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 413.5 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 .................................................. 6,594 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 cm (10 in)
- Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI) .............. 213 cm (13 in)
- 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 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 .................................................. 6,291 cm (244 in)
- Cab to Axle/trunnion (CA/CT) ......................... 419 cm (165 in)
- Frame Section Modulus (SM) under crane w/ 758 MPa (110,000 PSI) ................. 260 cm (15 in)
- Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI) .............. 213 cm (13 in)
- Stability Weight, Front ......................... 3402 kg (7500 lb) minimum*
- Stability Weight, Rear ......................... 4128 kg (9100 lb) minimum*
- Estimated Average Final Weight ......................... 17,680 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 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) ................. 327.7 cm (12.9 in)
- Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI) .............. 213 cm (13 in)
- Stability Weight, Front ......................... 3042 kg (6700 lb) minimum*
- Stability Weight, Rear ......................... 4128 kg (9100 lb) minimum*
- Estimated Average Final Weight ......................... 17,180 kg (37,700 lb)**

This configuration 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 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 (12.9 in)
- Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI) .............. 213 cm (13 in)
- Stability Weight, Front ......................... 3042 kg (6700 lb) minimum*
- Stability Weight, Rear ......................... 4128 kg (9100 lb) minimum*
- Estimated Average Final Weight ......................... 17,180 kg (37,700 lb)**

This configuration 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 .................................................. 6,291 cm (244 in)
- Cab to Axle/trunnion (CA/CT) ......................... 432 cm (170 in)
- Frame Section Modulus (SM) under crane: 758 MPa (110,000 PSI) ......................... 209 cm (8 in)
- Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI) .............. 3856 kg (8500 lb) minimum*
- Stability Weight, Rear ......................... 3991 kg (8800 lb) minimum*
- Estimated Average Final Weight ......................... 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 4,873 in (12 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 in (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).

**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).

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.**

<table>
<thead>
<tr>
<th>Winch</th>
<th>Cable supplied</th>
<th>Average breaking strength</th>
<th>Lift and speed</th>
<th>Lift and speed</th>
<th>Lift and speed</th>
<th>Lift and speed</th>
<th>Lift and speed</th>
<th>Lift and speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard planetary winch</td>
<td>9/16” diameter rotation resistant</td>
<td>17,463 kg (38,600 lb)</td>
<td>3492 kg (7700 lb)</td>
<td>6985 kg (15,400 lb)</td>
<td>10,477 kg (23,100 lb)</td>
<td>13,970 kg (30,800 lb)</td>
<td>17,163 kg (38,500 lb)</td>
<td>20,865 kg (46,000 lb)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>45 m/min (147 fpm)</td>
<td>22 m/min (73 fpm)</td>
<td>15 m/min (49 fpm)</td>
<td>11 m/min (38 fpm)</td>
<td>9 m/min (29 fpm)</td>
<td>8 m/min (25 fpm)</td>
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<tr>
<td>With “Burst-of-Speed”</td>
<td>9/16” diameter rotation resistant</td>
<td>17,463 kg (38,600 lb)</td>
<td>1360 kg (3000 lb)</td>
<td>2221 kg (6000 lb)</td>
<td>4082 kg (9000 lb)</td>
<td>5443 kg (12,000 lb)</td>
<td>6803 kg (15,000 lb)</td>
<td>8164 kg (18,000 lb)</td>
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<td></td>
<td></td>
<td></td>
<td>62 m/min (206 fpm)</td>
<td>31 m/min (103 fpm)</td>
<td>20 m/min (68 fpm)</td>
<td>15 m/min (51 fpm)</td>
<td>12 m/min (41 fpm)</td>
<td>10 m/min (34 fpm)</td>
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#### Loadline deduct

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<th>Block type</th>
<th>Rating</th>
<th>Weight</th>
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<tr>
<td>Downhaul weight</td>
<td>3.49 t (3.85 USt)</td>
<td>68 kg (150 lb)</td>
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<td>1-sheave block</td>
<td>10.48 t (11.55 USt)</td>
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<td>2-sheave block</td>
<td>17.46 t (19.25 USt)</td>
<td>161 kg (355 lb)</td>
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<td>3-sheave block</td>
<td>27.21 t (30.00 USt)</td>
<td>261 kg (575 lb)</td>
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<tr>
<th>Winch</th>
<th>Bare drum pull</th>
<th>Allowable cable pull</th>
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<tr>
<td>Standard rotation resistant rope</td>
<td>4627 kg (10,200 lb)</td>
<td>3493 kg (7700 lb)</td>
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</table>

- All winch pulls and speeds in this chart are shown on the **fourth** layer.
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 not 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

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<th>LOAD</th>
<th>RADIUS (FEET)</th>
<th>LOAD</th>
<th>RADIUS (FEET)</th>
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Note: Shaded areas are structurally limited capacities.
Dimensions

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