National Crane 1800 Series

Product Guide

Features

- 36,29 t (40 USt) rating
- 43,28 m (142 ft) five-section boom (80 ft)
- Self-lubricating "Easy Glide" wear pads
- Tailswing counterweight

Features

Deluxe operator's cab

Rigid galvanized steel structure, well insulated, with ample safety glass for operator visibility and comfort. Multi-position seat with arm rest controls, ventilation fans, diesel heater, and wipers. Optional air conditioning is available.

Outriggers

Outrigger span of 24.7 ft when fully extended; 17.5 ft at mid-span.

Equipped with both ground level and in-cab outrigger controls, the Series 1800 outriggers allow quick and easy crane set-up.

Overload protection

All National Crane boom trucks are equipped with overload protection. A Load Moment Indicator (LMI) is standard on all Series 1800 machines. The LCD display is visible in full or low light and displays all crane load lifting values simultaneously.

Five section boom

At 142 ft, the Series 1800 five-section boom is the longest in its size range. The long boom allows the operator to perform more lifts without the use of a jib, reducing setup time and improving efficiency. Also available are optional boom lengths of 79 ft, 103 ft and 127 ft.

Features

Best in class performance and serviceability

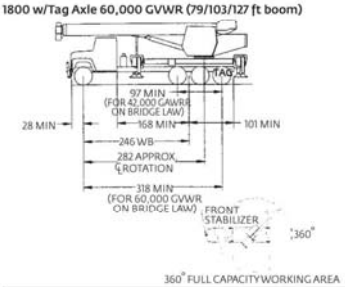
- The stronger standard torsion box improves rigidity, reduces truck frame flex and reduces the need for counterweight.
- Easy Glide Boom Wear Pads reduce the conditions that cause boom chatter and vibration. The net result is smoother crane operation.
- Speedy-reeve boom tip and sheave blocks simplify rigging changes by decreasing the time needed to change line reeving.
- Crane components painted before assembly reduce the chance of rust, improve serviceability and enhance the appearance of the crane.
- A state-of-the-art control valve provides smooth operation. The new design eliminates parts, therefore reducing repair costs and improving the crane's serviceability.
- Bearings on the boom and retract cables can be greased through access holes in the boom side plates.
- Boom sections are supported by one hydraulic extend cylinder, minimizing maintenance.

Contents

Mounting configurations

The configurations are based on the Series 1800 with an 85% stability factor. The complete unit must be installed in accordance with factory requirements and a test performed to determine actual stability and counterweight requirements since individual truck chassis vary.

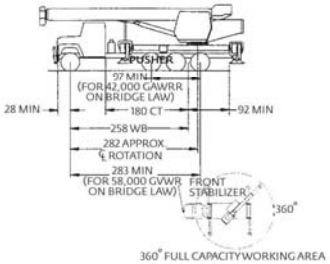
1800 w/Tag Axle 60,000 GVWR (79/103/127 ft boom)



360° FULL CAPACITY WORKING AREA

Configuration 1: 24,08 m (79 ft), 31,39 m (103 ft) 38,71 m (127 ft) Boom with Tag Axle
Working area: 360°
Gross Axle Weight Rating Front: 9072 kg (20,000 lb)
Gross Axle Weight Rating Rear: 18 144 kg (40,000 lb)
Gross Vehicle Weight Rating: 27 216 kg (60,000 lb)
Wheelbase: 625 cm (246 in)
Cab to Axle/trunnion (CA/CT): 427 cm (168 in)
Frame Section Modulus (SM), front axle to end of AF: 785 MPa (110,000 PSI): 426 cm³ (30.0 in³)
Stability Weight, Front: 4286 kg (9450 lb) minimum*
Stability Weight, Rear: 4899 kg (10,800 lb) minimum*
Estimated Average Final Weight: 25 830 kg (56,945 lb)**
This configuration shows the 360° working area that is achieved with the front stabilizer (standard on the Series 1800). The front stabilizer is essential when extending the boom and lifting loads over the front of the truck.
*Estimated axle scale weights prior to installation of crane, stabilizers and subbase for 85% stability.
**Estimated final weight (wet) with 38,71 m (127 ft) boom, 182 kg (400 lb) 3-part block, steel decks, 1045 kg (2300 lb) swinging counterweight, 379 L (100 gal) fuel tank and two workers in cab.

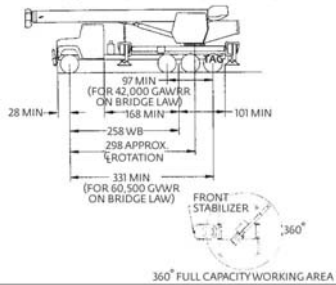
1800 w/Pusher Axle 58,000 GVWR (79/103/127 ft boom)



360° FULL CAPACITY WORKING AREA

Configuration 2: 24,08 m (79 ft), 31,39 m (103 ft) 38,71 m (127 ft) Boom with Pusher Axle
Working area: 360°
Gross Axle Weight Rating Front: 9072 kg (20,000 lb)
Gross Axle Weight Rating Rear: 18 144 kg (40,000 lb)
Gross Vehicle Weight Rating: 27 216 kg (60,000 lb)
Wheelbase: 655 cm (258 in)
Cab to Axle/trunnion (CA/CT): 457 cm (180 in)
Frame Section Modulus (SM), front axle to end of AF: 785 MPa (110,000 PSI): 426 cm³ (30.0 in³)
Stability Weight, Front: 4525 kg (9975 lb) minimum*
Stability Weight, Rear: 4661 kg (10,275 lb) minimum*
Estimated Average Final Weight: 25 830 kg (56,945 lb)**
This configuration shows the 360° working area that is achieved with the front stabilizer (standard on the Series 1800). The front stabilizer is essential when extending the boom and lifting loads over the front of the truck.
*Estimated axle scale weights prior to installation of crane, stabilizers and subbase for 85% stability.
**Estimated final weight (wet) with 38,71 m (127 ft) boom, 182 kg (400 lb) 3-part block, steel decks, 1045 kg (2300 lb) swinging counterweight, 379 L (100 gal) fuel tank and two workers in cab.

1800 w/Tag Axle 60,000 GVWR (142 ft boom)



360° FULL CAPACITY WORKING AREA

Configuration 3: 43,29 m (142 ft) Boom with Tag Axle
Working area: 360°
Gross Axle Weight Rating Front: 9072 kg (20,000 lb)
Gross Axle Weight Rating Rear: 18 144 kg (40,000 lb)
Gross Vehicle Weight Rating: 27 216 kg (60,000 lb)
Wheelbase: 655 cm (258 in)
Cab to Axle/trunnion (CA/CT): 427 cm (168 in)
Frame Section Modulus (SM), front axle to end of AF: 785 MPa (110,000 PSI): 426 cm³ (30.0 in³)
Stability Weight, Front: 4207 kg (9275 lb) minimum*
Stability Weight, Rear: 4797 kg (10,575 lb) minimum*
Estimated Average Final Weight: 26 308 kg (58,000 lb)**
This configuration shows the 360° working area that is achieved with the front stabilizer (standard on the Series 1800). The front stabilizer is essential when extending the boom and lifting loads over the front of the truck.
*Estimated axle scale weights prior to installation of crane, stabilizers and subbase for 85% stability.
**Estimated final weight (wet) with 43,29 m (142 ft) boom, 182 kg (400 lb) 3-part block, steel decks, 1045 kg (2300 lb) swinging counterweight, 379 L (100 gal) fuel tank and two workers in cab.

Mimimum truck requirements

Many factors must be considered in the selection of proper truck for a 1800 series crane. Items which must be considered are:

1. Axle Rating. Axle ratings are determined by the axles, tires, rims, springs, brakes, steering and frame strength of the truck. If any one of these components is below the required rating, the gross axle rating is reduced to its weakest component value.

2. Wheelbase (WB), Cab-to-Trunnion (CT) and Bare Chassis Weight. The wheelbase, CT and chassis weights shown are required so the basic 1800 can be legally driven in most states and meet stability requirements. The dimensions given assume the sub-base is installed properly behind the truck cab. If exhaust stacks, transmission protrusions, etc., do not allow a close installation to the cab, the WB and CT dimensions must be increased. Refer to the Mounting Configuration pages for additional information.

3. Truck Frame. Try to select a truck frame that will minimize or eliminate frame reinforcement or extension of the after frame (AF). Many frames are available that have the necessary after frame (AF) section modulus (SM) and resistance to bending moment (RBM) so that reinforcing is not required. The front hydraulic jack is used for a 360° working range around the truck. The frame under the cab through the front suspension must have the minimum S.M. and RBM because reinforcing through the front suspension is often difficult because of engine, radiator mounts and steering mechanics. See "Truck Requirements" and "Frame Strength" pages for the necessary section modulus and resistance to bending moment values. Integral extended front frame rails are required for front center stabilizer installation.

4. Additional Equipment. In addition to the axle ratings, wheelbase, cab-to-axle requirements and frame, it is recommended that the truck is equipped with electronic engine control, increased cooling and a transmission with a PTO opening available with an extra heavy duty PTO. See "PTO Selection" pages. A conventional cab truck should be used for standard crane mounts.

5. Neutral Start Switch. The chassis must be equipped with a switch that prevents operation of the engine starter when the transmission is in gear.

Notes:

- Gross Vehicle Weight Rating (GVWR) is dependent on all components of the vehicle (axles, tires, springs, frame, etc.) meeting manufacturers' recommendations; always specify GVWR when purchasing trucks
- Diesel engines require a variable speed governor and energize-to-run fuel solenoid for smooth crane operation; electronic fuel injection requires EET engine remote throttle
- All mounting data is based on a National Series 1800 with an 85% stability factor (75% stability factor for New York City).
- The complete unit must be installed in accordance with factory requirements, and a test performed to determine actual stability and counterweight requirements per SAE J765; contact the factory for details

Specifications

Boom and jib combinations data

Available in four basic models:

Model 1879 – Equipped with a 9,45 m - 24,08 m (31 ft- 79 ft) three-section boom. There are no jib options for this boom model. Maximum tip height is 26,52 m (87 ft).

9,45 m - 24,08 m (31 ft - 79 ft) three-section hydraulic boom

Model 18103 – Equipped with a 9,45 m - 31,39 m (31 ft - 103 ft) four-section boom. This model can be equipped with a 9,45 m (31 ft) jib, offering a vertical reach of 43,29 m (142 ft) and a 9,45 m - 16,76 m (31 ft- 55 ft) side-stowing foldaway jib, providing a vertical reach of 50,60 m (166 ft).

9,45 m - 31,39 m (31 ft - 103 ft) four-section hydraulic boom **18FJ31** 9,45 m (31 ft) single-section offsettable manual jib

9,45 m - 31,39 m (31 ft - 103 ft) four-section hydraulic boom **18FJ55M** 9,45 m - 16,76 m (31 ft - 55 ft) two-section manual jib

Model 18127 – Equipped with a 9,45 - 38,71 m (31 ft - 127 ft) five-section boom. This model can be equipped with a 9,45 m (31 ft) jib, offering a vertical reach of 50,60 m (166 ft) or a 9,45 m - 16,76 m (31 ft - 55 ft) jib providing a vertical reach of 57,91 m (190 ft).

9,45 m - 38,71 m (31 ft - 127 ft) five-section hydraulic boom **18FJ31** 9,45 m (31 ft) single-section manual jib

9,45 m - 38,71 m (31 ft - 127 ft) five-section hydraulic boom **18FJ55M** 9,45 m - 16,76 m (31 ft - 55 ft) two-section manual jib

Model 18142 – Equipped with a 10,36 m - 43,29 m (34 ft - 142 ft) five-section boom. This model can be equipped with a 7,92 m (26 ft) jib, offering a vertical reach of 53,64 m (176 ft).

10,36 m - 43,29 m (34 ft - 142 ft) five-section hydraulic boom **18FJ26** 7,92 m (26 ft) single-section manual jib

Note: Maximum tip is measured with outriggers/stabilizers fully extended.

Specifications

1800 winch data

- All winch pulls and speeds are shown on the fifth layer.
- Winch line pulls would increase on the first, second, third and fourth layers.
- Winch line speed would decrease on the first, second, third and fourth layers.
- Winch line pulls may be limited by the winch capacity or the ANSI to 1 cable safety factor.

			1 part line	part line	part line	part line	part line	part line	part line	8 part line
										
Standard planetary winch	Cable supplied	Average breaking strength	Lift and speed	Lift and speed	Lift and speed	Lift and speed	Lift and speed	Lift and speed	Lift and speed	Lift and speed
Low speed	/8" diameter rotation resistant IWRC	2 83 kg (6,400 lb)	4 36 kg (10,000 lb) 62 m/min (20 fpm)	90 2 kg (20,000 lb) 31 m/min (103 fpm)	13 608 kg (30,000 lb) 21 m/min (68 fpm)	18 144 kg (40,000 lb) 16 m/min (1 fpm)	22 680 kg (0,000 lb) 13 m/min (41 fpm)	2 216 kg (60,000 lb) 10 m/min (34 fpm)	31 1 kg (0,000 lb) 9 m/min (29 fpm)	36 28 kg (80,000 lb) 8 m/min (26 fpm)
High speed	/8" diameter rotation resistant IWRC	2 83 kg (6,400 lb)	2268 kg (000 lb) 12 m/min (410 fpm)	4 36 kg (10,000 lb) 62 m/min (20 fpm)	6804 kg (1 ,000 lb) 42 m/min (13 fpm)	90 2 kg (20,000 lb) 31 m/min (103 fpm)	11 340 kg (2 ,000 lb) 2 m/min (82 fpm)	13 608 kg (30,000 lb) 21 m/min (68 fpm)	1 8 6 kg (3 ,000 lb) 18 m/min (9 fpm)	18 144 kg (40,000 lb) 16 m/min (1 fpm)

Winch	Full drum pull	Allowable cable pull
Standard planetary and auxiliary planetary	2268 kg (000 lb) high speed 4 36 kg (10,000 lb) low speed	11 kg (11,280 lb) 11 kg (11,280 lb)

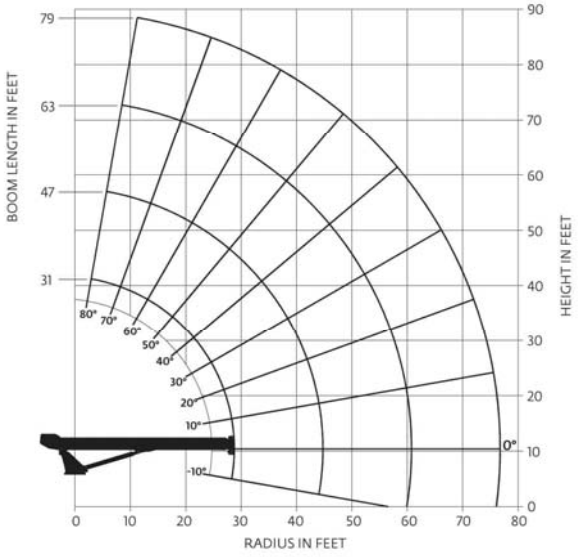
Loadline deduct		
	Aux boom head	4 kg (100 lb)
USt	Downhaul weight	82 kg (180 lb)
1 USt	1-sheave block	1 0 kg (3 lb)
2 USt	2-sheave block	290 kg (640 lb)
3 USt	3-sheave block	39 kg (8 0 lb)
40 USt	4-sheave block	440 kg (9 0 lb)

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.

Capacities

Series 18[illegible]: [illegible],08 m boom/full span outrigger [illegible] m [illegible] ft[illegible]

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

- **Do not operate crane booms, jib extensions, any accessories or loads within 3 m (10 ft) of live power lines or other conductors of electricity.**
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii.
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

31 ft - 79 ft BOOM RATED LOADS

LOAD RADIUS (ft)	LOADED BOOM ANGLE	31 ft BOOM (lb)	LOADED BOOM ANGLE	47 ft BOOM (lb)	LOADED BOOM ANGLE	63 ft BOOM (lb)	LOADED BOOM ANGLE	79 ft BOOM (lb)
7	73.5	80,000						
8	71.5	74,000	78	50,000				
10	67.5	65,000	75.5	49,000				
12	63	57,000	73	45,000	77.5	40,000		
15	57	45,400	69	38,000	75	37,300	78.5	26,900
20	44.5	37,000	62.5	31,500	70.5	30,900	75	23,000
25	28	26.600	55.5	23.800	66	26.200	71	19.800
30			47	20,300	60.5	20,600	67.5	17,300
35			38.5	16,000	55	16,200	63	15,200
40			26.5	13,000	49	13,200	59	13,400
45					42.5	11,000	54.5	11,100
50					35	9300	50	9450
55					26	7950	45	8050
60					9.5	6850	39.5	6950
65							33	6000
70							25	5150
75							13	4050
	0	21,300	0	10,900	0	6700	0	3800

NOTE:

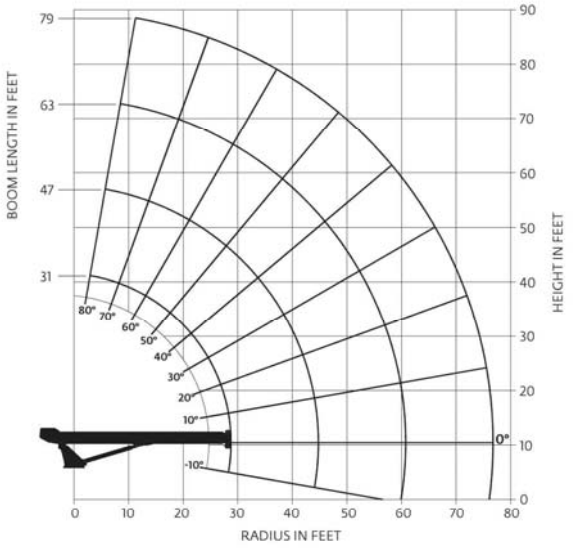
1. All capacities are in pounds, angles in degrees, radius in feet.
2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

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.

Capacities

Series 18 : ,08 m boom/mid span outrigger , m 1. ft

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

- **Do not operate crane booms, jib extensions, any accessories or loads within 3 m (10 ft) of live power lines or other conductors of electricity.**
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii.
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

31 ft - 79 ft BOOM RATED LOADS

LOAD RADIUS (ft)	LOADED BOOM ANGLE	31 ft BOOM (lb)	LOADED BOOM ANGLE	47 ft BOOM (lb)	LOADED BOOM ANGLE	63 ft BOOM (lb)	LOADED BOOM ANGLE	79 ft BOOM (lb)
7	73.5	80,000						
8	71.5	74,000	78	50,000				
10	67.5	65,000	75.5	49,000				
12	63	57,000	73	45,000	77.5	40,000		
15	56.5	45,400	69	38,000	75	37,300	78.5	26,900
20	43.5	25,900	62.5	26,500	70	27,000	75	23,000
25	27.5	16,700	55	17,100	65.5	17,500	71	17,700
30			47	12,200	60	12,400	67	12,600
35			38	9100	54.5	9350	63	9500
40			25.5	7100	49	7300	59	7400
45					42	5750	54.5	5850
50					34.5	4600	49.5	4700
55					25.5	3650	44.5	3750
60					9	2900	38.5	3000
65							32.5	2400
70							24.5	1900
75							12.5	1450
	0	12,800	0	5600	0	2800	0	1300

NOTE:

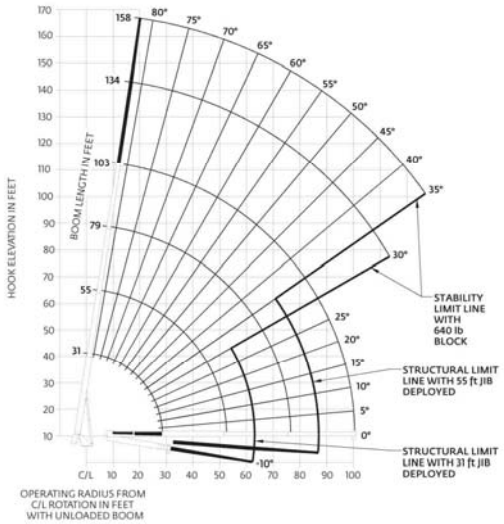
1. All capacities are in pounds, angles in degrees, radius in feet.
2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

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.

Capacities

Series 1810 : 1, m boom with , m 1, m 1 ft ft jib/full span outrigger , m . ft

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

- **Do not operate crane booms, jib extensions, any accessories or loads within 3 m (10 ft) of live power lines or other conductors of electricity.**
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii.
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

31 ft - 103 ft BOOM RATED LOADS WITHOUT JIB

LOAD RADIUS (ft)	LOADED BOOM ANGLE	31 FT BOOM (lb)	LOADED BOOM ANGLE	55 FT BOOM (lb)	LOADED BOOM ANGLE	79 FT BOOM (lb)	LOADED BOOM ANGLE	103 FT BOOM (lb)
7	73.9	80,000						
8	71.9	74,000						
10	67.7	65,000	78.9	50,000				
12	63.5	57,000	76.6	45,000				
15	56.7	44,000	73.3	38,000	79.6	30,000		
20	44.1	30,800	67.7	31,500	75.9	26,000	79.5	17,000
25	27.4	23,200	61.7	23,800	72.1	22,000	76.7	15,200
30			55.3	18,800	68.1	18,500	73.8	13,500
35			48.3	15,200	64	15,500	70.9	12,000
40			40.5	12,500	59.6	12,800	67.8	10,500
45			31.2	10,500	55.1	10,700	65	9300
50			19.3	9000	50.7	9000	61.8	8300
55					45.5	7600	58.5	7400
60					39.9	6600	55.1	6500
65					33.4	5600	51.4	5600
70					25.5	4800	47.5	4800
75					13.4	4050	43.4	4100
80							38.9	3500
85							33.8	2950
90							28	2450
95							20.7	2050
100							7.9	1650
	0	19,700	0	8200	0	3800	0	1600

31 ft JIB RATED LOADS

RADIUS FULLY EXTENDED	LOADED BOOM ANGLE	RATED LOADS ALL BOOM LENGTHS
25	80	8800
38	75	8000
49	70	6500
60	65	5100
70	60	4100
79	55	3300
88	50	2600
96	45	1900
103	40	1350
110	35	950
115	30	650

55 ft JIB RATED LOADS

RADIUS FULLY EXTENDED	LOADED BOOM ANGLE	RATED LOADS ALL BOOM LENGTHS
29	80	4000
45	75	3700
59	70	3300
73	65	3000
85	60	2600
96	55	2100
106	50	1700
115	45	1300
123	40	950
130	35	650

NOTE:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.
3. Capacities do not exceed 85% stability.
4. Shaded areas are structurally limited capacities.

NOTE:

1. All capacities are in pounds, angles in degrees, radius in feet.
2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

RATED LOAD REDUCTIONS WITH JIB

BOOM LENGTH	31 ft-55 ft JIB STOWED	31 ft-55 ft JIB ERECTED AT 31 ft LENGTH
31 ft	Reduce load 800 lb	Reduce load 2300 lb
55 ft	Reduce load 450 lb	Reduce load 2000 lb
79 ft	Reduce load 350 lb	Reduce load 1900 lb
103 ft	Reduce load 250 lb	Reduce load 1800 lb

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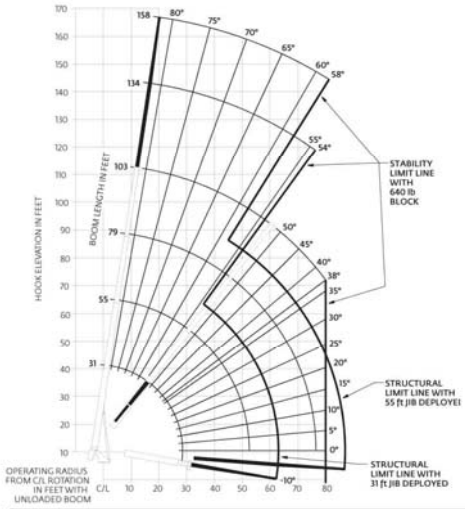
The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

Capacities

Series 1810 : 1, boom with , m 1, m 1 ft ft jib/mid span outrigger , m 1. ft

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

- **Do not operate crane booms, jib extensions, any accessories or loads within 3 m (10 ft) of live power lines or other conductors of electricity.**
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii.
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

31 ft - 103 ft BOOM RATED LOADS WITHOUT JIB

LOAD RADIUS (ft)	LOADED BOOM ANGLE	31 ft BOOM (lb)	LOADED BOOM ANGLE	55 ft BOOM (lb)	LOADED BOOM ANGLE	79 ft BOOM (lb)	LOADED BOOM ANGLE	103 ft BOOM (lb)
7	73.9	80,000						
8	71.9	74,000						
10	67.7	65,000	78.9	50,000				
12	63.4	57,000	76.6	45,000				
15	56.7	44,000	73.3	38,000	79.6	30,000		
20	44	26,000	67.5	27,000	75.9	26,000	79.5	17,000
25	27.4	16,700	61.3	17,500	71.6	17,500	76.7	15,200
30			54.8	12,300	67.5	12,300	73.7	12,200
35			48.5	9200	63.6	9300	70.7	9400
40			40.8	7000	59.2	7100	67.5	7200
45			31.6	5400	54.7	5500	64.2	5600
50			18.6	4150	49.9	4300	60.9	4350
55					44.8	3300	57.5	3350
60					39.1	2550	54.1	2600
65					32.7	1900	50.3	1950
70					24.8	1350	46.5	1400
75					12.7	950	42.4	1000
80							37.9	650
	0	13,200	0	3600	0	800		

31 ft JIB RATED LOADS

RADIUS FULLY EXTENDED	LOADED BOOM ANGLE	RATED LOADS ALL BOOM LENGTHS
25	80	8800
38	75	8000
48	70	5000
57	65	3000
67	60	1650
76	55	750
78	54	650

55 ft JIB RATED LOADS

RADIUS FULLY EXTENDED	LOADED BOOM ANGLE	RATED LOADS ALL BOOM LENGTHS
29	80	4000
45	75	3700
59	70	3300
70	65	2150
80	60	1150
85	58	650

NOTE:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.
3. Capacities do not exceed 85% stability.
4. Shaded areas are structurally limited capacities.

NOTE:

1. All capacities are in pounds, angles in degrees, radius in feet.
2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

RATED LOAD REDUCTIONS WITH JIB

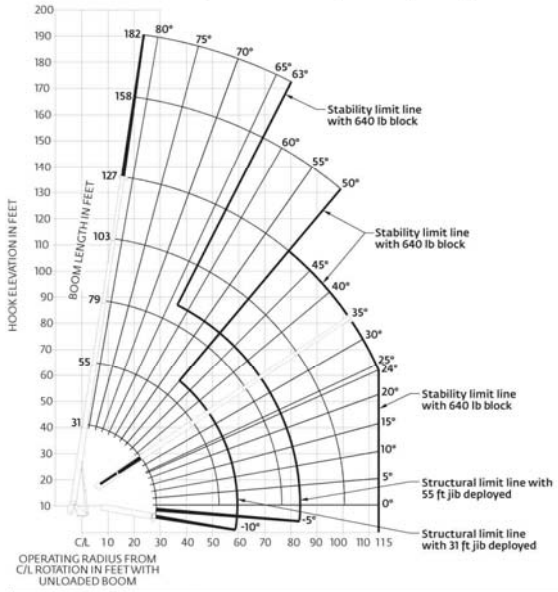
BOOM LENGTH	31 ft - 55 ft JIB STOWED	31 ft - 55 ft JIB ERECTED AT 31 ft LENGTH
31 ft	Reduce load 800 lb	Reduce load 2300 lb
55 ft	Reduce load 450 lb	Reduce load 2000 lb
79 ft	Reduce load 350 lb	Reduce load 1900 lb
103 ft	Reduce load 250 lb	Reduce load 1800 lb

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.

Capacities

Series 181[illegible]: [illegible]8, [illegible]1 boom with [illegible], [illegible] m [illegible]1, [illegible] m [illegible]1 ft [illegible] ft [illegible] jib/full span outrigger [illegible], [illegible] m [illegible]. [illegible] ft[illegible]

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

- **Do not operate crane booms, jib extensions, any accessories or loads within 3 m (10 ft) of live power lines or other conductors of electricity.**
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii.
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

31 ft - 127 ft BOOM RATED LOADS WITHOUT JIB

LOAD RADIUS (ft)	LOADED BOOM ANGLE	31 ft BOOM (lb)	LOADED BOOM ANGLE	55 ft BOOM (lb)	LOADED BOOM ANGLE	79 ft BOOM (lb)	LOADED BOOM ANGLE	103 ft BOOM (lb)	LOADED BOOM ANGLE	127 ft BOOM (lb)
7	74.5	80,000								
8	72.4	74,000								
10	68.2	64,000								
12	63.8	56,000	76.9	40,000						
15	56.9	43,000	73.8	38,000	79.8	29,000				
20	44.2	30,000	68.1	31,000	76.2	25,000	80	16,000		
25	27.4	22,500	62	23,400	72.5	21,500	77.2	14,500	80	10,000
30			55.5	18,300	68.5	18,700	74.4	13,000	78	9500
35			48.6	14,800	64.3	15,300	71.5	11,500	75.9	9000
40			40.7	12,100	59.9	12,500	68.6	10,500	73.6	8100
45			31.3	10,100	55.3	10,400	65.9	9500	71.2	7200
50			19.4	8500	50.9	8800	62.7	8500	68.8	6500
55					45.8	7500	59.3	7500	66.3	5800
60					40.1	6400	55.7	6500	63.7	5300
65					33.6	5400	52	5600	61.1	4800
70					25.6	4600	48.1	4700	58.4	4300
75					13.5	3850	43.9	3950	55.6	3900
80							39.3	3350	52.6	3400
85							34.3	2800	49.4	2850
90							28.4	2300	46	2350
95							21	1850	42.5	1900
100							8.2	1500	38.8	1550
105									34.6	1200
110									30	900
115									24.6	650
	0	19,000	0	7700	0	3600	0	1450		

31 ft JIB RATED LOADS

RADIUS FULLY EXTENDED	LOADED BOOM ANGLE	RATED LOADS ALL BOOM LENGTHS
30	80	1400
46	75	1200
60	70	2700
73	65	2100
85	60	1700
96	55	1200
106	50	650

55 ft JIB RATED LOADS

RADIUS FULLY EXTENDED	LOADED BOOM ANGLE	RATED LOADS ALL BOOM LENGTHS
36	80	2200
54	75	2200
70	70	1600
85	65	1000

RATED LOAD REDUCTIONS WITH JIB

BOOM LENGTH	31 ft JIB STOWED	31 ft - 55 ft JIB ERECTED AT 31 ft LENGTH
31 ft	Reduce load 800 lb	Reduce load 2300 lb
55 ft	Reduce load 450 lb	Reduce load 2000 lb
79 ft	Reduce load 350 lb	Reduce load 1900 lb
103 ft	Reduce load 250 lb	Reduce load 1800 lb
127 ft	Reduce load 200 lb	Reduce load 1700 lb

NOTE:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.
3. Capacities do not exceed 85% stability.
4. Shaded areas are structurally limited capacities.

NOTE:

1. All capacities are in pounds, angles in degrees, radius in feet.
2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

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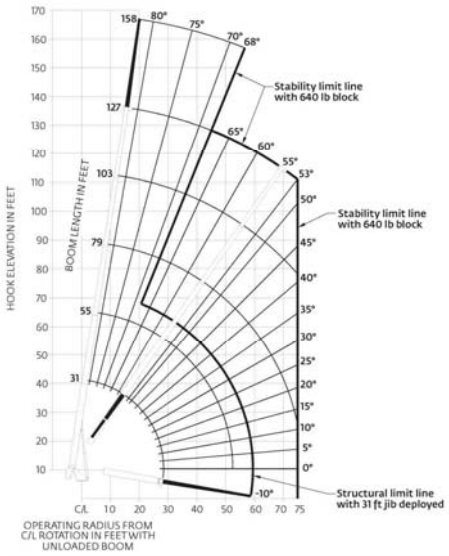
Capacities

Series 181 : 8,1 m boom with , m 1 ft jib/mid span outrigger , m 1. ft

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

- **Do not operate crane booms, jib extensions, any accessories or loads within 3 m (10 ft) of live power lines or other conductors of electricity.**
- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii.
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

31 ft - 127 ft BOOM RATED LOADS WITHOUT JIB

LOAD RADIUS (ft)	LOADED BOOM ANGLE	31 ft BOOM (lb)	LOADED BOOM ANGLE	55 ft BOOM (lb)	LOADED BOOM ANGLE	79 ft BOOM (lb)	LOADED BOOM ANGLE	103 ft BOOM (lb)	LOADED BOOM ANGLE	127 ft BOOM (lb)
7	74.5	80,000								
8	72.4	74,000								
10	68.2	64,000								
12	63.9	56,000	76.9	40,000						
15	57	43,000	73.8	38,000	79.8	29,000				
20	44.2	27,700	67.8	27,000	76.2	25,000	80	16,000		
25	27.4	17,500	61.6	17,200	71.9	17,600	77.2	14,500	80	10,000
30			55	12,000	67.7	12,300	74.3	12,400	78	9500
35			48.7	8700	63.7	9100	71.3	9200	75.9	9000
40			41	6500	59.4	6900	68	7000	73.2	7100
45			31.8	4900	54.8	5200	64.7	5300	70.5	5400
50			18.7	3700	50	4000	61.3	4100	67.8	4150
55					44.8	3050	57.9	3150	65.1	3200
60					39.1	2250	54.4	2350	62.4	2400
65					32.7	1600	50.7	1700	59.7	1750
70					24.6	1050	46.8	1150	56.9	1200
	0	12,400	0	3150						

NOTE:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.
3. Capacities do not exceed 85% stability.
4. Shaded areas are structurally limited capacities.

NOTE:

1. All capacities are in pounds, angles in degrees, radius in feet.
2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

31 ft JIB RATED LOADS

RADIUS FULLY EXTENDED	LOADED BOOM ANGLE	RATED LOADS ALL BOOM LENGTHS
30 ft	80	3400
46 ft	75	3200
58 ft	70	900

RATED LOAD REDUCTIONS WITH JIB

BOOM LENGTH	31 ft JIB STOWED	31 ft JIB ERECTED
31 ft	Reduce load 800 lb	Reduce load 2300 lb
55 ft	Reduce load 450 lb	Reduce load 2000 lb
79 ft	Reduce load 350 lb	Reduce load 1900 lb
103 ft	Reduce load 250 lb	Reduce load 1800 lb
127 ft	Reduce load 200 lb	Reduce load 1700 lb

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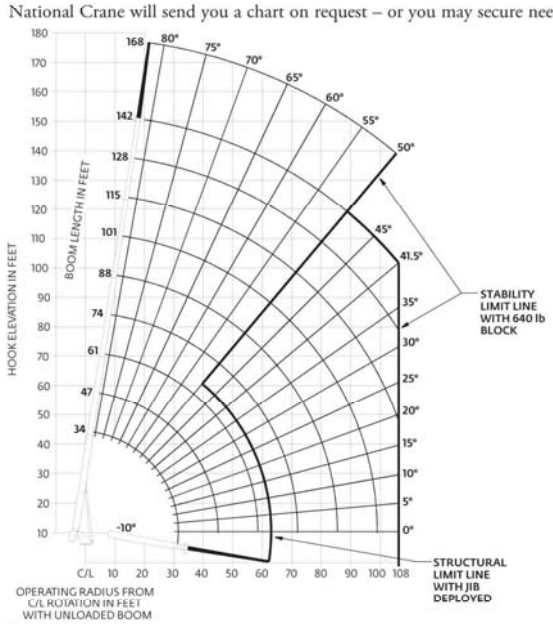
The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

Capacities

Series 181 : , m boom with , m ft jib/full span outrigger , m . ft

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

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- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

34 ft BOOM			47 ft BOOM			61 ft BOOM			74 ft BOOM		
RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY
7	76.3	80,000									
8	74.3	74,000									
10	70.5	63,000	10	76.6	40,000						
12	66.7	55,000	12	74.2	40,000	12	78.7	40,000			
15	60.6	43,000	15	70.5	40,000	15	75.8	36,000	15	79.2	32,000
20	49.6	29,700	20	63.6	30,600	20	70.8	30,000	20	75.2	26,600
25	36.4	22,000	25	56.2	22,800	25	65.4	23,000	25	71	21,500
30	16.2	17,000	30	48.1	17,700	30	59.8	17,900	30	66.6	17,400
	0	15,800	35	38.9	14,100	35	53.8	14,300	35	62.1	14,400
			40	27.1	11,400	40	47.4	11,600	40	57.4	11,800
				0	9400	45	40.9	9700	45	52.9	9900
						50	32.6	8000	50	47.6	8200
						55	21.5	6800	55	41.7	6900
							0	5900	60	35.1	5700
									65	27.1	4850
									70	15.4	4000
										0	3800

88 ft BOOM			101 ft BOOM			115 ft BOOM			128 ft BOOM			142 ft BOOM		
RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY
20	78.2	23,000	20	79.9	17,000									
25	74.9	20,000	25	77.2	15,800	25	79.1	13,000						
30	71.3	17,000	30	74.4	14,200	30	76.7	11,900	30	78.5	9500	30	79.7	8000
35	67.7	14,600	35	71.5	12,700	35	74.2	10,900	35	76.5	9000	35	77.8	7500
40	63.8	11,900	40	68.3	10,800	40	71.9	9800	40	74.4	8500	40	75.9	7000
45	60.3	10,000	45	65.4	9500	45	69.3	9000	45	72.1	7800	45	73.9	6400
50	56.2	8300	50	62.1	8200	50	66.5	8000	50	69.6	7000	50	71.8	5800
55	51.9	7000	55	58.6	7000	55	63.6	7100	55	67.1	6200	55	69.5	5200
60	47.3	5800	60	54.9	5800	60	60.5	5900	60	64.4	5300	60	67.1	4700
65	42.3	4900	65	51.1	4950	65	57.3	5000	65	61.7	4600	65	65	4200
70	36.8	4100	70	47.1	4150	70	54	4200	70	59	4000	70	62.7	3750
75	30.5	3400	75	42.7	3450	75	50.5	3500	75	56.2	3400	75	60.2	3300
80	22.5	2800	80	38.1	2850	80	46.9	2900	80	53.2	2900	80	57.8	2950
85	8.6	2300	85	32.8	2300	85	43.1	2350	85	50	2350	85	55.1	2400
	0	2200	90	26.5	1850	90	39	1900	90	46.8	1900	90	52.3	1950
			95	18.3	1450	95	34.4	1500	95	43.3	1500	95	49.4	1500
				0	1100	100	29.3	1100	100	39.6	1100	100	46.5	1150
						105	23	750	105	35.7	800	105	43.4	800
						108	18.3	650	108	33.1	650	108	41.5	650

RATED LOAD REDUCTIONS WITH JIB

BOOM LENGTH	26 ft JIB STOWED	26 ft JIB ERECTED
34 ft	Reduce load 525 lb	Reduce load 1050 lb
47 ft	Reduce load 400 lb	Reduce load 1000 lb
61 ft	Reduce load 300 lb	Reduce load 950 lb
74 ft	Reduce load 250 lb	Reduce load 925 lb
88 ft	Reduce load 200 lb	Reduce load 900 lb
101 ft	Reduce load 200 lb	Reduce load 900 lb
115 ft	Reduce load 150 lb	Reduce load 875 lb
126 ft	Reduce load 150 lb	Reduce load 875 lb
142 ft	Reduce load 125 lb	Reduce load 850 lb

26 ft JIB RATED LOADS

RADIUS FULLY EXTENDED	LOADED BOOM ANGLE	RATED LOADS ALL BOOM LENGTHS
33	80	4000
50	75	3800
65	70	3200
78	65	2450
90	60	1800
101	55	1250
112	50	650

NOTE:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.
3. Capacities do not exceed 85% stability.
4. Shaded areas are structurally limited capacities.

NOTE:

1. All capacities are in pounds, angles in degrees, radius in feet.
2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

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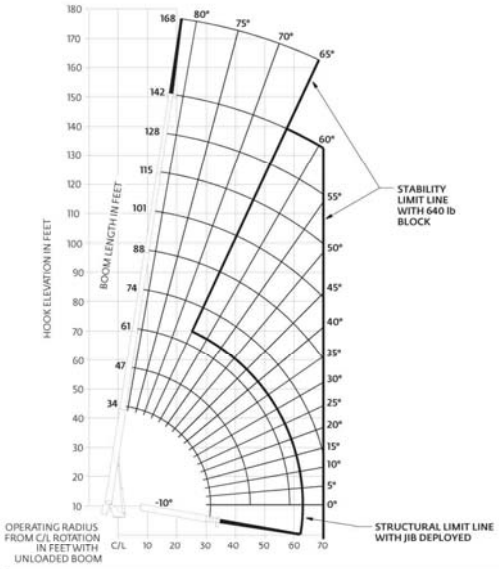
The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

Capacities

Series 181 : , m boom with , m ft jib/mid span outrigger , m 1. ft

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

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- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not exceed jib capabilities at any reduced boom lengths.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

34 ft BOOM			47 ft BOOM			61 ft BOOM			74 ft BOOM		
RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY
7	76.3	80,000									
8	74.3	74,000									
10	70.5	63,000	10	76.6	40,000						
12	66.7	55,000	12	74.2	40,000	12	78.7	40,000			
15	60.6	43,000	15	70.5	40,000	15	75.8	36,000	15	79.2	32,000
20	49.5	25,400	20	63.6	26,400	20	70.6	26,500	20	75.2	26,600
25	36.3	15,900	25	55.9	16,700	25	65	17,000	25	70.5	17,100
30	16.2	10,700	30	47.8	11,500	30	59.3	11,800	30	65.9	11,900
	0	9500	35	39.4	8300	35	53.9	8600	35	61.8	8700
			40	27.9	6000	40	47.4	6300	40	57	6400
				0	4300	45	40.3	4600	45	52	4800
						50	31.9	3400	50	46.7	3600
						55	20.7	2400	55	40.9	2600
							0	1750	60	34.3	1800
									65	26.2	1100
									70	14.5	650

88 ft BOOM			101 ft BOOM			115 ft BOOM			128 ft BOOM			142 ft BOOM		
RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY	RADIUS	ANGLE	CAPACITY
20	78.2	23,000	20	79.9	17,000									
25	74.4	17,200	25	77.2	15,800	25	79.1	13,000						
30	70.5	12,000	30	74	12,100	30	76.7	11,900	30	78.5	9500	30	79.7	8000
35	67	8800	35	70.9	8900	35	74	9000	35	76.5	9000	35	77.8	7500
40	63.1	6500	40	67.6	6600	40	71	6700	40	73.6	6700	40	75.7	6700
45	59.2	4950	45	64.3	5100	45	68	5200	45	71	5200	45	73.3	5200
50	55.1	3700	50	60.8	3800	50	65	3900	50	68.3	3900	50	70.8	3900
55	50.8	2700	55	57.3	2800	55	62	2900	55	65.6	2900	55	68.4	2900
60	46.2	1900	60	53.7	2000	60	59	2100	60	62.9	2100	60	66	2100
65	41.3	1200	65	49.9	1300	65	55.8	1400	65	60.2	1400	65	63.5	1400
70	35.8	700	70	45.9	750	70	52.6	800	70	57.4	800	70	61	800

RATED LOAD REDUCTIONS WITH JIB

BOOM LENGTH	26 ft JIB STOWED	26 ft JIB ERECTED
34 ft	Reduce load 525 lb	Reduce load 1050 lb
47 ft	Reduce load 400 lb	Reduce load 1000 lb
61 ft	Reduce load 300 lb	Reduce load 950 lb
74 ft	Reduce load 250 lb	Reduce load 925 lb
88 ft	Reduce load 200 lb	Reduce load 900 lb
101 ft	Reduce load 200 lb	Reduce load 900 lb
115 ft	Reduce load 150 lb	Reduce load 875 lb
126 ft	Reduce load 150 lb	Reduce load 875 lb
142 ft	Reduce load 125 lb	Reduce load 850 lb

26 ft JIB RATED LOADS

RADIUS FULLY EXTENDED	LOADED BOOM ANGLE	RATED LOADS ALL BOOM LENGTHS
33	80	4000
50	75	3800
62	70	2100
74	65	750

NOTE:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.
3. Capacities do not exceed 85% stability.
4. Shaded areas are structurally limited capacities.

NOTE:

1. All capacities are in pounds, angles in degrees, radius in feet.
2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

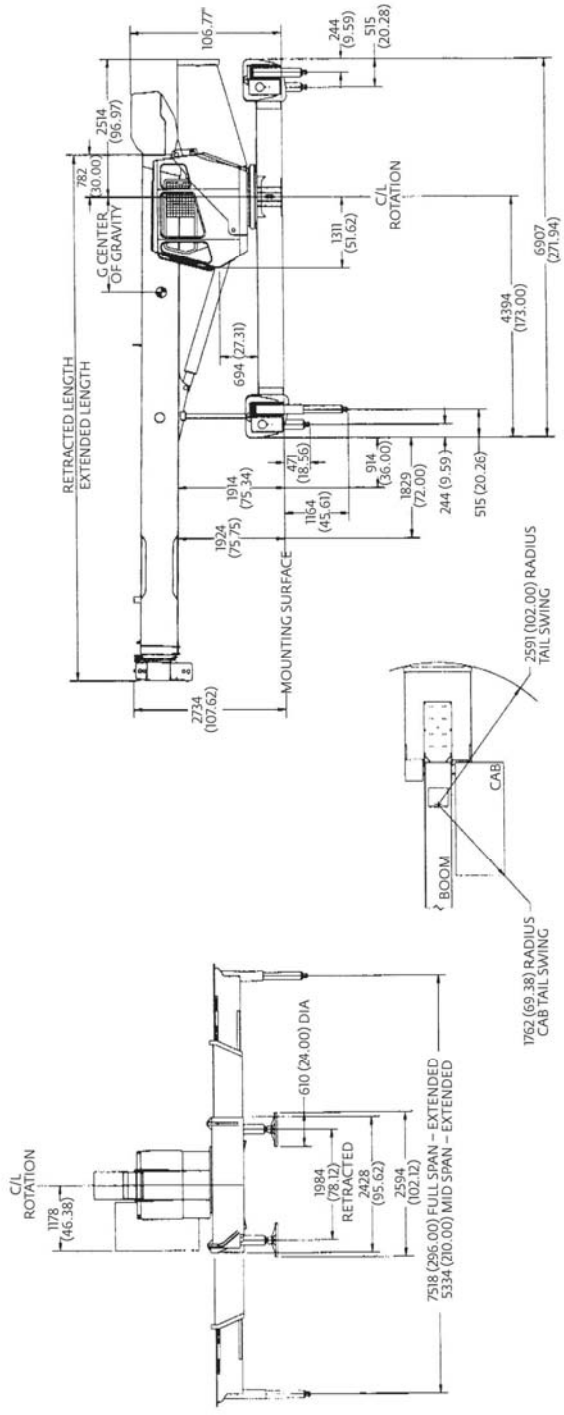
THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.
The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

Dimensions specifications

Series	Retracted length	Extended length	G	w/oil weight*
18103	9,4 m (31 ft)	31,40 m (103 ft)	1, m (69 in)	1 3 4 kg (33,8 0 lb)
1812	9,4 m (31 ft)	38, 2 m (12 ft)	1, m (69 in)	16 000 kg (32,2 lb)
18142	10,36 m (34 ft)	43,28 m (142 ft)	2,21 m (8 in)	16 69 kg (36,9 0 lb)
18 9	9,4 m (31 ft)	24,08 m (9 ft)	1, m (69 in)	14 431 kg (31,81 lb)

* Weight includes all items including complete HO outriggers, 2300 lb counterweight, 3 lb block, decks and SFO. booms fully retracted.

Dimensions are in mm (in)



Accessories

Radio Remote Controls – (Ground level or boom tip) Eliminate the handling and maintenance concerns that accompany cabled remotes. Operate to a range of about 76 m (250 ft), varying with conditions.	• NB4R (R4 functions)
One-Person Basket – Strong but lightweight steel basket with 139 kg (300 lb) capacity, gravity hung with swing lock and full body harness.	• B1-S • 2B1-S (for dual locking baskets)
Heavy-duty Personnel Basket – 544 kg (1200 lb) capacity steel basket with safety loops for two passengers. Gravity leveling 183 cm x 107cm (72 in x 42 in) platform. Fast attachment and secure locking systems.	• BSA-1 • BSA-R1 (provides rotation)
Air Conditioning for Crane Cab – (Requires larger truck alternator) Provides excellent crane cab cooling to overcome the radiant heat from the sun reflection.	• A/C
Auxiliary Winch 10,000 lb Line Pull – Second winch redundant to the main, planetary winch with boom tip "rooster sheave" to allow reeving of both winch lines.	• 18AW
Work Lights –	
• Amber flashing beacon mounted on crane cab	• ABR
• Spotlight mounted on cab, manually adjusted from the crane cab	• MSL
• Worklight on boom, switch and wiring in-cab to operate customer supplied worklight (without remote controls)	• WLB
• Worklight in fixed position on crane cab with in cab power	• WLF
• Worklight adjustable from crane with in-cab power	• WLR
Winch Drum Rotation Indicator and Last Layer Indicator– Winch drum rotation indicator in cab. Winch drum rotation indicator in cab (for use with standard and auxiliary winches).	• WDRI-LLI • WDRI-2-LLI2
Hour Meter – Hour meter in truck cab to record crane operation hours.	• HRM
Steel Tool Box Options	
Spanish-Language Danger Decals, Control Knobs, and Operators' Manuals	• SDD • SOM

Notes

Notes

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