National Crane Series 900A
Product Guide

Features

• 23,6 t (26 USt) rating
• 31,4 m (103 ft) four-section boom
• Self-lubricating Easy Glide wear pads
• Internal anti-two block
**Features**

**Boom**
The 31.4 m (103 ft) four-section boom allows the operator to perform more lifts without the use of a jib, reducing setup time and improving efficiency.

**Outriggers**
“A” frame main outriggers with 21 ft span. RSOD 16 ft out and down, rear stabilizers for standard behind-cab mount.

**Two-speed auger option**
Available on the 990A, the 14,000 ft/lb two-speed drive auger with a maximum digging radius of 39 ft gives your crane enhanced working capabilities. Controls are located at the operator’s console and hose slider on boom. Auger flighting is available.

**Easy Glide boom wear pads**
Reduce the conditions that cause boom chatter and vibration resulting in smoother crane operation.
Performance you can rely on

- The Series 900A is standard with 375° non-continuous rotation.

- Burst of speed winch provides faster winch payout and pickup of unloaded cable.

- The stronger standard torsion box improves rigidity, reduces truck frame flex and reduces the need for counterweight.

- A control knob located on the swing motor brake release valve can be easily adjusted to the crane operator’s swing speed preference.

- Bearings on the boom and retract cables can be greased through access holes in the boom side plates.

- Number of internal boom parts has been reduced, decreasing service time when rebuilding the machine.

- Standard on the 900A, internal anti-two block wire routing eliminates the external reel and wire, removing the possibility of snagging reel or wire on obstructions and causing damage.

- Painting crane components before assembly reduces the possibility of rust, improves serviceability and enhances the appearance of the machine.

- A removable winch allows the internal telescoping cylinder to be removed quickly, without dismantling the boom.

- Speedy-reeve boom tip and sheave blocks simplify rigging changes by decreasing the time needed to change line reeving.

* Product may be shown with optional equipment.
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Mounting configurations

The configurations are based on the Series 900A 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.

Configuration 1 – 9103A with SFO (Extended front frame rails required for SFO installation.)

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/runion (CA/CT) ........................................... 488 cm (192 in)
Frame Section Modulus (SM) under crane: 758 MPa (110,000 PSI) ................................ 327 cm (20 in)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI) .... 245 cm (15 in)
Stability Weight, Front .................................................. 3991 kg (8800 lb) minimum*
Stability Weight, Rear ................................................... 4309 kg (9500 lb) minimum*
Estimated Average Final Weight .................................... 19,459 kg (42,900 lb)

This mount requires front stabilizer for full capacity 360˚ around the truck. Front stabilizer gives the machine a solid base, helping the operator control loads. This configuration requires a 6.71 m (22 ft) bed.

Configuration 2 – 990A with SFO (Extended front frame rails required for SFO installation.)

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 ..................................................................... 589 cm (232 in)
Cab to Axle/runion (CA/CT) ........................................... 427 cm (168 in)
Frame Section Modulus (SM) under crane: 758 MPa (110,000 PSI) ................................ 327 cm (20 in)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI) .... 245 cm (15 in)
Stability Weight, Front .................................................. 3991 kg (8800 lb) minimum*
Stability Weight, Rear ................................................... 4309 kg (9500 lb) minimum*
Estimated Average Final Weight .................................... 18,551 kg (40,900 lb)

This configuration allows the installation of the 990A on a chassis by using a subbase for a 6.10 m (20 ft) bed or a different subbase for a 6.71 m (22 ft) bed. This mount requires front stabilizer for full capacity 360˚ around the truck. Front stabilizer gives the machine a solid base, helping the operator control loads.

Configuration 3 – Rear Mount

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/runion (CA/CT) ........................................... MINIMUM 432 cm (170 in)
Frame Section Modulus (SM) under crane: 758 MPa (110,000 PSI) ................................ 260 cm (15.9 in)
Stability Weight, Front .................................................. 3855 kg (8500 lb) minimum*
Stability Weight, Rear ................................................... 3991 kg (7000 lb) minimum*
Estimated Average Final Weight .................................... 19,504 kg (43,000 lb)

This configuration allows the rear-mount installation of the Series 900A. 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).

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 900A 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 with optional remote control.

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

**Boom and jib combinations data**

**Model 990A** – Equipped with a 8,38 m - 27,4 m (27 ft 6 in - 90 ft 6 in) 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).

8,38 m - 27,58 m (27 ft 6 in - 90 ft 6 in) four-section boom  **9FJ44M** 7,62 m - 13,41 m (25 ft - 44 ft) two-section jib

**Model 9103A** – Equipped with a 9,37 m - 31,4 m (30 ft 9 in - 102 ft 10 in) 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 47,24 m (155 ft).

9,37 m - 31,34 m (30 ft 9 in - 102 ft 10 in) four-section boom  **9FJ44M** 7,62 m - 13,41 m (25 ft - 44 ft) two-section jib

**Note:** Maximum tip height is measured with outriggers/stabilizers fully extended.
## Specifications

### 900A winch data

- All winch pulls and speeds in this chart are shown on the first layer.
- Winch line pulls would increase on the 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 first, second, and third layers.

### Table: Winch Pulls and Speeds

<table>
<thead>
<tr>
<th>Line</th>
<th>1 part line</th>
<th>2 part line</th>
<th>3 part line</th>
<th>4 part line</th>
<th>5 part line</th>
<th>6 part line</th>
<th>7 part line</th>
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<tr>
<td>MAX. PULL</td>
<td>700 lb</td>
<td>15,400 lb</td>
<td>23,300 lb</td>
<td>30,800 lb</td>
<td>38,500 lb</td>
<td>46,200 lb</td>
<td>52,000 lb</td>
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### Table: Winch Specifications

<table>
<thead>
<tr>
<th>Winch Type</th>
<th>Cable Type</th>
<th>Avg. 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>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Planetary Winch</td>
<td>9/16 in diameter rotation resistant</td>
<td>17.463 kg (38.500 lb)</td>
<td>3492 kg (7700 lb)</td>
<td>6085 kg (13,300 lb)</td>
<td>10,477 kg (23,100 lb)</td>
<td>13,970 kg (30,800 lb)</td>
<td>17,456 kg (38,500 lb)</td>
</tr>
<tr>
<td>With &quot;Burst of Speed&quot; Winch</td>
<td>Same as corresponding cable data shown above</td>
<td>1360 kg (3000 lb)</td>
<td>221 kg (4900 lb)</td>
<td>4012 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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</table>

### Table: Additional Specifications

<table>
<thead>
<tr>
<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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<tr>
<td>1 Sheave Block</td>
<td>10.48 t (11.55 USt)</td>
<td>138 kg (305 lb)</td>
</tr>
<tr>
<td>2 Sheave Block</td>
<td>17.46 t (19.25 USt)</td>
<td>161 kg (355 lb)</td>
</tr>
<tr>
<td>3 Sheave Block</td>
<td>27.22 t (30 USt)</td>
<td>260 kg (575 lb)</td>
</tr>
</tbody>
</table>

### Notes

- With standard rotation resistant rope: 4627 kg (10,200 lb)
- Allowable cable pull: 3493 kg (7700 lb)

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**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.

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Series 900A
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 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. Capacities do not exceed 85% stability.
2. Shaded areas are structurally limited capacities.

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Capacities

Series 990A: 90 ft boom with 44 ft jib

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- 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

<table>
<thead>
<tr>
<th>LOAD RADIUS (FEET)</th>
<th>LOADED BOOM ANGLE</th>
<th>27 ft Boom (lb)</th>
<th>LOADED BOOM ANGLE</th>
<th>A 42 ft Boom (lb)</th>
<th>LOADED BOOM ANGLE</th>
<th>B 54 ft Boom (lb)</th>
<th>LOADED BOOM ANGLE</th>
<th>C 66 ft Boom (lb)</th>
<th>LOADED BOOM ANGLE</th>
<th>D 78 ft Boom (lb)</th>
<th>LOADED BOOM ANGLE</th>
<th>E 90 ft Boom (lb)</th>
<th>LOAD RADIUS (FEET)</th>
<th>LOADED BOOM ANGLE</th>
<th>25 ft JIB (lb)</th>
<th>LOADED BOOM ANGLE</th>
<th>44 ft JIB (lb)</th>
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<td>42</td>
<td>600</td>
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</tbody>
</table>

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- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- 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.

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Note:
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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.

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Load chart

<table>
<thead>
<tr>
<th>LOAD (RADIUS)</th>
<th>LOADED BOOM ANGLE</th>
<th>30 ft BOOM (lb)</th>
<th>43 ft BOOM (lb)</th>
<th>58 ft BOOM (lb)</th>
<th>73 ft BOOM (lb)</th>
<th>88 ft BOOM (lb)</th>
<th>103 ft BOOM (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>78.5</td>
<td>52,000</td>
<td>35,000</td>
<td>26,000</td>
<td>17,000</td>
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Note:
1. Capacities do not exceed 85% stability.
2. 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**

<table>
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<tr>
<th>Series</th>
<th>Retracted length</th>
<th>Extended length</th>
<th><strong>G</strong></th>
<th>Dry weight</th>
<th>w/oil weight</th>
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<tbody>
<tr>
<td><strong>990A</strong></td>
<td>27 ft 6 in</td>
<td>90 ft 6 in</td>
<td>238 cm (94 in)</td>
<td>9536 kg (21,025 lb)</td>
<td>9802 kg (21,610 lb)</td>
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<tr>
<td><strong>9103A</strong></td>
<td>30 ft 9 in</td>
<td>102 ft 10 in</td>
<td>269 cm (106 in)</td>
<td>10 047 kg (22,150 lb)</td>
<td>10 312 kg (22,735 lb)</td>
</tr>
</tbody>
</table>

* Includes standard 20 ft subbase
** Includes standard 22 ft subbase

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**9103A: 10’-9’ Retracted- 102’-2’ Extended (9.37 m - 31.34 m)**

**990A: 27’-6’ Retracted- 90’-6’ Extended (8.38 m - 27.58 m)**

- Maintain clearance for tail swing
- **R 1371 mm (54.00”) Tailswing**

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**Dimensions**

![Dimensions Diagram](image-url)

- Ground level
- Retracted dry weight
- Penetration
- Ground level
- Frame height
- Clearance
Radio Remote Controls –
Eliminate the handling and maintenance concerns that accompany cabled remotes. Operate to a range of about 76 m (250 ft), varying with conditions. • RB4R (Ré functions)

Heavy-duty Personnel Basket –
544 kg (1200 lb) capacity steel basket with safety loops for two passengers. Gravity leveling 183 cm x 107 cm (72 in x 42 in) platform. Fast attachment and secure locking systems. Load chart must show 1043 kg (2300 lb) minimum to operate this accessory. • BSA-1 • BSA-R1 (provides rotation) • BSAY-1 • BSAY-2

Hydraulic Oil Cooler –
Automatic, self-contained radiator system with electric fans cools oil under continuous operation. • OC

Single Front Outrigger –
Center front stabilizer with a 25 in vertical stroke • SFO

Spanish-Language Danger Decals,
Control Knobs, and Operators’ Manuals • SDD • SOM
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.