a lifting load moment (lifting load x working radius) reaches a 90% of the rated one specified in the crane capacity chart, an annunciating pre-warning (it is soon stopping automatically) is

given; if it is an 100%, a warning is given by flasher lamp, and warning buzzer or annunciating warning (it is over-loading), and all peril side motions are automatically stopped. The machine, however, can be operated in safety side motions. The SML-06 can also function to automatically detect the counter-weight arrangement condition (std. or LWC version); other machine conditions manually settled by touch-switches on M.P.U. board panel according to the present one. An eight-kind of annunciating alarm is also a function of the SML-06 like "it is hook over-hoisting".

Dispaly panel indications — Dispaly panel indicates (a) engine rpm on diaplay "1", (b) load ratio between rated and present lifting loads, or luffing tower boom angle on dispaly "2", (c) rated capacity, or remaining load, or actual lifting load on display "3", and (d) working radius, or crane main boom angle, or tower jib angle, or fly jib offset angle on display "4". Dispaly panel indication change all manipulated by touch-key on display panel. Display panel also provided with seven-kind of indication lamp.

HOOK OVER-HOIST LIMITING DEVICE:

Interlocked with the SML-06 for automatically preventing a hook over-hoist of crane main boom with functions of automatic drum braking, lamp warning, and buzzer warning (or alarm annunciating).

BOOM OVER-HOIST AND -LOWERING LIMITING DEVICE:

This is one of key safety devices; interlocked with the SML-06 also for automatically preventing boom over-hoist and -lowering with functions of automatic drum braking, lamp warning, and buzzer warning (or alarm annunciating). Further boom protection from rapid boom over-hoist by hook over-hoist motion under mal-function of hook over-hoist limiting device is available as one of functions of the SML-06.

BOOM BACKSTOPS:

Dual; telescopic design with spring buffers.

DUAL BOOM OVER-HOIST LIMITING DEVICE:

Additional limit switch located on boom backstops; this is as a further safety device for redundant boom protection.

SWING LOCK:

Mechanically operated drop pin; available to firmly lock superstructure in four positions of facing front or rear or left or right to undercarriage.

DRUM LOCKS:

Electrically operated pawl locks; available on front and rear main drums and boom hoist drum. Drum pawl-locking on boom hoist drum are automatically done when control lever returns into neutral position.

BOOM ANGLE INDICATOR:

Pendulum type; mounted on right-hand side of bottom section of crane main boom.

HOOK LATCH:

Provided on every kinds of hook to prevent

Liftcrane 150 metric tons

out of place of cable from hook.

LEVEL GAUGES:

Bubble type; both located on operator's cab floor of superstructure, and on a part of undercarriage.

LEVER LOCKS:

Provided on all control levers (except swing lever) to lock levers in neutral. For control levers of front and rear drum winches, there is also locking device to prevent stroke to lowering side.

SWING ALARM:

This is by buzzer, and flasher lamps located on both sides of machinery cab.

ANNUNCIATING ALARMS:

This is one of functions of the SML-06; provided with eight kinds of the alarm like "it is soon stopping automatically".

SPEED SLOWDOWN DEVICE:

This is for speed slowdown of hoisting and lowering motions of crane main boom (and/or tower jib in case of luffing towercrane att.) which are available just before automatic stopping to prevent a shock.

BOOM LIVE MAST LIMIT SWITCH:

Available to avoid a flapping of boom live mast when assembling/disassembling boom bottom section.

SWING BRAKE LAMP:

Provided on operator's cab instrument panel; this is available to confirm whether or not swing brake is applied.

SIGNAL HORN:

Available as warning just before every kinds of motions from operator.

FOOL PROOF SHUT-OFF SYSTEM:

Located in the cab exit; this is available to automatically deactives and locks hydraulic system.

KEY LOCK MODE SELECTOR SWITCH:

This allows selection of operating mode (crane, or tower or free-fall mode) to avoid improper operation.

TRAVEL ALARM:

Buzzer warns when travel motion is initiated.

THREE COLOR PERCENTAGE INDICATOR:

Optional extra; this is with three colours of Green, Yellow and Red. Each colour indicates the load percentage to rated capacity; Green shows less than 90% as safety, Yellow shows 90 to 99% as marginal, and Red shows over 100% as over-loading. As further function, Red lamp comes on automatically when operator cuts off safety device switch absent-mindedly.

LIFTING HEIGHT METER:

Optional extra; available to indicate lifting height above ground or depth below ground on display "1" of SML-06 Load Moment Limiter display panel.

RADIOPHONE:

Optional extra; available for a good correspondence among operator, signalman and other worker (or between operator and

signalman).

MICROPHONE & LOUD-SPEAKER:

Optional extra; this is for operator's convenience for loud speaking.

ANNUNCIATING SWING ALARM:

Optional extra; this is additional alarm for swing motion with a caution voice of "now swing, keep clear please!".

DRUM LIGHT & MIRROR:

Optional extra; these are available for checking rope winding onto front and/or rear drum(s).

AUX. CRANE HOOK OVER-HOIST LIMITING DEVICE:

Optional extra; this is available for auxiliary crane hoist with optional aux. short jib and/or fly jib. Performs the same function as that of "Hook over-hoist limiting device" mentioned before. In addition to the above, following safety devices are standard for luffing towercrane attachment.

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TOWER JIB ANGLE DETECTOR:

This is one of key safety device in a case of luffing towercrane attachment.

TOWERCRANE LOAD DETECTOR:

This is also important safety device when luffing towercrane attachment is required.

TOWER JIB OVER-HOIST AND -LOWERING LIMITING DEVICE:

Performs all the same function as that of "Boom over-hoist and -lowering limiting device" stated before.

TOWER JIB HOOK OVER-HOIST LIMITING DEVICE:

Performs the same function as that of "Hook over-hoist limiting device" described before.

FAN-SHAPED POST LIMIT SWITCH:

Available to eliminate a mis-assembling work of tower jib hoist pendant cables.

TOWERCRANE ATT. SELF-ERECTION MODE:

This is an internal, integral mode as one of key function of the SML-06 for safe self-erection and -laying down of luffing towercrane attachment without fail (Patent-applied).

THIRD DRUM LOCK:

Provided with automatic pawl-locking device like boom hoist drum pawl-locking.

TOWER JIB BACKSTOPS:

Dual; telescopic design with spring buffers.

DUAL TOWER JIB OVER-HOIST LIMITING DEVICE:

Additional limit switch located on tower jib backstops; this is as a further safety device for redundant tower jib protection.

CRANE BOOM:

Lattice construction, round tubular main chords, alloy, hi-ten steel, with bracing of round steel tubing.

Boom connections In-line pin connections at 2.1m deep and 2.1m wide.

Basic boom Two-piece, 18.30m basic length; 7.625m bottom section and 10.675m tapered crane top section.

Boom head machinery Five head sheaves and two guide sheaves mounted on anti-friction bearings.

Two hanger sheaves Optional extra; each mounted on anti-friction bearing at both ends of boom head shaft outside five head sheaves, and required in a case of 150ton lift.

Heavy-duty boom extensions Optional extra; available in 3.05m, 6.10m and 9.15m lengths with dual pendants.

Light-duty boom extension Optional extra; available in 12.20m lengths with dual pendants.

Maximum boom length 85.40m

FLY JIB:

Optional extra; lattice construction, round tubular main chords, alloy hi-ten steel, with bracing of round steel tubing having in-line pin connections at 0.762m deep and 0.914m wide, jib strut w/backstops, rope guide sheave and guyline cables, and jib head machinery with single sheave mounted on anti-friction bearings. This attachment can be mounted on 10.675m tapered top section, and is available for light load lifting operation with less than 15ton with 2-part hoist line (or less than 13.5ton with single part hoist line).

Basic fly jib Two-piece, 12.20m basic length; 6.10m bottom and top sections.

Fly jib extensions Available in 6.10m length with pendants.

Maximum fly jib length 30.50m

Boom plus fly jib length Max. 73.20m + 30.50m

AUXILIARY SHORT JIB:

Optional extra; all-welded construction having single sheave head machinery. This attachment pinned to 10.675m tapered top section, and is available for 13.5ton lift as maximum with single part hoist line.

HOOK BLOCKS:

150t, five sheaves plus one in-lined hanger sheave with duplex hook Optional extra.

100t, five sheaves with duplex hook Optional extra; available from an 150ton hook block by dismantling an in-lined hanger sheave.

80t, three sheaves Optional extra.

35t, single sheave Optional extra.

13.5t, ball hook Optional extra.

BOOM LIVE MAST:

Optional extra; All-welded, box type construction, mounted in front of upper revolving frame. This mast attaches bridle with larger sheaves of a 21.4 D/d ratio for 16-part boom hoist rope reeving. Boom live mast is required when boom length is over 70.15m, and/or when mounting fly jib from 12.20m thru 30.50m on boom of 70.15m and 73.20m and is also available in range of boom length from 48.80m thru 67.10m for upgrading crane capacity.

BAIL AND BRIDLE:

All-welded construction; provided with larger sheaves of a 21.4 D/d ratio on both bail and bridle for 16-part boom hoist rope reeving. Bail mounted on A-frame gantry, and bridle suspended between a 16-part boom hoist rope and pendant ropes connecting to tip of a 10.675m tapered top section.

DRUM DATA:

Drum	Root dia.	Type	Line speed (Hoisting, Lowering)	Cable
Front (main crane hoist)	571mm	Parallel grooved	100 ~ 2mpm	28mm
Rear (aux. crane hoist)	571mm	Parallel grooved	100 ~ 2mpm	28mm
Boom hoist	504mm	Parallel grooved	(23~1mpm) × 2-line	22.4mm

Notes:

- Line speed is based on drum first layer and rated engine rpm.
- Hoisting line speed varies under load and operating conditions.

Liftcrane Capacities

HOIST REEVING:

No. of part line	Main hoist											Aux. hoist
	13	12	11	10	8	7	6	5	4	3	2	1
Max. load (ton)	150.0	140.0	130.0	100.0	90.0	80.0	75.0	62.0	50.0	38.0	26.0	13.5

CABLES:

- For front drum.....Sraf Nuflex rope with construction of "SS19+39x7", spin-resistant type, 28mm dia./410m long, breaking load 77.0ton.
- For rear drum.....Optional extra; Sraf Nuflex rope with construction of "SS19+39x7", spin-resistant type, 28mm dia./350m long, breaking load 77.0ton.
- For boom hoist drum.....Sraf rope with construction of "IWRC 6xWS (31)", 22.4mm dia./310m long, breaking load 42.5ton.

WORKING WEIGHT:

With 18.30m basic boom, 64.9 counterweight, 1,118mm wide track shoes and optional 150ton hook block: Approx. 164.0ton.

GROUND PRESSURE:

87.3kPa <0.89kg/cm²> under a 164.0ton working weight mentioned above.

w/Std. Counterweight – w/o Boom Live Mast

Boom length (m) Working radius (m)	18.30	21.35	24.40	27.45	30.50	33.55	36.60	39.65	42.70	45.75	48.80	51.85	54.90	57.95	61.00	64.05	67.10
5.0	150.0																
5.5	148.0	140.6/5.6															
6.0	146.0	138.8	130.0/6.1														
6.5	144.1	135.9	130.0	122.6/6.6													
7.0	136.6	133.5	129.7	120.9	112.2/7.2	100.0/7.7											
8.0	112.6	112.5	112.5	112.5	109.3	100.0/8.6	90.0/8.2	88.9/8.7									
9.0	93.6	93.5	93.5	93.4	93.3	93.3	90.0	88.1	80.0/9.5	75.0/9.8							
10.0	80.0	79.8	79.8	79.7	79.5	79.6	79.6	79.4	79.4	75.0	70.8/10.3	66.1/10.9	61.9/11.4	57.9/11.9			
12.0	61.6	61.5	61.4	61.3	61.1	61.1	61.1	60.9	60.8	60.8	60.6	60.4	60.3	57.7	53.5/12.5	47.0/13.0	41.6/13.5
14.0	49.9	49.7	49.6	49.5	49.2	49.3	49.3	49.0	49.0	48.9	48.7	48.5	48.4	48.2	48.0	44.2	41.2
16.0	41.8	41.6	41.4	41.3	41.0	41.1	41.0	40.8	40.7	40.6	40.4	40.2	40.1	39.9	39.7	39.6	39.4
18.0	37.5/17.4	35.6	35.4	35.3	35.0	35.0	35.0	34.7	34.6	34.5	34.3	34.1	34.0	33.8	33.6	33.5	33.3
20.0		31.0	30.8	30.7	30.4	30.4	30.4	30.1	30.0	29.9	29.6	29.4	29.3	29.1	28.9	28.8	28.6
22.0			27.2	27.1	26.7	26.7	26.7	26.4	26.3	26.2	25.9	25.7	25.7	25.4	25.2	25.1	24.9
24.0			26.1/22.7	24.1	23.8	23.8	23.7	23.5	23.3	23.2	23.0	22.7	22.7	22.4	22.2	22.1	21.9
26.0				22.5/25.3	21.4	21.4	21.3	21.0	20.9	20.8	20.5	20.3	20.2	19.9	19.7	19.6	19.4
28.0					19.4	19.3	19.3	19.0	18.8	18.7	18.4	18.2	18.1	17.8	17.6	17.5	17.3
30.0						17.6	17.5	17.2	17.1	16.9	16.7	16.4	16.3	16.1	15.8	15.8	15.5
32.0							17.2/30.6	16.0	15.7	15.6	15.4	15.1	14.9	14.8	14.5	14.3	14.0
34.0								15.2/33.2	14.4	14.3	14.1	13.8	13.6	13.5	13.2	13.0	12.6
36.0									13.4/35.9	13.1	13.0	12.7	12.4	12.3	12.0	11.8	11.4
38.0										12.1	12.0	11.7	11.4	11.3	11.0	10.8	10.4
40.0										11.9/38.5	11.1	10.7	10.5	10.4	10.1	9.9	9.5
42.0											10.6/41.2	9.9	9.7	9.6	9.3	9.0	8.7
44.0												9.3/43.8	9.0	8.8	8.5	8.3	7.9
46.0													8.3	8.2	7.9	7.6	7.2
48.0													8.2/46.5	7.6	7.3	7.0	6.6
50.0														7.3/49.1	6.7	6.5	6.1
52.0															6.3/51.7	6.0	5.5
54.0																5.5	5.1
56.0																5.4/54.4	4.9
58.0																	4.8/57.0
60.0																	3.8/59.7
62.0																	
64.0																	
66.0																	
No. of part line	13	13	11	11	11	10	8	8	7	6	6	6	5	5	5	4	4

(ECP00146B/147B)

w/Std. Counterweight & LWC Att. – w/o Boom Live Mast

Boom length (m) Working radius (m)	18.30	21.35	24.40	27.45	30.50	33.55	36.60	39.65	42.70	45.75	48.80	51.85	54.90	57.95	61.00	64.05	67.10
5.0	150.0																
5.5	148.0	140.6/5.6															
6.0	146.0	138.8	130.0/6.1														
6.5	144.1	135.9	130.0	122.6/6.6													
7.0	136.6	133.5	129.7	120.9	112.2/7.2	100.0/7.7											
8.0	112.6	112.5	112.5	112.5	109.3	100.0/8.6	90.0/8.2	88.9/8.7									
9.0	101.3	101.0	100.7	100.4	95.4	95.0	90.0	88.1	80.0/9.5	75.0/9.8							
10.0	90.7	89.7	88.7	88.4	88.2	88.2	88.0	82.0	79.4	75.0/10.7	70.8/10.3	66.1/10.9	61.9/11.4	57.9/11.9			
12.0	72.3	72.2	72.0	71.9	71.7	71.9	71.7	71.6	71.5	69.0	64.0	60.4	60.3	57.7	53.5/12.5	47.0/13.0	41.6/13.5
14.0	59.7	59.5	59.3	59.2	59.0	59.0	59.0	58.8	58.7	58.6	58.4	57.5	53.5	49.5	48.0	44.2	41.2
16.0	49.6	49.5	49.4	49.3	49.3	49.3	49.3	49.0	48.9	48.9	48.6	48.4	48.4	44.5	43.7	40.3	39.4
18.0	43.3/17.4	42.8	42.6	42.4	42.2	42.2	42.2	41.9	41.8	41.7	41.5	41.2	41.2	40.2	40.0	38.0	35.0
20.0		37.4	37.1	37.0	36.7	36.7	36.7	36.4	36.3	36.2	36.0	35.7	35.7	35.4	35.2	35.2	33.0
22.0			32.9	32.7	32.4	32.4	32.4	32.1	32.0	31.9	31.6	31.4	31.3	31.1	30.8	30.8	30.5
24.0			31.6/22.7	29.2	28.9	28.9	28.9	28.6	28.5	28.4	28.1	27.9	27.8	27.5	27.3	27.2	27.0
26.0				27.3/25.3	26.1	26.1	26.0	25.7	25.6	25.5	25.2	25.0	24.9	24.6	24.4	24.3	24.1
28.0					23.7	23.7	23.6	23.3	23.1	23.0	22.7	22.5	22.4	22.1	21.9	21.9	21.6
30.0						21.6	21.5	21.2	21.1	20.9	20.7	20.4	20.3	20.1	19.8	19.8	19.5
32.0							21.1/30.6	19.8	19.4	19.3	19.2	18.9	18.6	18.5	18.3	18.0	17.7
34.0								18.8/33.2	17.9	17.7	17.6	17.3	17.1	17.0	16.7	16.5	16.1
36.0									16.6/35.9	16.4	16.2	15.9	15.7	15.6	15.3	15.1	14.7
38.0										15.2	15.0	14.7	14.5	14.4	14.1	13.9	13.5
40.0										14.9/38.5	14.0	13.7	13.4	13.3	13.0	12.8	12.4
42.0											13.4/41.2	12.7	12.5	12.3	12.0	11.8	11.4
44.0												11.9/43.8	11.6	11.5	11.2	10.9	10.5
46.0													10.8	10.7	10.4	10.1	9.7
48.0													10.7/46.5	10.0	9.7	9.4	9.0
50.0														9.6/49.1	9.0	8.8	8.4
52.0															8.5/51.7	8.2	7.7
54.0																7.6	7.2
56.0																7.5/54.4	6.7
58.0																	6.8/57.0
60.0																	5.2/59.7
62.0																	
64.0																	
66.0																	
No. of part line	13	13	11	11	11	10	8	8	7	6	6	6	5	5	5	4	4

(ECP00157B/158B)

Note:

The LWC attachment can perform about 27% greater lifting crane capacity than that of standard counterweight throughout the most widely used working range under boom length from 18.30m through 85.40m by means of adding counterweights of 12.0 ton for upper and 18.0 ton for undercarriage onto standard unit with no other specification changes for crane boom and so on. Thus, the unit with LWC attachment can realize bigger lifting capacities as almost same as those of a 230 ton class crawler crane.

■ w/Std. Counterweight – w/Boom Live Mast

Boom length (m) Working radius (m)	48.80	51.85	54.90	57.95	61.00	64.05	67.10	70.15	73.20	76.25	79.30	82.35	85.40
5.0													
5.5													
6.0													
6.5													
7.0													
8.0													
9.0													
10.0	75.0/10.3	71.0/10.9	66.5/11.4	62.0/11.9									
12.0	62.0	61.9	61.7	61.7	58.0/12.5	53.9/13.0	47.6/13.5						
14.0	49.8	49.6	49.5	49.4	49.2	49.1	47.3	42.5	37.7/14.6	33.9/15.1	30.4/15.6		
16.0	41.3	41.1	40.9	40.9	40.7	40.5	40.5	40.3	36.8	33.4	30.1	27.3/16.2	24.1/16.8
18.0	35.1	34.9	34.7	34.6	34.4	34.2	34.2	34.0	34.0	32.3	29.2	26.4	23.5
20.0	30.3	30.1	29.9	29.8	29.6	29.4	29.3	29.1	29.1	29.1	27.4	24.8	21.8
22.0	26.5	26.3	26.1	26.0	25.8	25.6	25.5	25.3	25.3	25.3	25.1	22.6	19.9
24.0	23.4	23.2	23.0	22.9	22.7	22.5	22.4	22.2	22.2	22.2	22.0	20.7	18.2
26.0	20.9	20.7	20.5	20.4	20.2	20.0	19.9	19.7	19.6	19.6	19.4	19.1	16.7
28.0	18.8	18.6	18.4	18.2	18.0	17.8	17.7	17.5	17.5	17.5	17.2	17.0	15.3
30.0	17.0	16.8	16.6	16.4	16.2	16.0	15.9	15.7	15.7	15.6	15.4	15.2	14.1
32.0	15.4	15.2	15.0	14.8	14.6	14.4	14.3	14.1	14.1	14.1	13.8	13.6	13.0
34.0	14.0	13.8	13.6	13.5	13.3	13.1	12.9	12.7	12.7	12.7	12.4	12.2	12.0
36.0	12.9	12.7	12.4	12.3	12.1	11.9	11.7	11.5	11.5	11.5	11.2	11.0	11.0
38.0	11.8	11.6	11.4	11.2	11.0	10.8	10.7	10.5	10.4	10.4	10.1	9.9	9.9
40.0	10.9	10.7	10.5	10.3	10.1	9.9	9.7	9.5	9.4	9.4	9.2	9.0	8.9
42.0	10.1	9.8	9.6	9.4	9.2	9.0	8.9	8.6	8.6	8.6	8.3	8.1	8.1
44.0	9.4/43.8	9.1	8.9	8.7	8.5	8.2	8.1	7.9	7.8	7.8	7.5	7.3	7.3
46.0		8.4	8.2	8.0	7.8	7.6	7.4	7.2	7.1	7.1	6.8	6.6	6.6
48.0		8.3/46.5	7.6	7.4	7.2	6.9	6.8	6.5	6.5	6.5	6.2	6.0	5.9
50.0			7.3/49.1	6.8	6.6	6.4	6.2	6.0	5.9	5.9	5.6	5.4	5.3
52.0				6.4/51.7	6.1	5.8	5.7	5.4	5.4	5.3	5.1	4.8	4.6
54.0					5.6	5.4	5.2	5.0	4.9	4.8	4.6	4.3	4.0
56.0					5.5/54.4	4.9	4.7	4.5	4.4	4.4	4.1	3.8	3.5
58.0						4.7/57.0	4.3	4.1	4.0	3.9	3.5	3.3	3.0
60.0							3.9/59.7	3.6	3.4	3.4	3.1	2.8	2.5
62.0								3.2	3.0	3.0	2.6	2.4	
64.0								3.1/62.3	2.6	2.6			
66.0									2.4/64.9	2.2			
No. of part line	6	6	6	5	5	5	4	4	3	3	3	3	2

(ECP00148B)

■ w/Std. Counterweight & LWC Att. – w/Boom Live Mast

Boom length (m) Working radius (m)	48.80	51.85	54.90	57.95	61.00	64.05	67.10	70.15	73.20	76.25	79.30	82.35	85.40
5.0													
5.5													
6.0													
6.5													
7.0													
8.0													
9.0													
10.0	75.0/10.3	71.0/10.9	66.5/11.4	62.0/11.9									
12.0	69.0	64.0	61.7	61.7	58.0/12.5	53.9/13.0	47.6/13.5						
14.0	59.5	57.8	54.5	52.0	49.2	49.1	47.3	42.5	37.7/14.6	33.9/15.1	30.4/15.6		
16.0	49.5	49.4	49.2	49.1	44.5	42.0	41.0	40.3	36.8	33.4	30.1	27.3/16.2	24.1/16.8
18.0	42.2	42.0	41.8	41.8	41.6	41.4	40.5	37.0	34.5	32.3	29.2	26.4	23.5
20.0	36.6	36.4	36.2	36.1	35.9	35.7	35.7	34.5	32.0	29.5	27.4	24.8	21.8
22.0	32.1	32.0	31.8	31.7	31.5	31.3	31.2	30.0	29.9	27.1	25.1	22.6	19.9
24.0	28.5	28.4	28.2	28.0	27.8	27.6	27.6	27.4	27.3	25.9	23.1	20.7	18.2
26.0	25.6	25.4	25.2	25.1	24.9	24.6	24.6	24.3	24.3	24.0	21.3	19.1	16.7
28.0	23.1	22.9	22.7	22.5	22.3	22.1	22.0	21.8	21.8	21.8	19.7	17.6	15.3
30.0	20.9	20.7	20.5	20.4	20.2	20.0	19.9	19.7	19.6	19.6	18.2	16.2	14.1
32.0	19.1	18.9	18.7	18.6	18.4	18.1	18.0	17.8	17.8	17.8	16.9	15.0	13.0
34.0	17.5	17.3	17.1	17.0	16.7	16.5	16.4	16.2	16.2	16.1	15.7	13.9	12.0
36.0	16.1	15.9	15.7	15.6	15.3	15.1	15.0	14.8	14.7	14.7	14.5	12.9	11.1
38.0	14.9	14.7	14.5	14.3	14.1	13.9	13.7	13.5	13.5	13.5	13.2	11.9	10.2
40.0	13.8	13.6	13.4	13.2	13.0	12.8	12.6	12.4	12.4	12.3	12.1	11.1	9.5
42.0	12.8	12.6	12.4	12.2	12.0	11.8	11.6	11.4	11.4	11.3	11.1	10.3	8.7
44.0	12.0/43.8	11.7	11.5	11.3	11.1	10.9	10.7	10.5	10.4	10.4	10.2	9.6	8.1
46.0		10.9	10.7	10.5	10.3	10.1	9.9	9.7	9.6	9.6	9.3	8.9	7.5
48.0		10.7/46.5	10.0	9.8	9.5	9.3	9.2	8.9	8.9	8.8	8.6	8.2	6.9
50.0			9.6/49.1	9.1	8.9	8.7	8.5	8.3	8.2	8.2	7.9	7.7	6.3
52.0				8.6/51.7	8.3	8.0	7.9	7.6	7.6	7.5	7.3	7.0	5.8
54.0					7.7	7.5	7.3	7.1	7.0	7.0	6.7	6.5	5.4
56.0					7.6/54.4	7.0	6.8	6.6	6.5	6.4	6.2	5.9	4.9
58.0						6.7/57.0	6.3	6.1	6.0	5.9	5.7	5.4	4.5
60.0							5.9/59.7	5.6	5.5	5.2	5.2	5.0	4.1
62.0								5.2	5.1	5.1	4.8	4.6	3.7
64.0								5.1/62.3	4.7	4.7	4.3	4.1	3.4
66.0									4.5/64.9	4.2	3.9	3.6	3.0
No. of part line	6	6	6	5	5	5	4	4	3	3	3	3	2

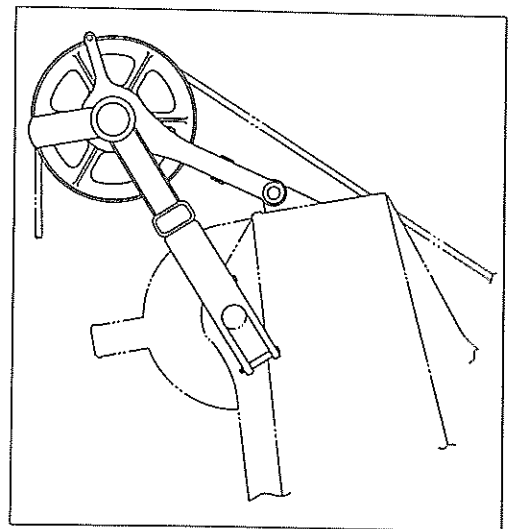
(ECP00159B)

Notes — Lifterane capacities

1. Capacities included in this chart are the maximum allowable, and are based on machine standing level on firm supporting surface under ideal job conditions.
2. Capacities are in metric tons, and are not more than 78% of minimum tipping loads except the figures surrounded by bold lines which are based on other factor of machine structural limitation.
3. Capacities shown in range of boom length from 18.30m thru 30.50m are under a condition of "with two hanger sheaves"; capacities mentioned for boom length from 33.55m to 85.40m are under no two hanger sheaves condition. In condition of "without two hanger sheaves" in boom length from 18.30m thru 30.50m, max. capacity is 100ton (at working radius up to 8.6m for std. counterweight, or 9.0m for std. counterweight & LWC att.), and it all succeeds the figures of over 100ton.
4. Capacities are based on freely suspended loads and make no allowance for such factors as the effect of wind, sudden stopping of loads, supporting surface conditions, and operating speeds. Operator must reduce load ratings to take such conditions into account. Deduction from rated capacities must be made for weight of hook block, weighted ball/hook, sling, spreader bar, or other suspended gear.
SUMITOMO's hook block weight is as follows:
150t 2.6t 100t 2.2t 80t 1.4t
35t 0.9t 13.5t 0.5t
5. All capacities are rated for 360° swing.
6. Least stable rated condition is over the side.
7. Boom live mast is required when boom length is 70.15m or longer; this boom live mast is also available in range of boom length from 48.80m thru 67.10m for upgarding the capacities.
8. Attachment must be erected and lowered over the ends of the crawler mounting. When boom length is 85.40m or longer, and/or when mounting 30.50m fly jib on 64.05m boom, and/or mounting fly jib from 12.20m thru 30.50m on boom from 67.10m thru 73.20m, two steel blocks be placed under track idler wheels each of the crawler are required for lifting off ground the attachment without any outside assistance.
9. Main boom length must not exceed 85.40m.
Maximum fly jib length permitted—30.50m.
Maximum boom and fly jib combination length permitted—73.20m boom plus 30.50m fly jib.
10. Capacities when handling load off main boom head sheaves in case of mounting fly jib or auxiliary short jib on top of boom are detailed; if required, please consult us or nearest distributor.
11. Boom combination shall be in accordance with manufacture's standard described in "Boom Combination Diagram". In configuration of boom combination, it is required to just position heavy-duty boom extensions on to the 7.625m bottom section before a 12.20m light-dury boom extension in boom lenght from 76.25m to 85.40m.
12. Capacities apply only to machine as originally manufactured and normally equipped by Sumitomo (S.H.I.) Construction machinery Co., Ltd.

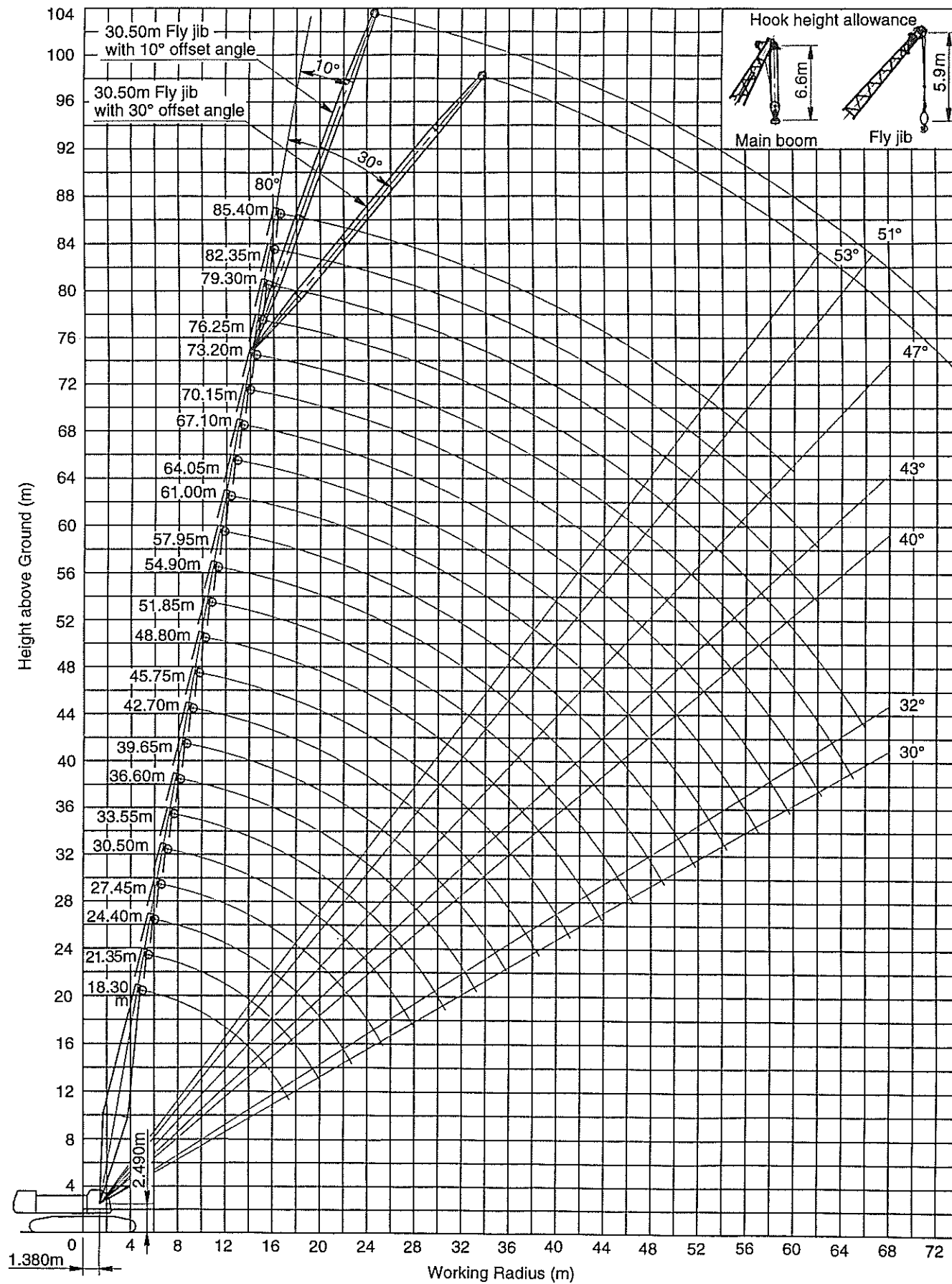
SC1500-2 AUXILIARY SHORT JIB CAPACITIES: Max. 13.5ton

Note: Jib capacities is almost equal to the figures made by the deduction of an 800kg from the lifterane capacities for boom length up to 82.35m unless restricted by the maximum jib capacity shown above. As to the details, please consult us or nearest distributor.



Auxiliary short jib (Option)

Liftcrane Working Ranges



Boom Combination Diagram

Boom length (m)	Boom combination
18.30	B T
21.35	B 3H T
24.40	B 3H 3H T
27.45	B 3H 6H T
30.50	B 3H 3H 6H T
33.55	B 3H 3H 9H T
36.60	B 3H 6H 9H T
39.65	B 3H 3H 6H 9H T
42.70	B 3H 3H 9H 9H T
45.75	B 3H 6H 9H 9H T
48.80	B 3H 3H 6H 9H 9H T
51.85	B 3H 3H 9H 9H 9H T
54.90	B 3H 6H 9H 9H 9H T
57.95	B 3H 3H 6H 9H 9H 9H T
61.00	B 3H 3H 9H 9H 9H 9H T
64.05	B 3H 6H 9H 9H 9H 9H T
67.10	B 3H 3H 6H 9H 9H 9H T
70.15	B 3H 6H 6H 9H 9H 9H 9H T
73.20	B 3H 6H 9H 9H 9H 9H 9H T
76.25	B 3H 6H 9H 9H 9H 9H 12L T
79.30	B 3H 3H 6H 9H 9H 9H 9H 12L T
82.35	B 3H 6H 6H 9H 9H 9H 9H 12L T
85.40	B 3H 6H 9H 9H 9H 9H 9H 12L T

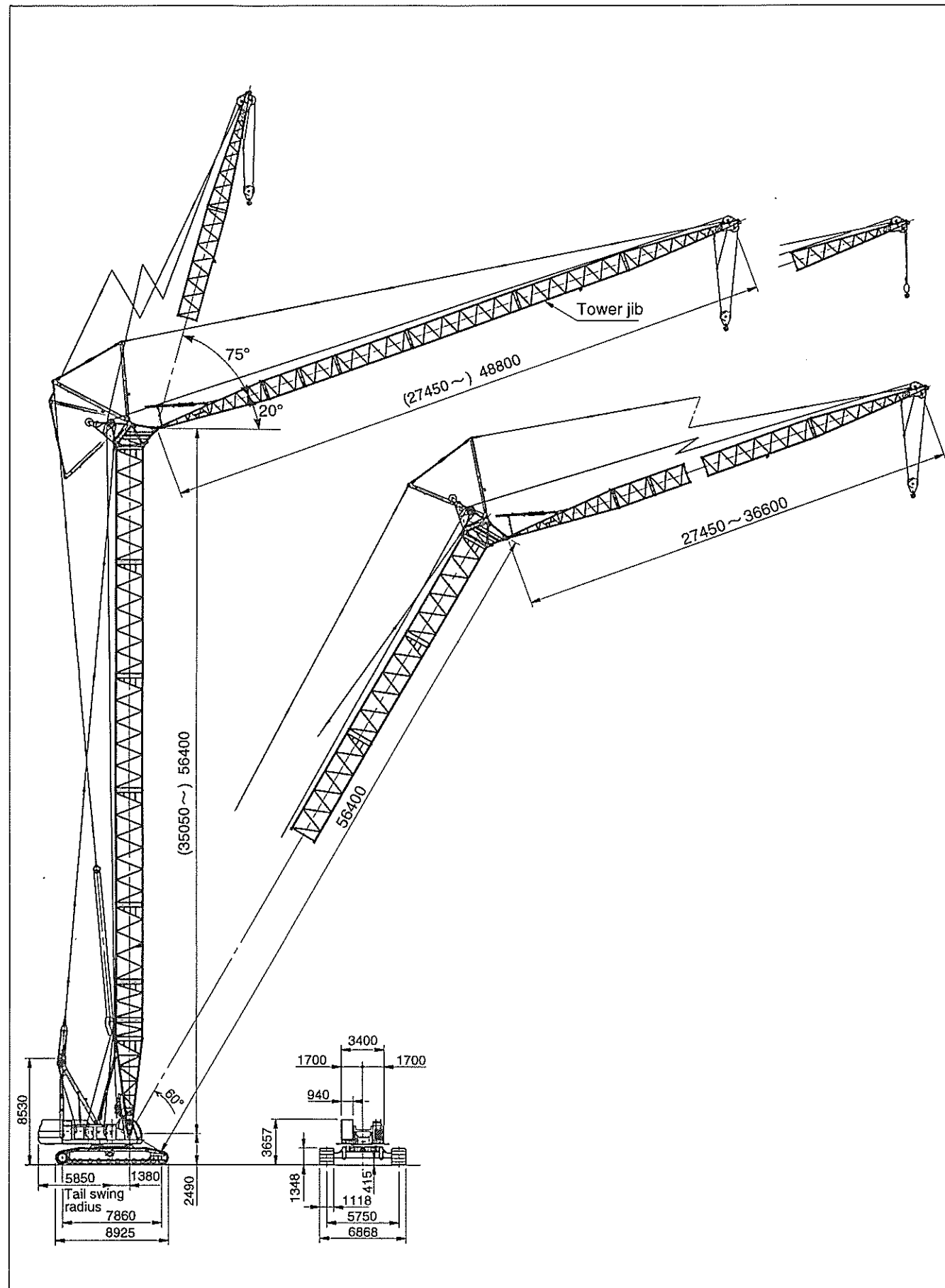
Note:

The meaning of figures and symbols shown above are as follows:

- : 12.20m light-duty boom extension
- : 9.15m heavy-duty boom extension
- : 6.10m heavy-duty boom extension
- : 3.05m heavy-duty boom extension
- : 10.675m tapered top section
- : 7.625m bottom section
- : Boom live mast; certainly required when boom length is over 70.15m, or available from 48.80m boom. Also, this mast is certainly required in a case of mounting fly jib of 12.20m thru 30.50m on main boom from 70.15m thru 73.20m, or available from 48.80m boom in such a case.
- : Boom guyline cables installing position; the boom guyline cables are required for fly jib attachment which can be mounted on boom from 36.60m up to 73.20m.

Luffing Towercrane General Arrangement

Luffing Towercrane 25 metric tons



TOWER BOOM:

- Lattice construction, round tubular main chords, alloy, hi-ten steel, with bracing of round steel tubing.
- Tower boom connections In-line pin connections at 2.1m deep and 2.1m wide.
- Special tower boom extension 1.525m long, lattice construction; available only for tower boom. This mounts tower jib bail assembly on upper part, and just pinned next to 7.625m bottom section.
- Tower head section 1.500m long, lattice construction; pinned on top of tower boom. This section pins tower jib and fan-shaped post, and provides two guide sheaves for hoist cable and two guide rollers for tower jib hoist pendant ropes.
- Maximum tower boom length 56.40m
- Tower boom luffing angle Available from 90° thru 60° steplessly.

*Tower boom extensions of 3.05m, 6.10m and 9.15m long, and boom bottom section of 7.625m long as necessary other than the above for completing the tower boom are available from heavy-duty boom extensions and bottom section of the CRANE BOOM mentioned in to "Crane 150metric tons".

TOWER JIB:

- Lattice construction, round tubular main chords, alloy hi-ten steel, with bracing of round steel tubing.
- Tower jib connections In-line pin connections at 1.55m deep and 1.55m wide.
- Basic tower jib Three-piece, 27.45m basic length; 9.15m bottom section, one 9.15m extension and 9.15m tower jib top section.
- Tower jib top head machinery Single head and guide sheaves mounted on anti-friction bearings.
- Tower jib extensions Available in 3.05m, 6.10m and 9.15m lengths with pendants.
- Maximum tower jib length 48.80m.
- Maximum tower boom plus jib length 56.40m + 48.80m.
- Tower jib angle Available from 15° thru 75° (to ground).

TOWER POST:

All-welded construction; pinned to tower head section. This serves as mechanical connection for tower jib hoisting and lowering motions.

TOWER JIB BAIL AND BRIDLE:

All-welded construction; provided with larger sheaves of a 21.4 D/d ratio on both bail and bridle for 10-part tower jib hoist rope reeving. Bail mounted on an 1.525m special tower boom extension, and bridle suspended between a 10-part tower jib hoist rope and pendant ropes connecting to tower post.

HOOK BLOCKS:

Both 25ton hook block and 13.5ton ball hook to be necessary for luffing towercrane operation are available from 35ton hook block and 13.5ton ball hook of the HOOK BLOCKS mentioned in to "Crane 150metric tons".

DRUM DATA:

Drum	Root dia.	Type	Line speed (Hoisting, Lowering)	Cable
Front (aux. crane hoist)	571mm	Parallel grooved	100 ~ 2mpm	28mm
Rear (towercrane hoist)	571mm	Parallel grooved	100 ~ 2mpm	28mm
Boom hoist (tower boom hoist)	504mm	Parallel grooved	(23~1mpm) × 2-line	22.4mm
Third (tower jib hoist)	526mm	Parallel grooved	60 ~ 2mpm	22.4mm

Notes:

1. Line speed is based on drum first layer and rated engine rpm.
2. Hoisting line speed varies under load and operating conditions.

Luffing Towercrane Capacities

HOIST REEVING:

	Towercrane hoist	
No. of part line	2	1
Max. load (ton)	25.0	13.5

CABLES:

- For front drum.....No cable for luffing towercrane operation.
- For rear drum.....Sraf Nuflex rope with construction of "SS19+39x7", spin-resistant type, 28mm dia./350m long, breaking load 77.0ton.
- For boom hoist drum.....Sraf rope with construction of "IWRC 6xWS (31)", 22.4mm dia./310m long, breaking load 42.5ton.
- For third drum.....Sraf rope with construction of "IWRC 6xWS (31)", 22.4mm dia./205m long, breaking load 42.5ton.

WORKING WEIGHT:

With 56.40m tower boom, 48.80m tower jib 64.9ton counterweight, 1,118mm wide track shoes and 25t hook block: Approx. 187.0ton.

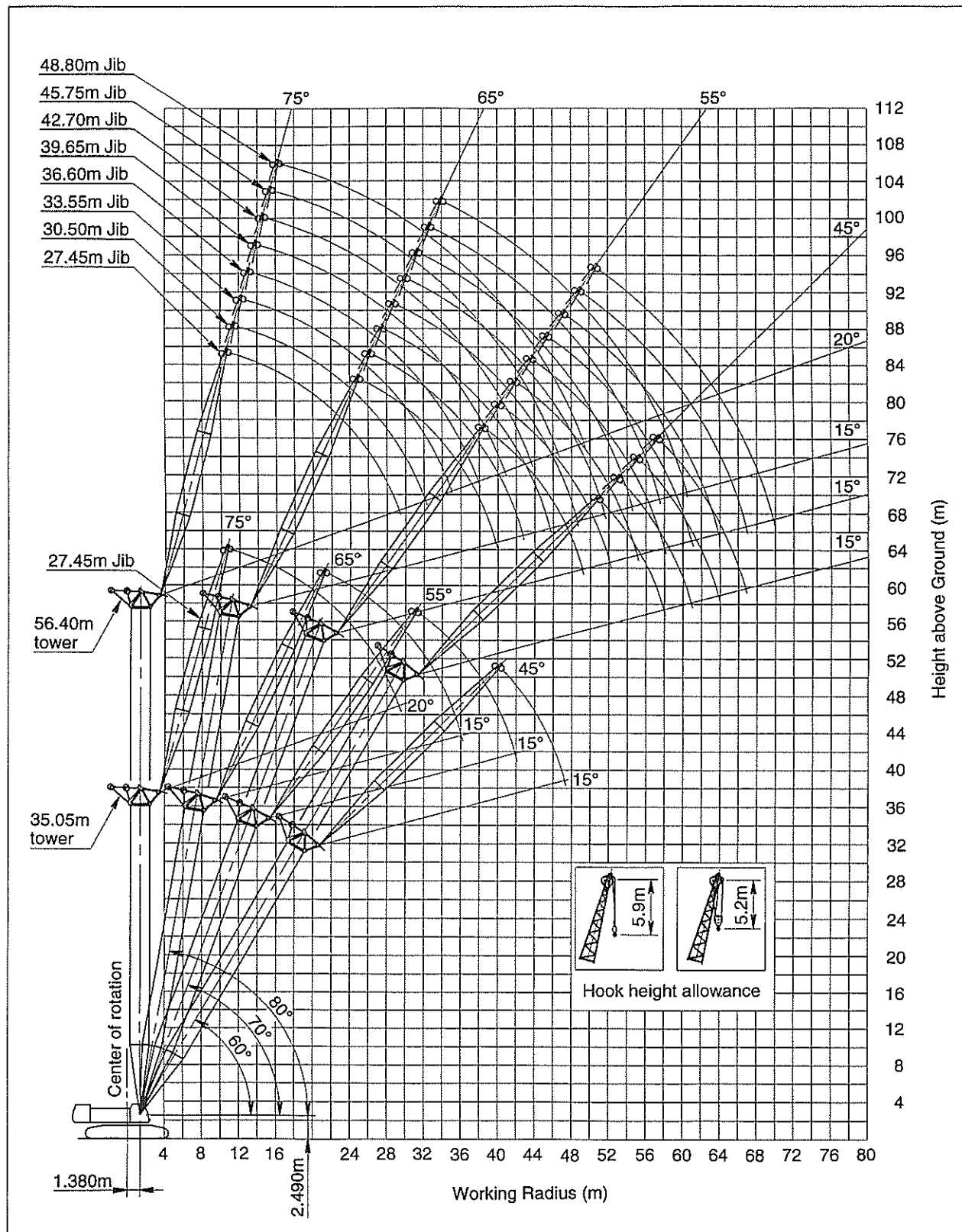
GROUND PRESSURE:

99.0kPa <1.01kg/cm²> under a 187.0ton working weight mentioned above.

■ w/35.05m Tower

Tower length (m)	35.05															
	27.45								30.50							
	90		80		70		60		90		80		70		60	
No. of part line	2-part	1-part	2-part	1-part	2-part	1-part	2-part	1-part	2-part	1-part	2-part	1-part	2-part	1-part	2-part	1-part
Working radius (m)																
10.8	25.0	13.5/11.3								22.7/11.6						
12.0	25.0/12.6	13.5								22.7	13.5/12.1					
14.0	24.3	13.5								22.1	13.5					
16.0	21.6	13.5								21.5	13.5					
18.0	19.5	13.5								19.5	13.5					
20.0	17.6	13.5	17.3/21.2	13.5/21.8						17.6	13.5					
22.0	16.0	13.5	16.8	13.5						16.0	13.5	16.3/22.5	13.5/23.1			
24.0	14.5	13.5/25.5	15.2	13.5						14.5	13.5/25.5	15.2	13.5			
26.0	13.2	13.2	13.8	13.5/26.4						13.2	13.2	13.8	13.5/26.4			
28.0	11.9	11.9	12.5	12.5						11.9	11.9	12.5	12.5			
30.0	11.2/28.7	11.0/29.7	11.4	11.4	10.6/31.0	10.3/31.8				10.9	10.9	11.4	11.4			
32.0			10.5	10.5	10.3	10.3				9.6/31.6	9.6	10.5	10.5	10.0/32.8	9.7/33.5	
34.0			9.7	9.7	9.5	9.5					9.5/32.6	9.7	9.7	9.5	9.5	
36.0			9.2/35.4	9.0	8.8	8.8						9.0	9.0	8.8	8.8	
38.0				8.9/36.4	8.1	8.1	7.3/39.9					8.3	8.3	8.1	8.1	
40.0					7.4	7.4	7.3	7.1/40.8				8.0/38.4	7.9/39.4	7.4	7.4	
42.0						7.0/41.2	6.9	6.9	6.9					6.9	6.9	6.8/42.1
44.0							6.9/42.2	6.3	6.3					6.3	6.3	6.3
46.0								5.9	5.9					6.2/44.2	6.1/45.2	5.9
48.0									5.8/46.6	5.7/47.6						5.5
50.0																5.1/49.6
50.6																5.0

Luffing Towercrane Working Ranges



Tower Boom and Jib Combination Table

Combination Table

Jib length (m)	27.45	30.50	33.55	36.60	39.65	42.70	45.75	48.80
Tower length (m)								
35.05	⊙	⊙	×	×	×	×	×	×
38.10	⊙	⊙	⊙	×	×	×	×	×
41.15	⊙	⊙	⊙	⊙	×	×	×	×
44.20	⊙	⊙	⊙	⊙	⊙	×	×	×
47.25	⊙	⊙	⊙	⊙	⊙	⊙	×	×
50.30	⊙	⊙	⊙	⊙	⊙	⊙	⊙	×
53.35	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
56.40	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

Note:

The meaning of symbols shown in the above table is as follows;

1. Symbol of "⊙": Possible to luff tower between 90° thru 60°;
2. Symbol of "⊙": Possible to luff tower between 90° thru 70°;
3. Symbol of "×": Impossible to make any of tower boom and jib combination.

Tower Boom Configuration

⊙ B 3 3 9 9 H	35.05m
⊙ B 3 6 9 9 H	38.10m
⊙ B 3 3 6 9 9 H	41.15m
⊙ B 3 3 9 9 9 H	44.20m
⊙ B 3 6 9 9 9 H	47.25m
⊙ B 3 3 6 9 9 9 H	50.35m
⊙ B 3 3 9 9 9 9 H	53.35m
⊙ B 3 6 9 9 9 9 H	56.40m

Note:

The meaning of figures and symbols shown above is as follows:

- 9 : 9.15m tower boom extension
- 6 : 6.10m tower boom extension
- 3 : 3.05m tower boom extension
- C : 1.525m special boom extension
- H : 1.5m tower head section
- B : 7.625m tower bottom section

Tower Jib Configuration

⊙ B 9 T	27.45m
⊙ B 3 9 T	30.50m
⊙ B 3 3 9 T	33.55m
⊙ B 3 6 9 T	36.60m
⊙ B 3 3 6 9 T	39.65m
⊙ B 3 3 9 9 T	42.70m
⊙ B 3 6 9 9 T	45.75m
⊙ B 3 3 6 9 9 T	48.80m

Note:

The meaning of figures and symbols shown above is as follows:

- 9 : 9.15m tower jib extension
- 6 : 6.10m tower jib extension
- 3 : 3.05m tower jib extension
- T : 9.15 tower jib top section
- B : 9.15m tower jib bottom section

Standard and Optional Equipment

	Standard equipment	Optional equipment
Superstructure	<ul style="list-style-type: none"> • Hino K13C-TJ diesel engine with a 235kW <320ps> rated output; • Hydraulic system with three variable displacement axial piston pumps and one fixed displacement duplicate tandem gear pump; • Control system with one each of single, duplicate and triplicate tandem valves and floor type control levers; • Motorcycle type "SC" controller (easy-precise-minute engine rpm and hyd. pump oil flow control device); • Front and rear main operating drum winches of 22.7ton line pull with 571mm dia. drum lagging driven by independent variable hyd. motor with independent hyd. circuit; provided with external contracting band brake capable of two functions of automatic and free-fall mode, with hyd. booster; • Hydrostatic boom hoist mechanism driven by two hyd. motors with automatic brake; provided with twin drum; • Hydrostatic swing mechanism with turntable bearing; driven by two hyd. motors w/manually controlled multiple wet-disc brake; • Power hydraulically retractable A-frame gantry; • All new stamped, automotive type, full-vision operator's cab with large curved front window; provided with an arrangement of control system and instrument panel; • 64.9ton counterweight; • Machinery cab with hinged doors; • Catwalk along both sides of machinery cab; • 24-volt electrical system with two 12-volt batteries; • Lighting system: <ul style="list-style-type: none"> • Two 60W working lights; • One 15W interior cab light; • Accessories: <ul style="list-style-type: none"> • Built-in type full air-conditioning; • Engine monitoring lamps; • Engine tachometer; • Fuel gauge; • Thermometer; • Hyd. oil temp. gauge; • Pilot line pressure gauge; • Foot throttle; • Intermittent window shield wipers with washers; • Rear view mirrors; • Re-fuel pump; • Cigar lighter; • Ash tray; • Book holder; • Sunvisor; • Sunshade; • Cup Holder; • Non-skid surfaces; • Cab front step; • Cab floor mat; • Superstructure under-cover; • Crawler side frame lifting tools; • Carbody axle beam lifting tools; • A-frame gantry lifting tackles; • Carbody jack-up cyl. lifting tackles; • Cable handling tackles; • Std. spare parts and tools. 	<ul style="list-style-type: none"> • 12ton add. counterweight (as one of LWC att.); • Hydraulic tagline winder; • Wire reeving winch; • Anemometer; recommended for tower crane operation; • Pump balancer; • Constant swing speed mechanism; • Disc type swing brake; • Drum rollers; • Stone guard; this is for operator's cab; • Fire extinguisher; • AM/FM radio w/clock.

	Standard equipment	Optional equipment
Undercarriage	<ul style="list-style-type: none"> • 5,750mm gauge by 8,925mm long crawler lower with removable side frames and axle beams; • Hydrostatic crawler drive units with shoe-in type 2-speed traction motor with wet-disc type automatic brakes; • 1,118mm wide track shoes; • Lifetime lubricated track components; • Crawler side steps; • Hyd. pin placement unit. 	<ul style="list-style-type: none"> • Carbody jack-up device w/4-vertical hyd. jack-up cylinder and remote control unit; • Side frame removal cylinders; • 18ton carbody weight (as the other one of LWC att.); • Two steel blocks; necessary when boom length is 85.40m or longer, and/or when mounting 30.50m fly jib on 64.05m boom, and/or mounting fly jib from 12.20m thru 30.50m on boom from 67.10m thru 73.20m, and/or when mounting tower jib from 27.45m thru 48.80m on 56.40m tower for self-erection;
Liftcrane Att.	<ul style="list-style-type: none"> • 18.30m basic crane boom; 7.625m bottom section and 10.675m tapered crane top section w/five head and two guide sheaves; • Bail and bridle assemblies; • Main crane hoist cable; 28mm dia./410m long; • Boom hoist cable; 22.4mm dia./310m long. 	<ul style="list-style-type: none"> • 3.05m heavy-duty boom extension; • 6.10m heavy-duty boom extension; • 9.15m heavy-duty boom extension; • 12.20m light-duty boom extension; • 12.20m basic fly jib; 6.10m bottom and top sections with strut and guyline pendants; • 6.10m fly jib extension; • Boom live mast; necessary when boom length is 70.15m or longer, and/or when mounting fly jib of 12.20m thru 30.50m on boom of 70.15m and 73.20m; this is also available from 48.80m boom in both cases; • Auxiliary short jib; • 150ton hook block; • 100ton hook block; available from 150ton hook block; • 80ton hook block; • 35ton hook block; • 13.5ton ball hook; • Two hanger sheaves; required in a case of 150ton lift together with 150ton hook block; • Aux. crane hoist cable, 28mm dia./350m long; • Boom skywalk; available for boom extensions.

	Standard equipment	Optional equipment
Luffing Towercrane Att.		<ul style="list-style-type: none"> ● 1.5m tower head section; provided with rope guide sheave and tower jib hoist pendant cable guide rollers; ● 1.525m special tower boom extension; ● Fan-shaped post; ● 27.45m basic tower jib; 9.15m bottom section, one 9.15m extension and 9.15m top section; ● 3.05m tower jib extension; ● 6.10m tower jib extension; ● 9.15m tower jib extension; ● Hydrostatic third drum winch mechanism with automatic brake; ● Third drum winch cable, 22.4mm dia./205m long; ● Tower jib hoist bail and bridle assemblies; ● Towercrane hoist cable, 28mm dia./350m (as same as optional aux. crane hoist cable of 28mm dia./350m long of liftcrane att.); ● 35ton hook block (as same as optional 35ton hook block of liftcrane att.); <p>Note: Boom bottom section of 7.625m long and boom extensions of 3.05m, 6.10m and 9.15m long for both liftcrane and luffing towercrane attachments are common each other.</p>
Safety Devices	<ul style="list-style-type: none"> ● SUMITOMO SML-06 Load Moment Limiter; this is a computerized automatic over-load preventing system with an all-machine-control purpose computer; ● Eight kinds of annunciating alarms; ● Main and aux. drum pawl locks; ● Boom hoist drum pawl lock (w/automatic pawl-locking device); ● Swing lock; ● Swing alarm; ● Hook over-hoist limiting device; ● Boom over-hoist and -lowering limiting device; ● Dual boom over-hoist limiting device; ● Boom backstops; ● Boom live mast limit switch; ● Speed slowdown device; ● Boom angle indicator; ● Level gauge; fitted on both floor of operator's cab, and on carbody axle beam; ● Swing brake lamp; ● Signal horn; ● Travel alarm; ● Hook latch; ● Control lever locks; ● Fool proof shut-off system; ● Key lock mode selector switch. 	<ul style="list-style-type: none"> ● Annunciating swing alarm; ● Aux. hook over-hoist limiting device; ● Lifting height meter; ● Three color percentage indicator; ● Radiophone; ● Microphone & loud-speaker; ● Drum light & mirror. <p>Followings are standard in case of luffing tower-crane attachment:</p> <ul style="list-style-type: none"> ● Tower jib angle detector; ● Towercrane load detector; ● Tower jib hook over-hoist limiting device; ● Tower jib over-hoist and -lowering limiting device; ● Towercrane att. self-erection mode (Patent applied); ● Fan-shaped post limit switch; ● Third drum pawl lock (w/automatic pawl-locking device); ● Tower jib backstops; ● Dual tower jib over-hoist limiting device.

Transport Data

	Description	Q'ty	Dimensions L x W x H (cm)	Net weight (kg)
Basic machine	Basic machine (w/carbody frame)	1	3400 x 3041 x 7950	31600
	Crawler side frame	2	@1500 x 1350 x 8925	@19700/39400
	Crawler axle beam	2	@660 x 900 x 5970	@5400/10800
	Counterweight "A"	1	3400 x 590 x 1940	18500
	Counterweight "B"	1	3400 x 570 x 2190	17300
	Counterweight "C"	1	860 x 970 x 1880	8300
	Counterweight "D"	1	980 x 970 x 1900	9800
	Counterweight "E"	1	1160 x 790 x 2190	11000
	Carbody jack-up cyl.	4	@450 x 1070 x 670	@450/1800
Liftcrane attachment	Bottom sect. (w/backstops)	1	2270 x 2500 x 7960	3800
	Top sect. (w/pendant ropes)	1	2270 x 2340 x 11300	3400
	3.05m ext. (w/pendant ropes)	1	2270 x 2320 x 3210	900
	6.10m ext. (w/pendant ropes)	1	2270 x 2320 x 6260	1400
	9.15m ext. (w/pendant ropes)	1	2270 x 2320 x 9310	1900
	12.20m ext. (w/pendant ropes)	1	2270 x 2320 x 12360	2200
	Fly jib upper sect.	1	988 x 888 x 6519	500
	Fly jib lower sect. (w/strut and backstops)	1	974 x 1272 x 6227	500
	6.10m fly jib ext.	1	988 x 836 x 6174	300
	150t hook block	1	1550 x 880 x 2887	2600
	100t hook block	1	780 x 880 x 2162	2200
	80t hook block	1	520 x 840 x 2145	1400
	35/25/15t hook block	1	354 x 840 x 1606	900
	13.5t ball hook	1	φ 420 x 1286	500
	Aux. short jib	1	985 x 700 x 1555	300
	A-frame gantry	1	1640 x 2300 x 5760	4000
	Bail ass'y	1	1300 x 600 x 1250	800
	Bridle ass'y	1	1460 x 550 x 1060	800
	Boom hoist rope	1	φ 22.4 x 310000	700
	Main crane hoist rope	1	φ 28 x 410000	1400
Boom live mast	1	1520 x 1090 x 11000	2500	
Luffing towercrane attachment	3.05m ext. (w/pendant ropes)	1	2270 x 2320 x 3210	900
	6.10m ext. (w/pendant ropes)	1	2270 x 2320 x 6260	1400
	9.15m ext. (w/pendant ropes)	1	2270 x 2320 x 9310	1900
	Tower head sect.	1	2225 x 2286 x 3609	1700
	Roller bracket	1	1080 x 1928 x 2972	400
	1.5m special ext. (w/pendant ropes)	1	2240 x 2428 x 1677	800
	Fan-shaped post	1	2270 x 1077 x 6957	1700
	Tower jib top sect.	1	1643 x 1694 x 9878	2000
	Tower jib bottom sect.	1	1674 x 1737 x 9664	2000
	3.05m jib ext. (w/pendant ropes)	1	2240 x 2252 x 3202	300
	6.10m jib ext. (w/pendant ropes)	1	2240 x 2252 x 6252	600
	9.15m jib ext. (w/pendant ropes)	1	2240 x 2252 x 9302	800
	Tower jib bridle and bail	1	1112 x 806 x 2839	1300
	Tower jib catch	1	345 x 632 x 2334	200
	3rd drum unit	1	1164 x 1011 x 1967	1400
Tower jib hoist rope	1	φ 22.4 x 205000	500	
LWC att.	Add. counterweight "F"	1	860 x 660 x 1875	5600
	Add. counterweight "G"	1	980 x 660 x 1895	6400
	Carbody weight	2	@1995 x 720 x 1600	@9000/18000