



Rack and Pinion Actuators

POSITIONERS	ALUMINUM ACTUATORS	TECHNOPOLYMER ACTUATORS	LIMIT SWITCHES	SOLENOID VALVES
SPECIAL APPLICATIONS	HARDWARE OPTIONS	AUTOMATION SERVICES	TECHNICAL DATA	

Aluminum Actuators

Evolution in engineering rack & pinion actuators

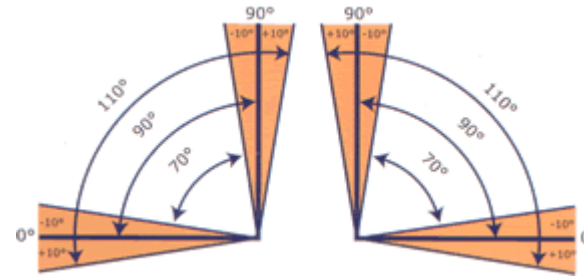
[Max-Air Exclusive Features](#) | [Cutaway View](#) | [Corrosion Protection](#) | [Sizing](#) | [Technical Data](#)

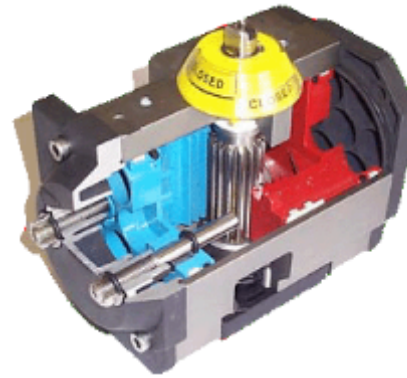
Max-Air actuators feature a bi-directional travel stop (International Patent). Side located stops allow a $\pm 10^\circ$ stroke registration.

Travel stops are designed to absorb the maximum rated torque of the actuator and the maximum impact load associated with recommended speed stroke.

To increase pistons resistance both travel stops arrest the pistons in their part with the largest mass of material.

Adjustment of the counter clockwise and clockwise rotation is accomplished by turning the respective left (MAX) and right stop (0°) adjustment screws to increase or reduce output rotation.





Spring cartridges:
Spring are carbon steel and coated for corrosion resistance. Spring guides are corrosion resistant techno-polymer.

Moving mouse pointer over actuator will reveal the enhanced features.

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Compact Design

The MAX-AIR rack & pinion pneumatic actuator produces linear torque output in a compact design utilizing the same body and end caps for double acting and spring return units.

Namur Mounting

Namur VDI/VDE 3845 and ISO 5211 dimensions on all sizes. No special blocks are required to mount solenoid valves, limit switches or positioners.

Degree of Travel

The standard angle of rotation is 90°. Additional travel rotations of 120°, 135°, 150° and 180° are available. For sizes from UT16 and larger, Max-Air features dual travel stops that provide for $\pm 10^\circ$ stroke registration on both the opening and closing phases of the actuator stroke. 110° of travel in a standard 90° actuator!

Bottom Mounting Flange



High Cycle Life Wear Pads

Pistons incorporate double wear pads to separate the rack from the actuator wall and serve as both guide and wear bearings.

Pre-Loaded Spring Cartridges

Epoxy coated special steel springs are pre-loaded with non-metallic materials. The stainless steel end cap fasteners are extra long to allow for spring relaxation. All parts are corrosion resistant.

Alternative Operating Media

The "patent pending" bottom plate design, unique to MAX-AIR, secures a captive pinion (anti-blowout system) and permits flexibility in mounting by retaining AISI 304 nuts (standard) or AISI 304 bolts (optional) in either dual ISO patterns, or to customer dimensions.

Flexible Output Shafts

The female pinion drive is standard with a double square output drive, and optional with a double-D drive, keyed drive and designs to meet your specific requirements.

High Cycle Bearings

Shaft bearings isolate the pinion gear from the housing and support the shaft for high cycle applications. Many competitive manufacturers do not provide this critical feature.

Rugged Tooth Design

The pinion teeth are engaged the full length and stroke of the piston. The pinion height allows manual override without disturbing the indicated positions.

High Visibility Position Indication

External open/close indicator as standard, available for all the rotations.

Air pressure operation from 2 to 10 Bar (40 – 150 PSI). Water, nitrogen and compatible hydraulic fluids may also be used to power the actuator.

Stainless Steel Fasteners

All external fasteners are corrosion resistant stainless steel.

Honed Bore for High Cycle Life

Extruded aluminum body is internally machined and lapped to exact specifications. Honing prevents dry spots from forming within the actuator bore and therefore eliminates premature seal failure - a critical aspect to long cycle life. All internal and external surfaces are hard anodized for corrosion resistance, with all units permanently lubricated at the factory with non-silicone grease.

Traceability

All units are externally stamped with a progressive traceable serial number.

Quality Assurance

100% of all units are factory pressure and leak tested, and individually boxed for shipment.



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Hard Anodization

Hard anodizing is an electrolytic process that produces a thick anodic coating up to a minimum thickness of 50 microns and is performed after all components are completely machined. The result produces all exposed surfaces to have the aluminum surface component converted to an aluminum oxide base. This oxide is integral with the base metal, and will not chip or degrade even if the part is dented. Aluminum oxide is very hard and resists scratching. The rated hardness is 45 to 65 Rockwell C and demonstrates excellent salt fog resistance and chemical stability over a pH range of 4.5 to 8.5. However, strong acids and alkalis should be avoided.

Epoxy Coating

Epoxy coating is a deposit of epoxy powders on clean and sandblasted surface base that provides extremely effective protection against highly corrosive environments. All epoxy coated parts are cured for a minimum of 20 minutes at 210°C (346° F), with a typical finish coating of 80 to 100 microns. All Max-Air epoxy coated parts have undergone 1000 hours of salt fog testing with no observable



Electroless Nickel Impregnation (ENP)

ENP is a hard, dense alloy of nickel and phosphorus that is chemically impregnated in the base metal. Nickel deposits are produced by the chemical reduction of nickel without using electricity. The coating is amorphous and uniform in thickness. Threads, holes, exterior corners, flat surfaces, and all recesses are uniformly impregnated. The coating is typically 20 to 30 microns; ENP has an excellent salt fog resistance and is more resistant to alkaline exposure than acid exposure. ENC is hard, lustrous

corrosion. Epoxy coating is recommended where the application environment is strongly aggressive. With the exception of particular solvents, epoxy coating resists acids and alkali and also is formulated to have excellent UV resistance.

and resistant to incidental damage and is clearly an economic alternative to stainless steel.

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