

Grove Maniwoc National Crane Potain



## Grove RT9150E

### Product Guide

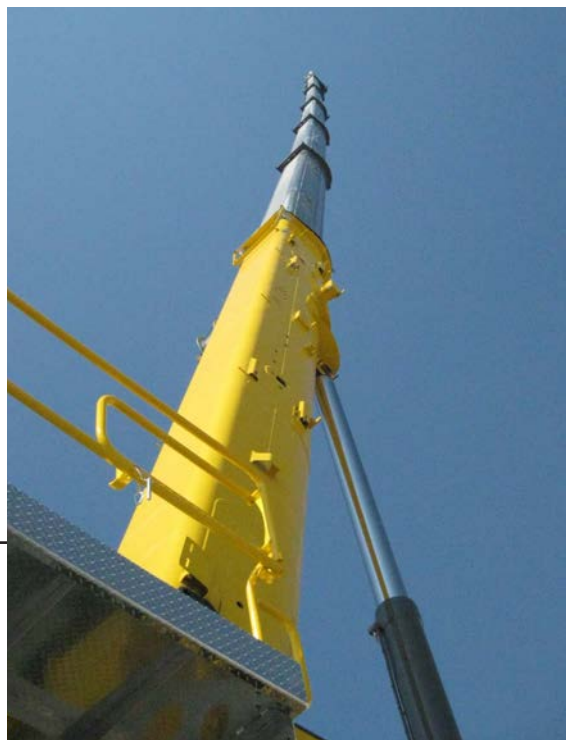


#### Features

- 135 t (150 USt) rating
- 12,9 m - 60,0 m (42 ft - 197 ft) six-section, full power boom
- 11 m -18 m (36 ft - 59 ft) offsettable bi-fold swingaway extension
- One 8 m (26 ft) and one 6 m (19.7 ft) extension inserts
- Grove MEGAFORM™ boom with patented TWINLOCK™ system
- Vision cab design
- Dual axis electric proportional controllers



# Features



## Boom

The six-section TWIN-LOCK™ pinned boom provides 54,8 m (180 ft) working radius with a lifting capacity of 1724 kg (3800 lb) and a 907 kg (2000 lb) capacity with the 17,9 m (59 ft) bi-fold extension at a radius of 67 m (220 ft).



## Extension

11,0 m – 18,0 m (36 ft - 59 ft) hydraulically offsettable bi-fold swing away extension. Provides a total tip height of 81,4 m (267 ft).

## CraneSTAR

CraneSTAR is an exclusive and innovative crane asset management system that helps improve your profitability and reduce costs by remotely monitoring critical crane data. Visit [www.cranestar.com](http://www.cranestar.com) for more information.

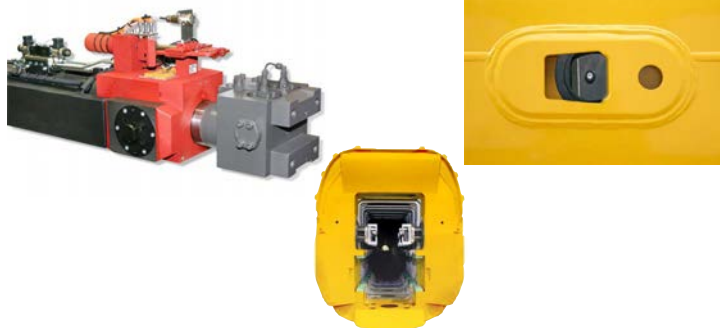


## Removable outrigger boxes

Removable front and rear outrigger boxes provides up to 8552 kg (18,854 lb) of weight reduction for transportation.

## TWIN-LOCK™ boom pinning system

Using only one telescope cylinder to extend the boom, Grove's TWIN-LOCK™ system maximizes capacities by eliminating weight inside the extended boom.



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# Specifications

## Superstructure

### Boom

12,9 m – 60,0 m (42.3 ft - 197 ft) six-section, MEGAFORM™ style boom with TWIN-LOCK™ boom pinning system.  
Maximum tip height: 63,7 m (209 ft).

### Manual offset bi-fold swingaway extension

11,0 m – 18,0 m (36 ft – 59 ft) offsettable bi-fold swingaway extension. Offsets 0°, 20°, and 40°. Stows alongside base boom section.  
Maximum tip height: 81,4 m (267 ft).

### \*Hydraulic swingaway extension

11,0 m – 18,0 m (36 ft - 59 ft) hydraulically offsettable bi-fold swingaway extension. Offsets 0°, 20°, and 40°. Stows alongside base boom section.  
Maximum tip height: 81,4 m (267 ft)

### \*Hydraulic swingaway extension with heavy duty jib

11,0 m – 18,0 m (36 ft - 59 ft) hydraulically offsettable bi-fold swingaway extension with integrated 3,6 m (11.8 ft) 3-sheave heavy duty jib. Offsets 0°, 20°, and 40°. Stows alongside base boom section.  
Maximum tip height: 81,4 m (267 ft)

### \*Lattice extension inserts

One 8 m (26 ft) and one 6 m (20 ft) insert for use with any lattice swingaway extension. Increases extension length to 32 m (105 ft).  
Maximum tip height: 95,3 m (312.7 ft)

### Boom nose

Eight nylatron sheaves mounted on heavy duty tapered roller bearings with removable pin-type rope guards. Quick reeve type boom nose.

### Boom elevation

One double acting hydraulic cylinder with integral holding valve provides elevation from -3° to 78°.



### Load moment and anti-two block system

“Graphic Display” load moment and anti-two block system with audio-visual warning and control lever lockout. These systems provide electronic display of boom angle, length, radius, tip height, relative load moment, maximum permissible load, load indication and warning of impending two-block condition. The standard Work Area Definition System allows the operator to pre-select and define safe working areas. If the crane approaches the pre-set limits, audio-visual warnings aid the operator in avoiding job-site obstructions.



### Crane control system

Full electronic control of all crane movements, using electronic dual axis control levers. Controls are integrated with the LMI by CanBus.



### Cab

20° tilt, Full-vision, all-steel fabricated with acoustical lining and tinted safety glass throughout. Deluxe seat incorporates armrest-mounted electric dual-axis controllers. Tilt/telescoping steering wheel with various controls incorporated into the steering column. Other standard features include: hot water heater, cab circulating air fan, sliding side and rear windows, sliding skylight with electric wiper and sunscreen, electric windshield wash/wipe, fire extinguisher, seat belt, air conditioning, and dual cab mounted work light.



### Swing

Two planetary swing drive with axial piston motors provide infinitely variable rotation speeds. Foot applied multi-disc wet brake with Spring applied, hydraulically released stationary swing brake. Two position mechanical house lock, operated from cab.  
Maximum speed: 1.5 rpm.



### Counterweight

**Standard:** 17 690 kg (39,000 lb) section. Hydraulically installed and removed.

**Optional Heavy-Lift Package:** Additional 10 886 kg (24,000 lb) insert for a total of 28 577 kg (63,000 lb). Hydraulically installed and removed from the superstructure.



# Specifications

## Superstructure continued



### Hydraulic system

Four main pumps ([2] piston and [2] gear) with a combined capacity of 545 LPM (144 GPM). Maximum operating pressure: 275,7 bar (4000 psi). Three primary directional control valves with independent function sections. Return line type filter with full flow by-pass protection and service indicator. Replaceable cartridge with micron filtration rating of 10/12/5. 655 L (173 gal) hydraulic reservoir. System pressure test ports.



### Hoist Specifications (Siebenhaar 5044) main and auxiliary hoist

Planetary reduction with automatic spring applied multi-disc wet brake. Electronic hoist drum rotation indicators, and hoist drum cable followers. 5th wrap indicator with function cut-out.

#### Maximum single line pull:

1st layer: 10 707kg (23,606 lb)  
3rd layer: 9280 kg (20,459 lb.)  
5th layer: 7852 kg (17,311 lb)

**Maximum single line speed:** 135 m/min (443 fpm)

#### Rope construction:

35x7 WSC, Rotation Resistant (Endurance Dyform 34LR)

**Rope diameter:** 19 mm (¾ in)

#### Maximum permissible line pull:

7167 kg (15,800 lb) with 35x7 class rope. (5.0:1 design factor)

#### Rope length:

Main hoist: 255 m (837 ft)  
Auxiliary hoist: 225 m (738 ft)

#### Maximum rope stowage:

Main hoist: 300 m (984 ft)  
Auxiliary hoist: 300 m (984 ft)

## Carrier



### Chassis

Box section frame fabricated from high-strength, low alloy steel. Removable outrigger boxes. Front / rear towing and tie down lugs.



### Outrigger system

Four hydraulic telescoping single-stage double box beam outriggers with inverted jacks and integral holding valves. Three position setting, 0%, 50% and fully extended. Outrigger boxes are removable for ease of transportation. All steel fabricated, quick release type outrigger floats, 775 mm (30.5 in) square. Maximum outrigger pad load: 75,300 kg (166,000 lb).



### Outrigger controls

Controls and crane level indicator located in cab.



### Engine (Tier IV)

Cummins QSL 8.3L diesel, six-cylinder, turbo charged with Cummins diesel particulate exhaust filter/muffler. Meets U.S. E.P.A. Tier IV and E.U. Stage IIIB. 239 kW (320 bhp) gross at 2200 rpm. Maximum torque: 1383 Nm (1020 ft lb) at 1500 rpm. Fuel requirements: Maximum of 15 PPM sulphur content (Ultra Low Diesel Fuel) Note: Tier IV engine required in North America and European Union countries.



### Engine (Tier III)

Cummins QSC 8.3L diesel, six cylinders, 224 kW (300 bhp) (Gross) at 2200 rpm. Maximum torque: 1356 Nm (1000 ft lb) at 1400 rpm. Note: Required for sale outside of North America and European Union countries.



### Fuel tank capacity

379 L (100 gal)



### Transmission

Range-shift 6 x 3 speed [3 speeds x 2 range] (6 forward and 3 reverse). Front axle disconnect for 4 x 2 travel.





# Specifications

## Carrier continued



### Electrical system

Four (4) 12 V - maintenance free batteries. 24 V starting and lighting. Master Battery disconnect. CanBus Diagnostic system.

### I-●-I Drive

4 x 4.



### Steering

Fully independent power steering:

**Front:** Full hydraulic steering wheel controlled.

**Rear:** Full hydraulic switch controlled.

Provides infinite variations of 4 main steering modes: front only, rear only, crab and coordinated.

Rear steer centered indicator light.

Outside turning radius: 9,7 m (31.6 ft)

Inside turning radius: 6,9 m (22.6 ft)



### Axles

**Front:** Drive/steer with differential and planetary reduction hubs rigid mounted to frame.

**Rear:** Drive/steer with differential and planetary reduction hubs pivot mounted to frame.



### Oscillation lockouts

Automatic full hydraulic lockouts on rear axle permits 25,4 cm (10 in) oscillation only with boom centered over the front



### Brakes

Dry disc, full hydraulic release split circuit operating on all wheels.

Spring-applied, hydraulically released parking brake mounted on front axle.



### Tires

Std. 33.25 x 29 - 38 bias ply, Titan SL-100



### Lights

Full lighting including turn indicators, head, tail, brake and hazard warning lights.



### Maximum speed

24 kph (15 mph) at 2500 rpm without counterweight.

16 kph (10 mph) at 2500 rpm with 17 690 kg (39,000 lb) counterweight.

3 kph (2 mph) at 2500 rpm with 28 577 kg (63,000 lb) counterweight.



### Gradeability (theoretical)

70% (at engine stall)

(Based on [87 751 kg (193,455 lb)] GVW) 33.25 x 29 tires, 60,0 m [197 ft] ) main boom, plus

17,0 m (56 ft) manual bi-fold swingaway, 17 690 kg (39,000 lb) counterweight, 100 USt hook block and 9,0 t (10 USt) headache ball.

### Miscellaneous standard equipment

Full width steel fenders, full length aluminum decking, dual rear view mirrors, hook-block tie down, electronic back-up alarm, light package, front stowage well, tachometer / hourmeter, rear wheel position indicator, 36,000 BTU hot water cab heater, air conditioning (28,500 BTU), hoist mirrors, engine distress A/V warning system, front/rear/tie down/tow lugs, coolant sight level indicator, 360° NYC style mechanical swing lock, boom removal rigging, and counterweight removal rigging, cab controlled cross axle differential locks (front and rear), CraneSTAR asset management system.

### \*Optional equipment

- ▶ Auxiliary Lighting and Convenience Package: Includes superstructure mounted amber flashing light, single base boom mounted floodlight, and Rubber mat for stowage trough.
- ▶ Heavy Lift counterweight package
- ▶ ECOS event recorder
- ▶ Hardwired wind speed indicator
- ▶ Rear Pintle Hook
- ▶ Boom mounted aircraft warning light
- ▶ -28°C (-20°F) cold weather package
- ▶ Hydraulic bi-fold swingaway
- ▶ Hydraulic bi-fold swingaway with heavy duty jib
- ▶ Boom extension inserts

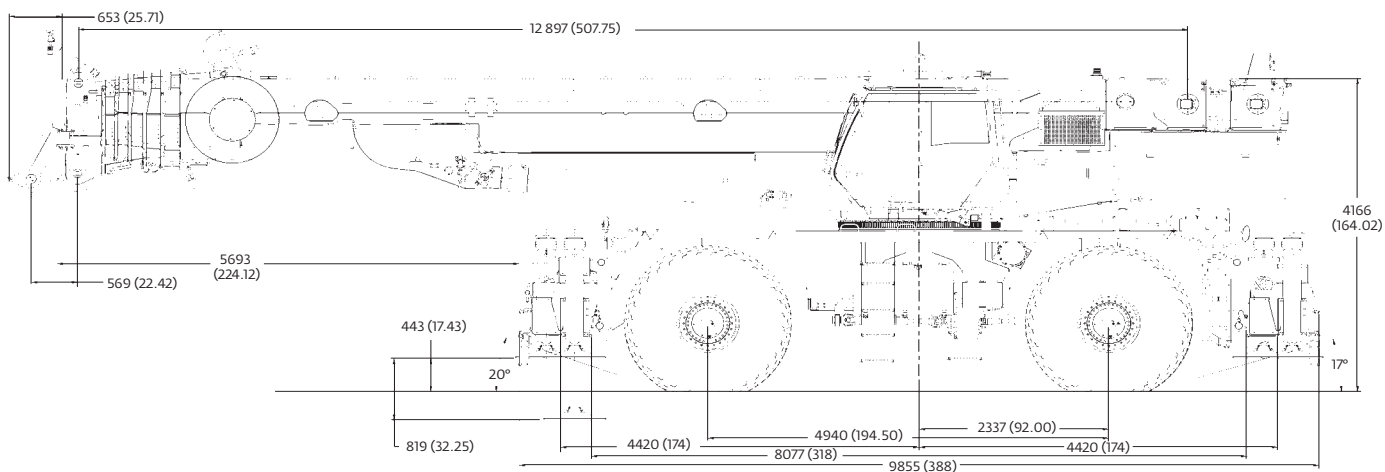


# Dimensions

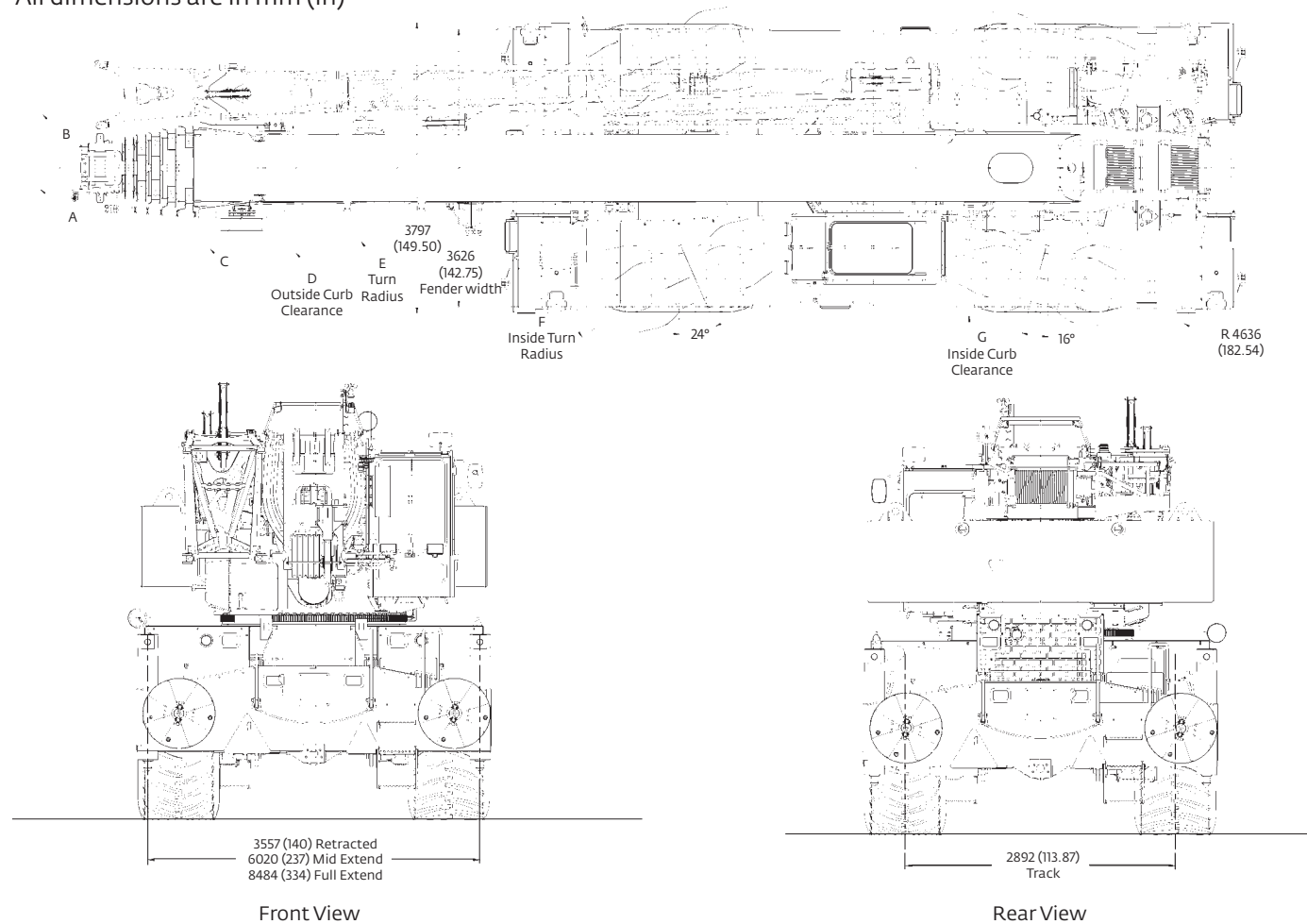
## Dimensions

| Tire size  | A                    | B                | C                | D                | E                | F                | G                | A                    | B                | C                | D                | E               | F               | G               |
|------------|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------------|------------------|------------------|------------------|-----------------|-----------------|-----------------|
| 33.25 X 29 | 17.9 m<br>(705")     | 18.5 m<br>(730") | 15.7 m<br>(618") | 14.9 m<br>(586") | 14.4 m<br>(567") | 11.7 m<br>(459") | 10.2 m<br>(400") | 13.6 m<br>(536")     | 14.2 m<br>(557") | 11.0 m<br>(432") | 10.1 m<br>(398") | 9.7 m<br>(380") | 6.9 m<br>(272") | 5.9 m<br>(233") |
|            | <b>2 Wheel Steer</b> |                  |                  |                  |                  |                  |                  | <b>4 Wheel Steer</b> |                  |                  |                  |                 |                 |                 |

Dimensions for table are represented in meters (inches). Conversions may not be exact.



All dimensions are in mm (in)



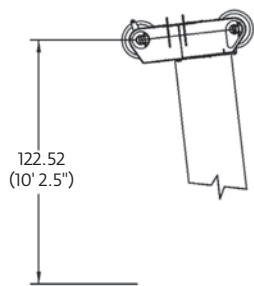
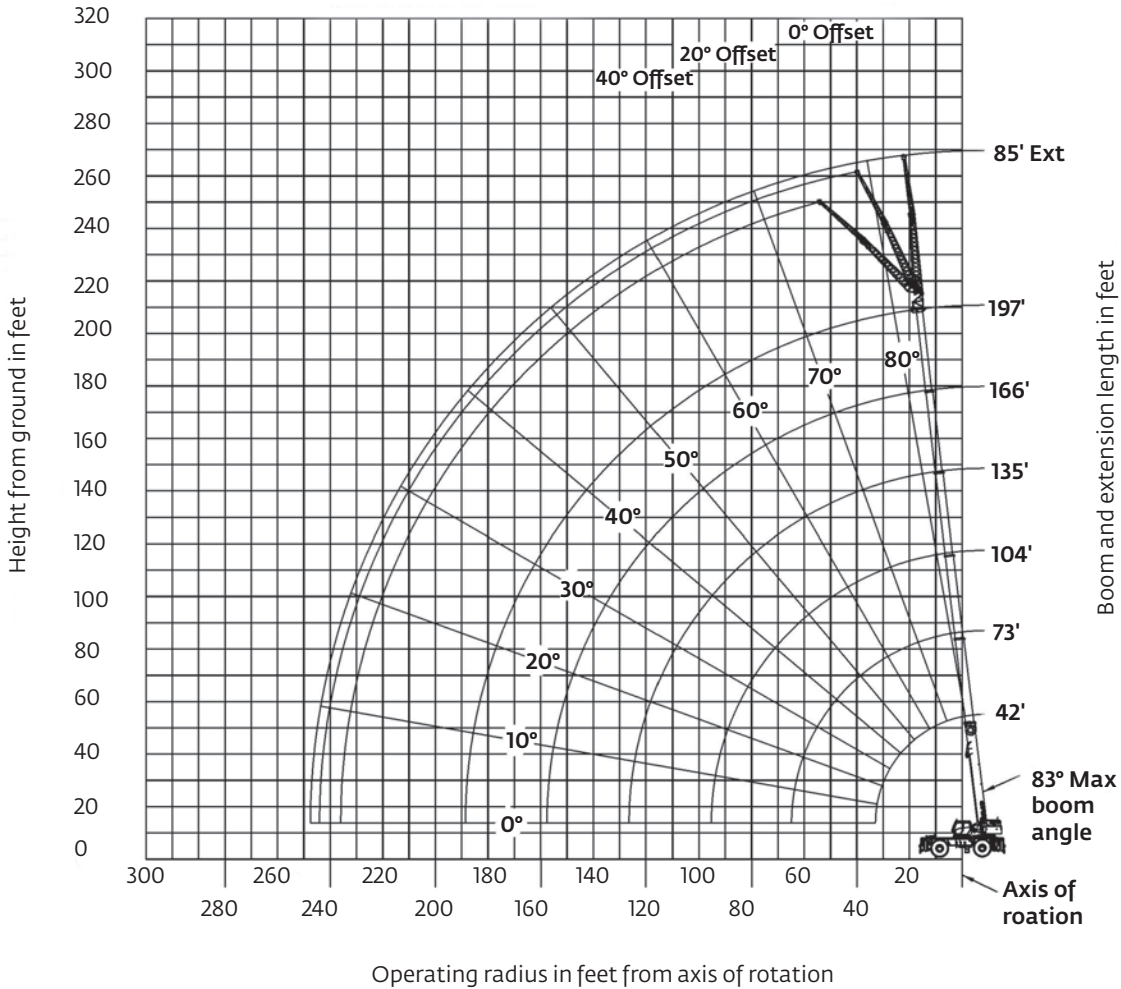
# Weights

| Weights  |                      |                      |                      |
|--|----------------------|----------------------|----------------------|
|  | Gross<br>kg (lb)     | Front<br>kg (lb)     | Rear<br>kg (lb)      |
| <b>Basic Machine:</b> Including 60,0 m (197 ft) main boom, main hoist with 255 m (837 ft) of rope, auxiliary hoist with 225 m (738 ft) of wire rope, 28 577 kg (63,000 lb) counterweight, 36 ft - 59 ft manual extension, 9 t (10 USt) headache ball, and 90 t (100 USt) hook block: | 87 751<br>(193,455)  | 31 474<br>(69,386)   | 56 278<br>(124,069)  |
| <b>Remove:</b> 36 ft - 59 ft manual extension  | -1577<br>(-3477)     | -2327<br>(-5129)     | 749<br>(1652)        |
| <b>Crane weight:</b>   | 86 174<br>(189,978)  | 29 147<br>(64,257)   | 57 027<br>(125,721)  |
| <b>Remove:</b> 100 USt hook block  | -1150<br>(-2535)     | -1094<br>(-2411)     | -56<br>(-124)        |
| <b>Crane weight:</b>   | 85 024<br>(187,443)  | 28 053<br>(61,846)   | 56 971<br>(125,597)  |
| <b>Remove:</b> 9,0 t (10 USt) headache ball  | -330<br>(-727)       | -526<br>(-1159)      | 196<br>(432)         |
| <b>Crane weight:</b>   | 84 694<br>(186,716)  | 27 527<br>(60,687)   | 57 167<br>(126,029)  |
| <b>Remove:</b> 28 577 kg (63,000 lb) counterweight   | -28 577<br>(-63,000) | 7665<br>(16,898)     | -36 242<br>(-79,898) |
| <b>Crane weight:</b>   | 56 177<br>(123,716)  | 35 192<br>(77,585)   | 20 925<br>(46,131)   |
| <b>Remove:</b> (4) tire/wheel assemblies   | -4318<br>(-9520)     | -2159<br>(-4760)     | -2159<br>(-4760)     |
| <b>Crane weight:</b>   | 51 799<br>(114,196)  | 33 033<br>(72,825)   | 18 766<br>(41,371)   |
| <b>Remove:</b> Front and rear outrigger boxes and beams  | -8552<br>(-18,854)   | -4045<br>(-8918)     | -4507<br>(-9936)     |
| <b>Crane weight:</b>   | 43 247<br>(95,342)   | 28 988<br>(63,907)   | 14 259<br>(31,435)   |
| <b>Remove:</b> Main boom assembly, auxiliary boom nose, and extension brackets   | -15 342<br>(-33,822) | -19 009<br>(-41,098) | 3668<br>(8086)       |
| <b>Crane weight:</b>   | 27 095<br>(61,520)   | 9979<br>(21,999)     | 17 927<br>(39,521)   |



# Working range

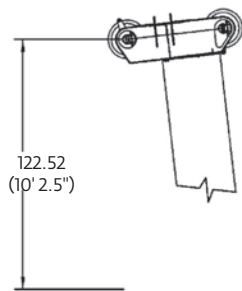
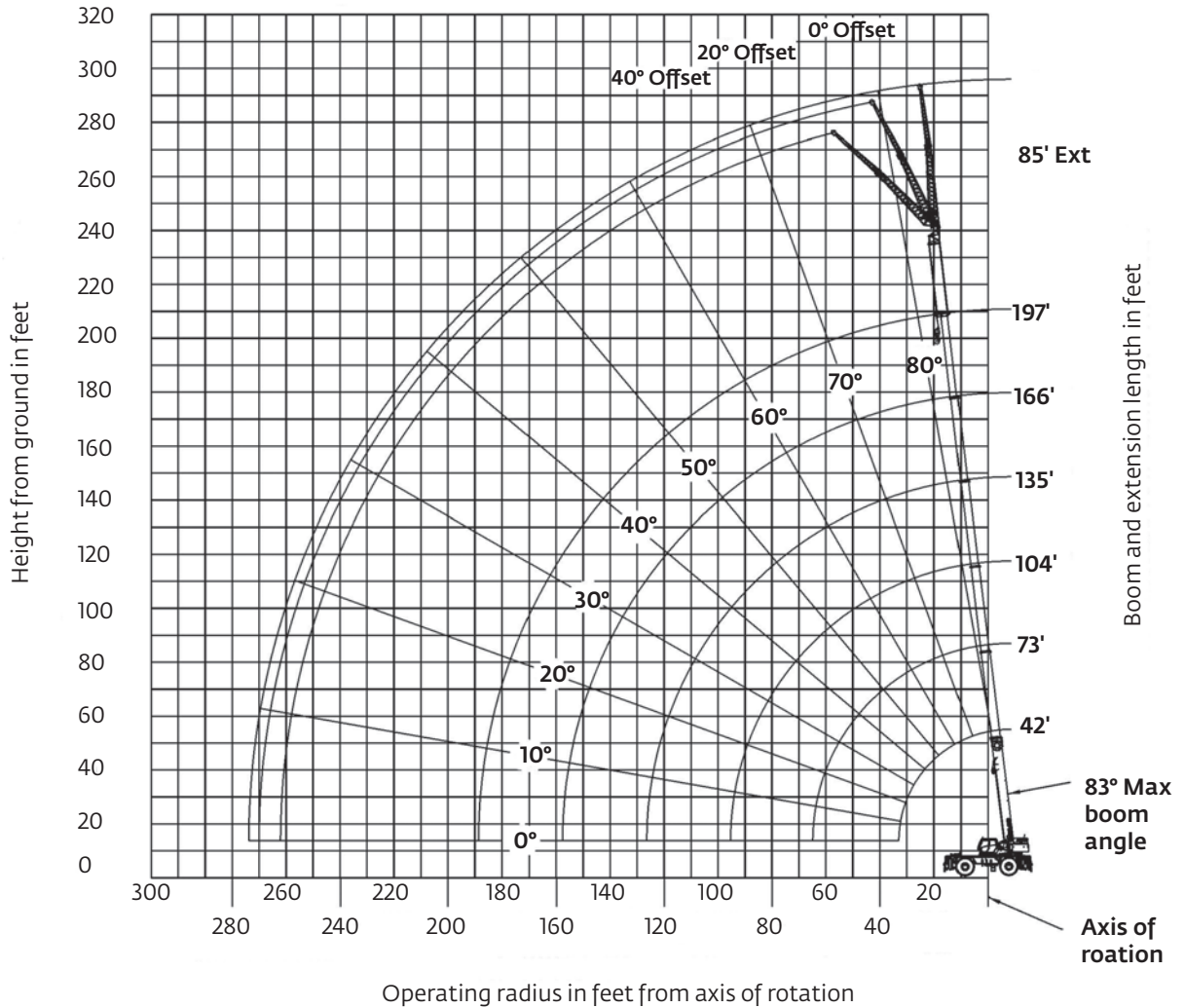
## Main boom with bi-fold extension



Dimensions are for largest Grove furnished hookblock and overhaul ball, with anti-two block activated.

# Working range

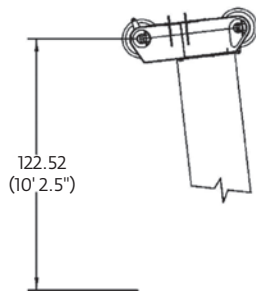
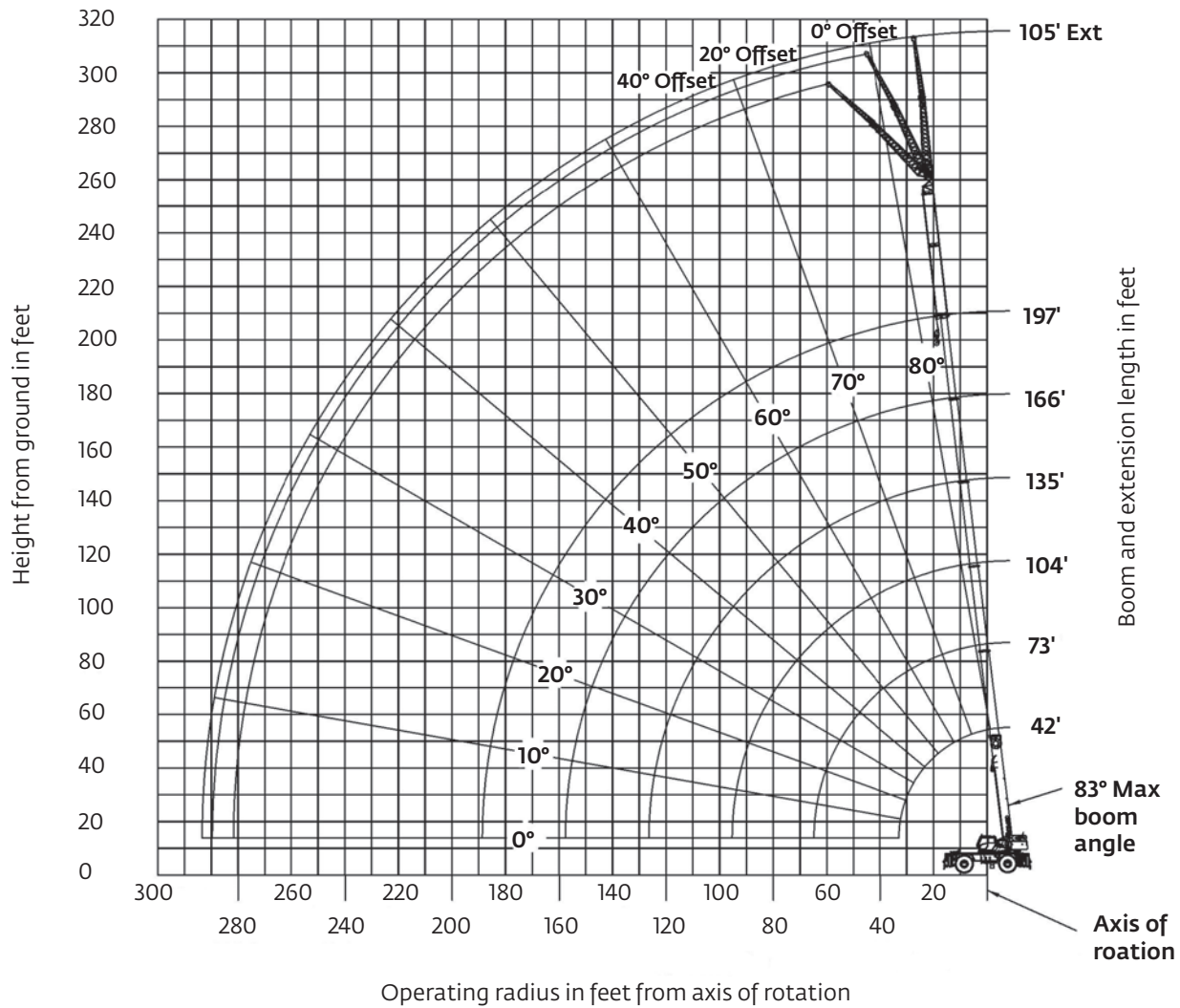
**Main boom with bi-fold extension and one insert**



Dimensions are for largest Grove furnished hookblock and overhaul ball, with anti-two block activated.

# Working range

## Main boom with bi-fold extension and two inserts



Dimensions are for largest Grove furnished hookblock and overhaul ball, with anti-two block activated.

*THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.*

*The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane*

# Load chart

## Main boom

 **42 ft - 197 ft**  
Fixed lengths

 **39,000 lb**

 **100%**

 **360°**

 Pounds 

| Feet | 42.3'    | 57.9'   | 73.4'   | 88.7'   | 104.5'  | 119.6' | 134.7' | 150.9' | 166.4' | 181.7' | 196.9' |
|------|----------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| 8    | *300,000 |         |         |         |         |        |        |        |        |        |        |
| 9    | 236,000  |         |         |         |         |        |        |        |        |        |        |
| 10   | 217,000  | 199,000 | 186,000 | 143,000 |         |        |        |        |        |        |        |
| 12   | 199,000  | 185,000 | 173,000 | 143,000 |         |        |        |        |        |        |        |
| 15   | 173,000  | 165,000 | 154,000 | 143,000 | 110,000 |        |        |        |        |        |        |
| 20   | 138,500  | 137,000 | 132,000 | 125,000 | 108,000 | 84,000 | 62,000 | 45,000 |        |        |        |
| 25   | 108,000  | 109,500 | 110,000 | 109,500 | 98,000  | 78,000 | 62,000 | 45,000 | 35,200 |        |        |
| 30   | 87,200   | 89,250  | 89,650  | 89,000  | 90,000  | 72,000 | 61,000 | 45,000 | 35,200 | 25,600 | 22,000 |
| 35   |          | 75,400  | 74,800  | 75,000  | 75,750  | 66,000 | 56,000 | 45,000 | 35,200 | 25,600 | 22,000 |
| 40   |          | 64,050  | 63,400  | 65,450  | 64,450  | 60,000 | 51,000 | 45,000 | 35,200 | 25,600 | 22,000 |
| 45   |          | 55,100  | 54,500  | 56,500  | 55,550  | 56,000 | 47,000 | 41,400 | 35,200 | 25,600 | 22,000 |
| 50   |          |         | 49,000  | 49,350  | 48,350  | 50,200 | 42,600 | 38,400 | 34,800 | 25,600 | 22,000 |
| 55   |          |         | 43,100  | 42,700  | 43,400  | 43,050 | 39,200 | 35,600 | 32,400 | 25,600 | 22,000 |
| 60   |          |         |         | 36,650  | 38,500  | 37,050 | 35,500 | 32,800 | 29,800 | 25,600 | 22,000 |
| 65   |          |         |         | 32,200  | 33,650  | 32,200 | 31,200 | 29,800 | 27,800 | 25,600 | 22,000 |
| 70   |          |         |         | 30,000  | 29,700  | 28,300 | 29,400 | 26,750 | 25,800 | 24,400 | 21,600 |
| 75   |          |         |         |         | 26,350  | 25,400 | 26,250 | 23,450 | 23,800 | 23,000 | 20,600 |
| 80   |          |         |         |         | 23,500  | 24,000 | 23,400 | 21,000 | 21,000 | 21,400 | 19,600 |
| 85   |          |         |         |         | 21,000  | 22,300 | 20,950 | 19,800 | 18,600 | 19,250 | 18,600 |
| 90   |          |         |         |         | 18,800  | 20,150 | 18,850 | 19,000 | 16,500 | 17,150 | 17,800 |
| 95   |          |         |         |         |         | 18,250 | 17,000 | 17,550 | 14,800 | 15,600 | 16,150 |
| 100  |          |         |         |         |         | 16,550 | 15,450 | 15,900 | 13,600 | 14,600 | 14,700 |
| 105  |          |         |         |         |         |        | 13,950 | 14,550 | 12,800 | 13,800 | 13,250 |
| 110  |          |         |         |         |         |        | 12,600 | 13,250 | 12,200 | 12,900 | 11,900 |
| 115  |          |         |         |         |         |        | 11,400 | 12,050 | 11,600 | 11,750 | 10,750 |
| 120  |          |         |         |         |         |        |        | 10,950 | 11,000 | 10,650 | 9,700  |
| 125  |          |         |         |         |         |        |        | 9,970  | 10,350 | 9,710  | 8,730  |
| 130  |          |         |         |         |         |        |        | 9,200  | 9,480  | 8,820  | 7,840  |
| 135  |          |         |         |         |         |        |        | 8,800  | 8,640  | 8,000  | 7,030  |
| 140  |          |         |         |         |         |        |        |        | 7,860  | 7,250  | 6,280  |
| 145  |          |         |         |         |         |        |        |        | 7,150  | 6,550  | 5,590  |
| 150  |          |         |         |         |         |        |        |        | 6,490  | 5,890  | 4,960  |
| 155  |          |         |         |         |         |        |        |        |        | 5,280  | 4,360  |
| 160  |          |         |         |         |         |        |        |        |        | 4,710  | 3,800  |
| 165  |          |         |         |         |         |        |        |        |        |        | 3,270  |
| 170  |          |         |         |         |         |        |        |        |        |        | 2,780  |
| 175  |          |         |         |         |         |        |        |        |        |        | 2,320  |
| 180  |          |         |         |         |         |        |        |        |        |        | 1,890  |

*\*Requires special equipment*

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The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane

# Load chart

## Manual bi-fold swingaway

 **42 ft - 197 ft**  
Fixed lengths
  **36 ft - 59 ft**  
Fixed angles
  **39,000 lb**
 **100%**
 **360°**







Pounds


| Offset Boom Feet | 36'    |        |          |        |        |        | 59'    |        |        |        |        |        |
|------------------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                  | 0°     |        | 20°      |        | 40°    |        | 0°     |        | 20°    |        | 40°    |        |
|                  | 119.6' | 196.9' | 119.6'   | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' |
| 20               | 31,400 |        |          |        |        |        |        |        |        |        |        |        |
| 25               | 31,400 |        |          |        |        |        | 14,800 |        |        |        |        |        |
| 30               | 31,400 |        | 28,000   |        |        |        | 14,800 |        |        |        |        |        |
| 35               | 31,400 | 11,600 | 27,200   |        |        |        | 14,600 |        |        |        |        |        |
| 40               | 31,200 | 11,600 | 26,400   |        | 21,000 |        | 14,400 | 7730   |        |        |        |        |
| 45               | 30,400 | 11,600 | 25,400   |        | 20,400 |        | 14,200 | 7730   | 12,600 |        |        |        |
| 50               | 29,600 | 11,600 | 24,400   | 11,600 | 20,000 |        | 14,000 | 7730   | 12,400 |        |        |        |
| 55               | 28,800 | 11,600 | 23,400   | 11,600 | 19,400 | 11,600 | 13,800 | 7730   | 12,000 |        |        |        |
| 60               | 28,000 | 11,600 | 22,400   | 11,600 | 19,000 | 11,600 | 13,600 | 7730   | 11,800 | 8000   | 10,400 |        |
| 65               | 26,600 | 11,600 | 21,600   | 11,600 | 18,600 | 11,600 | 13,400 | 7730   | 11,600 | 8000   | 10,200 |        |
| 70               | 25,400 | 11,600 | 21,000   | 11,600 | 18,200 | 11,600 | 13,000 | 7730   | 11,400 | 8000   | 10,000 |        |
| 75               | 24,200 | 11,600 | 20,200   | 11,600 | 17,800 | 11,600 | 12,800 | 7730   | 11,200 | 8000   | 9800   |        |
| 80               | 23,000 | 11,600 | 19,600   | 11,600 | 17,600 | 11,600 | 12,600 | 7730   | 11,000 | 8000   | 9600   | 8000   |
| 85               | 20,850 | 11,600 | 19,000   | 11,600 | 17,000 | 11,600 | 12,400 | 7730   | 10,800 | 8000   | 9600   | 8000   |
| 90               | 18,700 | 11,600 | 18,600   | 11,600 | 16,600 | 11,600 | 12,200 | 7730   | 10,600 | 8000   | 9400   | 8000   |
| 95               | 16,850 | 11,600 | 17,750   | 11,600 | 16,000 | 11,600 | 11,800 | 7730   | 10,400 | 8000   | 9400   | 8000   |
| 100              | 15,300 | 11,400 | 15,950   | 11,400 | 15,600 | 11,400 | 11,600 | 7730   | 10,200 | 8000   | 9200   | 8000   |
| 105              | 13,850 | 11,000 | 14,550.0 | 10,800 | 14,900 | 11,000 | 11,400 | 7730   | 10,000 | 8000   | 9200   | 8000   |
| 110              | 12,500 | 10,600 | 13,100.0 | 10,400 | 13,400 | 10,600 | 11,200 | 7730   | 9800   | 8000   | 9000   | 8000   |
| 115              | 11,300 | 10,000 | 11,850   | 10,000 | 12,000 | 10,000 | 10,800 | 730    | 9600   | 8000   | 9000   | 8000   |
| 120              | 10,250 | 9300   | 10,700   | 9600   | 10,800 | 9600   | 10,600 | 7730   | 9600   | 8000   | 9000   | 8000   |
| 125              | 9270   | 8320   | 9640     | 9090   |        | 9200   | 10,400 | 7730   | 9400   | 8000   | 8800   | 8000   |
| 130              | 8380   | 7430   | 8660     | 8140   |        | 8590   | 9490   | 7730   | 9200   | 7800   | 8800   | 8000   |
| 135              | 7570   | 6610   | 7770     | 7270   |        | 7680   | 8660   | 7260   | 9000   | 7600   | 8800   | 7800   |
| 140              |        | 5850   |          | 6470   |        | 6830   | 7890   | 6500   | 8550   | 7200   | 8800   | 7400   |
| 145              |        | 5160   |          | 5730   |        | 6050   | 7190   | 5790   | 7750   | 6880   | 7890   | 7200   |
| 150              |        | 4510   |          | 5040   |        | 5330   | 6540   | 5140   | 7000   | 6160   |        | 6800   |
| 155              |        | 3910   |          | 4400   |        | 4650   | 5940   | 4530   | 6300   | 5500   |        | 6140   |
| 160              |        | 3360   |          | 3810   |        | 4020   | 5390   | 3970   | 5630   | 4870   |        | 5460   |
| 165              |        | 2840   |          | 3250   |        | 3430   |        | 3440   |        | 4290   |        | 4820   |
| 170              |        | 2350   |          | 2730   |        | 2880   |        | 2950   |        | 3740   |        | 4220   |
| 175              |        | 1900   |          | 2240   |        | 2350   |        | 2490   |        | 3230   |        | 3660   |
| 180              |        | 1470   |          | 1780   |        | 1860   |        | 2060   |        | 2750   |        | 3120   |
| 185              |        | 1070   |          | 1350   |        |        |        | 1650   |        | 2290   |        | 2620   |
| 190              |        |        |          |        |        |        |        | 1270   |        | 1860   |        | 2140   |
| 195              |        |        |          |        |        |        |        |        |        | 1450   |        | 1680   |
| 200              |        |        |          |        |        |        |        |        |        | 1070   |        | 1250   |



# Load chart

## Hydraulic bi-fold swingaway

 **42 ft - 197 ft**  
Fixed lengths
  **36 ft - 59 ft**  
Fixed and intermediate angles
  **39,000 lb**
 **100%**
 **360°**

   **Pounds**

| Offset Boom Feet | 36'      |        |         |        |          |        | 59'    |        |         |        |          |        |
|------------------|----------|--------|---------|--------|----------|--------|--------|--------|---------|--------|----------|--------|
|                  | 0° fixed |        | 0° -20° |        | 20° -40° |        | 0°     |        | 0° -20° |        | 20° -40° |        |
|                  | 119.6'   | 196.9' | 119.6'  | 196.9' | 119.6'   | 196.9' | 119.6' | 196.9' | 119.6'  | 196.9' | 119.6'   | 196.9' |
| 20               | 31,400   |        |         |        |          |        |        |        |         |        |          |        |
| 25               | 31,400   |        |         |        |          |        |        |        |         |        |          |        |
| 30               | 31,400   |        | 28,000  |        |          |        | 14,800 |        |         |        |          |        |
| 35               | 31,400   | 11,600 | 27,200  |        |          |        | 14,800 |        |         |        |          |        |
| 40               | 31,200   | 11,600 | 26,400  |        |          | 21,000 | 14,400 | 7730   |         |        |          |        |
| 45               | 30,400   | 11,600 | 25,400  |        |          | 20,400 | 14,200 | 7730   | 12,600  |        |          |        |
| 50               | 29,600   | 11,600 | 24,400  | 11,600 | 20,000   |        | 14,000 | 7730   | 12,400  |        |          |        |
| 55               | 28,800   | 11,600 | 23,400  | 11,600 | 19,400   | 11,600 | 13,800 | 7730   | 12,000  |        |          |        |
| 60               | 28,000   | 11,600 | 22,400  | 11,600 | 19,000   | 11,600 | 13,600 | 7730   | 11,800  | 7730   | 10,400   |        |
| 65               | 26,600   | 11,600 | 21,600  | 11,600 | 18,600   | 11,600 | 13,400 | 7730   | 11,600  | 7730   | 10,200   |        |
| 70               | 25,400   | 11,600 | 21,000  | 11,600 | 18,200   | 11,600 | 13,000 | 7730   | 11,400  | 7730   | 10,000   |        |
| 75               | 24,200   | 11,600 | 20,200  | 11,600 | 17,800   | 11,600 | 12,800 | 7730   | 11,200  | 7730   | 9,800    |        |
| 80               | 23,000   | 11,600 | 19,600  | 11,600 | 17,600   | 11,600 | 12,600 | 7730   | 11,000  | 7730   | 9,600    | 8000   |
| 85               | 20,850   | 11,600 | 19,000  | 11,600 | 17,000   | 11,600 | 12,400 | 7730   | 10,800  | 7730   | 9,600    | 8000   |
| 90               | 18,700   | 11,600 | 18,600  | 11,600 | 16,600   | 11,600 | 12,200 | 7730   | 10,600  | 7730   | 9,400    | 8000   |
| 95               | 16,850   | 11,600 | 16,850  | 11,600 | 16,000   | 11,600 | 11,800 | 7730   | 10,400  | 7730   | 9,400    | 8000   |
| 100              | 15,300   | 11,400 | 15,300  | 11,400 | 15,600   | 11,400 | 11,600 | 7730   | 10,200  | 7730   | 9,200    | 8000   |
| 105              | 13,850   | 11,000 | 13,850  | 10,800 | 14,550   | 10,800 | 11,400 | 7730   | 10,000  | 7730   | 9,200    | 8000   |
| 110              | 12,500   | 10,600 | 12,500  | 10,400 | 13,100   | 10,400 | 11,200 | 7730   | 9,800   | 7730   | 9,000    | 8000   |
| 115              | 11,300   | 10,000 | 11,300  | 10,000 | 11,850   | 10,000 | 10,800 | 7730   | 9,600   | 7730   | 9,000    | 8000   |
| 120              | 10,250   | 9300   | 10,250  | 9300   | 10,700   | 9600   | 10,600 | 7730   | 9,600   | 7730   | 9,000    | 8000   |
| 125              | 9270     | 8320   | 9270    | 8320   |          | 9090   | 10,400 | 7730   | 9,400   | 7730   | 8,800    | 8000   |
| 130              | 8380     | 7430   | 8380    | 7430   |          | 8140   | 9490   | 7730   | 9200    | 7730   | 8800     | 7800   |
| 135              | 7570     | 6610   | 7570    | 6610   |          | 7270   | 8660   | 7260   | 8660    | 7260   | 8800     | 7600   |
| 140              |          | 5850   |         | 5850   |          | 6470   | 7890   | 6500   | 7890    | 6500   | 8550     | 7200   |
| 145              |          | 5160   |         | 5160   |          | 5730   | 7190   | 5790   | 7190    | 5790   | 7750     | 6880   |
| 150              |          | 4510   |         | 4510   |          | 5040   | 6540   | 5140   | 6540    | 5140   |          | 6160   |
| 155              |          | 3910   |         | 3910   |          | 4400   | 5940   | 4530   | 5940    | 4530   |          | 5500   |
| 160              |          | 3360   |         | 3360   |          | 3810   | 5390   | 3970   | 5390    | 3970   |          | 4870   |
| 165              |          | 2840   |         | 2840   |          | 3250   |        | 3440   |         | 3440   |          | 4290   |
| 170              |          | 2350   |         | 2350   |          | 2730   |        | 2950   |         | 2950   |          | 3740   |
| 175              |          | 1900   |         | 1900   |          | 2240   |        | 2490   |         | 2490   |          | 3230   |
| 180              |          | 1470   |         | 1470   |          | 1780   |        | 2060   |         | 2060   |          | 2750   |
| 185              |          | 1070   |         | 1070   |          |        |        | 1650   |         | 1650   |          | 2290   |
| 190              |          |        |         |        |          |        |        | 1270   |         | 1270   |          | 1860   |
| 195              |          |        |         |        |          |        |        |        |         |        |          | 1450   |
| 200              |          |        |         |        |          |        |        |        |         |        |          | 1070   |

# Load chart

## Manual bi-fold swingaway with inserts

 **42 ft - 197 ft**  
Fixed lengths
  **36 ft - 59 ft**  
Fixed angles
  **39,000 lb**
 **100%**
 **360°**

  **Pounds**

| Offset Boom Feet | Insert 26' |        |            |        |        |        | Insert 26' + 19.6' |        |             |        |        |        |      |
|------------------|------------|--------|------------|--------|--------|--------|--------------------|--------|-------------|--------|--------|--------|------|
|                  | 0°         |        | 85°<br>20° |        | 40°    |        | 0°                 |        | 105°<br>20° |        | 40°    |        |      |
|                  | 119.6'     | 196.9' | 119.6'     | 196.9' | 119.6' | 196.9' | 119.6'             | 196.9' | 119.6'      | 196.9' | 119.6' | 196.9' |      |
| 25               |            |        |            |        |        |        |                    |        |             |        |        |        |      |
| 30               | 12,000     |        |            |        |        |        |                    | 9200   |             |        |        |        |      |
| 35               | 12,000     |        |            |        |        |        |                    | 9200   |             |        |        |        |      |
| 40               | 12,000     |        |            |        |        |        |                    | 9200   |             |        |        |        |      |
| 45               | 12,000     |        |            |        |        |        |                    | 9200   |             |        |        |        |      |
| 50               | 12,000     | 5600   | 11,400     |        |        |        |                    | 9200   | 3920        |        |        |        |      |
| 55               | 12,000     | 5600   | 11,000     |        |        |        |                    | 9200   | 3920        | 9000   |        |        |      |
| 60               | 11,800     | 5600   | 10,600     |        |        |        |                    | 9200   | 3920        | 8600   |        |        |      |
| 65               | 11,600     | 5600   | 10,200     |        |        |        |                    | 9000   | 3920        | 8400   |        |        |      |
| 70               | 11,200     | 5600   | 10,000     | 5600   | 9000   |        |                    | 8800   | 3920        | 8200   |        |        |      |
| 75               | 10,800     | 5600   | 9600       | 5600   | 8600   |        |                    | 8400   | 3920        | 7800   | 4200   | 7000   |      |
| 80               | 10,400     | 5600   | 9200       | 5600   | 8400   |        |                    | 8200   | 3920        | 7600   | 4200   | 7000   |      |
| 85               | 10,000     | 5600   | 9000       | 5600   | 8200   |        |                    | 8000   | 3920        | 7400   | 4200   | 6800   |      |
| 90               | 9800       | 5600   | 8800       | 5600   | 8000   | 5600   |                    | 7600   | 3920        | 7200   | 4200   | 6600   | 4000 |
| 95               | 9400       | 5600   | 8400       | 5600   | 7800   | 5600   |                    | 7400   | 3920        | 7000   | 4200   | 6400   | 4000 |
| 100              | 9000       | 5600   | 8200       | 5600   | 7600   | 5600   |                    | 7200   | 3920        | 6800   | 4200   | 6200   | 4000 |
| 105              | 8800       | 5600   | 8000       | 5600   | 7400   | 5600   |                    | 7000   | 3920        | 6600   | 4200   | 6000   | 4000 |
| 110              | 8400       | 5600   | 7600       | 5600   | 7200   | 5600   |                    | 6800   | 3920        | 6200   | 4200   | 5800   | 4000 |
| 115              | 8200       | 5600   | 7400       | 5600   | 7000   | 5600   |                    | 6400   | 3920        | 6000   | 4200   | 5800   | 4000 |
| 120              | 8000       | 5600   | 7200       | 5600   | 6800   | 5600   |                    | 6200   | 3920        | 5800   | 4200   | 5600   | 4000 |
| 125              | 7600       | 5600   | 7000       | 5600   | 6800   | 5600   |                    | 6000   | 3920        | 5600   | 4200   | 5400   | 4000 |
| 130              | 7400       | 5600   | 6800       | 5600   | 6600   | 5600   |                    | 5800   | 3920        | 5400   | 4200   | 5200   | 4000 |
| 135              | 7200       | 5600   | 6600       | 5600   | 6400   | 5600   |                    | 5600   | 3920        | 5400   | 4200   | 5200   | 4000 |
| 140              | 7000       | 5600   | 6600       | 5600   | 6400   | 5600   |                    | 5400   | 3920        | 5200   | 4200   | 5000   | 4000 |
| 145              | 6800       | 5600   | 6400       | 5600   | 6200   | 5600   |                    | 5200   | 3920        | 5000   | 4200   | 4800   | 4000 |
| 150              | 6600       | 5180   | 6200       | 5400   | 6200   | 5600   |                    | 5000   | 3920        | 4800   | 4200   | 4800   | 4000 |
| 155              | 6270       | 4570   | 6000       | 5200   | 6000   | 5600   |                    | 4800   | 3920        | 4800   | 4200   | 4600   | 4000 |
| 160              | 5690       | 4000   | 6000       | 4990   | 6000   | 5200   |                    | 4800   | 3920        | 4600   | 4200   | 4600   | 4000 |
| 165              | 5160       | 3470   | 5650       | 4400   | 5790   | 5000   |                    | 4600   | 3450        | 4400   | 4000   | 4400   | 4000 |
| 170              | 4660       | 2970   | 5080       | 3850   |        | 4430   |                    | 4400   | 2950        | 4400   | 3800   | 4200   | 4000 |
| 175              | 4200       | 2510   | 4550       | 3340   |        | 3870   |                    | 4320   | 2480        | 4200   | 3370   | 4200   | 3960 |
| 180              | 3770       | 2070   | 4050       | 2850   |        | 3340   |                    | 3880   | 2040        | 4000   | 2880   | 4200   | 3430 |
| 185              | 3370       | 1660   | 3560       | 2400   |        | 2840   |                    | 3460   | 1630        | 3860   | 2420   |        | 2930 |
| 190              | 3000       | 1270   | 3090       | 1960   |        | 2370   |                    | 3080   | 1240        | 3410   | 1990   |        | 2460 |
| 195              |            |        |            | 1560   |        | 1920   |                    | 2710   |             | 2990   | 1580   |        | 2020 |
| 200              |            |        |            | 1170   |        | 1490   |                    | 2370   |             | 2590   | 1200   |        | 1590 |
| 205              |            |        |            |        |        | 1090   |                    | 2050   |             | 2200   |        |        | 1190 |
| 210              |            |        |            |        |        |        |                    |        |             |        |        |        |      |
| 215              |            |        |            |        |        |        |                    |        |             |        |        |        |      |
| 220              |            |        |            |        |        |        |                    |        |             |        |        |        |      |

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.

# Load chart

## Main boom

 **42 ft - 197 ft**  
Fixed lengths

 **63,000 lb**

 **100%**

 **360°**



 **Pounds**

| Feet | 42.3'    | 57.9'   | 73.4'   | 88.7'   | 104.5'  | 119.6' | 134.7' | 150.9' | 166.4' | 181.7' | 196.9' |
|------|----------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| 8    | *300,000 |         |         |         |         |        |        |        |        |        |        |
| 9    | 236,000  |         |         |         |         |        |        |        |        |        |        |
| 10   | 217,000  | 199,000 | 186,000 | 143,000 |         |        |        |        |        |        |        |
| 12   | 199,000  | 185,000 | 173,000 | 143,000 |         |        |        |        |        |        |        |
| 15   | 173,000  | 165,000 | 154,000 | 143,000 | 110,000 |        |        |        |        |        |        |
| 20   | 142,000  | 137,000 | 132,000 | 125,000 | 108,000 | 84,000 | 62,000 | 45,000 |        |        |        |
| 25   | 117,000  | 115,000 | 114,000 | 110,000 | 98,000  | 78,000 | 62,000 | 45,000 | 35,200 |        |        |
| 30   | 92,000   | 96,000  | 96,000  | 95,000  | 90,000  | 72,000 | 61,000 | 45,000 | 35,200 | 25,600 | 22,000 |
| 35   |          | 80,850  | 81,300  | 80,650  | 82,000  | 66,000 | 56,000 | 45,000 | 35,200 | 25,600 | 22,000 |
| 40   |          | 69,000  | 69,400  | 68,750  | 70,250  | 60,000 | 51,000 | 45,000 | 35,200 | 25,600 | 22,000 |
| 45   |          | 60,600  | 60,100  | 61,750  | 60,950  | 56,000 | 47,000 | 41,400 | 35,200 | 25,600 | 22,000 |
| 50   |          |         | 52,650  | 54,300  | 53,550  | 52,000 | 42,600 | 38,400 | 34,800 | 25,600 | 22,000 |
| 55   |          |         | 46,300  | 48,200  | 47,000  | 48,000 | 39,200 | 35,600 | 32,400 | 25,600 | 22,000 |
| 60   |          |         |         | 43,000  | 41,800  | 42,400 | 35,800 | 32,800 | 29,800 | 25,600 | 22,000 |
| 65   |          |         |         | 38,400  | 37,600  | 38,000 | 32,600 | 29,800 | 27,800 | 25,600 | 22,000 |
| 70   |          |         |         | 34,200  | 35,400  | 43,200 | 30,200 | 27,400 | 25,800 | 24,400 | 21,600 |
| 75   |          |         |         | 27,400  | 32,200  | 31,000 | 28,000 | 25,400 | 24,000 | 23,000 | 20,600 |
| 80   |          |         |         |         | 29,000  | 27,800 | 26,400 | 23,800 | 22,200 | 21,400 | 19,600 |
| 85   |          |         |         |         | 26,400  | 25,000 | 25,200 | 22,000 | 20,800 | 20,000 | 18,600 |
| 90   |          |         |         |         | 23,800  | 22,400 | 24,000 | 20,800 | 19,400 | 18,800 | 17,800 |
| 95   |          |         |         |         |         | 21,000 | 21,800 | 19,000 | 18,200 | 17,600 | 17,000 |
| 100  |          |         |         |         |         | 20,000 | 19,800 | 17,200 | 17,000 | 16,400 | 16,000 |
| 105  |          |         |         |         |         |        | 18,000 | 15,800 | 15,600 | 15,000 | 14,800 |
| 110  |          |         |         |         |         |        | 16,600 | 14,800 | 14,200 | 13,800 | 13,600 |
| 115  |          |         |         |         |         |        | 15,200 | 14,000 | 13,000 | 12,800 | 12,800 |
| 120  |          |         |         |         |         |        |        | 13,400 | 11,600 | 12,000 | 12,000 |
| 125  |          |         |         |         |         |        |        | 12,800 | 10,400 | 11,600 | 11,400 |
| 130  |          |         |         |         |         |        |        | 12,400 | 9800   | 11,000 | 10,800 |
| 135  |          |         |         |         |         |        |        | 11,400 | 9400   | 10,400 | 10,000 |
| 140  |          |         |         |         |         |        |        |        | 8800   | 10,000 | 9200   |
| 145  |          |         |         |         |         |        |        |        | 8400   | 9400   | 8400   |
| 150  |          |         |         |         |         |        |        |        | 8000   | 8600   | 7600   |
| 155  |          |         |         |         |         |        |        |        |        | 7800   | 6800   |
| 160  |          |         |         |         |         |        |        |        |        | 7200   | 6200   |
| 165  |          |         |         |         |         |        |        |        |        |        | 5600   |
| 170  |          |         |         |         |         |        |        |        |        |        | 5000   |
| 175  |          |         |         |         |         |        |        |        |        |        | 4400   |
| 180  |          |         |         |         |         |        |        |        |        |        | 3800   |

\*Requires special equipment

# Load chart

## Manual bi-fold swingaway

 **42 ft - 197 ft**  
Fixed lengths
  **36 ft - 59 ft**  
Fixed angles
  **63,000 lb**
 **100%**
 **360°**


 Pounds 


| Offset Boom Feet | 36'    |        |        |        |        |        | 59'    |        |        |        |        |        |
|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                  | 0°     |        | 20°    |        | 40°    |        | 0°     |        | 20°    |        | 40°    |        |
|                  | 119.6' | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' |
| 20               | 31,400 |        |        |        |        |        |        |        |        |        |        |        |
| 25               | 31,400 |        |        |        |        |        | 14,800 |        |        |        |        |        |
| 30               | 31,400 |        |        |        |        |        | 14,800 |        |        |        |        |        |
| 35               | 31,400 | 11,600 | 27,200 |        |        |        | 14,600 |        |        |        |        |        |
| 40               | 31,200 | 11,600 | 26,400 |        |        | 21,000 | 14,400 | 7730   |        |        |        |        |
| 45               | 30,400 | 11,600 | 25,400 |        |        | 20,400 | 14,200 | 7730   | 12,600 |        |        |        |
| 50               | 29,600 | 11,600 | 24,400 | 11,600 | 20,000 |        | 14,000 | 7730   | 12,400 |        |        |        |
| 55               | 28,800 | 11,600 | 23,400 | 11,600 | 19,400 | 11,600 | 13,800 | 7730   | 12,000 |        |        |        |
| 60               | 28,000 | 11,600 | 22,400 | 11,600 | 19,000 | 11,600 | 13,600 | 7730   | 11,800 | 8000   | 10,400 |        |
| 65               | 26,600 | 11,600 | 21,600 | 11,600 | 18,600 | 11,600 | 13,400 | 7730   | 11,600 | 8000   | 10,200 |        |
| 70               | 25,400 | 11,600 | 21,000 | 11,600 | 18,200 | 11,600 | 13,000 | 7730   | 11,400 | 8000   | 10,000 |        |
| 75               | 24,200 | 11,600 | 20,200 | 11,600 | 17,800 | 11,600 | 12,800 | 7730   | 11,200 | 8000   | 9800   |        |
| 80               | 23,000 | 11,600 | 19,600 | 11,600 | 17,600 | 11,600 | 12,600 | 7730   | 11,000 | 8000   | 9600   | 8000   |
| 85               | 22,000 | 11,600 | 19,000 | 11,600 | 17,000 | 11,600 | 12,400 | 7730   | 10,800 | 8000   | 9600   | 8000   |
| 90               | 21,000 | 11,600 | 18,600 | 11,600 | 16,600 | 11,600 | 12,200 | 7730   | 10,600 | 8000   | 9400   | 8000   |
| 95               | 20,000 | 11,600 | 18,000 | 11,600 | 16,000 | 11,600 | 11,800 | 7730   | 10,400 | 8000   | 9400   | 8000   |
| 100              | 19,200 | 11,400 | 17,400 | 11,400 | 15,600 | 11,400 | 11,600 | 7730   | 10,200 | 8000   | 9200   | 8000   |
| 105              | 18,000 | 11,000 | 16,800 | 10,800 | 15,600 | 11,000 | 11,400 | 7730   | 10,000 | 8000   | 9200   | 8000   |
| 110              | 16,400 | 10,600 | 16,000 | 10,400 | 15,400 | 10,600 | 11,200 | 7730   | 9800   | 8000   | 9000   | 8000   |
| 115              | 15,000 | 10,000 | 15,400 | 10,000 | 15,200 | 10,000 | 10,800 | 7730   | 9600   | 8000   | 9000   | 8000   |
| 120              | 13,800 | 9600   | 14,200 | 9600   | 14,400 | 9600   | 10,600 | 7730   | 9600   | 8000   | 9000   | 8000   |
| 125              | 12,600 | 9200   | 13,000 | 9200   |        | 9200   | 10,400 | 7730   | 9400   | 8000   | 8800   | 8000   |
| 130              | 11,600 | 8800   | 11,800 | 8800   |        | 8800   | 10,200 | 7730   | 9200   | 7800   | 8800   | 8000   |
| 135              | 10,600 | 8400   | 10,800 | 8400   |        | 8600   | 10,000 | 7400   | 9000   | 7600   | 8800   | 7800   |
| 140              |        | 8000   |        | 8000   |        | 8200   | 9800   | 7200   | 9000   | 7200   | 8800   | 7400   |
| 145              |        | 7600   |        | 7800   |        | 7800   | 9400   | 6800   | 8800   | 7000   | 8800   | 7200   |
| 150              |        | 6800   |        | 7400   |        | 7600   | 9200   | 6600   | 8800   | 6600   |        | 6800   |
| 155              |        | 6200   |        | 6800   |        | 7000   | 8600   | 6400   | 8600   | 6400   |        | 6600   |
| 160              |        | 5600   |        | 6000   |        | 6200   | 7800   | 6000   | 8000   | 6200   |        | 6400   |
| 165              |        | 5000   |        | 5400   |        | 5600   |        | 5600   |        | 6000   |        | 6200   |
| 170              |        | 4400   |        | 4800   |        | 5000   |        | 5000   |        | 5600   |        | 5800   |
| 175              |        | 3800   |        | 4200   |        | 4200   |        | 4600   |        | 5400   |        | 5600   |
| 180              |        | 3200   |        | 3600   |        | 3600   |        | 4000   |        | 4800   |        | 5200   |
| 185              |        | 2800   |        | 3000   |        |        |        | 3600   |        | 4200   |        | 4600   |
| 190              |        | 2400   |        | 2600   |        |        |        | 3000   |        | 3800   |        | 4000   |
| 195              |        | 1800   |        | 2200   |        |        |        | 2600   |        | 3200   |        | 3400   |
| 200              |        |        |        |        |        |        |        | 2200   |        | 2800   |        | 3000   |
| 205              |        |        |        |        |        |        |        |        |        | 2400   |        |        |
| 210              |        |        |        |        |        |        |        |        |        | 1800   |        |        |


THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.


# Load chart


## Hydraulic bi-fold swingaway

 **42 ft - 197 ft**  
**Fixed lengths**

 **36 ft - 59 ft**  
**Fixed and intermediate angles**

 **63,000 lb**

 **100%**

 **360°**

| Offset Boom Feet | 36'      |        |        |        |         |        | 59'    |        |        |        |         |        |
|------------------|----------|--------|--------|--------|---------|--------|--------|--------|--------|--------|---------|--------|
|                  | 0° fixed |        | 0°-20° |        | 20°-40° |        | 0°     |        | 0°-20° |        | 20°-40° |        |
|                  | 119.6'   | 196.9' | 119.6' | 196.9' | 119.6'  | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' | 119.6'  | 196.9' |
| 20               | 31,400   |        |        |        |         |        |        |        |        |        |         |        |
| 25               | 31,400   |        |        |        |         |        | 14,800 |        |        |        |         |        |
| 30               | 31,400   |        | 28,000 |        |         |        | 14,800 |        |        |        |         |        |
| 35               | 31,400   | 11,600 | 27,200 |        |         |        | 14,600 |        |        |        |         |        |
| 40               | 31,200   | 11,600 | 26,400 |        | 21,000  |        | 14,400 | 7730   |        |        |         |        |
| 45               | 30,400   | 11,600 | 25,400 |        | 20,400  |        | 14,200 | 7730   | 12,600 |        |         |        |
| 50               | 29,600   | 11,600 | 24,400 | 11,600 | 20,000  |        | 14,000 | 7730   | 12,400 |        |         |        |
| 55               | 28,800   | 11,600 | 23,400 | 11,600 | 19,400  | 11,600 | 13,800 | 7730   | 12,000 |        |         |        |
| 60               | 28,000   | 11,600 | 22,400 | 11,600 | 19,000  | 11,600 | 13,600 | 7730   | 11,800 | 7730   | 10,400  |        |
| 65               | 26,600   | 11,600 | 21,600 | 11,600 | 18,600  | 11,600 | 13,400 | 7730   | 11,600 | 7730   | 10,200  |        |
| 70               | 25,400   | 11,600 | 21,000 | 11,600 | 18,200  | 11,600 | 13,000 | 7730   | 11,400 | 7730   | 10,000  |        |
| 75               | 24,200   | 11,600 | 20,200 | 11,600 | 17,800  | 11,600 | 12,800 | 7730   | 11,200 | 7730   | 9800    |        |
| 80               | 23,000   | 11,600 | 19,600 | 11,600 | 17,600  | 11,600 | 12,600 | 7730   | 11,000 | 7730   | 9600    | 8000   |
| 85               | 22,000   | 11,600 | 19,000 | 11,600 | 17,000  | 11,600 | 12,400 | 7730   | 10,800 | 7730   | 9600    | 8000   |
| 90               | 21,000   | 11,600 | 18,600 | 11,600 | 16,600  | 11,600 | 12,200 | 7730   | 10,600 | 7730   | 9400    | 8000   |
| 95               | 20,000   | 11,600 | 18,000 | 11,600 | 16,000  | 11,600 | 11,800 | 7730   | 10,400 | 7730   | 9400    | 8000   |
| 100              | 19,200   | 11,400 | 17,400 | 11,400 | 15,600  | 11,400 | 11,600 | 7730   | 10,200 | 7730   | 9200    | 8000   |
| 105              | 18,000   | 11,000 | 16,800 | 10,800 | 15,600  | 10,800 | 11,400 | 7730   | 10,000 | 7730   | 9200    | 8000   |
| 110              | 16,400   | 10,600 | 16,000 | 10,400 | 15,400  | 10,400 | 11,200 | 7730   | 9800   | 7730   | 9000    | 8000   |
| 115              | 15,000   | 10,000 | 15,000 | 10,000 | 15,200  | 10,000 | 10,800 | 7730   | 9600   | 7730   | 9000    | 8000   |
| 120              | 13,800   | 9600   | 13,800 | 9600   | 14,200  | 9600   | 10,600 | 7730   | 9600   | 7730   | 9000    | 8000   |
| 125              | 12,600   | 9200   | 12,600 | 9200   |         | 9200   | 10,400 | 7730   | 9400   | 7730   | 8800    | 8000   |
| 130              | 11,600   | 8800   | 11,600 | 8800   |         | 8800   | 10,200 | 7730   | 9200   | 7730   | 8800    | 7800   |
| 135              | 10,600   | 8400   | 10,600 | 8400   |         | 8400   | 10,000 | 7400   | 9000   | 7400   | 8800    | 7600   |
| 140              |          | 8000   |        | 8000   |         | 8000   | 9800   | 7200   | 9000   | 7200   | 8800    | 7200   |
| 145              |          | 7600   |        | 7600   |         | 7800   | 9400   | 6800   | 8800   | 6800   | 8800    | 7000   |
| 150              |          | 6800   |        | 6800   |         | 7400   | 9200   | 6600   | 8800   | 6600   |         | 6600   |
| 155              |          | 6200   |        | 6200   |         | 6800   | 8600   | 6400   | 8600   | 6400   |         | 6400   |
| 160              |          | 5600   |        | 5600   |         | 6000   | 7800   | 6000   | 7800   | 6000   |         | 6200   |
| 165              |          | 5000   |        | 5000   |         | 5400   |        | 5600   |        | 5600   |         | 6000   |
| 170              |          | 4400   |        | 4400   |         | 4800   |        | 5000   |        | 5000   |         | 5600   |
| 175              |          | 3800   |        | 3800   |         | 4200   |        | 4600   |        | 4600   |         | 5400   |
| 180              |          | 3200   |        | 3200   |         | 3600   |        | 4000   |        | 4000   |         | 4800   |
| 185              |          | 2800   |        | 2800   |         |        |        | 3600   |        | 3600   |         | 4200   |
| 190              |          | 2400   |        | 2400   |         |        |        | 3000   |        | 3000   |         | 3800   |
| 195              |          | 1800   |        | 1800   |         |        |        | 2600   |        | 2600   |         | 3200   |
| 200              |          |        |        |        |         |        |        | 2200   |        | 2200   |         | 2800   |



# Load chart

## Manual bi-fold swingaway with inserts

 **42 ft - 197 ft**  
**Fixed lengths**

 **36 ft - 59 ft**  
**Fixed angles**

 **63,000 lb**

 **100%**

 **360°**

 Pounds 

| Offset Boom Feet | Insert 26' |        |        |        |        |        | Insert 26' + 19.6' |        |        |        |        |        |
|------------------|------------|--------|--------|--------|--------|--------|--------------------|--------|--------|--------|--------|--------|
|                  | 0°         |        | 36°    |        | 40°    |        | 0°                 |        | 59°    |        | 40°    |        |
|                  | 119.6'     | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' | 119.6'             | 196.9' | 119.6' | 196.9' | 119.6' | 196.9' |
| 25               |            |        |        |        |        |        |                    |        |        |        |        |        |
| 30               | 12,000     |        |        |        |        |        |                    |        |        |        |        |        |
| 35               | 12,000     |        |        |        |        |        |                    |        |        |        |        |        |
| 40               | 12,000     |        |        |        |        |        | 9200               |        |        |        |        |        |
| 45               | 12,000     |        |        |        |        |        | 9200               |        |        |        |        |        |
| 50               | 12,000     | 5600   | 11,400 |        |        |        | 9200               | 3920   |        |        |        |        |
| 55               | 12,000     | 5600   | 11,000 |        |        |        | 9200               | 3920   | 9000   |        |        |        |
| 60               | 11,800     | 5600   | 10,600 |        |        |        | 9200               | 3920   | 8600   |        |        |        |
| 65               | 11,600     | 5600   | 10,200 |        |        |        | 9000               | 3920   | 8400   |        |        |        |
| 70               | 11,200     | 5600   | 10,000 | 5600   | 9000   |        | 8800               | 3920   | 8200   |        |        |        |
| 75               | 10,800     | 5600   | 9600   | 5600   | 8600   |        | 8400               | 3920   | 7800   | 4200   | 7000   |        |
| 80               | 10,400     | 5600   | 9200   | 5600   | 8400   |        | 8200               | 3920   | 7600   | 4200   | 7000   |        |
| 85               | 10,000     | 5600   | 9000   | 5600   | 8200   |        | 8000               | 3920   | 7400   | 4200   | 6800   |        |
| 90               | 9800       | 5600   | 8800   | 5600   | 8000   | 5600   | 7600               | 3920   | 7200   | 4200   | 6600   | 4000   |
| 95               | 9400       | 5600   | 8400   | 5600   | 7800   | 5600   | 7400               | 3920   | 7000   | 4200   | 6400   | 4000   |
| 100              | 9000       | 5600   | 8200   | 5600   | 7600   | 5600   | 7200               | 3920   | 6800   | 4200   | 6200   | 4000   |
| 105              | 8800       | 5600   | 8000   | 5600   | 7400   | 5600   | 7000               | 3920   | 6600   | 4200   | 6000   | 4000   |
| 110              | 8400       | 5600   | 7600   | 5600   | 7200   | 5600   | 6800               | 3920   | 6200   | 4200   | 5800   | 4000   |
| 115              | 8200       | 5600   | 7400   | 5600   | 7000   | 5600   | 6400               | 3920   | 6000   | 4200   | 5800   | 4000   |
| 120              | 8000       | 5600   | 7200   | 5600   | 6800   | 5600   | 6200               | 3920   | 5800   | 4200   | 5600   | 4000   |
| 125              | 7600       | 5600   | 7000   | 5600   | 6800   | 5600   | 6000               | 3920   | 5600   | 4200   | 5400   | 4000   |
| 130              | 7400       | 5600   | 6800   | 5600   | 6600   | 5600   | 5800               | 3920   | 5400   | 4200   | 5200   | 4000   |
| 135              | 7200       | 5600   | 6600   | 5600   | 6400   | 5600   | 5600               | 3920   | 5400   | 4200   | 5200   | 4000   |
| 140              | 7000       | 5600   | 6600   | 5600   | 6400   | 5600   | 5400               | 3920   | 5200   | 4200   | 5000   | 4000   |
| 145              | 6800       | 5600   | 6400   | 5600   | 6200   | 5600   | 5200               | 3920   | 5000   | 4200   | 4800   | 4000   |
| 150              | 6600       | 5400   | 6200   | 5400   | 6200   | 5600   | 5000               | 3920   | 4800   | 4200   | 4800   | 4000   |
| 155              | 6400       | 5000   | 6000   | 5200   | 6000   | 5600   | 4800               | 3920   | 4800   | 4200   | 4600   | 4000   |
| 160              | 6200       | 4800   | 6000   | 5000   | 6000   | 5200   | 4800               | 3920   | 4600   | 4200   | 4600   | 4000   |
| 165              | 6000       | 4600   | 5800   | 4800   | 5800   | 5000   | 4600               | 3800   | 4400   | 4000   | 4400   | 4000   |
| 170              | 5800       | 4400   | 5800   | 4600   | 5800   | 4800   | 4400               | 3600   | 4400   | 3800   | 4200   | 4000   |
| 175              | 5800       | 4200   | 5600   | 4400   | 5600   | 4600   | 4400               | 3400   | 4200   | 3600   | 4200   | 4000   |
| 180              | 5600       | 3800   | 5600   | 4200   | 5600   | 4400   | 4200               | 3200   | 4000   | 3400   | 4200   | 3800   |
| 185              | 5400       | 3400   | 5600   | 4000   | 5600   | 4200   | 4000               | 3000   | 4000   | 3200   | 4000   | 3600   |
| 190              | 4800       | 3000   | 5000   | 3600   | 5600   | 4000   | 4000               | 2800   | 3800   | 3200   | 3400   | 3400   |
| 195              |            | 2600   |        | 3200   |        | 3600   | 3800               | 2400   | 3800   | 3000   |        | 3200   |
| 200              |            | 2200   |        | 2800   |        | 3200   | 3800               | 2000   | 3800   | 2600   |        | 3000   |
| 205              |            |        |        | 2400   |        | 2800   | 3600               |        | 3600   | 2200   |        | 2600   |
| 210              |            |        |        | 2000   |        | 2200   |                    |        |        | 1800   |        | 2200   |
| 215              |            |        |        |        |        |        |                    |        |        |        |        |        |
| 220              |            |        |        |        |        |        |                    |        |        |        |        |        |

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.

# Load chart

## Pick and carry

Rated lifting capacities in pounds  
 Main boom at fixed boom lengths  
 With 39,000 lb counterweight  
 On rubber Pick & Carry capacities (up to 2.5 mph)  
 Boom centered over front

| Tele. Sect.    | SLI code #1205               |        |        |        |        |        |
|----------------|------------------------------|--------|--------|--------|--------|--------|
|                | Main boom length in feet     |        |        |        |        |        |
|                | 42.3                         | 57.5   | 72.6   | 72.8   | 87.9   | 88.3   |
| Sect I         | 0%                           | 0%     | 0%     | 0%     | 0%     | 0%     |
| Sect II        | 0%                           | 0%     | 0%     | 0%     | 0%     | 0%     |
| Sect III       | 0%                           | 0%     | 0%     | 0%     | 0%     | 50%    |
| Sect IV        | 0%                           | 0%     | 0%     | 50%    | 50%    | 50%    |
| Sect V         | 0%                           | 50%    | 100%   | 50%    | 100%   | 50%    |
| Radius in feet | Lifting capacities in pounds |        |        |        |        |        |
| 15             | 57,500                       |        |        |        |        |        |
| 20             | 42,400                       | 34,000 |        |        |        |        |
| 25             | 31,500                       | 34,000 |        |        |        |        |
| 30             | 23,450                       | 28,550 | 30,700 | 30,500 |        |        |
| 35             |                              | 23,000 | 25,250 | 25,100 | 26,000 | 21,700 |
| 40             |                              | 18,650 | 20,950 | 20,750 | 22,400 | 18,400 |
| 45             |                              | 15,050 | 17,300 | 17,150 | 19,150 | 15,700 |
| 50             |                              |        | 14,350 | 14,150 | 16,400 | 13,450 |
| 55             |                              |        | 11,800 | 11,600 | 14,000 | 11,500 |
| 60             |                              |        | 9690   | 9480   | 11,950 | 9820   |
| 65             |                              |        |        |        | 10,200 | 8370   |
| 70             |                              |        |        |        | 8690   | 7100   |
| 75             |                              |        |        |        | 7340   | 5990   |
| 80             |                              |        |        |        |        | 5010   |

| Boom angle | Lifting capacities in pounds |        |      |      |      |      |
|------------|------------------------------|--------|------|------|------|------|
| 0°         | 18,350                       | 12,600 | 8080 | 7800 | 6240 | 5010 |

80020677

**Notes for fixed and intermediate lengths when lifting on rubber:**

1. Capacities do not exceed 75% of tipping loads as determined by test in accordance with SAE J765.
2. Capacities are applicable to machines equipped with General 33.25x29 (38 ply) tires at 85 psi cold inflation pressure.
3. Capacities are applicable only with machine on firm level surface.
5. On rubber lifting with boom extension is not permitted.
6. All lifting depends on proper tire inflation, capacity and condition. Capacities must be reduced for lower tire inflation pressures. Damaged tires are hazardous to safe operation of crane.
7. For pick and carry operation, boom must be centered over front of machine, mechanical swing lock engaged and load restrained from swinging.

# Rigging chart

## Counterweight installation

Rated lifting capacities in pounds for installing counterweight  
Main boom with no counterweight  
On outriggers fully extended 360°

### Fixed boom lengths

| Tele. Sect.    | SLI code #1100               |         |         |
|----------------|------------------------------|---------|---------|
|                | Main boom length in feet     |         |         |
|                | 42.3                         | 57.5    | 57.6    |
| Sect I         | 0%                           | 0%      | 0%      |
| Sect II        | 0%                           | 0%      | 0%      |
| Sect III       | 0%                           | 0%      | 0%      |
| Sect IV        | 0%                           | 0%      | 50%     |
| Sect V         | 0%                           | 50%     | 0%      |
| Radius in feet | Lifting capacities in pounds |         |         |
| 10             | 100,000                      | 100,000 | 100,000 |
| 12             | 100,000                      | 100,000 | 100,000 |
| 15             | 100,000                      | 97,000  | 100,000 |
| 20             | 100,000                      | 83,000  | 100,000 |
| 25             | 91,150                       | 73,000  | 94,550  |
| 30             | 70,550                       | 66,000  | 74,650  |
| 35             |                              | 55,300  | 53,850  |
| 40             |                              | 42,350  | 41,050  |

80020692

### Intermediate boom lengths

| Tele. Sect.    | SLI code #1100               |           |
|----------------|------------------------------|-----------|
|                | Main boom length in feet     |           |
|                | 42.3-57.5                    | 42.3-57.6 |
| Sect I         | 0%                           | 0%        |
| Sect II        | 0%                           | 0%        |
| Sect III       | 0%                           | 0%        |
| Sect IV        | 0%                           | 0-50%     |
| Sect V         | 0-50%                        | 0%        |
| Radius in feet | Lifting capacities in pounds |           |
| 10             | 88,000                       | 85,000    |
| 12             | 88,000                       | 85,000    |
| 15             | 88,000                       | 85,000    |
| 20             | 83,000                       | 85,000    |
| 25             | 73,000                       | 85,000    |
| 30             | 66,000                       | 70,550    |

80020694

THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.

# Rigging chart

## Outrigger boxes

Rated lifting capacities in pounds for installing outrigger boxes  
Main boom with no counterweight and with the outrigger boxes removed  
Stationary on rubber 360°

### Fixed boom lengths

| Tele. Sect.    | SLI code #1104               |        |        |
|----------------|------------------------------|--------|--------|
|                | Main boom length in feet     |        |        |
|                | 42.3                         | 57.5   | 57.6   |
| Sect I         | 0%                           | 0%     | 0%     |
| Sect II        | 0%                           | 0%     | 0%     |
| Sect III       | 0%                           | 0%     | 0%     |
| Sect IV        | 0%                           | 0%     | 50%    |
| Sect V         | 0%                           | 50%    | 0%     |
| Radius in feet | Lifting capacities in pounds |        |        |
| 10             | 25,000                       | 25,000 | 25,000 |
| 12             | 25,000                       | 25,000 | 25,000 |
| 15             | 25,000                       | 25,000 | 25,000 |
| 20             | 15,650                       | 19,400 | 18,350 |
| 25             | 8000                         | 11,750 | 10,750 |

80020700

### Intermediate boom lengths

| Tele. Sect.    | SLI code #1100               |           |
|----------------|------------------------------|-----------|
|                | Main boom length in feet     |           |
|                | 42.3-57.5                    | 42.3-57.6 |
| Sect I         | 0%                           | 0%        |
| Sect II        | 0%                           | 0%        |
| Sect III       | 0%                           | 0%        |
| Sect IV        | 0%                           | 0-50%     |
| Sect V         | 0-50%                        | 0%        |
| Radius in feet | Lifting capacities in pounds |           |
| 10             | 25,000                       | 25,000    |
| 12             | 25,000                       | 25,000    |
| 15             | 25,000                       | 25,000    |
| 20             | 15,650                       | 15,650    |
| 25             | 800                          | 8000      |

80020690

#### Notes for fixed and intermediate lengths when lifting on rubber:

- Capacities are applicable to machines equipped with General 33.25x29 (38 ply) tires at 85 psi cold inflation pressure. Capacities do not exceed 75% of tipping loads as determined by test in accordance with SAE J765.
- With no load, do not exceed a 30 ft load radius over sides of machine since a loss of stability could occur causing a tipping condition. To lower boom into a horizontal position, swing the boom directly over the front of the machine and either fully retract the boom or switch the SLI system into a rigging table.
- Once one outrigger box is installed, do not swing over that end of the machine while installing the other outrigger box.
- Capacities are applicable only with machine on firm level surface.
- On rubber lifting with boom extension is not permitted.
- Axle lockouts must be functioning when lifting on rubber over the sides.
- All lifting depends on proper tire inflation, capacity and condition. Capacities must be reduced for lower tire inflation pressures. Damaged tires are hazardous to safe operation of crane.

# Load handling

## Weight reductions for load handling devices

|   |          |
|---|----------|
| <b>Auxiliary boom nose</b>                | 133 lb   |
| <b>Hook blocks and headache balls</b>     |          |
| 100 USt, 7-sheave                         | 2535+ lb |
| 130 USt, 8-sheave                         | 2530+ lb |
| 10 USt overhaul ball                      | 727+ lb  |
| +Refer to rating plate for actual weight. |          |

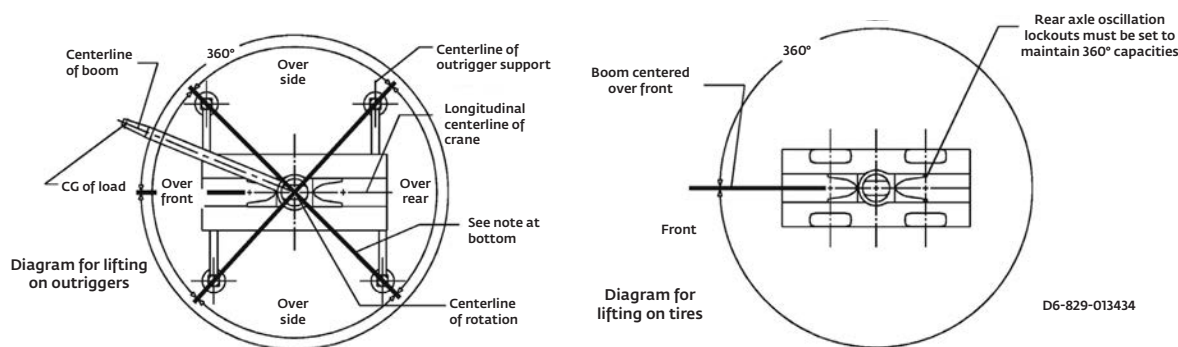
When lifting over swingaway and/or jib combinations, deduct total weight of all load handling devices reeved over main boom nose directly from swingaway or jib capacity.

| 36 ft - 59 ft luffing folding boom extension (luffing or manual) |                                     |                           |
|--|-------------------------------------|---------------------------|
|  | Without hook block or overhaul ball | With 727 lb overhaul ball |
| *36 ft extension (erected)                                       | 5170 lb                             | 7830 lb                   |
| *59 ft extension (erected)                                       | 8390 lb                             | 12,610 lb                 |
| 12 ft luffing boom extension                                     |                                     |                           |
| *12 ft extension (erected)                                       | 2620 lb                             | 3690 lb                   |

\*Reduction of main boom capacities

**NOTE:** All load handling devices and boom attachments are considered part of the load and suitable allowances **MUST BE MADE** for their combined weights. Weights are for Grove furnished equipment.


































## Working area diagram



*THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.*



# Symbols glossary

|  |  |   |  |
|--|--|---|--|
|  Axles          |  Counterweight        |  Grade                |  Gear           |
|  Boom           |  Drive                |  Heavy duty jib       |  Radius         |
|  Boom elevation |  Electrical system    |  Hoist                |  Rotation       |
|  Boom extension |  Engine               |  Hookblock            |  Speed          |
|  Boom length    |  Extension            |  Hydraulic system     |  Steering       |
|  Boom nose      |  Frame                |  Lights               |  Suspension     |
|  Brakes       |  Fuel tank capacity |  Oil                |  Swing        |
|  Cab          |  Outriggers         |  Outrigger controls |  Tires        |
|  |  |   |  Transmission |



# Notes

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## Manitowoc Cranes

### Regional headquarters

#### Americas

**Manitowoc, Wisconsin, USA**

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#### Greater Asia-Pacific

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### Regional offices

#### Americas

##### Brazil

Alphaville

##### Mexico

Monterrey

##### Chile

Santiago

#### Europe, Middle East,

##### Africa

##### Czech Republic

Netvorice

##### France

Baudemont

Cergy

Decines

##### Germany

Langenfeld

##### Hungary

Budapest

##### Italy

Lainate

##### Netherlands

Breda

##### Poland

Warsaw

##### Portugal

Baltar

##### Russia

Moscow

##### U.A.E.

Dubai

##### U.K.

Buckingham

#### China

Beijing

Chengdu

Guangzhou

Xian

#### Greater Asia-Pacific

##### Australia

Adelaide

Brisbane

Melbourne

Sydney

##### India

Calcutta

Chennai

Delhi

Hyderabad

Pune

##### Korea

Seoul

##### Philippines

Makati City

##### Singapore

### Factories

#### Brazil

Alphaville

#### China

TaiAn

Zhangjiagang

#### France

Charlieu

La Clayette

Moulins

#### Germany

Wilhelmshaven

#### India

Pune

#### Italy

Niella Tanaro

#### Portugal

Baltar

Fânzeres

#### Slovakia

Saris

#### USA

Manitowoc

Port Washington

Shady Grove

This document is non-contractual. Constant improvement and engineering progress make it necessary that we reserve the right to make specification, equipment, and price changes without notice. Illustrations shown may include optional equipment and accessories and may not include all standard equipment.

