

Max-Air

TECHNOLOGY



Rack & Pinion Actuators and Automation Accessories



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ALUMINUM ACTUATORS



Evolution In Engineering Rack & Pinion Actuators

Features & Benefits

- 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 VDI/VDE 3845 and ISO 5211 dimensions on all sizes. No special blocks are required to mount solenoid valves, limit switches or positioners.
- The standard angle of rotation is 90°. Additional travel rotations of 120°, 135°, 150° and 180° are available. UT16 and larger sizes feature a travel stop with $\pm 10^\circ$ adjustment in both open and close directions (**International Patent**).
- 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.
- All pinions are supplied with anti-blowout retention in both directions.
- 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.
- Shaft bearings isolate the pinion gear from the housing and support the shaft for high cycle applications.
- The pinion teeth are engaged for the full length and stroke of the piston. The pinion height allows manual override without disturbing the position indication.
- Extruded aluminum body is internally machined and lapped to exact specifications. All internal and external surfaces are anodized for corrosion resistance.
- External open/closed indicator is standard, available for all rotations.
- Pistons incorporate double wear pads to separate the rack from the actuator wall and serve as both guide and wear bearings.
- 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.
- Air pressure operation from 40 to 150 PSI. Water, nitrogen and compatible hydraulic fluids may also be used to power the actuator.
- All external fasteners are corrosion resistant stainless steel.
- All units are permanently lubricated at the factory with non-silicone grease.
- All units are externally stamped with a progressive traceable serial number.
- 100% of all units are factory pressure and leak tested, and individually boxed for shipping.



Seals:

Temperature range from -10°F to 176°F with standard Buna-N nitrile seals. Higher temperature with optional Viton seals and technopolymer piston guides and bearings (250°F continuous and 300°F cyclic). Lower temperature available with silicone seals (-55°F).

Indicator:

OPEN/CLOSED standard in technopolymer material for 90° and 180°.

Pinion:

Standard ASTM A314 (303) stainless steel for UT12, carbon steel/electroless nickel coated for UT16 and larger sizes (stainless steel available on request as option)

End caps and pistons:

Die-cast aluminum pistons are epoxy powder coated (internal and external) for corrosion resistance; corrosion resistant technopolymer pistons are supplied in the UT12 units.

Die-cast aluminum end caps are epoxy powder coated (internal and external) for corrosion resistance in the UT21 and larger models; corrosion resistant technopolymer end-caps are supplied in the UT12 thru UT17 units.

Body:

Extruded aluminum body (ASTM B210 6063) is internally machined to exact specifications and lapped to reduce friction and increase the life of seals and skates. All internal and external surfaces are anodized for corrosion resistance. Options: hard anodizing with PTFE coating, epoxy powder coated units or autocatalytic nickel impregnated body protection.

Flange:

Technopolymer or die-cast aluminum material. This is our anti-blowout pinion system (Patent pending).

Spring cartridges:

Springs are carbon steel and coated for corrosion resistance. Spring guides are corrosion resistant technopolymer.

Bearing pad:

Technopolymer
Large contact area
High performance
Long life resistance

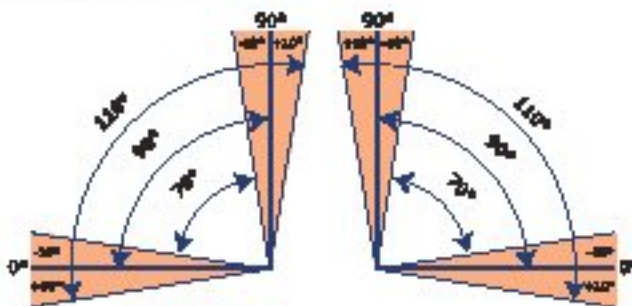
Double travel stop:

A double travel stop (International Patent) with $\pm 10^\circ$ adjustment in both open and close directions in the UT16 and larger models.

 Exclusive to MAX-AIR

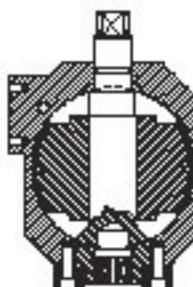
Bi-Directional Patented Travel Stop Illustration

MAX-Air actuators feature a bi-directional travel stop (International Patent). Side located stops allow a $\pm 10^\circ$ adjustment in both closing and opening directions, providing a range of adjustment between 70° and 110° of actuator stroke.



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

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

**Anti-blowout protection:**

All pinions are supplied with anti-blowout protection in both directions.

TECHNOPOLYMER ACTUATORS

The Max-Air line of thermoplastic actuators is designed to withstand the most arduous environments. Available in three sizes, your applications requiring plastics and corrosion resistance is covered up to 500 in-lbs of torque (Double-Acting).



Features & Benefits

- Double Acting or Spring Return **with spring cartridges made with non-metallic materials** (springs are epoxy coated).
- Stainless steel pinion **with anti-blowout protection** in both directions.
- Lower female pinion with double square according to ISO 5211/DIN 3337 standards, for valve assembly.
- Upper drilling for accessories and upper pinion-machining according to NAMUR VDI/VDE 3845 standards.
- Solenoid valve connection according to NAMUR VDI/VDE 3845 made with an insert in alloy UNI 5076 (ASTM B 179) coated with high corrosion resistance material. Air connections are 1/4" NPT.
- Supply: air (lubricated if possible), hydraulic oil or water, min 40 PSI - max 120 PSI.
- Standard working temperature: -4°F +176°F
- Progressive serial number stamped for traceability.
- 100% seal and running test carried out on electronic equipment.

DIRECT MOLINT COMPACT DESIGN



LIMIT SWITCH BOX

The MAX-AIR series of Limit Switch Boxes represent a completely new dimension in limit switches for actuators. Manufactured completely in technopolymer with stainless steel fasteners and NEMA 4, 4x (IP65) rating, these products are corrosion resistant and suitable for the most arduous environments.

MECHANICAL MICRO SWITCH



Inclusive mounting bracket.

A technopolymer mounting bracket is supplied as standard with each MAX-AIR Limit Switch Box and it fits the NAMUR top mounting hole spacing 80 mm by 30 mm. The bracket allows the use of standard NAMUR stem heights of 30 mm and also 20 mm coupling included with each unit.

High visibility indicator.

Our tri-dimensional indicator offers clear location of the current valve position for 90°-120°-135°-150°-180° angles.

Versions.

MAX-AIR Limit Switch Box is offered with 2 mechanical micro switches or several different types of proximity sensors.

Quick set cams.

The operating position of the switches can be easily changed by adjusting the high resolution spline cams both manually and independently, without the need for additional tools. This operation is electrically safe due to the insulation of the wiring strips and the micro switches. The cams are spring backed and will not be affected by normal vibration.

Compact design.

The MAX-AIR Limit Switch Box has a compact construction, minimizing valve package envelope size.

Easy wiring.

Despite its compact design, MAX-AIR Limit Switch Boxes are easy to wire up with plenty of room to bring wires into the enclosure. As standard, they have two conduit entries 1/2" NPT. MAX-AIR Limit Switch Boxes are equipped with 2 different removable strips as standard, the first one with 2 terminal points and the second one with 2 points; therefore, dual coil solenoid valves can be connected. The terminal strips are angled to allow for ease in attaching external wires.

PROXIMITY SENSORS



SOLENOID VALVE

The Max-Air NAMUR series solenoid valve is a revolution in design.

Featuring an electroless nickel plated spool, easy-to-use manual override, a uniquely designed air pressure "pop-up" indicator, and the fact that each solenoid valve is field convertible for use on either double acting (4 way) or spring return (3 way) actuators, you will be way ahead of your competition.

Each solenoid valve is available in single coil (SV61), dual coil (SV62) or 3 position configuration (SV3P) and can be used on either lubricated or non-lubricated air.



Air Pressure Indicator



Features & Benefits

- Design according to NAMUR VDI/VDE 3845.
- Universal usage: can be mounted on all types of pneumatic actuators (rotary or linear) with a NAMUR connection.
- Universal application: 3/2 or 4/2 way selectable with a simple switch included.
- Port size: inlet and exhaust 1/4" NPT.
- Versions: single coil, dual coil and 3 position (open centers, closed centers or center in pressure).
- New feature: The Max-Air exclusive "pop-up" air indicator is a benefit-rich feature which provides for a quick check to verify if the solenoid valve is pressurized or not.
- Manual override as standard.
- Nylon coil, insulation class F, as standard; technopolymer coil, insulation class H as optional.
- Protection class NEMA 4, 4x (IP65) standard. Optional:
 - *Intrinsically safe EExi
 - *Explosion proof EExm
 - *Explosion proof EExd (NEMA7)
- All units are stamped with a progressive traceable serial number.



Max-Air Technology is committed to providing the widest range of application solutions with the greatest degree of mounting flexibility possible. With solutions like these listed below, Max-Air is committed to solving your most challenging applications.



180° Actuators and More!

180° / 150° / 135° / 120° Double Acting Actuators

Max-Air Technology offers a complete range of extended-body double acting actuators, from 120° up to 180°. These options allow you to choose the actuator that best fits your application instead of the actuator dictating your automation requirements. (Note: 120° actuators are also available in spring return configuration)



CNI Actuators

Featuring autocatalytic nickel surface impregnation, Max-Air CNI actuators are designed to provide the best corrosion resistance possible. Available in all Max-Air sizes through UT-66, this highly competitive stainless steel alternative is an ideal choice for your tough environments.



Spring Return 180° Actuators



Accumulating Tank

After careful study, Max-Air Technology is pleased to introduce our spring return 180° actuator. This solid solution will give you a lifetime of consistent performance without hassling with oversized actuators. The Max-Air 180° Actuator maintains the same high output torques as our standard actuator.



180° Center Return Spring Actuators (-90°, +90°, Return to Center)

For applications where returning to center is imperative, Max-Air has this optimal solution. Specially designed and machined, this unit saves hours of engineering redesign when applications require failing to center.



SPECIAL APPLICATIONS

Pre-wired Switchbox

Taking the hassle out of wiring, Max-Air offers this highly competitive pre-wired switchbox. Meeting all of your NEMA 4/4X requirements, this limit switchbox is available with both mechanical switches and proximity sensors.



Shock-Absorber Actuators

Applications requiring either the opening or closing phase of the stroke to absorb impact, the Max-Air Shock-Absorber Actuator can handle your toughest requirement. Specially designed to absorb during the last 10° of the stroke, this patented solution is ready to serve. (not pictured)



Dribble Control: 3 Positions Actuators 90° and 180° for 3-way ball valves

Highly competitive dribble control applications are now easily accommodated with the Max-Air Twin-Switchbox and 3-Position Solenoid Valve (SV3P) combination. This solution provides for the regulation of an intermediate stop at any angle in both the opening and closing phases of the actuator stroke, while ensuring the standard full-open and full-close signals.

Electro-hydraulic Actuators (self-contained unit)

A unique approach to providing operational self-containment, Max-Air offers this spring-return unit ready to operate without preparing any complicated controls or wiring. Please call or visit our website (www.max-airtechnology.com) for more information.

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