

National Crane Series 800D

Product Guide

ASME B30.5
Imperial 85%



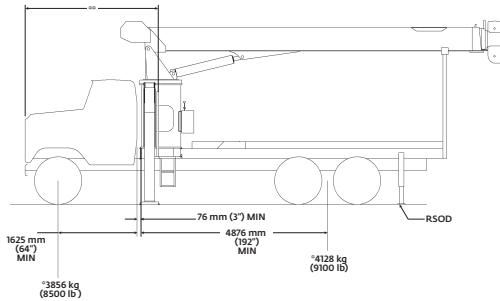
Features

- 20,87 t (23 USt) rating
- 30,48 m (100 ft) four-section boom
- Self-lubricating "Easy Glide" wear pads
- Internal Anti-Two Block



Mounting configurations

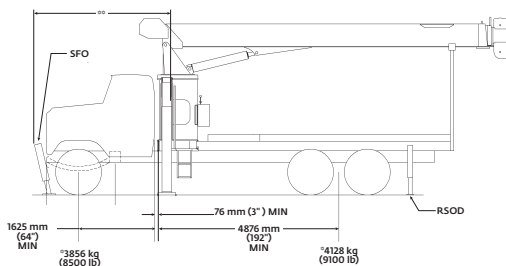
The configurations are based on the Series 800D with an 85% stability factor. The complete unit must be installed in accordance with factory requirements and a test performed to determine actual stability and counterweight requirements since individual truck chassis vary. Trucks with a frame height in excess of 107 cm (42 in) after mounting will have a final mounted unit height more than 411.5 cm (13 ft 6 in). Chassis that do not meet these minimum stability weights may require counterweight.



Configuration 1 – 8100D

Working area	180'
Gross Axle Weight Rating Front.....	7257 kg (16,000 lb)
Gross Axle Weight Rating Rear.....	15 422 kg (34,000 lb)
Gross Vehicle Weight Rating.....	22 679 kg (50,000 lb)
Wheelbase.....	650 cm (256 in)
Cab to Axle/trunnion (CA/CT).....	488 cm (192 in)
Frame Section Modulus (SM) under crane: 758 MPa (110,000 PSI)	260.6 cm ³ (15.9 in ³)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI)	213.0 cm ³ (13.0 in ³)
Stability Weight, Front	3856 kg (8500 lb) minimum*
Stability Weight, Rear	4128 kg (9100 lb) minimum*
Estimated Average Final Weight	18 507 kg (40,800 lb)

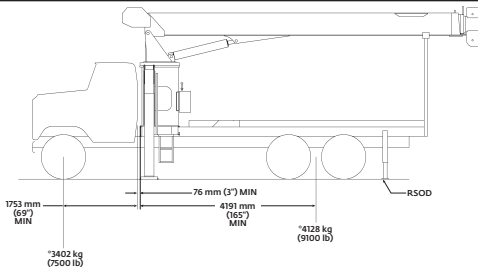
This configuration allows the installation of the Series 8100D on a chassis by using the subbase for a 6,71 m (22 ft) bed.



Configuration 2 – 8100D (add SFO for 360° stability)

Working area	360'
Gross Axle Weight Rating Front.....	7257 kg (16,000 lb)
Gross Axle Weight Rating Rear.....	15 422 kg (34,000 lb)
Gross Vehicle Weight Rating.....	22 679 kg (50,000 lb)
Wheelbase.....	650 cm (256 in)
Cab to Axle/trunnion (CA/CT).....	488 cm (192 in)
Frame Section Modulus (SM) under crane: 758 MPa (110,000 PSI)	327.7 cm ³ (20.0 in ³)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI)	213.0 cm ³ (13.0 in ³)
Stability Weight, Front	3856 kg (8500 lb) minimum*
Stability Weight, Rear	4128 kg (9100 lb) minimum*
Estimated Average Final Weight	18 688 kg (41,200 lb)

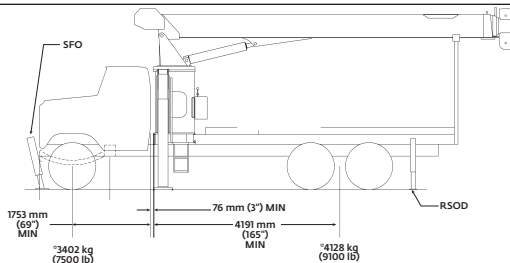
This mount requires front stabilizer for full capacity 360° around the truck. Front stabilizer gives the machine a solid base. This configuration requires a 6,71 m (22 ft) bed for rear overhang, and extended front frame rails for SFO mounting. NOTE: Chassis will require extended front frame rails for SFO mounting.



Configuration 3 – All boom lengths, other than 8100D

Working area	180'
Gross Axle Weight Rating Front.....	7257 kg (16,000 lb)
Gross Axle Weight Rating Rear.....	15 422 kg (34,000 lb)
Gross Vehicle Weight Rating.....	22 679 kg (50,000 lb)
Wheelbase.....	594 cm (234 in)
Cab to Axle/trunnion (CA/CT).....	419 cm (165 in)
Frame Section Modulus (SM) under crane w/ 758 MPa (110,000 PSI)	260.6 cm ³ (15.9 in ³)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI)	213.0 cm ³ (13.0 in ³)
Stability Weight, Front	3402 kg (7500 lb) minimum*
Stability Weight, Rear	4128 kg (9100 lb) minimum*
Estimated Average Final Weight (890D)	17 600 kg (38,800 lb)**

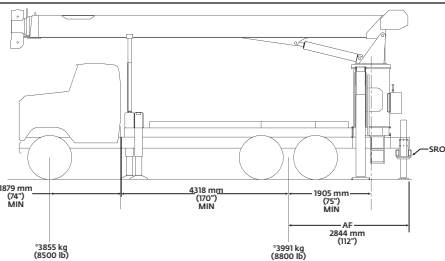
This configuration allows the installation of the Series 800D on a chassis with a subbase and bed combination which best fits the boom length. Depending on the boom length, the bed can be 18 ft, 20 ft or 22 ft. Not all bed lengths can be used with each boom due to rear overhang limits.



Configuration 4 – All boom lengths, other than 8100D

Working area	360'
Gross Axle Weight Rating Front.....	7257 kg (16,000 lb)
Gross Axle Weight Rating Rear.....	15 422 kg (34,000 lb)
Gross Vehicle Weight Rating.....	22 679 kg (50,000 lb)
Wheelbase.....	594 cm (234 in)
Cab to Axle/trunnion (CA/CT).....	419 cm (165 in)
Frame Section Modulus (SM) under crane w/ 758 MPa (110,000 PSI)	327.7 cm ³ (20 in ³)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI)	213.0 cm ³ (13 in ³)
Stability Weight, Front	3402 kg (7500 lb) minimum*
Stability Weight, Rear	4128 kg (9100 lb) minimum*
Estimated Average Final Weight (890D)	17 780 kg (39,200 lb)

This mount requires front stabilizer for full capacity 360° around the truck. Front stabilizer gives the machine a solid base. Bed length and subbase combinations must match boom length to limit rear overhang. Extended front frame rails required for SFO mounting. NOTE: Chassis will require extended front frame rails for SFO mounting.



Configuration 5 – Rear Mount (all boom lengths)

Working area	360'
Gross Axle Weight Rating Front.....	7257 kg (16,000 lb)
Gross Axle Weight Rating Rear.....	18 143 kg (40,000 lb)
Gross Vehicle Weight Rating.....	25 401 kg (56,000 lb)
Wheelbase.....	620 cm (244 in)
Cab to Axle/trunnion (CA/CT).....	432 cm (170 in)
Frame Section Modulus (SM) under crane: 758 MPa (110,000 PSI)	260 cm ³ (15.9 in ³)
Stability Weight, Front	3856 kg (8500 lb) minimum*
Stability Weight, Rear	3991 kg (8800 lb) minimum*
Estimated Average Final Weight (8100D)	19 504 kg (43,000 lb)

This configuration allows the rear-mount installation of the Series 800D. This configuration is 360° stable and allows the effective use of close working area to lift the heavier capacity loads. Maximum bed length is 4,87 m (16 ft). Requires single rear outrigger.

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 800D with an 85 percent stability factor
- 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
- Transmission neutral safety interlock switch is required

*Estimated axle scale weights prior to installation of crane, stabilizers and subbase for 85% stability.

**If the distance from the front bumper (SFO) to center of rotation exceeds 366 cm (144 in), the 12,19 m (40 ft) overall truck length restriction will be exceeded. Overall length restrictions vary from state to state. In some states it is legal to be more than 12,18 m (40 ft) in length, and some states allow overlength permits.

Specifications

Boom and jib combinations data

Available in three basic models.

Model 851D – Equipped with a 6,4 m - 15,5 m (21 ft - 51 ft) three-section boom. Maximum tip height is 18,9 m (62 ft).



Model 890D – Equipped with a 8,23 m - 27,43 m (27 ft - 90 ft) four-section boom. This model can be equipped with a 7,62 m - 13,41 m (25 ft - 44 ft) two-section jib. Maximum tip height with 13,41 m (44 ft) jib is 43,58 m (143 ft).

8,23 m - 27,43 m (27 ft - 90 ft) four-section boom.



8,23 m - 27,43 m (27 ft - 90 ft) four-section boom.

8FJ44M 7,62 m - 13,41 m (25 ft - 44 ft) two-section jib



Model 8100D – Equipped with a 8,99 m - 30,48 m (29.5 ft - 100 ft) four-section boom. This model can be equipped with a 7,62 m - 13,41 m (25 ft - 44 ft) two-section jib. Maximum tip height with 13,41 m (44 ft) jib is 46,32 m (152 ft).

8,99 m - 30,48 m (29.5 ft - 100 ft) four-section boom.



8,99 m - 30,48 m (29.6 ft - 100 ft) four-section boom.

8FJ44M 7,62 m - 13,41 m (25 ft - 44 ft) two-section jib

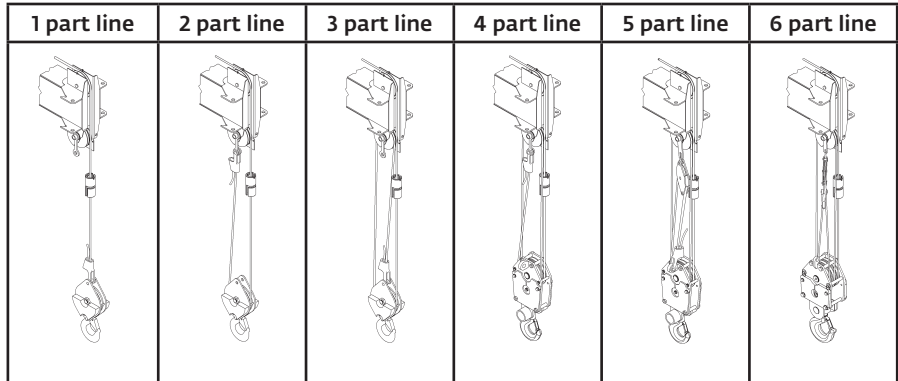


Note: Maximum tip is measured with outriggers/stabilizers fully extended.

Specifications

800D winch data

- All winch pulls and speeds in this chart are shown on the **fourth** layer
- Winch line pulls would increase on the first, second and third layers
- Winch line speed would decrease on the first, second and third layers
- Winch line pulls may be limited by the winch capacity or the ANSI 5 to 1 cable safety factor
- Hook blocks are rated at maximum capacity for the block. **Do not exceed rated cable pull with any block.**



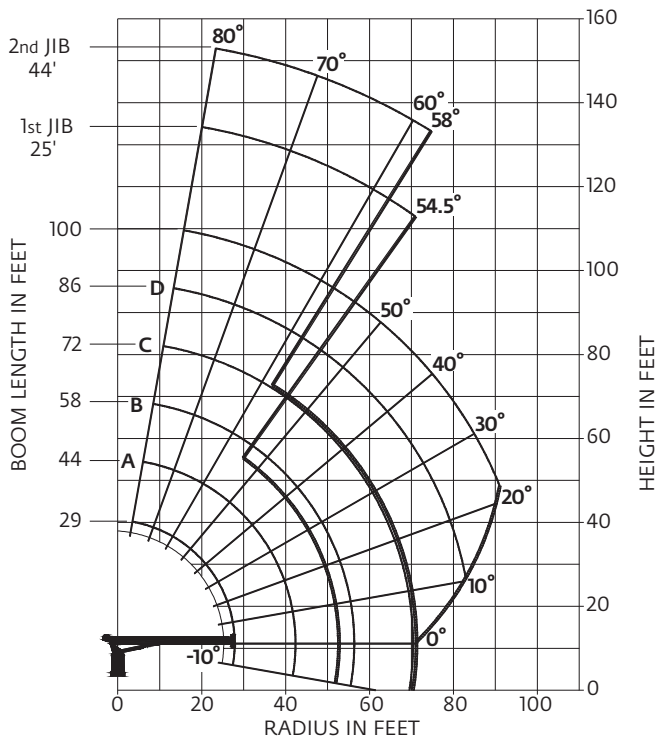
Winch	Cable supplied	Average breaking strength	Lift and speed	Lift and speed	Lift and speed	Lift and speed	Lift and speed	Lift and speed
Standard planetary winch	9/16" diameter rotation resistant	17 463 kg (38,600 lb)	3492 kg (7700 lb) 45 m/min (147 fpm)	6985 kg (15,400 lb) 22 m/ (73 fpm)	10 477 kg (23,100 lb) 15 m/min (49 fpm)	13 970 kg (30,800 lb) 11 m/min (38 fpm)	17 163 kg (38,500 lb) 9 m/min (29 fpm)	20 865 kg (46,000 lb) 8 m/min (25 fpm)
With "Burst-of-Speed"	9/16" diameter rotation resistant	17 463 kg (38,600 lb)	1360 kg (3000 lb) 62 m/min (206 fpm)	2721 kg (6000 lb) 31 m/min (103 fpm)	4082 kg (9000 lb) 20 m/min (68 fpm)	5443 kg (12,000 lb) 15 m/min (51 fpm)	6803 kg (15,000 lb) 12 m/min (41 fpm)	8164 kg (18,000 lb) 10 m/min (34 fpm)

Winch	Bare drum pull	Allowable cable pull
Standard rotation resistant rope	4627 kg (10,200 lb)	3493 kg (7700 lb)

Loadline deduct		
Block type	Rating	Weight
Downhaul weight	3,49 t (3.85 USt)	68 kg (150 lb)
1-sheave block	10,48 t (11.55 USt)	138 kg (305 lb)
2-sheave block	17,46 t (19,25 USt)	161 kg (355 lb)
3-sheave block	27,21 t (30.00 USt)	261 kg (575 lb)

Capacities

8100D: 100 ft boom with 44 ft jib



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 6,1 m (20 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.

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.

Load chart

LOAD RADIUS (FEET)	LOADED BOOM ANGLE	29 ft BOOM (lb)	LOADED BOOM ANGLE	A 44 ft BOOM (lb)	LOADED BOOM ANGLE	B 58 ft BOOM (lb)	LOADED BOOM ANGLE	C 72 ft BOOM (lb)	LOADED BOOM ANGLE	D 86 ft BOOM (lb)	LOADED BOOM ANGLE	100 ft BOOM (lb)	LOAD RADIUS (FEET)	LOADED BOOM ANGLE	25 ft JIB (lb)	LOADED BOOM ANGLE	44 ft JIB (lb)
5	79	46,000											30	78	3900	80	2750
8	72.5	30,700	79	27,900									35	75.5	3400	78	2500
10	68	25,500	76	23,200									40	73	2800	76	2250
12	63.5	21,800	73.5	19,700	78	18,050							45	70.5	2350	74	2000
14	59	19,000	70.5	17,200	76	15,750	79.5	14,350					50	68	1850	72	1850
16	54	16,700	68	15,200	74	13,850	77.5	12,650					55	65	1500	70	1600
20	43	13,400	61	12,200	69.5	11,250	74.5	10,350	77.5	9550	80	7450	60	62.5	1300	67.5	1350
25	25	9700	54	9700	64	8950	70	8250	74	7650	77	7100	65	60	1100	65	1050
30			45	7900	58.5	7350	66	6650	70.5	6150	74	5850	70	57	750	63	950
35			35	6300	53	6100	61.5	5600	67	5200	71	4900	75	54.5	600	60.5	800
40			20	4600	46	5100	56.5	4750	63	4400	67.5	4250	80			58	600
45					38	4250	51.5	4050	59.5	3800	64.5	3650					
50					28.5	3400	46	3450	55	3250	61	3150					
55					14	2200	40	2900	51	2800	57.5	2650					
60							33	2350	46.5	2400	54	2300					
65							24	1800	41	2000	50	1850					
70							6.5	700	35.5	1600	46	1650					
75									29	1250	42	1350					
80									20	800	37	1050					
85											32	800					
90											25	500					
0	0	5100	0	2300	0	950											

Note: Shaded areas are structurally limited capacities.

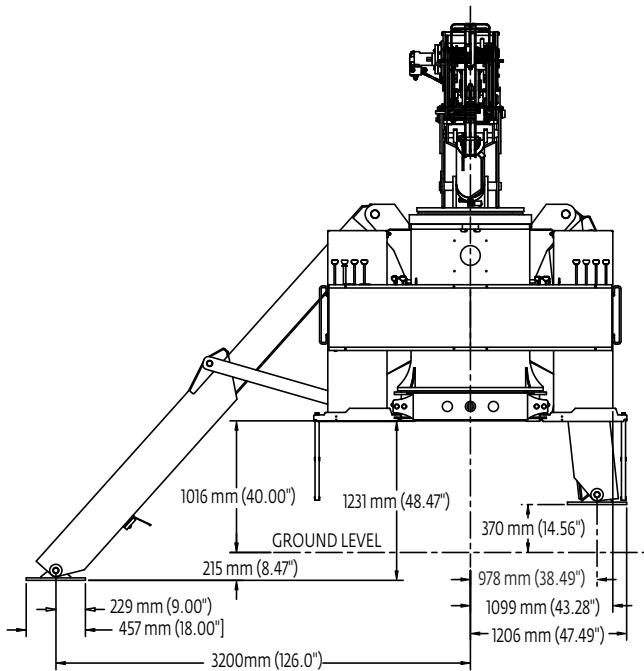
THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.

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

Dimensions

Series	G	Dry weight*	With oil weight*
851D	71 cm (28 in)	6214 kg (13,700 lb)	6448 kg (14,215 lb)
890D	173 cm (68 in)	7468 kg (16,465 lb)	7704 kg (16,985 lb)
8100D	201 cm (79 in)	7797 kg (17,190 lb)	8033 kg (17,710 lb)

*Above weights do not include subbase, reservoir, front or rear stabilizers, jibs, PTO, pump, bed, boom rests, rear bumper, or any other mounting or crane options.



R1115mm (R43.91")
TAILSWING
MAINTAIN CLEARANCE
FOR TAILSWING

