

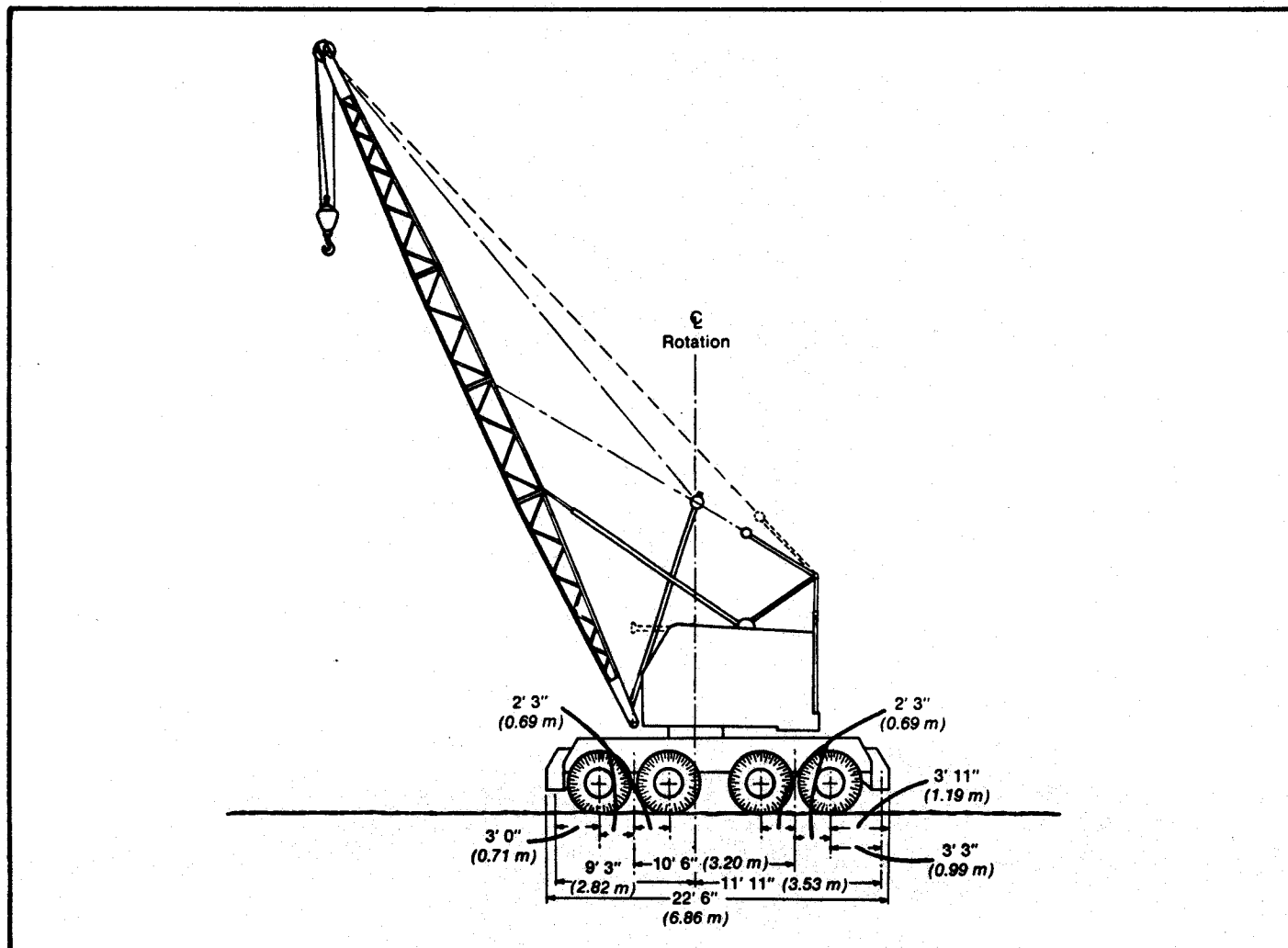
General Specifications

Link-Belt® 45-ton (40.82 metric ton)

Wire rope self-propelled crane

GENERAL INFORMATION ONLY

UC-108B



General Dimensions	Feet	meters
Overall width outriggers extended (over floats)	20' 7"	6.27
Overall width outriggers extended (centerline of jacks)	18' 5"	5.61
Overall width outriggers retracted (floats removed)	11' 1"	3.38
Minimum ground clearance	1' 1"	0.33
Overall cab width	8' 0"	2.44
Basic boom length — angle or tubular	40' 0"	12.19
Tailswing of counterweight "A"	11' 5"	3.48
Tailswing of counterweight "AB"	11' 10"	3.61
Overall height top of roller path mounting plate	4' 7"	1.40

General Dimensions	Feet	meters
Ground clearance under counterweight "A"	5' 2"	1.57
Ground clearance under counterweight "AB"	5' 1"	1.55
Overall height, retractable gantry lowered	13' 1"	3.99
Overall height, retractable gantry raised	16' 4"	4.98
Height over vertical boom live mast	27' 6"	8.38
Radius boom foot pin — angle boom	3' 2"	0.97
Height boom foot pin — angle boom	6' 10"	2.08
Radius boom foot pin — tube boom	4' 1"	1.24
Height boom foot pin — tube boom	5' 5"	1.65

General Specifications

Carrier

Type—FMC; 8 x 4 drive, self-propelled, 126" (3.20 m) wheelbase, 11' 1" (3.38 m) wide.

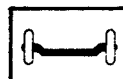
Frame—Box section, wide flange beam main members; all welded, stress relieved.



Roller path

Machined, double flanged hook roller path with integral ring (swing) gear; welded to carrier frame.

Center pin—Cast steel, welded to carrier frame.



Front axles

Shuler FTCA-34-L tandem; single wheels. Track 104" (2.64 m).



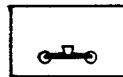
Bogie

Hendrickson; rubber mounted equalizing beams with torque rods.



Rear axles

Clark planetary BD-57000; bogie mounted tandem axles; dual wheels. Track 100-5/8" (2.56 m).



Bogie

Hendrickson; bronze bushed equalizer beams, rubber mounted torque rods.

Revolving upperstructure



Frame

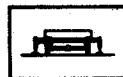
All-welded, stress relieved, precision machined, machinery side housings bolted on frame.

Wheels and rims—Front; cast spoke type. Rear; integral with planetary hubs.



Tires

Single tires front; dual tires rear. *Standard*—14:00 x 24L (20-ply rating) Goodyear Custom Hi-Miler.



Outriggers

Full width double box front and rear; bolted to carrier frame. Two alloy steel sliding beams per box. Hydraulically operated beam and jack cylinders individually controlled from carrier. *Optional*— Manual sliding beams and screw jacks.

Floats—Low profile, steel. 26" square base.

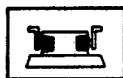
Brakes—8 wheel air brakes.

Service—Single diaphragm air chambers on four front wheels. Maxi brakes on four rear wheels.

Size and area—Rear wheels; 16-1/2" x 7" (0.42 x 0.18 m); total effective lining area 455 square inches (2 936 cm²) per axle. Front wheels; 17-1/4" x 4" (0.44 x 0.10 m); total effective lining area 248 square inches (1 600 cm²) per axle.

Parking—Brakes on four rear wheels applied with air valve at operator's station.

Emergency—Brakes on four rear wheels apply when air pressure drops below 45 p.s.i. (31 026 kPa) in system. Emergency brake may be applied manually by hand control valve at operator's station.



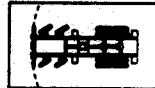
Hook rollers

Eight; adjustable, heat treated, conical, mounted on tapered roller bearings. Two equalized pairs mounted both front and rear.



Steering

Power hydraulic; double acting cylinder operated from Speed-o-Matic system.



Turning radius

33' 0" (10.06 m) to centerline of tire; 36' 0" (10.97 m) over front corner.

Transmissions—

Main—FMC; 2-speed, hydraulic shift. Gear ratios 1.00 to 1.00 and .296 to 1.00.

Overdrive—FMC; gear ratio .483 to 1.00.

Universals—Mechanics Universal or Rockwell Standard.

Fenders—Standard; removable.

Driving method—Power is transmitted from revolving crane upper to carrier drive train through vertical shaft into set of bevel gears with overdrive ratio which drives main two-speed transmission.

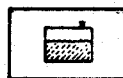
Travel speeds—All speeds shown are based on engine full load r.p.m. except low speed, which is based on engine peak torque r.p.m.

Low—0.78 m.p.h. (1.26 km/hr.)

Second—2.80 m.p.h. (4.51 km/hr.)

Third—4.10 m.p.h. (6.60 km/hr.)

Fourth—9.10 m.p.h. (14.64 km/hr.)



Fuel tank

60 gallon (227 L) capacity fuel tank equipped with filler pipe, cap, and locking eye for padlock.



Engines

Full pressure lubrication, oil filter, oil cooler, air cleaner, fuel filter, hour meter, foot and hand throttles, and optional hand throttle (lever type on swing control lever).

Specifications	GM4-71N	GM4-71N ①	GM6-71N ②	Cummins ③ N855-P190
Number of cylinders	4	4	6	6
Bore and stroke — inches — (mm)	4¼ x 5 108 x 127	4¼ x 5 108 x 127	4¼ x 5 108 x 127	5¼ x 6 140 x 152
Piston displacement — cu. in. — (cm ³)	284 4 650	284 4 650	426 6 976	855 14 013
High idle speed — r.p.m.	1,990	2,150	1,950	1,300
Engine r.p.m. @ full load speed	1,840	2,000	1,800	1,275
Net engine h.p. @ full load speed	110 (82 027W)	125 (93 213W)	165 (123 041W)	67 (49 962W)
Peak torque — ft. lbs. — (joules)	351 476	372 504	532 721	
Peak torque — r.p.m.	1,200	1,200	1,200	
Electrical system	12-volt	12-volt	12-volt	12-volt
Batteries	2/6-volt	1/12-volt	1/12-volt	2/12-volt
Clutch or Power Take-off	Hydraulic Coupling — Twin Disc	Disconnect between engine & converter	Disconnect between engine & converter	Disconnect between engine & converter
Transmission — No. chain wheel teeth No. engine pinion teeth	— 161 17	— 161 28	— 161 21	— 161 26

① Single stage torque converter — Allison TCDOA435, 3.4:1 ratio
② Single stage torque converter — Allison TCDO 475, 2.82:1 ratio
③ Three stage torque converter — Twin Disc

④ Special application engines — consult factory.

Power train



Transmission

Quadruple roller chain enclosed in oil tight chain case; pump driven oil stream lubrication with independent oil sump. Machine-cut teeth on engine pinion and chain wheel.



Machinery gear train

"Full-Function" design, two-directional power available to all operating shafts; shafts mounted on anti-friction bearings in precision bored machinery side housings. All operating functions independent of one another. Components such as gears, pinions, chain wheels, brake drums and clutch spiders — involute splined to shafts. Drum gear/clutch drum assemblies bolted together and mounted on shafts on anti-friction bearings. Machine-cut teeth on drum gears, pinions, spur gears and chain wheel.

Reduction shaft — Two piece shaft, mounted in side housings on anti-friction bearings, joined by involute splined coupling.

Drive pinions — Two-heat-treated, machine-cut teeth, involute splined to shaft. Pinions mounted on shaft outside of machinery side housings.

Principal operating functions



Control system

Speed-o-Matic® power hydraulic control system; a variable pressure system requiring no bleeding. Operating pressure transmitted to all two-shoe clutch cylinders, and other hydraulic cylinders as required. System includes constant displacement, engine driven, vane type hydraulic pump to provide flow of oil; accumulator to maintain system operating pressure, unloader valve to control pressure in accumulator, relief valve to limit maximum pressure buildup in system, full-flow filter with 40 micron disposable filter element, and variable pressure control valves to control drum clutches and other operating cylinders.



Independent travel

Standard. Spur gear driven; single bevel gear splined to horizontal travel shaft, single bevel gear splined to vertical travel shaft. Bevel gears enclosed in lubrication case.

Clutches — Speed-o-Matic power hydraulic two-shoe lined type; clutch drum 20" (0.51 m) diameter, 5" (0.13 m) wide.

Travel non-independent of swing — *Optional.* Operator must manually shift swing/travel gears prior to actuating combination swing/travel Speed-o-Matic power hydraulic two-shoe clutches.

Clutches — Speed-o-Matic power hydraulic two-shoe lined type; clutch drum 20" (0.51 m) diameter, 5" (0.13 m) wide.



Load hoisting and lowering

"Full-Function", spur gear driven drums; tandem wire rope drums (third drum optional) fixed to shafts. Speed-o-Matic power hydraulic clutch control of all load hoisting/lowering functions.



Load hoist drums

Front and rear main operating drums — Two piece, removable, smooth or grooved lagging (depending on job application) bolted to brake drum and clamped to shaft. Shafts mounted in in-line bores on anti-friction bearings. Special extended length shafts required for, and supplied with, optional planetary drive units for drums.

Third operating drum — *Optional;* mounts forward of front operating drum. Functions as third operating drum with design and control similar to front and rear main operating drums. Two-piece, removable, 9" (0.23 m) or 11" (0.28 m) root diameter grooved lagging bolted to brake drum and clamped to shaft. Shaft mounted in in-line bores on anti-friction bearings.

Note: For dragline operation all wire rope and the lagging must be removed from third drum to avoid interference with inhaul rope (front drum). Minimum four wraps of inhaul rope must be left on anchor end of front drum to avoid inhaul rope interference with third drum brake enclosure. For crane/clamshell operations, quantity of front drum wire rope must be limited in some cases to avoid interference between front drum rope and third drum brake enclosure.

**Drum clutches**

Speed-o-Matic power hydraulic two-shoe clutches for control of all principal operating functions (except engine master clutch). Internal expanding, aluminum alloy, lined shoes. Clutch drums bolted to drum spur gears. Front and rear main operating drum clutches, swing clutches, travel clutches, boom hoist clutch, and boom lowering clutch are all interchangeable.

Load hoist clutches — Front and rear main operating drums. Clutch drum 20" (0.51 m) diameter, 5" (0.13 m) wide; effective lining area 212 square inches (1 368 cm²). *Optional* — 6½" (0.17 m) wide front drum hoist/inhaul clutch. *Optional* third drum clutch drum 17¼" (0.44 m) diameter, 4" (0.10 m) wide; effective lining area 118 square inches (761 cm²).

Load lowering clutches — Standard on front and rear main operating drums. Clutches identical to load hoist clutches. Not available on optional third operating drum.

Two-speed front & rear drums — *Optional*; gear driven, for load hoist only. Intermediate gears, installed on stub shafts in machinery side housings, convert Speed-o-Matic power hydraulic two-shoe load lowering clutches to high speed hoist clutches; includes required special extended drum shafts. Main load and jib load hoist wire rope speeds increased 100% over standard speeds. Note: Front and rear drum power load lowering clutches not available with two-speed drums. See note A.

Planetary drive units for front and rear drums — *Optional*; planetary drive units available for load hoisting on either or both drums and for load lowering or rear drum only; includes special extended drum shafts. Planetary drive units mount between spur gears and two-shoe clutch drums — available for increased or decreased load hoist or lowering rope speeds. Standard two-shoe hoist and power load lowering clutches provide standard rope speeds. Planetaries controlled by external contracting band brakes through push buttons mounted on clutch control levers. See note A.

Auxiliary two-shoe rear drum brake — *Optional*; internal expanding, Speed-o-Matic power hydraulic two-shoe brake; 23" (0.58 m) diameter, 6" (0.15 m) wide. Brake spider involute splined to shaft and brake drum bolted to anchor plate on machinery side housing. Auxiliary brake increases lining contact area by 242 square inches (1 561 cm²). Pressure on rear drum brake foot pedal applies the standard mechanical brake and the auxiliary brake simultaneously. Mechanical linkage, in standard brake mechanism, actuates control mechanism of variable pressure valve to direct hydraulic pressure to the auxiliary brake cylinder. See note A.

Note A: Only one item — two-speed driven drum, planetary drive unit, or auxiliary two-shoe rear drum brake — can be mounted on the same shaft.

**Drum brakes**

Front and rear main, and optional third, operating drums — external contracting band; mechanically foot pedal applied. Foot pedals equipped with latch to permit locking brakes in "on" position. Brake drums involute splined to shafts.

Front and rear main drums — Brakes 27" (0.69 m) diameter, 4½" (0.11 m) face width, effective lining area 304 square inches (1 961 cm²).

Optional third drum — Brake 18" (0.46 m) diameter, 3" (0.08 m) face width; effective lining area 133 square inches (858 cm²).

**Drum rotation indicators**

Standard for front and rear main operating drums; mounted on control stand. Dials actuated by flexible shafts from front and rear main operating drum shafts.

**Swing system**

Swing independent of travel standard. Spur gear driven; single bevel gears (enclosed and running in oil) on horizontal and vertical swing shaft. Swing pinion, involute splined to vertical swing shaft, meshes with internal teeth of swing gear which is integral with hook roller path.

**Swing clutches**

Speed-o-Matic power hydraulic two-shoe lined type; clutch drum 20" (0.51 m) diameter, 5" (0.13 m) wide. *Optional* — 6½" (0.17 m) wide swing clutches for duty cycle work. **Brake** — Operator controlled, two-directional, external contracting band; spring applied, power hydraulically released. Brake drum splined to vertical swing shaft (or to vertical center drive shaft for swing on machine equipped with optional non-independent travel/swing).

Transportation lock — Mechanically controlled pawl engages teeth of swing (ring) gear which is integral with hook roller path.

Swing speed — 4 r.p.m.

**Boom hoist/lowering system**

Independent, spur gear driven; single wire rope drum splined to shaft. Rope drum equipped with mechanical locking pawl.

**Boomhoist drum**

9" (0.23 m) root diameter, grooved; involute splined to shaft.

**Boomhoist drum locking pawl**

Operator controlled; spring applied, mechanically released.

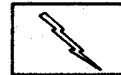
**Boom hoist clutch**

Speed-o-Matic power hydraulic two-shoe lined type; clutch drum 20" (0.51 m) diameter, 5" (0.13 m) face width.

**Boom hoist/lowering brake**

External contracting band; spring applied hydraulically released as hoist clutch or lowering clutch is engaged. Brake drum involute splined to shaft; brake drum 22" (0.56 m) diameter, 3" (0.08 m) face width.

Boomhoist limiting device — Provided to restrict hoisting boom beyond recommended minimum radius; located on exterior right-hand side of operator's cab. As boom reaches predetermined minimum radius, the boomhoist control lever is returned to neutral through a mechanical linkage, disengaging boomhoist clutch, while automatically applying boomhoist brake.

**Electrical system**

Battery; 12-volt. *Optional*; battery lighting system, including two sealed beam automotive type adjustable headlights on front of cab roof, one interior cab light and necessary wiring. *Optional*; extra sealed beam automotive type adjustable headlight mounted on boom. *Optional*; Onan independent light plant with single cylinder, four-cycle, air-cooled, diesel engine with remote electric starting; 3,000 watt, 120-volt, three wire single phase, 60 cycles A.C.; including wiring in conduit, three interior cab lights, trouble lamp with cord and two 300 watt adjustable floodlights on front of cab roof. Additional cab-mounted and boom-mounted floodlights available. **Note:** Independent light plant cannot be furnished in conjunction with third drum or magnet generator.

Magnet generator/control package — *Optional*; 15 kW Onan magnet generator, belt-driven off engine power take-off shaft, for use with 230 volt magnets; rheostat, controller, magnet "over-excitation" control button on swing lever, drop control button on rear drum control lever, and Rud-o-Matic Model 636 combination tagline/magnet cable take-up reel.

GENERAL INFORMATION ONLY

Optional — 22.5 kW magnet generator for use with 230 volt magnets, plus accessories as furnished with 15 kW Onan.



Operator's cab

Full-vision, equipped with safety glass panels. Operator's door is hinged. Front window rolls up to overhead storage area. Standard equipment includes dry chemical fire extinguisher, machinery guards, and bubble-type level. Steel window covers, sound reduction material, electrical windshield wiper, cab heater, Lexan windows and defroster fan are optional. **Note:** Steel window covers available for standard cab only. Sound reduction material available for standard and 4' (1.22 m) elevated cabs only.

Elevated cabs — *Optional*; operator's cabs 2' (0.61 m), 4' (1.22 m) and 7' (2.13 m) higher than standard are available. Upper portions of 2' (0.61 m) and 4' (1.22 m) cabs hinged to facilitate reducing overall travel height. Upper portion of 7' (2.13 m) cab has hydraulic lines equipped with quick-disconnect fittings to facilitate removal of upper cab portion to reduce overall travel height.



Machinery cab

Hinged doors for machinery access, roof-top ladder, skid-resistant finish on roof, and electric horn warning device.



Catwalks

Optional; available along operator's side and/or right-hand side of cab, with overhead hand grab rails.



Gantry

Retractable; mounted to revolving upperstructure frame to support boom suspension system. *Optional*: Low gantry for logging machines only. *Optional*: Speed-o-Matic power cylinder for raising/lowering retractable gantry.



Gantry ball

Contains four sheaves on non-metallic bushings for 10-part boomhoist reeving with angle booms, or four sheaves mounted on anti-friction bearings for 10-part boomhoist reeving with tubular boom. *Optional*: Additional sheave furnished for 12-part boomhoist rope reeving.



Counterweight

Removable and held in position by "T" bolts. Standard lifting crane counterweight is one-piece 19,200 lbs. (8 709 kg). *Optional* two-piece counterweight for combination crane and duty cycle operation consists of 13,000 lbs. (5 897 kg) basic "A" plus removable 6,200 lbs. (2 812 kg) addition for lift crane.

Booms and jibs



Tubular boom

Two-piece 40' (12.19 m) basic length; 42" (1.07 m) wide, 42" (1.07 m) deep at centerline of connections. Alloy steel, round tubular main chords 2 1/4" (57 mm) outside diameter. Maximum boom length 150' (45.72 m).

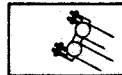
Boom base section — 20' (6.10 m) long; boomfeet 2 1/4" (57.15 mm) wide on 50" (1.28 m) centers.

Boom extensions — Available in 10' (3.05 m), 15' (4.57 m) and 20' (6.10 m) lengths with appropriate length pendants.

Boom connections — External pin connected.

Boom top section — Open throat; 20' (6.10 m) long.

Boompoint machinery — Three 18" (0.46 m) root diameter head sheaves mounted on anti-friction bearings. *Optional*; four sheaves.

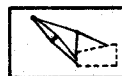


Boomhoist bridle

For tubular boom; serves as connection between boom pendants and boomhoist wire rope reeving.

— **Without boom live mast** — Equipped with 12" (0.30 m) root diameter sheaves, mounted on anti-friction bearings; 5 sheaves required for standard 10-part boomhoist reeving, 6 sheaves required for optional 12-part boomhoist reeving.

— **With boom live mast** — Equipped with 12" (0.30 m) root diameter sheaves, mounted on non-metallic bushings; 6 sheaves required for standard 12-part boomhoist reeving.



Boom live mast

Optional; For tubular boom only; 20' 6" (6.11 m) long from center of head shaft to mounting pin; mounts on front of frame on boomfoot adaptor. Supports boomhoist bridle and boom midpoint suspension pendants. Mast hydraulically extendible from 17' 6" (5.19 m) to 20' 6" (6.11 m) length. Mast can be used as short boom for machine assembly or disassembly, but it may not be used for general crane service. Two 9 1/2" (0.24 m) root diameter auxiliary hoist sheaves

mounted on non-metallic bushings enable mast to be used as short boom for machine assembly or disassembly.

Live mast stops — Integral with boom stops — spring cushioned bumper ends.

Boom midpoint suspension pendants — Standard with optional boom live mast; connect at 80' (24.38 m) point on boom.



Jib

Tubular; two-piece, 20' (6.10 m) basic length; 24" (0.61 m) deep, 24" (0.61 m) wide at connections. Main tubular chords alloy steel, 1 1/2" (38.10 mm) outside diameter.

Base section — 10' (3.05 m) long; mounted on lugs at tip end of boom top section.

Jib extensions — Available in 10' (3.05 m) lengths.

Tip section — 10' (3.05 m) long; equipped with one 12" (0.30 m) root diameter sheave mounted on anti-friction bearings.



Angle boom

Two piece, 40' (12.14 m) basic length; 34" x 34" (0.86 x 0.86 m) wide at center-line of connections. Main chord angles high strength low alloy steel; base section 3 1/2" x 3 1/2" x 1/4" (88.90 x 88.90 x 9.53 mm); top section and extensions — 3 1/2" x 3 1/2" x 5/16" (88.90 x 88.90 x 7.94 mm). Maximum boom length 100' (30.48 m).

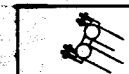
Boom base section — 20' (6.10 m) long; boomfeet 1 1/4" (41.28 mm) wide on 38" (0.97 m) centers.

Boom extensions — Available in 5' (1.52 m), 10' (3.05 m), and 20' (6.10 m) lengths with appropriate length pendants.

Boom connections — External pin connected. *Optional* — Bolted connections.

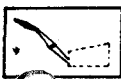
Boom top section — Open throat; 20' (6.10 m) long.

Boompoint machinery — Three 18" (0.46 m) root diameter head sheaves mounted on anti-friction bearings. *Optional* — four sheaves.



Boomhoist bridle

Serves as connection between boom pendants and boomhoist wire rope reeving. Equipped with 12" (0.30 m) root diameter sheaves mounted on bushings; five sheaves required for standard 10-part boomhoist reeving, six sheaves required for optional 12-part boomhoist reeving.



Jib

Angular; two-piece 20' (6.10 m) basic length; 18" (0.46 m) deep, 22 3/4" (0.58 m) wide at connections. Main angle chords alloy steel, base section 2" x 2" x 1/4" (50.80 x 50.80 x 6.35 mm); tip section and extensions 2" x 2" x 3/16" (50.80 x 50.80 x 4.76 mm).

Base section — 10' (3.05 m) long; mounted on boom head shaft.

Jib extensions — Available in 10' (3.05 m) lengths.

Jib connections — Bolted connections.

Tip section — 10' (3.05 m) long; equipped with one 15 7/8" (0.40 m) root diameter sheave mounted on anti-friction bearings.

Item applicable to both booms and jibs



Boom stops

Dual, tubular, lever type with spring cushioned bumper ends for 42" (1.06 m) tubular boom. Fixed, dual, tubular type with spring cushioned bumper ends for 34" (0.86 m) angle boom.

Boompoint sheave guards — Fabricated round steel guards standard for both angle and tubular booms. *Optional* for either 34" (0.86 m) angle or 42" (1.06 m) tubular booms—roller type guards. With three or four head sheaves, installation of roller type guards does not permit use of center sheave(s). Roller guards not available on boom when equipped with jib.

Hoist line deflector rollers — to deflect main drum load hoist line over top side of boom; also required when third drum load hoist line passes over top side of boom. Rollers mounted on anti-friction bearings.

— **Angle booms** — for 34" (0.86 m) boom; one roller standard. Recommended optional rollers — two through 65' (19.81 m) boom length, three through 85' (25.91 m).

— **Tubular Boom** — for 42" (1.06 m) boom; one roller standard. Recommended optional rollers — two through 125' (38.10 m) boom length, three through 130' (39.62 m).



Jib mast

10' (3.05 m) high, mounted on base of jib base section. Two deflector sheaves, mounted on anti-friction bearings, mounted within mast to guide whipline.

Jib staylines — Front staylines are attached between top of jib mast and peak of jib. Appropriate length pendants are added to front staylines as jib length increases. Rear staylines are attached between top of jib mast and base of boom top section. Adjustment of rear stayline length determines jib angle to boom.

Jib stops — Telescoping type; pinned from jib mast to boom top section and from jib mast to jib base section.

Auxiliary equipment



Boom angle indicator

Standard with either crane boom. Pendulum type mounted on left side of boom base section.



Fairlead

Optional. Full-revolving type with barrel, sheaves and guide rollers mounted on anti-friction bearings.



Tagline

Optional; spring wound drum type mounted on crane boom. Rud-o-Matic model 648, single barrel with 20" (0.51 m) reel for 60' (18.29 m) boom using 1 yd. (0.76 m²) to 1 1/2 yd. (1.15 m²) clamshell buckets.

We are constantly improving our products and therefore reserve the right to change designs and specifications.



FMC Corporation Construction Equipment Group Cedar Rapids Iowa 52406

Link-Belt® cranes & excavators manufactured in: Cedar Rapids Iowa • Lexington & Bowling Green Kentucky • Ontario Canada • Milan Italy • Queretaro Mexico & Nagoya Japan (under license)

Link-Belt® UC-108B Performance Specifications

Wire rope and rope drum data

Main load hoist wire rope length—using 3/4" (19 mm) diameter wire rope.

Parts of line	Boom lengths Ⓞ													
	40' (12.19 m)		50' (15.24 m)		60' (18.29 m)		70' (21.34 m)		80' (24.38 m)		90' (27.43 m)		100' (30.48 m)	
	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters
1	95	28.96	115	35.05	135	41.15	155	47.24	175	53.34	195	59.44	215	65.53
2	140	42.67	170	51.82	200	60.96	230	70.10	260	79.25	290	88.39	320	97.54
3	185	56.39	225	68.59	265	80.77	305	92.96	345	105.16	385	117.35	425	129.54
4	230	70.10	260	85.34	330	100.58	380	115.82	430	131.06	480	146.30	530	161.54
5	275	83.82	335	102.11	395	120.40	455	138.68	515	156.97	575	175.26	635	193.55
6	320	97.54	390	118.87	460	140.21	530	161.54	600	182.88	670	204.22	740	225.55
7	365	111.25	445	135.64	525	160.02	605	184.40	685	208.79	765	233.17		
8	410	124.97	500	152.40	590	179.83	680	207.26	770	234.70				

Parts of line	Boom lengths Ⓞ									
	110' (33.53 m)		120' (36.58 m)		130' (39.62 m)		140' (42.67 m)		150' (45.72 m)	
	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters
1	235	71.63	255	77.72	275	83.82	295	89.92	315	96.01
2	350	106.68	380	115.82	410	124.97	440	134.11	470	143.26
3	465	141.73	505	153.92	545	166.12	585	178.31	625	190.50
4	580	176.78	630	192.02	680	207.26	730	222.50	780	237.74
5	695	211.84	755	230.12	815	248.41				
6	810	246.89								

Jib load hoist rope lengths (whipline) — using 5/8" (16 mm) diameter wire rope.

Jib length	Parts of line	Boom lengths Ⓞ													
		40' (12.19 m)		50' (15.24 m)		60' (18.29 m)		70' (21.34 m)		80' (24.38 m)		90' (27.43 m)		100' (30.48 m)	
		Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters
20' (6.10 m)	1	135	41.15	155	47.24	175	53.34	195	59.44	215	65.53	235	71.63	255	77.72
	2	200	60.96	230	70.10	260	79.25	290	88.39	320	97.54	350	106.68	380	115.82
30' (9.14 m)	1	155	47.24	175	53.34	195	59.44	215	65.53	235	71.63	255	77.72	285	86.86
	2	230	70.10	260	79.25	290	88.39	320	97.54	350	106.68	380	115.82	410	124.97
40' (12.19 m)	1	175	53.34	195	59.44	215	65.53	235	71.63	255	77.72	275	83.82	295	89.92
	2	260	79.25	290	88.39	320	97.54	350	106.68	380	115.82	410	124.97	440	134.11
50' (15.24 m)	1	195	59.44	215	65.53	235	71.63	255	77.72	275	83.82	295	89.92	315	96.01
	2	290	88.39	320	97.54	350	106.68	380	115.82	410	124.97	440	134.11	470	143.26

Jib length	Parts of line	Boom lengths Ⓞ									
		110' (33.53 m)		120' (36.58 m)		130' (39.62 m)		140' (42.67 m)		150' (45.72 m)	
		Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters
20' (6.10 m)	1	275	83.83	295	89.92	315	96.01	335	102.11	355	108.20
	2	410	124.97	440	134.11	470	143.26	500	152.40	530	161.54
30' (9.14 m)	1	295	89.92	315	96.01	335	102.11	355	108.20	375	114.30
	2	440	134.11	470	143.26	500	152.40	530	161.54	560	170.69
40' (12.19 m)	1	315	96.01	335	102.11	355	108.20	375	114.30	395	120.40
	2	470	143.26	500	152.40	530	161.54	560	170.69	590	179.83
50' (15.24 m)	1	335	102.11	355	108.20	375	114.30	395	120.40	415	126.49
	2	500	152.40	530	161.54	560	170.69	590	179.83	620	188.98

Ⓞ Maximum permissible boom length with 34" x 34" (0.86 x 0.86 m) angle boom is 100' (30.48 m).

Dragline wire rope lengths—using 3/4" (19 mm) diameter wire rope for hoist, and 5/8" (22 mm) diameter wire rope for inhaul.

Function	Parts of line	Boom lengths									
		40' (12.19 m)		45' (13.72 m)		50' (15.24 m)		55' (16.76 m)		60' (18.29 m)	
		Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters
Hoist	1	95	28.96	105	32.00	115	35.05	125	38.10	135	41.15
Inhaul	1	82	15.85	58	17.68	64	19.51	70	21.34	76	23.16

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Wire rope and rope drum data — (continued)

Clamshell wire rope lengths — using 3/4" (19 mm) diameter wire rope.

Function	Parts of line	Boom lengths ①									
		40' (12.19 m)		45' (13.72 m)		50' (15.24 m)		55' (16.76 m)		60' (18.29 m)	
		Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters
Holding	1	105	32.00	115	35.05	125	38.10	135	41.15	145	44.20
Closing	1	140	42.67	150	45.72	160	48.77	170	51.82	180	54.86

Drum wire rope capacities

Wire rope layer	Front or rear drum—13 1/4" (0.34 m) root diameter smooth lagging 3/4" (19 mm) wire rope				Front drum—15 1/4" (0.39 m) root diameter grooved lagging 3/4" (19 mm) wire rope				Front drum—15 1/4" (0.39 m) root diameter grooved lagging 1/2" (22 mm) wire rope			
	Rope per layer		Total wire rope		Rope per layer		Total wire rope		Rope per layer		Total wire rope	
	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters
1	54	16.46	54	16.46	49	14.94	49	14.94	50	15.24	50	15.24
2	60	18.29	114	34.75	55	16.76	104	31.70	55	16.76	105	32.00
3	64	19.50	178	54.25	58	17.68	162	49.38	60	18.29	165	50.29
4	69	21.03	247	75.28	64	19.51	226	68.88	66	20.12	231	70.41
5	74	22.56	321	97.84	68	20.73	294	89.61	72	21.95	303	92.35
6	78	23.77	399	121.61	73	22.25	367	111.86				
7	82	24.99	481	146.60								

Drum wire rope capacities

Wire rope layer	Rear drum—15 1/4" (0.39 m) root diameter grooved lagging 3/4" (19 mm) wire rope				Third drum—9" (0.23 m) root diameter grooved lagging 3/4" (19 mm) wire rope				Boom hoist drum—9" (0.23 m) root diameter grooved lagging 3/4" (19 mm) wire rope			
	Rope per layer		Total wire rope		Rope per layer		Total wire rope		Rope per layer		Total wire rope	
	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters
1	58	17.68	58	17.68	35	10.67	35	10.67	25	7.62	25	7.62
2	63	19.20	121	36.88	43	13.10	78	23.77	26	7.92	51	15.54
3	69	21.03	190	57.91	47	14.33	125	38.10	31	9.45	82	24.99
4	74	22.55	264	80.46	53	16.15	178	54.25	32	9.75	114	34.74
5	79	24.07	343	104.55	57	17.37	235	71.62	38	11.58	152	46.32
6	85	25.91	428	130.45	62	18.90	297	90.52	38	11.58	190	57.91
7									45	13.71	235	71.62
8									43	13.11	278	84.73
9									46	14.02	324	98.75
10									49	14.93	373	113.69

Rope size and type —

Wire rope application	Size and type used
Boomhoist	3/4" (19 mm) diameter, Type "N"
Main load hoist	3/4" (19 mm) diameter, Type "N"
Jib load hoist (1-part)	3/4" (19 mm) diameter, Type "P"
Jib load hoist (2-part)	3/4" (19 mm) diameter, Type "N"
Third drum	3/4" (19 mm) diameter, Type "N"
Boom pendants	1 1/4" (32 mm) diameter, Type "N"
Boom midpoint suspension pendants	1" (25 mm) diameter, Type "N"
Jib frontstay line	3/4" (19 mm) diameter, Type "N"
Jib backstay line	3/4" (19 mm) diameter, Type "N"
Dragline hoist	3/4" (19 mm) diameter, Type "N"
Dragline inhaul	1/2" (22 mm) diameter, Type "M"
Clamshell holding	3/4" (19 mm) diameter, Type "N"
Clamshell closing	3/4" (19 mm) diameter, Type "N"
Tagline	1/8" (8 mm) diameter, Type "N"

Wire rope types
Type "M" — 6 x 25 (6 x 19 class), filler wire, extra improved plow steel, preformed, independent wire rope center, right lay, lang lay.
Type "N" — 6 x 25 (6 x 19 class), filler wire, extra improved plow steel, preformed, independent wire rope center, right lay, regular lay.
Type "P" — 19 x 7 non-rotating extra improved plow steel, preformed, wire rope center core.

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Wire rope and rope drum data — (continued)

Available line speed and line pull^① — based on GM 4-71N^② diesel engine developing maximum net horsepower as defined by P.C.S.A. Standard No. 1

Front drum								Rear drum							
Attachment	Root diameter	Wire rope diameter		Line speed — first layer		Line pull — first layer		Attachment	Root diameter	Wire rope diameter		Line speed — first layer		Line pull — first layer	
		inches	mm	F.p.m.	m/min	Pounds	kilograms			inches	mm	F.p.m.	m/min	Pounds	kilograms
Crane	13¼" (0.34 m)	¾	19	150	45.72	23,000	10 433	Crane	13¼" (0.34 m)	¾	19	150	45.77	22,400	10 161
Clamshell (Closing)	15¼" (0.39 m)	¾	19	171	52.12	20,100	9 117	Dragline clamshell	15¼" (0.39 m)	¾	19	171	52.12	19,600	8 981
Dragline (Inhaul)	15¼" (0.39 m)	¾	22	173	52.73	20,000	9 072								

Third drum						
Root diameter	Wire rope diameter		Line speed — first layer		Line pull — first layer	
	inches	mm	F.p.m.	m/min	Pounds	kilograms
9" (0.23 m)	¾	16	123	37.49	10,000	4 536

Permissible line speed and line pull^① — based on wire rope strength, single part line.

Front drum								Rear drum							
Attachment	Root diameter	Wire rope diameter		Line speed — first layer		Line pull — first layer		Attachment	Root diameter	Wire rope diameter		Line speed — first layer		Line pull — first layer	
		inches	mm	F.p.m.	m/min	Pounds	kilograms			inches	mm	F.p.m.	m/min	Pounds	kilograms
Crane	13¼" (0.34 m)	¾	19	150	45.72	16,800	7 620	Crane	13¼" (0.34 m)	¾	19	150	45.72	16,800	7 620
Clamshell (Closing)	15¼" (0.39 m)	¾	19	171	52.12	16,800	7 620	Dragline, clamshell	15¼" (0.39 m)	¾	19	171	52.12	16,800	7 620
Dragline (Inhaul)	15¼" (0.39 m)	¾	22	173	52.73	22,700	10 297								

① Maximum permissible load on single part of line — 11,700 lbs. (5 307 kg) for ¾" (16 mm) diameter Type "N" wire rope; 7,600 lbs. (3 447 kg) for ¾" (16 mm) diameter Type "P"; 16,800 lbs. (7 620 kg) for ¾" (19 mm) Type "N"; 22,700 lbs. (10 297 kg) for ¾" (22 mm) diameter Type "N" or "M".
 ② Data applicable only to GM 4-71 N diesel engine package. If required, similar data for other engine packages available from Sales Office.

Third drum						
Root diameter	Wire rope diameter		Line speed — first layer		Line pull — first layer	
	inches	mm	F.p.m.	m/min	Pounds	kilograms
9" (0.23 m)	¾	16	123	37.49	10,000	4 536