



AMERICAN



**900 SERIES
MODEL
9270
LIFTING CRANE**

SPECIFICATIONS

**AMERICAN HOIST
& DERRICK COMPANY**

ST. PAUL, MINNESOTA 55107

JIB OFFSET "A"

MAXIMUM JIB RATING IN POUNDS

NO. 9 JIB RATINGS				
	20 ft. Jib	30 ft. Jib	40 ft. Jib	50 ft. Jib
0 to 6 ft.	18,000	18,000	14,500	10,500
9 ft.	18,000	17,300	14,100	10,250
12 ft.	18,000	15,300	12,400	10,000
15 ft.	—	13,500	10,750	8,800
18 ft.	—	—	10,000	8,150
21 ft.	—	—	—	7,750
Effective Jib Weight at Boom Point	1,550	2,100	2,800	3,600

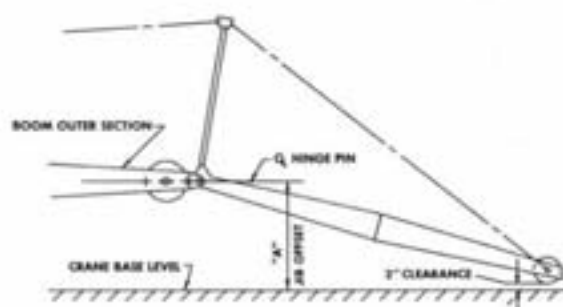
No. 9 Jib ratings are based on 100 ft. minimum boom length with tubular chord boom with hammerhead and 150 ft. minimum boom length with tubular chord boom with tapered tip.

NO. 15 JIB RATINGS				
	20 ft. Jib	30 ft. Jib	40 ft. Jib	50 ft. Jib
0 to 6 ft.	30,000	30,000	21,000	16,500
9 ft.	30,000	28,250	21,000	16,500
12 ft.	30,000	23,400	17,500	14,000
15 ft.	—	18,500	15,000	12,000
18 ft.	—	—	13,250	11,000
21 ft.	—	—	—	10,000
Effective Jib Weight at Boom Point	1,900	2,250	2,800	3,600

No. 15 jib ratings are based on 120 ft. minimum boom length with tubular chord boom with hammerhead and 150 ft. minimum boom length with tubular chord boom with tapered tip.

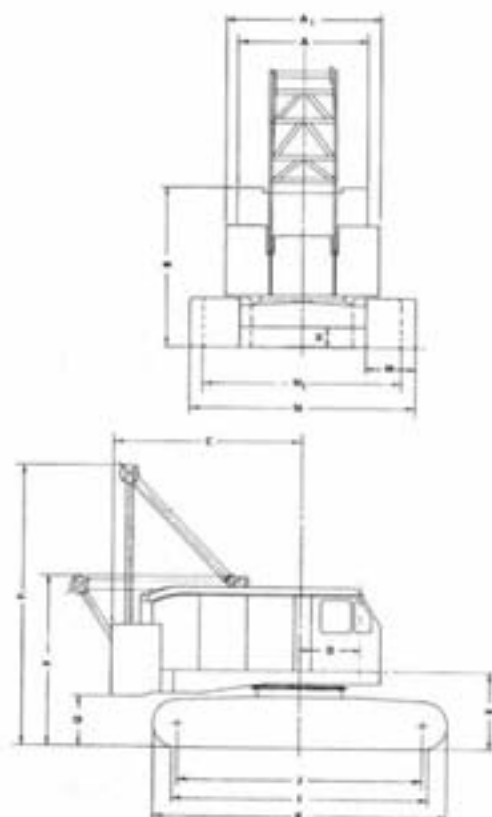
NO. 9HL JIB RATINGS					
	40 ft. Jib	50 ft. Jib	60 ft. Jib	70 ft. Jib	80 ft. Jib
0 to 8 ft.	19,000	17,000	14,500	12,500	10,500
12 ft.	16,600	14,800	12,600	11,300	9,600
16 ft.	14,400	12,800	11,600	10,100	8,600
20 ft.	12,000	11,000	10,300	9,000	8,000
24 ft.	—	—	9,000	8,000	7,000
28 ft.	—	—	8,000	7,000	6,200
32 ft.	—	—	—	—	5,400
Effective Jib Weight at Boom Point	1,850	2,350	2,750	3,700	4,300

No. 9HL Jib ratings are based on 160 ft. minimum boom length with tubular chord boom with tapered tip or hammerhead.



Jib ratings are based on the minimum boom length specified above. For ratings on shorter booms consult factory. The jib load rating is the lesser of: (a) the maximum jib rating, or (b) the main boom rating at the jib working radius, reduced by the effective jib weight and by the weight of all suspended load-carrying devices. The main boom rating with jib in place must be reduced by the effective jib weight, the weight of main fall blocks and slings, and twice the weight of jib tackle.

GENERAL DIMENSIONS



- A — Width of Cab 11' 0"
- A₁ — Width over Counterweight 13' 2"
- B — Height Over Cab 13' 7¹/₂"
- C — Tailswing 17' 1¹/₂"
- D — Center of Pivot to Center of Boom Foot 5' 3¹/₄"
- E — Ground to Center Boom Foot 6' 9¹/₂"
- F — Height Over A-Frame, Lowered 14' 6¹/₂"
- F₁ — Height Over A-Frame, Raised 24' 6¹/₂"
- G — Ground to Bottom of Counterweight 4' 4³/₈"
- H — Minimum Ground Clearance Under
Crawler Base 1' 9"
- I — Crawler Bearing Length 21' 0"
- J — Center to Center Crawler Tumblers 19' 8"
- K — Overall Length of Crawlers 23' 9"
- M — Width of Tread Shoes (Standard) 44"
- M₁ — Width of Tread Shoes (Optional) 38"
- M₂ — Width of Tread Shoes (Optional) 50"
- N — Overall Width Over Crawlers —
Extended (with 38" shoes) 18' 3"
Overall Width Over Crawlers —
Extended (with 44" shoes) 18' 9"
Overall Width Over Crawlers —
Extended (with 50" shoes) 19' 3"
- N₁ — Overall Width Over Crawlers —
Retracted (with 38" shoes) 15' 9"
Overall Width Over Crawlers —
Retracted (with 44" shoes) 16' 3"
Overall Width Over Crawlers —
Retracted (with 50" shoes) 16' 9"

UPPER MACHINERY**STANDARD ENGINE:**

CUMMINS MODEL NT-855-P-310 diesel engine with three stage torque converter; six cylinder, 5½" bore, 6" stroke, 855 cu in. displacement, rated 289 hp @ 2100 rpm converter input; 24 volt electric starting; battery charging alternator, variable speed engine and torque converter governor; glow plug starting; heavy duty dry type air cleaner.

ALTERNATE ENGINES RECOMMENDED FOR EXCAVATOR OR LIFT CRANE SERVICE.

*Alternate Engines with Single Stage Torque Converter:
(Delete Controlled Load Lowering)*

CUMMINS Model NT-855-P-310 diesel engine with single stage torque converter; six cylinder, 5½" bore, 6" stroke, 855 cu in. displacement, rated 289 hp @ 2100 rpm converter input; 24 volt electric starting; battery charging alternator; variable speed engine and torque converter governor; glow plug starting; heavy duty dry type air cleaner.

CATERPILLAR Model D-343-A diesel engine with single stage torque converter; six cylinder, turbo-charged, 5.4" bore, 6.5" stroke, 893 cu in. displacement; rated 305 hp @ 2050 rpm converter input; 24 volt electric starting; battery charging generator; variable speed engine and torque converter governor; heavy duty dry type air cleaner.

Alternate Engines with Three Stage Torque Converter:

CATERPILLAR Model D-343-A diesel engine with three stage torque converter; six cylinder, turbo-charged 5.4" bore, 6.5" stroke, 893 cu in. displacement; rated 289 hp @ 2000 rpm converter input; 24 volt electric starting; battery charging generator; variable speed engine and torque converter governor; heavy duty dry type air cleaner.

GENERAL MOTORS Model 12V-71 diesel engine with three stage torque converter; twelve cylinder, 4¼" bore, 5" stroke, 852 cu in. displacement, two valve; two cycle; rated 310 hp @ 2000 rpm converter input; 24 volt electric starting; battery charging alternator; variable speed engine and torque converter governor; ether starting kit; heavy duty dry type air cleaner.

ALTERNATE ENGINE RECOMMENDED FOR LIFT CRANE SERVICE ONLY.

GENERAL MOTORS Model 8V-71-N diesel engine with three stage torque converter; eight cylinder, 4¼" bore, 5" stroke, 568 cu in. displacement; four valve; two cycle; rated 284 hp @ 2100 rpm converter input; 24 volt electric starting; battery charging alternator; variable speed engine and torque converter governor; ether starting kit; heavy duty dry type air cleaner.

ALTERNATE ELECTRIC POWER:

(Delete Controlled Load Lowering)

150 hp, 220/440 volt, 3-phase, 60 cycle, 1800 rpm, open, squirrel cage electric motor with control equipment (across-the-line start); connection for outside power supply; collector rings at center pin.

FUEL TANK: 190 gallon capacity.

POWER TRANSMISSION: Multiple roller chain transmits power from engine to operating machinery; completely enclosed, running in oil for long trouble-free service.

COUNTERWEIGHT: "G-D-E-F," 96,000 lbs made up of basic hollow casting with inserts and overlays; securely bolted to machinery base; reduced for duty cycle service (drag, clam, grapple, hoe, magnet) to 59,000 lbs by removal of D₃, E₁ and E₂ overlays and F counterweight insert.

ROTATING MACHINERY BASE: Tapered deep girder construction extending straight through from boom foot to engine base and counterweight support; boom foot, shaft pillow blocks, A-frame and counterweight connections fall directly over girder for utmost simplicity and strength; girders wide spaced for wide boom foot and wide drum laggings; electric welded steel plate construction with bored and drilled holes located by jigs and fixtures to insure proper alignment.

LOAD AND HOOK ROLLERS: Large tapered load rollers transmit downward loads to machined upper roller path on carbody; tapered hook rollers transmit uplift loads to lower roller path on carbody; two sets double equalizing load rollers and two sets double equalizing hook rollers in front; two sets double equalizing hook rollers and two single load rollers in rear; rollers mounted on anti-friction bearings; adjustment for wear by means of eccentric hook roller axle.

DRIVE SHAFT ASSEMBLY: Independent primary drive shaft consists of forged alloy steel shaft with integral cut steel pinion; ductile iron roller chain sprocket with steel hub insert splined to shaft; shaft mounted in pressure grease lubricated anti-friction bearings. This shaft assembly has a single purpose of speed reduction and is not compromised by mounting clutches for other functions.

TRAVEL/SWING ASSEMBLY: Main clutch shaft is heat-treated alloy steel mounted in anti-friction bearings and splined to clutch spiders and cut tooth driving spur gear; bevel pinions are cut tooth hardened alloy steel, oil lubricated; bevel pinions on anti-friction bearings mounted in case; air controlled, tandem band, internal reversing clutches have extra thick moulded liners for long service life and stable operation; smooth operation for swing and travel assured by high responsive variable pressure air control. Vertical swing shaft is heat-treated alloy steel, mounted on bronze bushings in machinery base cover casting and gear case lower casting; swing pinion is cut tooth alloy steel, accurately matched with revolving bullgear; alloy cast iron brake wheel and cast steel jaw clutch are mounted on accurately cut splines; horizontal cut tooth spur gear is bronze bushed, running in oil; air controlled shifter for swing-travel jaw clutches. Vertical reverse shaft is heat-treated alloy steel, pressed into main swing clutch housing with lower end supported by bore in machinery base; hardened alloy steel integral cut tooth bevel gear and spur pinion is mounted on tapered roller bearings and running in oil; design insures permanent accurate alignment of mating bevel and spur gears; easily removed as a unit with main swing clutch shaft assembly.

INDEPENDENT SWING — AIR CONTROLLED FOR ERECTION CRANE SERVICE ONLY:

Smaller, moderate speed, internal air controlled tandem band clutches; all gears mounted in anti-friction bearings and running in oil; independent swing clutches connected to swing gearing at all times; main swing clutches may be used for independent travel when this arrangement is provided or may also be used for heavy duty swinging by operation of swing-travel shifter; foot operated contracting band swing brake on independent swing clutch ring.

INDEPENDENT SWING — HYDROSTATIC: (Optional) Variable displacement hydraulic swing motor supplied with constantly available high pressure oil by hydraulic accumulator

system; swing torque control in direct relation to swing lever; completely independent of other operations and engine speed; no slippage, hence no heat loss; plugging energy is stored in accumulator and used for accelerating in next cycle; as accumulator system stores swinging energy only a small pump is required; leaving more horsepower available for hoisting operation; hydraulic motor is flange-mounted at top of an inclined drive structure housing a double cut spur reduction and external air-controlled swing brake; ties into same lower bevel gear set as air-controlled independent swing; hydraulic motor is servo-controlled and feel of the load is built in through springs in control linkage.

MAIN DRUM ASSEMBLY: Twin alloy cast iron drums with integral brake and clutch surfaces, drums mounted in anti-friction bearings; drums skeleton type with split cast steel laggings bolted in place; alloy steel drum shaft mounted in anti-friction bearings in machinery base; clutch spiders and spur gear splined to drum shaft; air controlled clutches with tandem internal expanding bands with thick moulded liners; smooth operation assured by high responsive variable pressure air controls; large external contracting band drum brakes with extra thick moulded liners; raised cooling flange on brake drum for efficient, even dissipation of heat; brake foot pedal operated from operator's position; fully compensated air booster cylinder begins to energize at moderate brake pedal force to reduce effort without affecting the sensitive feel required for slipping loads; brake shafts and pins mounted on anti-friction bearings for responsive operation with minimum effort; brake and clutch surfaces stress relieved for smooth operation without scoring.

CONTROLLED LOAD LOWERING: Available for either or both main drums; drum is roller chain driven from clutch shaft forward of and below main drums; air operated internal expanding tandem band clutches controlled by forward motion of drum clutch lever; clutches and clutch shaft mounted on anti-friction bearings; in combination with three-stage torque converter permits lowering loads continuously under full control by engine throttle; can be used in combination with third drum with all controls completely independent. Whether one or both drums are equipped with load lowering. Controlled load lowering for one drum included as standard equipment; optional on second drum.

THIRD DRUM: (Optional) Mounted on dead shaft at shovel boom foot location forward of cab; roller chain driven from clutch shaft forward of and below main drum shaft; air operated internal expanding tandem band clutch and manual contracting band brake; clutch and clutch shaft mounted in anti-friction bearings; involute splines; may be used in combination with controlled load lowering with controls completely independent.

TUBULAR CHORD CRANE BOOM: Lightweight, pin-connected, deep section crane boom with chords of tubular T-1 steel and with tubular lattice; boom is 77" cross section and can be extended to 290 feet; the basic inner section is 30 ft long; a 40 ft long tapered intermediate section can be fitted either with a five sheave pin-connected hammerhead or with a 30 ft two sheave pin-connected outer section; the hammerhead is for heavy lifts; the tapered outer section is for long boom operations and has a second sheave for an auxiliary load line or for clamshell service; tapered tip is closed throat design; a hanger block is included for multiple reeving of the load line with the tapered tip; center sections are available in 20 ft and 50 ft lengths, pin-connected; boom sections have built-in camber and belly lines and are required for long booms; boom pendant arrangement consists of two double 1 1/2" diameter pendant suspension cables extending from the outer bail to the boom point with thirteen part boom hoist line; pendants are added or removed for boom length changes; boom lengths of 250 ft or more require not less than three 50 ft center sections.

JIBS: Three different jibs are offered for single load line operation; the No. 9 and No. 15 jibs are basic 20 ft, two piece alloy steel chord angle construction with tubular lattice; both can be extended to 50 ft maximum length with the addition of 10 ft inserts; the lightweight No. 9HL jib is constructed with T-1 tubular chords and tubular lattice; basic length is 40 ft two piece which can be extended to 80 ft with the addition of 10 ft and 20 ft inserts.

SAFETY BOOM STOPS: Telescoping pipe safety boom stops for any length boom prevent overhoisting and backward boom motion due to failure of hoisting line or hoisting tackle; standard on all machines.

BOOM HOIST SAFETY SHUT OFF: Prevents the operator from over hoisting the boom; located at the bottom of boom and actuated when the boom reaches a predetermined angle; when actuated this valve cuts off air supply to boom hoist clutch and sets the boom hoist brake.

RETRACTABLE A-FRAME: Is raised or lowered by means of bail rigging with no special equipment required; standard on all machines, the counterweight is easily removed without outside assistance.

INDEPENDENT BOOM HOIST: Cast steel drum and integral cut steel spur gear operate on bronze bushings; boom hoist drum shaft is high carbon steel, mounted in bored holes in machinery base; single boom hoist drum with spring set, air released locking pawl provided to hold boom during operation or when machine is standing idle; integral cut tooth spur gear and clutch ring are mounted on anti-friction bearings on clutch shaft; shaft is high carbon steel and operates in bronze bushings pressed into machinery deck; clutch spider and pinion splined to clutch shaft. Boom hoist clutch is air controlled, internal expanding band; alloy cast iron brake wheel is keyed to shaft to facilitate removal; brake is spring set and air released with single valve control for both hoisting and lowering.

CONTROLLED BOOM LOWERING: Boom lowering speed limited by speed of engine; rapid, safe boom handling; slower boom lowering by reduced engine speed; overrunning sprag clutch mechanism mounted on independent shaft engages positively and smoothly; disconnect provided for reversed gear operations; shifter interlocked with boom brake to prevent "live boom."

CAB: Fully enclosed with glazed doors and windows; all safety glass windows mounted in rubber; removable windows in operator's cab; operator's compartment totally enclosed, shielding him from engine and machinery noise; door at rear of operator's compartment provides direct access to machinery; sliding doors on sides and rear; hinged door on operator's cab roof for vision; ladder to roof at left front; running boards standard; elevated operator's cab optional.

LOWER MACHINERY

CARBODY: Heavy duty cast alloy steel carbody of deep box construction; through-bored for accurate alignment of crawler axles and horizontal travel shaft; alloy cast steel bullgear and roller path welded to machined top of carbody; double tapered roller path is accurately machined to roller contour.

CENTER PIVOT TUBE: Cast steel center pivot tube integral with carbody; pressure lubricated bronze pivot bushings in rotating machinery base; horizontal load only — no uplift.

TRAVEL AND STEERING: Three section horizontal travel shaft for easy assembly and removal; bevel gearing and sliding jaw clutches fully enclosed and running in oil; single lever air control provides engaged, neutral and locked position of each multiple jaw clutch permitting straight ahead, long radius and short radius turns; interlock keeps one clutch engaged at all times eliminating danger of machine running away on a grade.

TRAVEL LOCK: Ratchet arrangement, air controlled from operator's position; permits travel in one direction while preventing movement in opposite direction; lock may also be set to prevent travel in either direction.

CRAWLER SIDE FRAMES: Cast steel tumbler yokes and axle sleeves electrically welded to rolled steel shapes form rigid crawler side frames; axle sleeves accurately bored for mounting to crawler axle.

CRAWLER ROLLERS: Large hardened cast steel crawler rollers mounted on heavy bronze bushings; spaced close together to prevent any possibility of tread shoes buckling up between rollers; axles drilled for pressure grease lubrication.

CRAWLER SHOES: Heavy, double wall, box section alloy steel castings for maximum strength and long wear; self-cleaning design prevents shoe breakage; 45 shoes on each side frame: 44" width standard; 38" or 50" width optional; through hardened pins, loaded in multiple shear.

CRAWLER DRIVE: Heavy cast steel drive tumblers, splined to drive sprocket axles; self-cleaning design; self-cleaning idler tumblers bronze bushed with pressure grease lubrication; stationary shafts mounted in side frames; alloy steel drive sprocket axles, splined to drive tumblers and sprockets; axles mounted in pressure grease lubricated bronze bushings; crawler chain is heavy alloy roller chain; cast steel self-cleaning sprockets, mounted outside crawler side frames for easy maintenance; unnecessary to brake chain when removing side frames.

CRAWLER DRIVE ADJUSTMENT: Drive chain and crawler shoe adjustment by means of hydraulic jack; rigid holding and positioning by shims; motion and wear between sprocket and crawler side frame eliminated; positive alignment of sprockets; hydraulic jack carried in tool box.

CRAWLER WIDTH ADJUSTMENT: Removable cast steel jaw clutch torque tubes are furnished between the carbody and side frames; in retracted position the side frame jaw clutch directly engages the jaw clutch at side of carbody; machine can be operated in narrow position under restricted conditions or in extended position with full crane ratings.

GENERAL

CONTROLS: Graduated air controls, pioneered by AMERICAN, put "feel" at every operator's finger-tips, insure higher production, more accurate control; air line alcohol dispenser, to absorb excess moisture in air system due to condensation.

MATERIALS: Gear and pinions are heat-treated alloy or high carbon steel; cut teeth on all gears except rotating ring gear which has accurately moulded teeth.

Involute splines are used throughout machine for maximum tooth strength through minimum diameter where needed; self centering; equalized bearing and stresses among all teeth; smooth tooth surface; easy interchangeability of parts.

Anti-friction bearings are used on all main or high speed shafts and wherever practical to provide friction-free, smooth operation with minimum maintenance.

LUBRICATION: All anti-friction bearings and bronze bushings requiring short period lubrication are provided with pressure grease fittings; swing deck gears are provided with oil bath lubrication; drum gear train and the swing bullgear are arranged for grease lubrication.

ATTACHMENTS: Attachments for duty cycle work in combination with lift crane service are available for 9270. Counterweight must be reduced to 59,000 lbs.

Dragline attachment includes full revolving fairlead, dirt-guard under dragline drum, drum lagging, 1 1/2" hoist line and 1 3/4" dragline.

Clamshell attachment for clam or grapple work includes Rud-O-Matic tagline winder mounted in boom, drum lagging, 1 1/4" holding line and 1 1/2" closing line.

PERFORMANCE

Rated Travel Speed: 0.8 MPH

Rated Swing Speed: 2.28 RPM

Single Line Speed:

Crane-Clam Hoist 165 FPM

Magnet, Drag Hoist 200 FPM

Drag Pull-In 145 FPM

Third Drum 192 FPM

OR 142 FPM

Line Pull:

Crane-Clam Hoist 40,000 LBS SLP

Magnet, Drag Hoist 33,000 LBS SLP

Drag Pull-In 45,000 LBS SLP

Third Drum 15,000 LBS SLP

OR 21,000 LBS SLP

Weight: Basic 9270 Lift Crane (70 FT Boom With Hammerhead) 299,600 LBS

Ground Pressure 13.5 PSI

Components removable for shipment:

Counterweight 96,000 LBS

Crane block 3,025 LBS

Hammerhead 4,600 LBS

Boom outer 2,325 LBS

Boom inner 4,000 LBS

Telescopic boom stops 300 LBS

Outer bail assembly 2,450 LBS

A-frame 3,900 LBS

Side frames (2) 63,760 LBS

Crawler axles (4) 11,680 LBS

Torque tubes (2) 920 LBS

Carbody 24,200 LBS

NOTE: In accordance with varying material situations and the Company's policy of constant product improvement these specifications subject to change without notice and without incurring responsibility to units previously sold.

MODEL 7270 DULL CYCLE RATINGS WITH 59,000 LB. COUNTERWEIGHT

Boom Length	Radius in Feet	Boom Angle Degrees	Lifting Crane Rating	Clamshell & Magnet Rating	Dragline Rating
100'	21	81	168,270	28,000	27,000
	25	78	128,320	28,000	27,000
	30	76	98,580	28,000	27,000
	35	73	79,740	28,000	27,000
	40	70	66,730	28,000	27,000
	50	63	49,930	28,000	27,000
	60	57	39,540	28,000	27,000
	70	50	32,480	28,000	27,000
	80	41	27,350	24,620	27,000
	90	32	23,450	21,110	23,450
100	18	20,370	18,330	20,370	
110'	23	81	145,530	28,000	27,000
	25	80	128,150	28,000	27,000
	30	77	98,380	28,000	27,000
	35	74	79,520	28,000	27,000
	40	71	66,500	28,000	27,000
	50	66	49,690	28,000	27,000
	60	60	39,290	28,000	27,000
	70	54	32,220	28,000	27,000
	80	47	27,100	24,390	27,000
	90	39	23,200	20,880	23,200
	100	30	20,140	18,130	20,140
110	17	17,650	15,890	17,650	
120'	24	81	136,140	28,000	27,000
	25	80	127,980	28,000	27,000
	30	78	98,170	28,000	27,000
	35	76	79,290	28,000	27,000
	40	73	66,260	28,000	27,000
	50	68	49,440	28,000	27,000
	60	63	39,030	28,000	27,000
	70	57	31,960	28,000	27,000
	80	51	26,830	23,740	26,830
	90	45	22,940	20,650	22,940
	100	38	19,880	17,890	19,880
	110	29	17,410	15,670	17,410
120	17	15,350	13,820	15,350	
130'	26	81	120,530	28,000	————
	30	79	97,960	28,000	————
	35	77	79,060	28,000	————

Boom Length	Radius in Feet	Boom Angle Degrees	Lifting Crane Rating	Clamshell & Magnet Rating	Dragline Rating
130'	40	74	66,020	28,000	————
	50	70	49,170	28,000	————
	60	65	38,770	28,000	————
	70	60	31,690	28,000	————
	80	55	26,560	23,900	————
	90	49	22,670	20,400	————
	100	43	19,610	17,650	————
	110	36	17,140	15,430	————
	120	28	15,100	13,590	————
	130	16	13,370	12,030	————
140' [*]	27	81	113,810	28,000	————
	30	80	97,750	28,000	————
	35	78	78,830	28,000	————
	40	76	65,770	28,000	————
	50	71	48,910	28,000	————
	60	67	38,490	28,000	————
	70	62	31,410	28,000	————
	80	58	26,280	23,650	————
	90	53	22,390	20,150	————
	100	47	19,330	17,400	————
	110	41	16,860	15,140	————
	120	35	14,830	13,350	————
	130	27	13,110	11,800	————
	140	15	11,640	10,480	————
150' [*]	29	81	102,390	————	————
	30	80	97,530	————	————
	35	78	78,590	————	————
	40	77	65,520	————	————
	50	73	48,640	————	————
	60	69	38,210	————	————
	70	64	31,130	————	————
	80	60	25,990	————	————
	90	56	22,100	————	————
	100	51	19,040	————	————
	110	46	16,580	————	————
	120	40	14,540	————	————
	130	34	12,830	————	————
	140	26	11,370	————	————
	150	15	10,100	————	————

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Rating marked (*) require retractable A-Frame in fully raised position.

Crane ratings do not exceed 75% of tipping load with side frames extended.

Maximum recommended dragline boom length is 100 ft. For duty cycle service (dragline, clamshell, grapple, backhoe, magnet, etc.) counterweight must be reduced to 59,000 lb. by removing D₂, E₁ and E₂ overlays and F counterweight insert.