

The National Pedestal-Mounted Marine Lifting Systems



NATIONAL CRANE

Your National Dealer:

General Offices: 11200 North 148th Street / Waverly, NE 68462
Phone: (402) 786-2240 / Telex: 438061

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National Crane Corporation manufactures pedestal-mounted cranes for docks, factories, towers, yards and other sites where the need for fixed, stationary lifting, loading and unloading exists. Pedestal-mounted telescoping cranes with marine conditioning are ideal for shipboard, dockside, offshore and other marine-related workites.

Full marine conditioning is standard on all National marine cranes. All external surfaces are sand-blasted, coated with inorganic zinc primer, painted, and coated with a durable chlorinated rubber topcoat. All interior surfaces and cylinders are carefully primed and painted to help prevent corrosion.

On cranes manufactured for marine working environments, lift cylinder shafts, and boom pivot pins are stainless steel to withstand the rigors of corrosive salt water and chemical environments. Continuous welds are made wherever possible to prevent the formation of corrosion in crevices. National marine conditioning extends the crane life while reducing maintenance requirements.

Strong Four-Plate Booms

Whether your pedestal-mounted lifting requirements are at land-based or harsh marine workites, you will benefit from National's four-plate boom construction. National fabricates all telescoping boom sections from high-strength steel members welded with perpendicular corners. This box-section (four-plate) construction utilizes thicker top and bottom

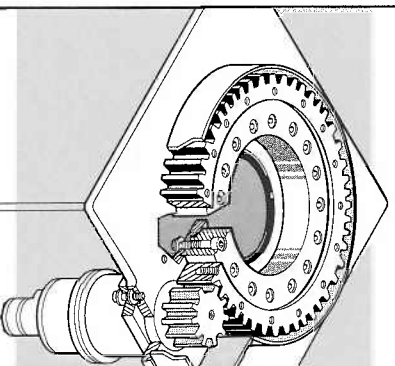
plates to achieve extra strength. And it utilizes thinner side plates to increase the lifting capacity through lower boom weight.

Only strong, low-alloy steel is used in National booms. It is welded with automatic, low-hydrogen techniques for extra-strong seams. Corner seams are ultrasonically tested for proper weld penetration.

Fast, Smooth Slewing

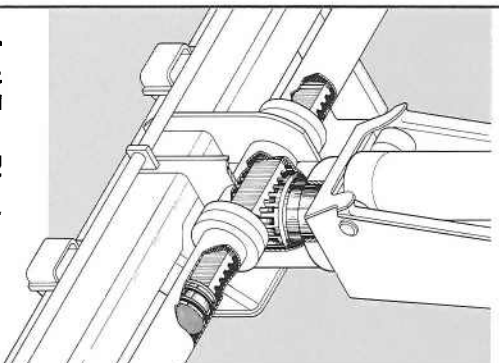
National turret drives are engineered for fast, smooth, controlled slewing. They require minimal maintenance, even under harsh marine conditions. Routine service is easy.

The Series 400, Series 600B, and Series 800B utilize a planetary rotation gearbox with a hydraulic release brake that allows the gearbox to backdrive whenever excessive side load is applied to the boom, reducing shock loads on the upper and lower crane structure and gearbox



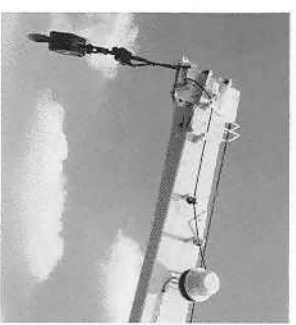
The turret drive is designed with extra-heavy bearings below the drive pinion. The gearbox and rotation bearing mounting surfaces are precision machined after welding. This ensures consistent tooth alignment for smooth rotation and even wear, even under maximum loads. The entire turret glides smoothly on a low inertia ball bearing race. Rotation is 375° non-continuous (continuous rotation is optional on the 400, 600B, and 800B).

The Series 200 utilizes the precision of rack-and-pinion rotation. The system is simple, reliable and, because it has fewer parts, easy to maintain. Rotation is 390° non-continuous.



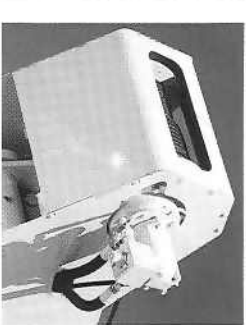
Anti-Two-Block Protection

All National pedestal-mounted hydraulic telescoping cranes are equipped with a standard anti-two-block system. Two-blocking occurs when the winch cable and attachments contact the underside of the boom sheave case, whether by winching up or extending the boom without paying out the winch cable. When this happens, the cable can be damaged by crimping or over-tensioning. The anti-two-block system helps prevent cable damage by sensing the position of the winch cable and attachments with respect to the sheave case and shutting down the functions that cause two-blocking.



High Performance Winch Systems

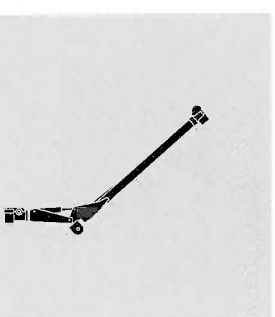
The National Series 400, Series 600B, and Series 800B cranes are equipped with high-performance planetary winch systems with rotation resistant cable. The Series 400's high-efficiency winch coupled with a hydraulic motor and counterbalance valve for "power down" load lowering provides smooth loadline control and quiet operation. All Series 600B and 800B cranes come equipped with a high-performance Braden PD-12C winch. Anti-friction



bearings are used throughout to maximize efficiency and seal life. A "Burst-of-Speed" feature — standard on the 800B with dual side pedestal controls* and optional on the 600B with dual side pedestal controls* — permits an extra fast and efficient pay-out and pick-up of unloaded cable ("Burst-of-Speed" circuitry increases line speed up to 60% over normal). The Series 200 is equipped with a durable Tulsa 9 worm-gear winch with an automatic friction brake and a hydraulic motor control valve brake. *

Explosion-Proof Systems

National provides an optional complete crane power pack and anti-two-block system in an explosion-proof class-one, group D version. This option is designed specifically for pedestal-mounted cranes that operate in hazardous gaseous or explosion-prone environments.



- Series 200**
- 6,000-pound capacity at 10 feet
 - 10,700-pound maximum capacity

The 200 provides the quality and performance of larger Nationals in a compact, cost-efficient package. It is ideal for use on smaller boats and barges, dockside and terminal work, offshore platforms, or wherever light-duty lifting is required.

Boom Lengths Available

- Model 228: 16' to 28' 2-section
- Model 216: 16' 1-section

Rotation

- Non-continuous, 390°

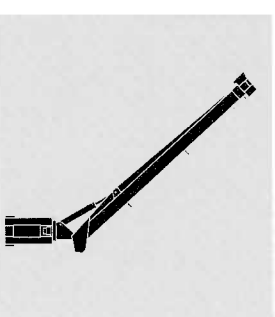
Winch

- Standard Model Tulsa 9
- Line Pull Bare 6,100 lbs.*
- Line Pull Full 5,100 lbs.*
- Line Speed Full 42 fpm
- *Because of the 5 to 1 ANSI safety factor, maximum rated pull cannot exceed 4,100 lbs. on a single line.

Accessories

- Two-part line block
- Two-and-three part line block
- Capacity alert systems
- Dual side stand up controls
- Remote valve control station group
- Electric motor (explosion proof motor available)
- Lister diesel engine power pack
- Reservoir
- Control console
- Total power package

Note: All booms are available with or without marine conditioning.



- Series 400**
- 8,000-pound capacity at 10 feet
 - 16,000-pound maximum capacity

The 400 is designed for high-performance, medium-duty lifting. Its mid-range capacity and reliability have made it the workhorse of fishing fleets.

Boom Lengths Available

- Model 455: 22' to 55' 3-section
- Model 446: 19' to 46' 3-section
- Model 437: 16' to 37' 3-section

Rotation

- Non-continuous, 375°
- Continuous (optional)

Winch

- Standard Model 6,450 lbs.*
- Line Pull Bare 5,500 lbs.
- Line Speed Full 92 fpm
- Optional Model (High Pull)
- Line Pull Bare 10,200 lbs.*
- Line Pull Full 8,400 lbs.**
- Line Speed Full 55 fpm
- *Because of the 5 to 1 ANSI safety factor, maximum rated pull on a single line cannot exceed 5,500 lbs. on Standard Model or 7,000 lbs. on Optional Model.

Accessories

- Two-part line block
- Two-and-three part line block
- Capacity alert systems
- Dual stand up controls
- Remote valve control station group
- Electric motor (explosion proof motor available)
- Lister diesel engine power pack
- Reservoir
- Control Console
- Total power package

Note: All booms are available with or without marine conditioning.



- Series 600B**
- 17,000-pound capacity at 10 feet
 - 28,000-pound maximum capacity

The 600B, with proportional boom design, provides higher capacities in normal lifting areas. It features a high-performance planetary winch and heavy-duty capabilities.

Boom Lengths Available

- Model 666B: 26' to 66'
- Model 656B: 22' to 56'
- Model 647B: 19' to 47'
- Model 638B: 16' to 38'
- Model 622B: 22' 1-section

Rotation

- Non-continuous, 375°
- Continuous (optional)

Winch

- Standard Model Braden PD-12C
- Line Pull Bare 10,200 lbs.*
- Line Pull Full 8,400 lbs.**
- Line Speed Full 93 fpm
- *Because of the 5 to 1 ANSI safety factor, maximum rated pull on a single line cannot exceed 7,000 lbs.

Accessories

- Two-part line block
- Two-and-three part line block
- Capacity alert systems
- Dual stand up controls
- Remote valve control station group
- Electric motor (explosion proof motor available)
- Lister diesel engine power pack
- Reservoir
- Control Console
- Total power package

Note: All booms are available with or without marine conditioning.



- Series 800B**
- 20,000-pound capacity at 10 feet
 - 35,000-pound maximum capacity

The 800B is National's maximum-capacity marine crane. Its industry-acclaimed four-section hydraulic boom provides extra long reach. National's Burst-of-Speed winch feature for fast payout and pick-up of cable is standard on crane with dual side pedestal controls.

Boom Lengths Available

- Model 875B: 22' to 75'
- Model 856B: 22' to 56'
- Model 839B: 22' to 39' 2-section

Rotation

- Non-continuous, 375°
- Continuous (optional)

Winch

- Standard Model Braden PD-12C
- Line Pull Bare 10,200 lbs.*
- Line Pull Full 8,400 lbs.**
- Line Speed Full 93 fpm**
- *Because of the 5 to 1 ANSI safety factor, maximum rated pull on a single line cannot exceed 7,000 lbs.
- **Optional wire rope pull is 8,400 lbs. and the line speed full is 93 fpm.

Accessories

- Two-part line block
- Two-and-three-part line block
- Two, three, four, and five-part line block
- Capacity alert systems
- Dual stand up controls
- Remote valve control station group
- Electric motor (explosion proof motor available)
- Lister diesel engine power pack
- Reservoir
- Control console
- Total power package

Note: All booms are available with or without marine conditioning.

National Marine Cranes Accessory Equipment

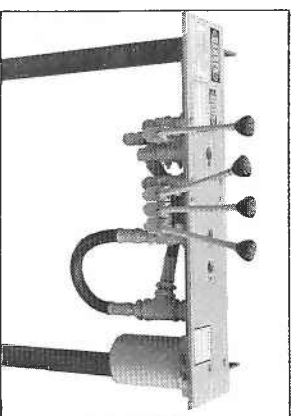
National provides several control options for its pedestal-mounted marine cranes.

Dual Side Pedestal Control

Dual controls with extra-fine metering and low pool force give you smooth, precise control and excellent load visibility. Controls on National's marine pedestal cranes are identical on each side, so you consistently work the same control with the same hand. Dual side controls are not recommended for extreme marine environments.

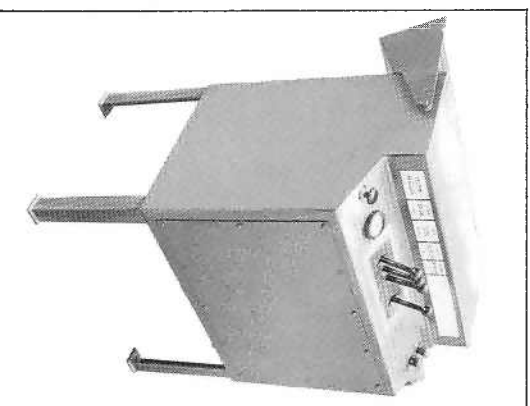
Remote Valve Control (RVC)

This stationary hydraulic control unit may be mounted remotely from the crane. The hydraulic control valves provide operation of the tilt, slewing, telescoping function, and winch. They are fine-metering spool-type units identical to those used on the dual side pedestal control. The RVC includes filter, flow divider, and control valves on an angle base ready for mounting and connection to the hydraulic supply. This model is not weather protected.



Control Console (6000-C)

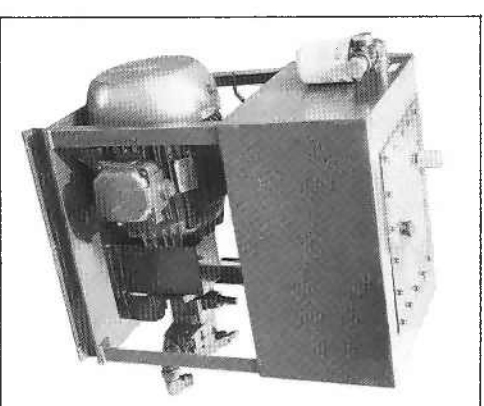
This weather-protected Console can be located where the operator can best observe loads for maximum safety and efficiency. It includes extra strong steel cabinet weldment with a built-in spill container and a protective hinged cover. It has turn, boom, telescope, and winch valve subassemblies; a push button start/stop station for the electrical power pack; system pressure gauge; with necessary internal wiring terminating in an accessible junction box. All internal plumbing is included. Letter-designated work ports are provided on the bottom of the Console cabinet; these match letter-designated work ports on the base of the crane to facilitate ease of hook up. All external and internal surfaces are sandblasted and coated with an inorganic zinc paint system. The 6000-C can be connected to either the existing vessel hydraulic system or to the separate power package available from National.



Control Console (6000-C)

Power Pack and Pump with Reservoir

For independent operation of your National marine crane, motors are available in TEFC (Totally-Enclosed, Fan Cooled), or XP (Explosion Proof) Class I Group D models. Both are available in 25 and 50 horsepower driving a balanced vane pump at 1,800 rpm. The reservoir is a 60-gallon hydraulic unit complete with removable access panel with heavy-duty gasket, internal diffuser, convoluted pump strainer (60 mesh), filter, breather, sight level gauge, tank baffle, return line filter — 10 micron with 25 psi bypass (element replaceable), condensation drain-off valve, pump isolation (shut-off) valve, and four mounting legs with one mounting hole in the base of each leg. Mounting the reservoir directly above the power supply provides forced suction of hydraulic fluid which extends the life of the hydraulic pump. Due to potential wiring variances, starter motor is not included. The reservoir can be purchased with the pump as shown at the left or the reservoir and pump can be purchased as separate units.



The total power package shown above includes pump, tank, control and motor assembly plumbed together in a free standing unit. The unit has been tested and is ready for electrical hook-up to your starter and plumbing hook-up to your crane.

NOTE: Diesel power packages are also available. Contact the factory for details.

Do not operate cranes or accessories within 10 feet of live power lines.

National Marine Cranes Technical Data

	Marine 200	Marine 400	Marine 600B	Marine 800B
Capacity at 10 ft.*	6,000 lbs.	8,000 lbs.	17,000 lbs.	20,000 lbs.
Max. Capacity*	10,700 lbs.	16,000 lbs.	28,000 lbs.	35,000 lbs.
Rotation				
Non-Continuous	390°	375°	375°	375°
Continuous	N/A	N/A	Optional	Optional
Speed	56 sec.	89 sec.	86 sec.	81 sec.
Controls				
Dual Side**	Optional	Optional	Optional	Optional
RVC**	Optional	Optional	Optional	Optional
Console	Optional	Optional	Optional	Optional
Hydraulic Requirements				
Boom	5.5 gpm/2,500 psi	5.5 gpm/2,625 psi	12 gpm/2,825 psi	12 gpm/2,950 psi
Winch	12.5 gpm/2,500 psi	12.5 gpm/3,050 psi	21 gpm/3,050 psi	21 gpm/3,050 psi
Winch				
Standard Model	Tulsa 9	GP5500	Braden PD-12	Braden PD-12
Line Pull Bare	6,100 lbs.	6,450 lbs.	10,200 lbs.	10,200 lbs.
Line Speed Full	42 fpm	92 fpm	93 fpm	93 fpm
Optional Model	N/A	Braden PD-12		
Line Pull Bare		10,200 lbs		
Line Speed Full		55 fpm		

*All boom capacities are based on the following system operating pressures. For systems with other pressures, contact factory for information.

Marine 200 2,500 psi
Marine 400 2,625 psi
Marine 600B 2,825 psi
Marine 800B 2,950 psi

**Not marine conditioned

Power Pack Specifications

Components: Electric Motor, Hydraulic Pump, Mounting Bracket

Electric Motor:

Types: A. Totally Enclosed Fan-Cooled (TEFC)
B. Explosion Proof, Class I, Group D (XP)

Speed: 1,800 rpm
Voltage: 230/460 AC
Hertz: 60 Hz
Phase: 3

(Due to potential wiring variances, motor starter is not included.)

Mounting Bracket: Heavy duty, steel base weldment with six mounting holes.

Balance Vane Hydraulic Pump

	Marine 200	Marine 400	Marine 600B	Marine 800B
Pump:	Single pump* 25 hp	Single pump* 25 hp	Tandem pump 50 hp	Tandem pump 50 hp
Flow rate:				
Boom:	5.5 gpm*	5.5 gpm*	12 gpm	12 gpm
Winch	12.5 gpm	12.5 gpm	21 gpm	21 gpm
Pressure:				
Boom:	2,500 psi	2,650 psi	2,825 psi	2,950 psi
Winch	2,500 psi	3,050 psi	3,050 psi	3,050 psi

*Hydraulic control system must be equipped with 70:30 flow divider (70% flow to winch circuit; 30% flow to boom circuit.)

