

MANIPULATORS



Geared Elevation Manipulators



*Innovative Designs for
Optimum Performance*



KOIKE ARONSON, INC.



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Koike Aronson Manipulators offer a

distinct advantage as a precision tool, useful in an extremely wide range of applications.

Beginning with a host of features that provide increased versatility and ease of use, Koike Aronson Manipulators meet the need with a broad range of functions, sizes, and styles geared toward the welding and fabricating industry.

A variety of options are available for all of your precision motion needs. Call to discuss your particular application and requirements. Our experienced application engineers are ready to help.

Koike Aronson Manipulators – versatile solutions for safe, effective motion.

Designed for precision, versatility, and safety

Features

- Standard reach and lift ranges up to 30' x 30' in any combination.
- Positive gear rack and pinion engagements with self-locking gearcases. Loaded boom is captive—no chain and anti-fall or screw lift devices to wear or fail.
- Motions are driven by geared and roller systems designed for zero-backlash. Boom will not bounce or “whip” during Arc movements.
- Boom will not drop when it's weight moves past centerline.
- Improved structural members for Boom and Mast with straddle-mounted guide-wheel-axle assemblies for predictable, controllable motion. Arc steadiness is not dependent on auxiliary guidance or locking devices.
- Enclosed mechanisms. Wiper-seals on Ways. Load-carrying gearcases are steel with lifetime lubrication. Anti-friction bearings throughout. Lift gear racks are open to inspection.
- Bases can be portable or stationary, have kingpin bearing mounts for mast rotation, or be mounted to cars.
- Mast rotation allows for unrestricted loading of the positioning device and allows welding at more than one station. Car travel locates the Manipulator in different weld areas or travels the arc in longitudinal weld seams.
- NEMA 12 dust-tight enclosures and push-button pendants.

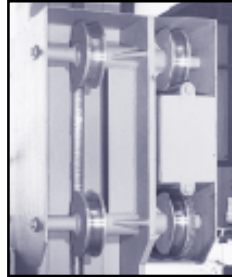


High Performance



We know that having the right features when they're needed is critical to continuous productivity and operational ease of use. Our emphasis on safety and performance is your assurance of quality and dependability.

- All components are designed to allow compensation for wear with no need to replace guide-ways or zero-backlash drive systems.
- Mechanisms can be serviced from floor level.
- Powered UP and DOWN. Provides smooth steady motion for vertical welding, or pressure for grinding. Geared Elevation design lets 2 or 3 booms operate on one mast for special purposes.
- Preloaded roller bearings assure wobble-free mast rotation.
- Cars provide waver-free travel. Four-wheel drive for slip-free traverse and self-locking gearboxes. Cars available for your in-plant trackage.
- Precision round-railhead track requires only leveling for accuracy. Lengths of track can be added anytime.



Zero-backlash drives

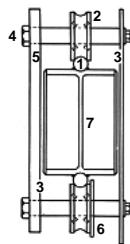


Options

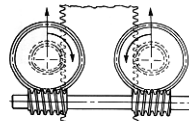
- All motions—Reach, lift, mast rotation, and car traverse are available with manual, constant speed, and variable speed powered drives—in any combination.
- Digital Variable Frequency Drives with dynamic braking, rapid traverse and speed ranges of 100:1. 1-Turn and 10-turn locking dial potentiometers of 100 and 1,000 marked settings respectively.
- Tachometers with 4-digit LED display indicate travel rates in IPM (inches per minute) and can monitor any variable speed motion.
- Flashing warning lights at top of Mast and end of Boom warn of Manipulator's presence.
- Seats, platforms, boom walkways, and mast ladders are available for operators.
- Equipment mounting beams on Boom and shelves on Mast towers provide locations for mounting equipment to suit any welding process.
- Head orientators, adjustable control panel mounts, and arc start-stop functions.
- Cable carriers on Boom, Mast, or Car will protect / organize welding cables and ground circuits, plus gas, water, or air hoses.
- Fixed Booms with one or more Head Carriages can be mounted for special applications.
- Accommodations for instrumentation are available for programmed operation.

High Performance Features

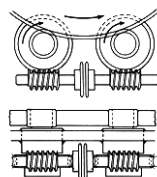
1. Large diameter concave wheels partially encompass Roundways to ensure guidance and a long line of contact to prevent Brinelling and way wear.
2. Rollers are in-line and straddle-mounted for zero-deflection.
3. Rollers are boxed-in, supported on both sides. No overhang.
4. Factory assembly adjustment by locked-eccentric is permanent.
5. Boxed-in carrier-carriage plates are not subject to bending.
6. The roundway itself is utilized for zero backlash traction.
7. Roundways cannot deflect due to web holding them parallel.



Koike Aronson life-lubricated self-locking aluminum-bronze wormgear drives in all-steel cases are installed in permanent alignment. Drive lift pinions mesh with the racks. Each drive has a high factor of safety and handles full loads with ease—wear is minimized.

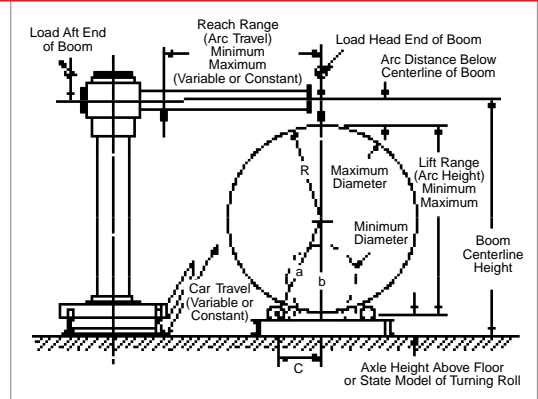


Geared Elevation Manipulators and Kingpin Bases have two pinions driving the large gear, each pinion driven by a separate life-lubricated self-locking aluminum-bronze wormgear drive in all-steel cases installed in perfect alignment. The two drives are indexed oppositely for minimal backlash, eliminating the need for supplemental clamping and affording one man remote control.



To select the correct size of Manipulator, both the *Reach* and *Lift* ranges must be determined. The *Reach* is selected according to the desired extreme locations of the Arc horizontally. The *Lift* is selected according to the extreme locations of the Arc vertically.

Determine the amount of Load to be placed on the Head-End and Aft-End of the Boom. Then select the proper Manipulator from the chart, according to Load Capacity and desired amount of Reach and Lift motions.



A typical welding setup is shown in the sketch. The distance to the top of the vessel above the floor can be determined by first finding "side b" of the triangle a-b-c, with known values for "a" and "c" using formula $b = \sqrt{a^2 - c^2}$. Then add the value of "b" to the Axle Height above floor, plus the "R" Radius of the vessel. Next add the distance from the Arc to the Centerline of the Boom. This will give you the maximum required for the Lift Range. Follow the same procedure to find Arc height needed for the smallest vessels.

Load Capacity							
(Load in Pounds on either or both ends of Boom)							
Size	Cricket	Cricket V	Locust I	Locust II	Scarab I	Scarab II	Scarab III
4 x 4	150						
5 x 5		150					
6 x 6			400	600	1700		
7 x 7			350				
8 x 8			300	500	1500		
10 x 10				400	1300		
12 x 12				300	1100	2200	
14 x 14					900	1900	
16 x 16						1600	
18 x 18						1300	
20 x 20						1000	3000
22 x 22							2600
24 x 24							2200
26 x 26							1800
28 x 28							1400
30 x 30							1000

For other combinations of Reach and Lift, consult factory. Specifications subject to change without notice.

To determine the right length of track:

When a car is used to travel the Arc longitudinally the length of the vessel, the required Track can be determined by adding the length of the car's frame to the amount of Arc travel desired. Track sections are available in 10', 12', 14' and 16' lengths. A combination of lengths will afford the correct total track length.

Sold By:



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