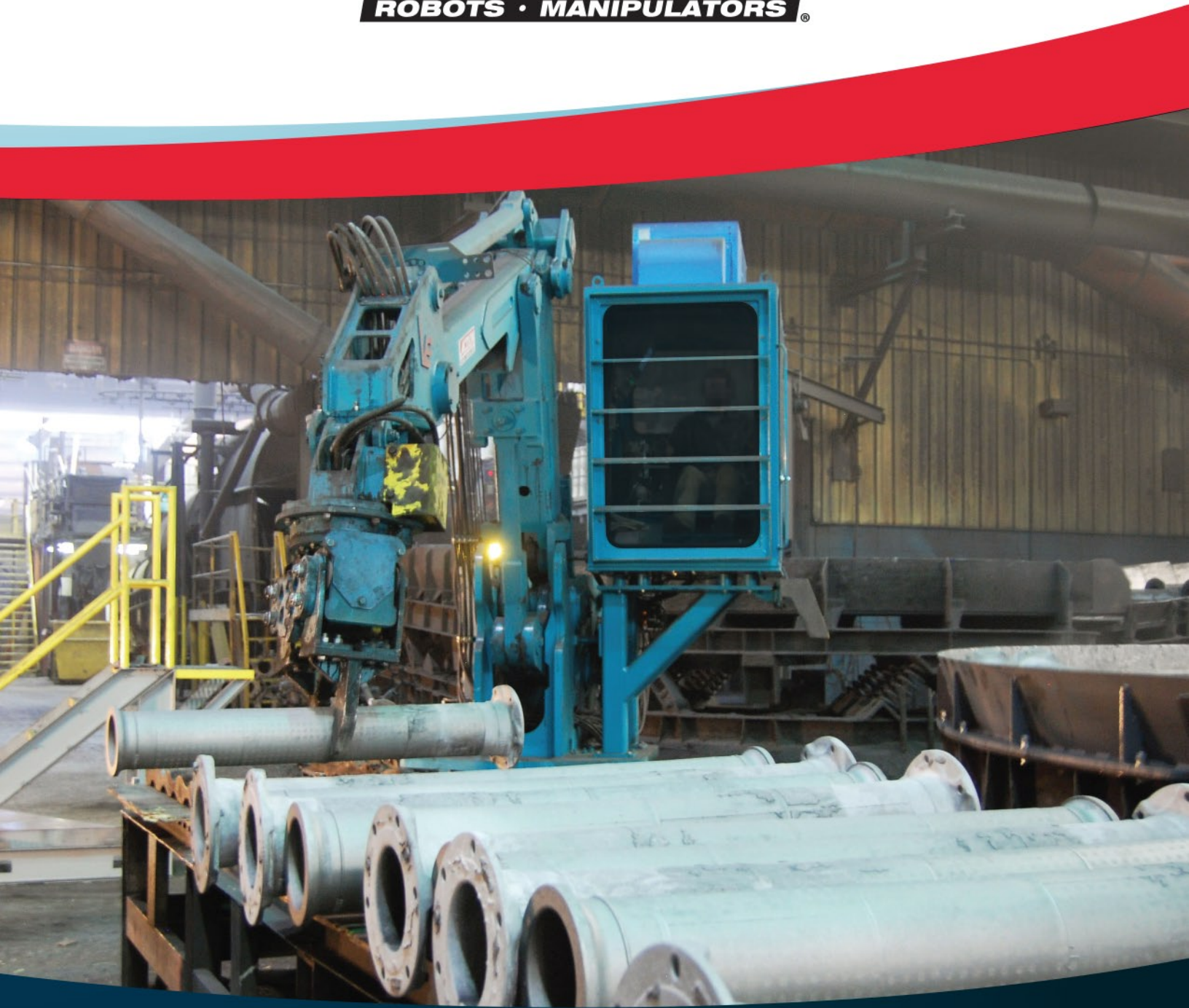


ACTION

ROBOTS · MANIPULATORS®



Digital Series **MANIPULATORS**

Severe-duty construction for durability in rugged environments and applications.
High performance all digital controls that are operator friendly.



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ACTION®

Digitally Controlled Severe-Duty Performance Manipulators

Action® Manipulators have undergone a major evolution, driven by reliability, maintainability, efficiency and cost of ownership. At every turn, we have minimized the component count, maximizing commonality and availability, and ensuring ease of maintenance with multiple models available from 1,000 lbs (500 KG) to 6,600 lbs (3,000 KG).

The majority of manipulators in the marketplace are based on 1980's technology, with minor, incremental improvements in the 1990's and 2000's. Combining the input of our customer base with the best of industrial technology in all areas, we have created the new world standard for severe duty manipulators. The new control design has been engineered with a PLC and HMI for a very robust digital control scheme. The hand control is instantly intuitive as the operator's hand motion directly corresponds to the boom motion. An intuitive, user-friendly HMI provides real time information during normal operation as well as error/alarm events for improved ease of use.

Control Advantages

- Open-architecture control system utilizing industry-standard commercially available components.
- No proprietary hardware, highly customizable.
- Complete control system utilizing network I/O.
- Minimized cabling increased reliability, Ethernet connectivity.
- System status, error/fault indications plainly displayed on the HMI.
- Intuitive diagnostics, with no error codes or LEDs to decipher for diagnostics.
- PLC controls all valves directly.
- Motion control tuning is performed entirely from the cab with GUI on HMI.
- No external driver cards or proprietary boards; fewer connections; simplified maintenance/optimization.
- "Soft" limits can be easily programmed from HMI for the closed-loop axes.
- Envelope can be constrained to fit virtually any scenario.
- Network I/O connection at HPU and customizable HMI in cab.
- Virtually infinite possibilities for monitoring/controlling peripheral equipment from the manipulator cab.

Optimized for Severe Duty

- Increased Reliability
- High Efficiency
- Reduced Part Count
- Easily Accessible Components
- Easy Maintenance
- Built-In Diagnostics
- Simpler Controls
- Fewer Connections
- Highly Responsive & Robust

Overall Advantages

- Extensive use of FEA and 3D computer modeling to optimize structural geometry, joints and members, resulting in low unit stresses, minimum power consumption and maximum reliability.
- Non-proprietary hydraulic cylinders are used throughout. Primary axis cylinders are identical to minimize part inventory.
- Bearings, valves, electronics, and other non-proprietary components are readily available from multiple sources for cost-effectiveness.
- Best of both worlds... superior performance and reliability, with industrial-standard components.



Operator Cabin

Mounting: Can be mounted left- or right-hand; 42" (1065 mm) elevated mounting for good operator visibility of conveyors.

Construction: Fabricated structure; Double insulated safety glass windows; noise insulation for <85 dbA in cab at 100 dbA ambient outside noise level.

Seating: Large, ergonomic operator seat, with adjustable positioning.



Control System

Motion: PLC controls valves directly, with no driver cards, no proprietary boards

Operator Controls: Single-hand control of Lift, Extend and Slew. Push button control of Grip. Joystick for Yaw, Pitch, Roll. Simple, easy-to-read line-up indicators in operator's field of view. Force feedback system.

Safety: Foot pedal enables machine motion; safety relay provided for connection of external interlocks



Central manifold and control valve stack mounted on rear of machine-no control valves on boom.

Action[®] Advantage: Valves are easily accessible, protected from heat and shock; plumbing is simplified.

High-response proportional valves with servo spools (for closed-loop axes) have less pressure loss and less vulnerability to contamination than servo valves.

Action[®] Advantage: Increased reliability, higher efficiency.

Control valves for closed-loop axes feature integral electronics; no external driver cards are needed.

Action[®] Advantage: Simpler controls, fewer connections, higher reliability. No proprietary board necessary.

Cab can be elevated to maximize operator visibility, and can be ordered on either side of the machine. Cab can (optionally) be ordered with extra space and accommodation for an extra person.

Single hand control for highly intuitive, virtually effortless control of most-used axes; separate joystick for other axes.

Action[®] Advantage: Simplified and streamlined operation for maximum productivity.

Linear Feedback (Common Size) for fast, accurate position sensing.

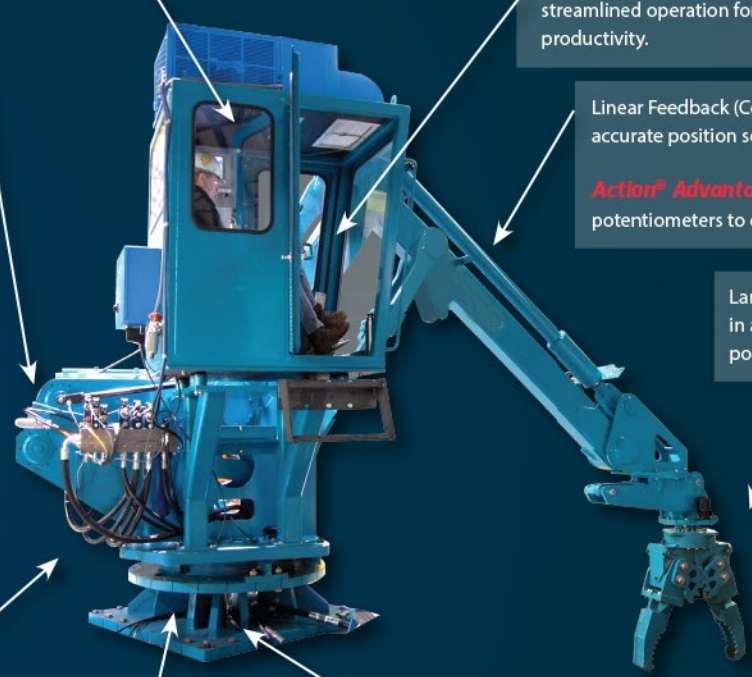
Action[®] Advantage: Highly responsive, no potentiometers to calibrate.

Large spherical roller bearings in all pivot joints. Extraction points on all pins.

Multiple sweep envelopes are available to fit your needs.

Engineered hydraulic plumbing, minimizing hose vulnerability and stress on connections; all hose fittings industry-standard.

Action[®] Advantage: Higher reliability and easier maintenance. (More readily workable)



Hard-stops and deceleration sensors on slew axis.

High-Capacity turntable bearing selected for maximum availability and superior reliability.

Grapple Attachments: Available for a wide variety of applications such as hot casting grapples, riser knockoff **Impactors™**, and combination Grapple/**Impactors™** to fit your needs.



Hot Casting Grapple



Riser Knockoff Impactors™



Combination Grapple/Impactor™




Runner Breaker Grapples



Specialized Grapple Solutions

*Features and options subject to change without notice

Use your smart phone and scan this QR code to get more info on Action® Manipulators! 



MANIPULATORS

Action® Manipulators are a product of Vulcan Engineering Co.

Additional Options

- Different jaw configurations and openings
- Yaw
- Base Extensions
- Cab Extensions
- Different levels of air conditioners
- Centralized Manual Lubrication
- Automatic Lubrication
- Custom Designs for Special Jobs
- Custom tooling designs are available



High Performance Hydraulic Features

Actuator mounted lock valves for safety. Five levels of filtration and closed center, high response hydraulic pumps with accumulator.



Powerful Digital Controls

Open-architecture control system utilizing industry standard controls. No propriety hardware for faster setup, control and maintenance.



Customized for Your Application

These manipulators are engineered to solve tough material handling problems. Our application engineers work with you to choose tooling, mounting, controls, cab location and hydraulic power unit location to suit your production and installation requirements.



Advantages

- Vibration and heat resistant construction.
- Rugged wrist and boom design
- High speed, high-power hydraulics
- Load leveling boom geometry
- Strong, stable boom design
- No telescoping joints



GRINDING OR CUTTING?

For your manipulator grinding and cutting needs, see our VTS™ product line. Scan the code to the right with your smart phone or visit our website for photos, video and more information.

