

National N-205 Articulating Crane

From
America's
Truck-Mounted
Hydraulic
Crane Leader



- *Crane Rating:*
205,000 ft•lb
(28.34 • m)
- *Maximum Capacity:*
11 tons (9,901)
- *Maximum
Vertical Reach:*^{*}
70 ft 4 in (21.4 m)
- *Horizontal Reach:*
58 ft 6 in (17.8 m)
- *Reach Below
Truck Frame:*
19 ft (14.9 m)
- *Total Hydraulic
Extension:*
50 ft 4 in (15.3 m)

^{*} Maximum vertical reach is from ground level with the crane mounted on a 42-in (1067 mm) high truck frame.

NATIONAL
CRANE
A Leader
Worldwide
Company

The National Advantage

When you invest in a National articulating crane, you are assured of these competitive advantages:

Quality

National cranes are designed for durability, performance, and ease of service. National's cutting-edge technologies set the industry standard for the manufacture of lifting and materials handling equipment. An experienced workforce turns innovative designs into quality-crafted cranes. Factory prototypes are subjected to the toughest testing requirements in the industry. Each National crane is checked throughout the manufacturing and assembly process, then given a detailed final inspection before it is released from the factory.

Performance

Each user-friendly National gives you what you expect in a crane. Long reach. High capacity. Fast set-up. Easy operation. Smooth movement. Versatile accessories. Premium components. Add it all up—you'll find that a National is not only a pleasure to operate, but a reliable investment in bottom line performance.

Value

National has manufactured cranes since 1963 (nine out of ten are still on the job!). With a National you get field-proven reliability plus the best factory/dealer support in the industry. National's warranty provides protection against defects in materials and workmanship for a full year from the date the customer takes delivery. Dealers maintain extensive parts stocking programs. Should a dealer be unable to supply a part you need, National's back-up program is committed to providing equipment replacement parts on a breakdown rush basis, holding your downtime to a minimum. These advantages enhance a National crane's resale value, consistently the highest in the industry.



National Crane is ISO 9001 certified

**205,000 ft•lb (28.34 t•m)
crane rating**
**11-ton (9.98-t) rated lifting
capacity**
**70-ft 4-in (21.4-m)
maximum vertical reach***
**58-ft 6-in (17.8-m)
horizontal reach**
**49-ft (14.9-m) reach
below truck frame**
**50-ft 4-in (15.3-m)
total hydraulic extension**

**Maximum vertical reach is from ground level with the crane mounted on a typical 42-in (1067 mm) high truck frame*

Note: maximum vertical reach will vary depending on truck frame, tires, load, etc.

Strong booms and jibs

- Five-stage proportional telescoping boom design extends each section in equivalent lengths during the telescoping process
- Proportional boom design enhances boom weight distribution, maximizes operational efficiency, and allows higher capacities, particularly in normal working radii
- Ultra-strong boom sections manufactured from low-alloy, high-strength steel
- Four-bar link design at inner and outer boom pivot points allow maximum capacity loads to be raised vertically to full rated height
- Long-wearing *Easy Glide* wear pads enhance smooth boom performance

Durable cylinders

- Cylinder shafts are hard chrome-plated and high pressure tubing is used wherever possible to reduce hose wear
- All cylinders are double acting for smooth, positive control

Two-pin Design

- Heavy-duty two-pin design on swing arms allows the use of

larger, totally encapsulated bearings for longer life

Boom Tip

- The boom nose or jib is equipped with a swivel hook and safety latch (rated for maximum crane capacity) designed to accept all boom-tip options by a simple pin-on procedure

Counterbalance valves

- Pilot operated counterbalance valves on lift, fold, and extend cylinders lock all cylinders in place in the event of hose failure or until they are powered to move

Capacity alert

- Standard capacity alert system helps prevent crane operation beyond crane capacity; blocks functions that increase overload; allows operator to reduce load radius to acceptable limits (not applicable with a manual jib)

Efficient rotation

- Low maintenance shear ball bearing rotation system with smooth, precise planetary control
- When not powered, the swing is locked in place by a spring-applied, hydraulically released brake
- Powered by a high-torque, low-speed motor through a double-reduction planetary gearbox

High performance hydraulics

- The high-performance, pressure-compensated, load-sensing hydraulic system provides ultra-precise metering of the crane's multi-function operation while conserving prime mover horsepower and reducing heat
- Each valve section is pressure-compensated for smooth, precise, multiple function control, simultaneously without interaction
- A high-capacity, high-pressure, variable volume piston pump produces full system pressure—even at truck engine idle speed; the control valve communicates with the pump, ensuring that exact flow and pressure are main-

tained throughout the lifting process

- A two-bolt mounting flange can be integrally mounted to most PTO's to simplify mounting
- O-ring face seal fittings help eliminate leakage and reduce maintenance costs
- Clean design (heavy-duty wire-braided hoses are routed inside the mast and boom for protection and to enhance the crane's appearance)

Chrome-plated pins

- Large-diameter chrome-plated pins with encapsulated composite bearings provide long life with reduced maintenance

User-friendly operation

- Identical crane function controls are located on both sides of the crane—same controls, same hand positioning
- A control valve with low-effort, special metering spools allows precise control of all crane functions; fine-metering, six-spool control valves provide pinpoint accuracy
- Control knobs are illustrated with function symbols

Solid stability

- Wide 20-ft (6.1-m) outriggers are standard; extra wide 24-ft (7.3-m) outriggers are optional
- Standard outrigger pads are 10-by 14-in (254 by 357 mm)
- Both horizontal and vertical outrigger extension is powered hydraulically
- Enclosed outrigger cylinders with pilot operated check valves that automatically lock all cylinders in place

Simplified mounting

- Easy three-point mounting minimizes crane and truck frame stress
- Mounts on standard, tandem-axle trucks

A wide choice of accessories (see page 8)

National N-205 Crane Specifications

The Basic N-205

- Two out-and-down hydraulic outriggers extending to 20 ft (6.1 m); 24-ft (7.3 m) outriggers are also available
- 390-degree rotation
- High-capacity four-bar linkage at lift and fold joints
- Six spool control valves
- Boom cylinder counterbalance valves on lift, fold, and extend; automatic check valves on outriggers
- Hydraulic capacity alert (HCA) system
- Dual controls
- Manual cabled engine speed control
- Hydraulic reservoir
- Hydraulic pump and easy mounting group
- Crane hook

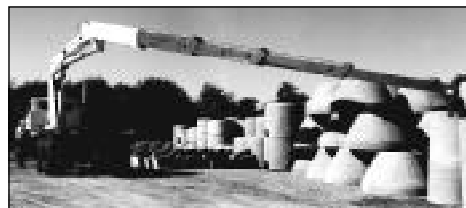
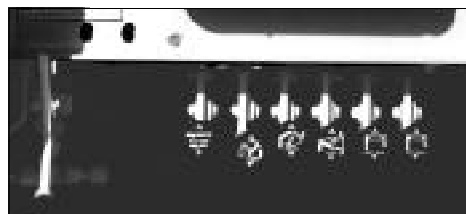
Technical Data

Working pressure.....	4,200 psi.....	290 bar
Pump Capacity (piston-type pump).....	21 gal/min.....	79.5 L/min
Reservoir oil capacity.....	21 gal.....	79.5 L
Outrigger span.....	20 ft.....	6.1 m
	24 ft.....	7.3 m
Outrigger vertical travel.....	24 in.....	610 cm
Stowed height (above truck frame).....	8 ft 6 in.....	2.6 m
N-205/34 shipping weight.....	9,050 lbs.....	4105 kg
Filter.....	10 micron replace- able (spin-on type)	
Rotation (non-continuous).....	390-degree.....	390-degree
Mounting space required*.....	51 in.....	1295 mm

Note: Shipping weight above includes standard crane with 20-ft outriggers; it does not include T-box or auxiliary outriggers
Note: Contact the factory for continuous duty cycle applications
**Additional space is needed for some options*

Caution

- **Do not operate crane booms, jib extensions, any accessories or loads within 10 ft (3 m) of live power lines or other conductors of electricity**
- **All capacities shown are maximum allowable loads, including the weight of any attached accessories**
- **Do not exceed capacities at reduced radii**
- **Booms must be folded slightly to lift rated loads**



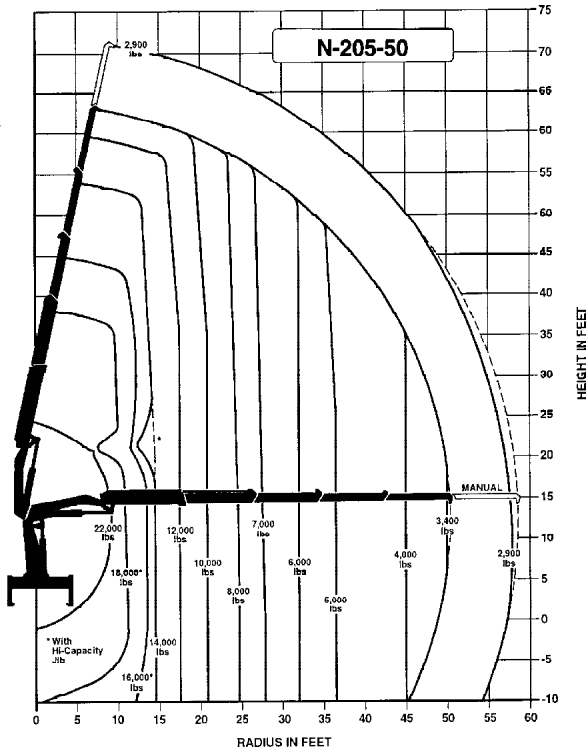
National N-205 Crane Specifications

Lifting capacities shown are maximum allowable loads, including the weight of attached accessories. Ranges are indicative of unloaded conditions. Deflection may restrict range under loaded conditions.

Model 205/50/58*

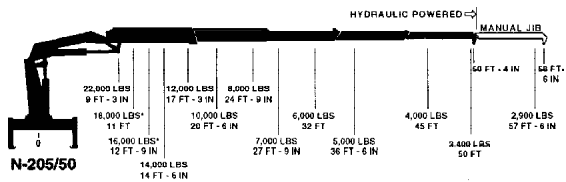
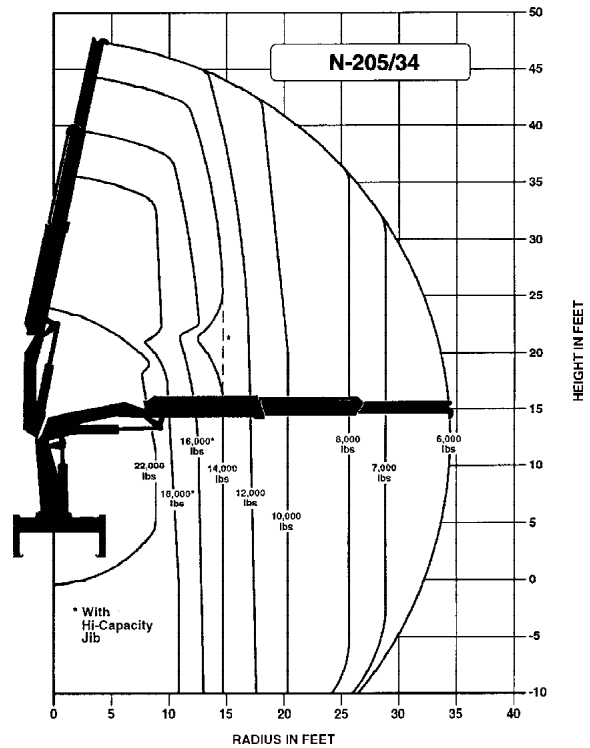
- Hydraulic extension to 50 ft 4 in (15.3 m)
- 205,000 ft•lb (28.34 t•m) crane rating
- 11-ton (9.98-t) maximum capacity
- 70-ft. 4-in (21.4-m) maximum vertical reach from ground level with the crane mounted on a 42-in (1067-mm) high truck frame
- 49-ft (14.9-m) reach below truck frame
- Includes 8 ft 2 in (2.5 m) manual jib

**Model 205/50 has the same hydraulic extension and crane rating, but excludes the manual jib*

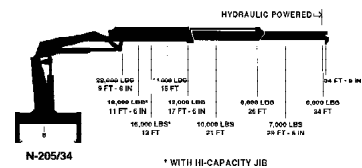


Model 205/34

- Hydraulic extension to 34 ft 4 in (10.5 m)
- 210,000 ft•lb (29.03 t•m) crane rating
- 11-ton (9.98-t) maximum capacity
- 46-ft 6-in (14.2-m) maximum vertical reach from ground level with the crane mounted on a 42-in (1067-mm) high truck frame
- 25-ft (7.6-m) reach below truck frame

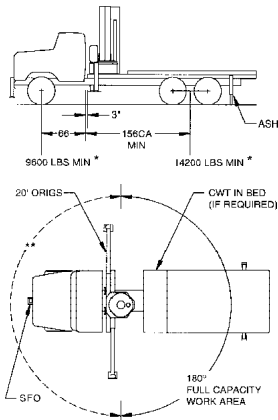


This chart is at the operator's station for reference



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National N-205 Mounting Specifications

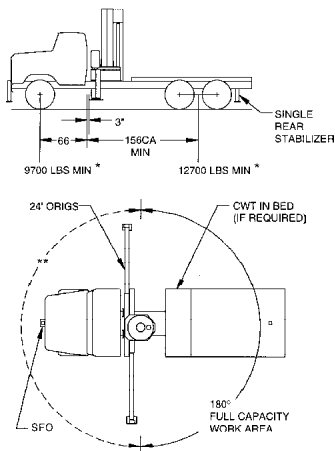


****Full capacity work area is permitted around front of vehicle with addition of an optional front stabilizer**

Behind Cab Mount, 20-ft (6.1 m) Outriggers/T-Box/ASH

Permits lifting capacity loads in all areas around rear of vehicle in a 180° arc from outrigger to outrigger. No load should be lifted over the front of the vehicle unless stabilizing provisions are made (such as adding front stabilizers).

- Minimum wheelbase: 222 in (5550 mm)
- Rear of cab to rear tandem: 156 in (3900 mm)
- Recommended front axle rating: 16,000 lbs (7258 kg) GAWRF*
- Recommended rear axle rating: 34,000 lbs (15 422 kg) GAWRR
- Recommended vehicle rating: 50,000 lbs (22 680 kg) GVWR
- Working area: Rear 180 degrees**
- Truck weight: 23,800 lbs (10 796 kg) minimum*
- Chassis weight front axle: 9,600 lbs (4355 kg) minimum*
- Chassis weight rear axle: 14,200 lbs (6441 kg) minimum*
- Frame 110,000 psi (7590 bar) yield steel; 26.0-in³ (426.1 cm³) section modulus
- Frame height: 42 in (1067 mm) or less preferred
- Power take-off: 110 to 130 percent of engine speed; minimum 40 hp (29.84 kW) at 1,600 rpm (PTO must turn opposite truck engine rotation)

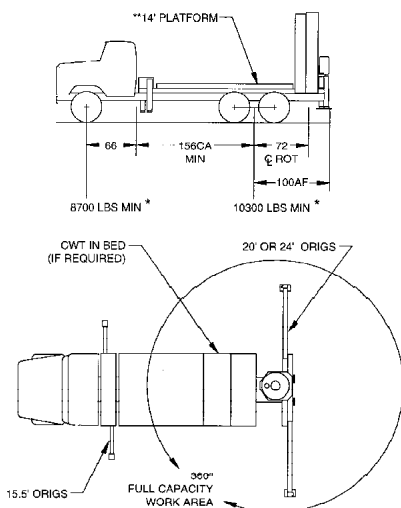


****Full capacity work area is permitted around front of vehicle with addition of an optional front stabilizer**

Behind Cab Mount, 24-ft (7.3 m) Outriggers/Single Rear Stabilizer

Permits lifting capacity loads in all areas around rear of vehicle in a 180° arc from outrigger to outrigger. No load should be lifted over the front of the vehicle unless stabilizing provisions are made (such as adding front stabilizers). Requires reinforced bed.

- Minimum wheelbase: 222 in (5550 mm)
- Rear of cab to rear tandem: 156 in (3900 mm)
- Recommended front axle rating: 16,000 lbs (7258 kg) GAWRF*
- Recommended rear axle rating: 34,000 lbs (15 422 kg) GAWRR
- Recommended vehicle rating: 50,000 lbs (22 680 kg) GVWR
- Working area: Rear 180 degrees**
- Truck weight: 22,400 lbs (10 161 kg) minimum*
- Chassis weight front axle: 9,700 lbs (4400 kg) minimum*
- Chassis weight rear axle: 12,700 lbs (5761 kg) minimum*
- Frame 110,000 psi (7590 bar) yield steel; 26.0-in³ (426.1 cm³) section modulus
- Frame height: 42 in (1067 mm) or less preferred
- Power take-off: 110 to 130 percent of engine speed; minimum 40 hp (29.84 kW) at 1,600 rpm (PTO must turn opposite truck engine rotation)



Rear Mount, 20 or 24-ft (6.1 or 7.3 m) Outriggers/T-Box/HO

The advantages of a rear-mounted N-205 are: location of the crane allows the operator to effectively use the close-in working area to lift heavier capacity loads, and it permits lifting capacity loads in a 360° arc.

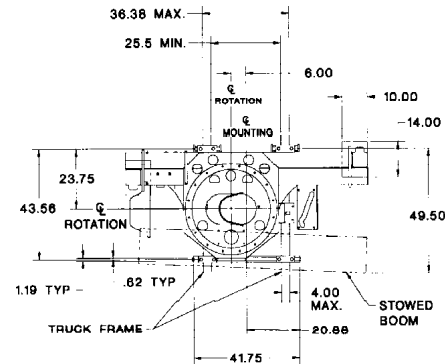
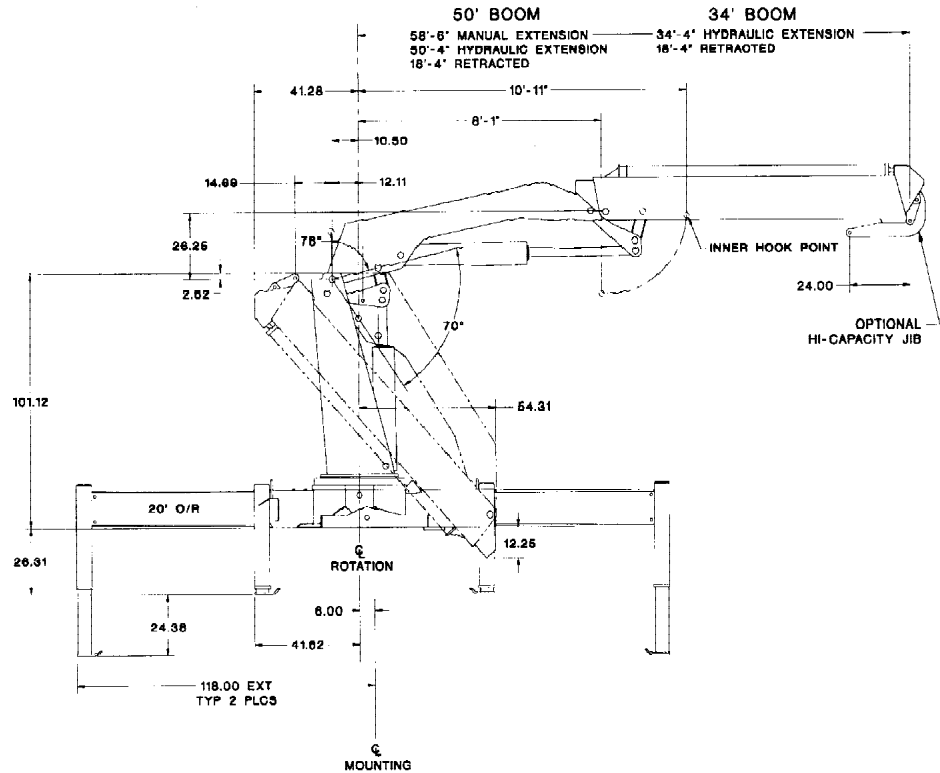
- Minimum wheelbase: 222 in (5550 mm)
- Rear of cab to rear tandem: 156 in (3900 mm)
- Recommended front axle rating: 12,000 lbs (5443 kg) GAWRF
- Recommended rear axle rating: 34,000 lbs (15 422 kg) GAWRR
- Recommended vehicle rating: 46,000 lbs (20 865 kg) GVWR
- Working area: 360 degrees around the vehicle
- Truck weight: 19,000 lbs (8618 kg) minimum*
- Chassis weight front axle: 8,700 lbs (3946 kg) minimum*
- Chassis weight rear axle: 10,300 lbs (4672 kg) minimum*
- Frame 110,000 psi (7590 bar) yield steel; 26.0-in³ (426.1 cm³) section modulus from back of cab to end of frame
- Frame height: 42 in (1067 cm) or less preferred
- Power take-off: 110 to 130 percent of engine speed; minimum 40 hp (29.84 kW) at 1,600 rpm (PTO must turn opposite truck engine rotation)

National N-205 Dimensional Specifications

Notes:

(These notes pertain to mounting specification data on preceding page)

- Truck used for mounting must meet minimum requirements for capacity loads
- Gross Axle Weight Rating (GAWR) is dependent on all components of the vehicle such as axles, tires, wheels, springs, brakes, steering and frame strength meeting manufacturer's recommendations; **always specify GAWR when purchasing trucks**
- Diesel engines require variable speed governor
- Diesel engines, longer wheelbase or service bodies may increase minimum axle requirements—contact factory for information
- *Chassis weight may include bed (1,400-lb/635-kg), torsion box (2,500-lb/1134-kg), ASH (800-lb/363-kg), SRS (300-lb/136-kg) or over-frame outriggers (2,500-lb/1134-kg); if front or rear chassis weight is less than minimum, counterweight may be required to lift rated capacity loads to keep unit stable
- **Full capacity work area is permitted around front of vehicle with addition of an optional front stabilizer
- ***With 16-ft platform, CA plus AF must be no less than 280 in; with 18-ft platform, CA plus AF must be no less than 304 in



**Rotation: 390 degree
(non-continuous)**

**Maximum Load Moment:
265,000 ft•lb (36.65 t•m)**

**Maximum Thrust Load:
32,600 lbs (14 787 kg) at
mounting surface**

**Maximum Rotational
Moment:
27,000 ft•lb (3.73 t•m)**

National N-205 Accessories

Every National is part of a complete and versatile lifting system that lets you do more faster. You can tailor your crane to perform jobs that would otherwise call for a whole fleet of specialized equipment.

Information on specific accessories is available. Contact National Crane or your National dealer to learn more about these cost-efficient accessories.



Note: *Weights of all accessories attached to the boom or loadline of the crane must be deducted from the effective lifting capacity. Additional accessories not listed may be available. Not all accessories are available for all crane series, and some accessories cannot be used in combination with other accessories. Consult your dealer or the factory for accessory capabilities, availability and pricing.*

Remote Controls

One-hand remote control, ideal for precise control and maintaining total load visibility. Diesel engines require electric shut-off.

- **Model MR4**
- **Model MR5** (requires AH1)
- **Model MR6** (requires AH2)

Radio Remote Controls

Eliminate handling and maintenance concerns that accompany cabled remotes. Operate to a range of approximately 400 ft (122 m), varying with conditions.

- **Model MR4R**
- **Model MR5** (requires AH1)
- **Model MR6** (requires AH2)

Winch

Heavy-duty, easy single-pin attachment at boom-tip sheave head. Includes winch control and anti-two-block system.

- **Model N20**

Front Stabilizer

Center-mount single front with a 25-in vertical stroke. Tilts forward for chassis with tilt hood. Includes control valve.

- **Model SFOH** (hydraulic)
- **Model SFOM** (manual)

Pallet Fork

4,400-lb (1996-kg) capacity, with adjustable throat and teeth.

- **Model MKF** (manual leveling adjustable throat)
- **Model HKF** (hydraulic leveling adjustable throat—requires RAH1)
- **Model HKFR** (hydraulic leveling adjustable throat with hydraulic rotator—requires RAH2)

Grapple

Available in butt or bypass type. Both come with a hydraulic rotator and quick connect fittings.

- **Model BTG** (requires RAH2)
- **Model BPG** (requires RAH2)

Clam Bucket

Can be used to load or move materials in 1/3 yd³ (.25 m³) bites.

- **Model GPC** (requires RAH2)

One-Person Basket

Fiberglass with 300-lb (136kg) capacity. Gravity hung.

- **Model B1-L** (with swing lock, body harness and lanyard)

Hydraulic Auger

Provides digging depths up to 4 ft 6 in (1.4 m) and flightings up to 18 in (457 mm).

- **Model AG** (requires RAH1)

High Capacity Jib

Pins to last hydraulic boom section to allow loads greater than 14,000 lbs (6804 kg) to be lifted to full allowable chart height

- **Model HCJ**

Accessory Control Valves

Allow operation of hydraulic accessories, mount easily on the control panel.

- **Model RAH1** (single function for rotator or auger)
- **Model RAH2** (two functions for grapple or clam)



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A Grove Worldwide Company

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