STERLING CRANE

LIFTING CHARTS - Crawler Cranes

KOBELCO MODEL CK1600-II - 160 TON CAPACITY

The Kobelco CK1600-II Crawler Crane is designed from the ground up for reliable operation, convenient maintenance and easy transport.
Please consult your Kobelco distributor for additional information regarding specifications, operating parameters and maintenance requirements.

1. GENERAL DESCRIPTION

Type Crawler mounted, fully revolving
Maximum lifting capacity 320,000 lbs (145,200 kg)
(at 15' operating radius, with 50' boom)
Basic boom length 50' (15.2 m)
Maximum boom length 250' (76.2 m)
Maximum boom & jib length
200' + 100' (61.0 m + 30.5 m)

2. GENERAL DIMENSIONS

Height to top of cab 11' 9" (3.57 m)
Width of upper machine with operator's cab
10' 6" (3.20 m)
Radius of rear end (counterweight) 18' 1" (5.50 m)
Counterweight ground clearance 4' 5" (1.34 m)
Center of rotation to boom foot pin 4' 7" (1.40 m)
Height from ground to boom foot pin 8' 4" (2.53 m)
Height over gantry (raised) 25' 11" (7.89 m)
Overall length of crawler 25' 11" (7.89 m)
Center to center of tumblers 12' 7" (6.89 m)
Overall width of crawlers 21' 9" (6.62 m)
Shoe width 48" (1.22 m)
Ground clearance of carbody 19" (0.48 m)

3. WORKING WEIGHT

Type of Counterweight	Light	Standard
Working Weight	273,000 lbs (124,000 kg)	306,000 lbs (139,000 kg)
Ground Bearing Pressure	10.5 psi	11.7 psi
Gradeability	30%	30%

Calculations to determine working weight ground bearing pressue and gradeability include the weight of the base machine, 50' boom and hook block.

4. WORKING SPEED

Line speeds based on single line, no load and first layer of rope on the drum.

Hoist line speed (front and rear drum)
390 ~ 10 ft/min (120 ~ 3 m/min)
Lowering line speed (front and rear drum)
390 ~ 10 ft/min (120 ~ 3 m/min)
Boom hoist line speed
157 ~ 7 ft/min (48 ~ 2 m/min)
2 minutes: 250 ft (76.2 m) boom raise 0 to 80 degree
Boom lowering line speed
157 ~ 7 ft/min (48 ~ 2 m/min)
Swing speed 2.1 rpm (2.1 min^{-1})
Travel speed (High / Low) 0.81 / 0.56 mph
(1.3 / 0.9 km/hour)

5. UPPER MACHINERY

5.1 Power plant

Diesel engine, make and model
Hino P11C-UN (Comply with EPA "Tier 3")
No. of cylinders 6
Bore X stroke 4-13/32" X 5-29/32"
(122 mm X 150 mm)
Cycles 4
Total displacement 642 cu.in (10,520 cm^3)
Rated output SAE GROSS
331 HP / 2,000 rpm (247 kW / 2,000 min^{-1})
Maximum torque
959 lbs-ft / 1,500 rpm (1,300 Nm / 1,500 min^{-1})
Starter 24 Volts / 6.0 kW
Alternator 24 Volts / 50 Amp
Batteries
Two 12 volt, 136 AH capacity series connected.
Radiator
Corrugated type core, thermostatically controlled.
Throttle
Twist grip type hand throttle, electrically controlled.
Air cleaner Dry type with replaceable paper element.
Fuel tank capacity 106 US gal. (400 liters)
Lube oil filter
Full flow and by-pass type with spin off type cartridge.
Fuel filter Heavy duty with spin off type cartridge.
Approximate fuel consumption
0.362 lb / HP-hr (220 g / kW-hr)
17.3 US gal. / hr at 100 % HP

5.2 Hydraulic pumps

All driven from heavy duty pump drive.
Load hoist and propel 2 Piston pumps
Boom hoist 1 Piston pump
Swing 1 Piston pump
Control system and auxiliary 2 Gear pumps
Break cooling system 2 Gear pumps

5.3 Counterweight

Light Weight

one (1) base counterweight (A) and eight (8) side counterweights (B) 105,820 lbs(48,000 kg)

Standard Weight

In addition Standard Weight, add optional Additional Weight

one (1) base counterweight (A), eight (8) side counterweight (B) and two side counterweights (C) 116,840 lbs (53,000 kg)

two (2) carbody weight 22,050 lbs (10,000 kg)

Additional weight consists of two (2) side counterweights (C) and two (2) carbody weights.

Description		Light	Standard
Base Counterweight (A)		1	1
Side Counterweight (B)		8	8
Side Counterweight (C)		0	2
Carbody Counterweight		0	2
Total Weight	Upper	105,820 lbs (48,000 kg)	116,840 lbs (53,000 kg)
	Lower	None	22,050 lbs (10,000 kg)

Side counterweight (C) and Carbody weight is set as Additional Weight (Optional)

5.4 Gantry

This high folding type gantry is fitted with a sheave frame for boom hoist reeving. Hydraulic lift is standard. It provides full up, full down positions with linkage.

5.5 Operator's cab

Totally enclosed from weather, this full-vision cab has safety glass all around. The adjustable, high-backed seat with armrest is standard, allowing operators to customize the position. Auxiliary controls and instruments are on a side mounted console. A signal horn, windshield wipers, air conditioner are all standard features.

5.6 Controls

At operator's right are console-mounted adjustable short levers for the front and rear drum and the boom hoist control. Beside the operator's seat on the right are two short levers for propel control, individual speed shifts for front drum, rear drum and boom drum. At the operator's left are the console mounted swing lever, knobs for front and rear drum, boom drum pawls, engine start / stop key. A swing brake control switch and signal horn button are on the swing lever.

5.7 Electric system

All wiring corded for easy serving, individual fused branch circuit.

5.8 Hydraulic system

Maximum pressure rating 4,620 psi (32.0 MPa)

Cooling Oil to air heat exchanger

Filtration

Full flow filters with replaceable paper elements

5.9 Boom hoist

Powered by hydraulic motor through planetary reducer.

Drum

Single drum.
Grooved for 20.0 mm dia. wire rope.

Brake

A spring set, hydraulically-released, multiple-disc holding brake is mounted inside the boom hoist motor and is operated through a counter-balance valve. An external ratchet is fitted for locking the drum.

5.10 Front drum

Powered by hydraulic motor through planetary reducer.

Drum

26.2" (666 mm) P.C.D. X 26.5" (672 mm) Lg.
Grooved for 26 mm dia. wire rope.

Brake

A spring set, hydraulically-released, multiple-disc holding brake is mounted inside the hoist motor and is operated through a counter-balance valve. An external ratchet is fitted for locking the drum.

Free-Fall (Optional)

Wet-type disk brake free-fall is mounted inside the drum.

5.11 Rear drum

Powered by hydraulic motor through planetary reducer.

Drum

26.2" (666 mm) P.C.D. X 26.5" (672 mm) Lg.
Grooved for 26 mm dia. wire rope.

Brake

A spring set, hydraulically-released, multiple-disc holding brake is mounted inside the hoist motor and is operated through a counter-balance valve. An external ratchet is fitted for locking the drum.

Free-Fall (Optional)

Wet-type disk brake free-fall is mounted inside the drum.

5.12 Third winch (Optional)

Powered by hydraulic motor through planetary reducer. Installed in base machine. Free-fall is not applied

Drum

24.2" (614 mm) P.C.D. X 24.3" (617 mm) Lg.
Grooved for 26 mm dia. wire rope.

Brake

A spring set, hydraulically-released, multiple-disc holding brake is mounted inside the hoist motor and is operated through a counter-balance valve. An external ratchet is fitted for locking the drum.

5.13 Swing

Swing unit

Hydraulic motor driving through planetary reducer to output swing pinion for 360 degree rotation.

Swing brake

Spring set hydraulically released multiple disk brake mounted on swing motor.

Swing circle

Single row ball bearing with internal, integral swing gear.

Swing Lock 4 Position lock for transportation.

6. LOWER MACHINERY

6.1 Carbody

The durable carbody features steel welded construction with extendible axles.

6.2 Crawler

Crawler assemblies are designed with quick disconnect feature for individual removal as a unit from axles. Crawler belt tension adjusted with hydraulic jack and maintained by shims between the idler block and frame.

6.3 Crawler drive

The independent hydraulic propel drive is built into each crawler side frame. Each drive consists of a hydraulic motor driving a propel sprocket through a planetary gear box. The hydraulic motor and gearbox are built into the crawler side frame within the shoe width.

6.4 Crawler brakes

Spring set, hydraulically released, multiple disk-type parking brakes are built into each propel drive.

6.5 Steering mechanism

The hydraulic propel system provides both skid steering (driving one track only) and counter-rotating steering (driving each track in opposite direction).

6.6 Crawler shoes

60 shoes, 48" (1,220 mm) wide each crawler.

6.7 Track rollers

The track rollers are sealed for maintenance-free operation.

7. CRANE ATTACHMENTS

7.1 Crane boom

The welded lattice construction uses tubular, high-tension steel chords with pin connections between sections.

Maximum boom length	250' (76.2 m)
Basic boom length	50' (15.2 m)
Boom base section	25' (7.6 m)
Boom tip section (with Taper insert boom)	25' (7.6 m)

7.2 Boom insert (Optional)

An optional boom inserts is available to provide extension capabilities. It also has welded lattice construction with tubular, high-tension steel chords and pin connections on each one of 10' (3.1 m), 20' (6.1 m), 40' (12.2 m) in length.

7.3 Jib (Optional)

The optional jib employs welded lattice construction with tubular, high-tension steel chords with pin connections between sections.

Maximum jib length	100' (30.5 m)
Basic jib length	40' (12.2 m)
Jib base section	15' (4.6 m)
Jib tip section	15' (4.6 m)
Jib insert	10' (3.1 m), 20' (6.1 m)

Jib inserts are available to provide extension capabilities. They also have welded lattice construction with tubular, high-tension steel chords and pin connections.
Jib is extendible on booms of 90' (27.4 m) through 200' (61.0 m)

7.4 Auxiliary sheave (Optional)

Auxiliary sheave is extendible on booms of 50' (12.2 m) to 240' (73.2 m).
Maximum line: 2 parts of 26 mm wire rope

7.5 Diameter of wire rope

Hoist rope	26 mm
Boom hoist rope	20 mm
Boom pendant rope	30 mm
Jib pendant rope	22 mm

7.6 Boom hoist reeving

Twelve (12) parts of 20 mm dia. high strength wire rope.

7.7 Boom backstops

Telescopic type with spring bumper.

8. AUXILIARY EQUIPMENT

8.1 Lights

Two (2) front flood lights
One (1) cab inside light

8.2 Gauges and warning display

Gauges

One (1) Tachometer
One (1) Hour meter
One (1) Fuel gauge
One (1) Water temperature gauge for engine

Warning display

Battery charge
Engine oil pressure
Air cleaner
Engine oil filter
Control main pressure
Hydraulic oil temperature

8.3 Others

Air conditioner
Drum turn indicator (front and rear drum)
Foot acceleration pedal
Electric fuel pump
Counterweight self-removal device

9. SAFETY SERVICE

Over load preventive device (Load Moment Indicator)
Function lock lever
Boom over hoist limit switch
Signal horn
Front and rear hoist drum lock
Swing alarm (Buzzer and lamps)
Hook over hoist shut off (Anti-two-block)
Boom angle indicator
Boom hoist drum lock
Swing lock
Boom backstops

10. TOOLS AND ACCESSORIES

A set of tools and accessories are furnished.

11. OPTIONAL EQUIPMENT

Additional weight
Two (2) additional side counterweights and two (2) carbody weights 33,070 lbs(15,000 kg)
Front and rear winch free-fall (Wet-type disc brake)
Third drum
Reeving winch
Hydraulic boom foot pin cylinder
Hydraulic tagline
Pillow plate for boom self-erection
Custom color

All specifications are subject to change without notice.