

# 180° Rack & Pinion Actuators

Air powered rotary actuators for precise action and reliable long-life operation.

# Product & Services Sales Guide

Max-Air Technology Inc. | Rotary Actuators & Valve Automation Solutions

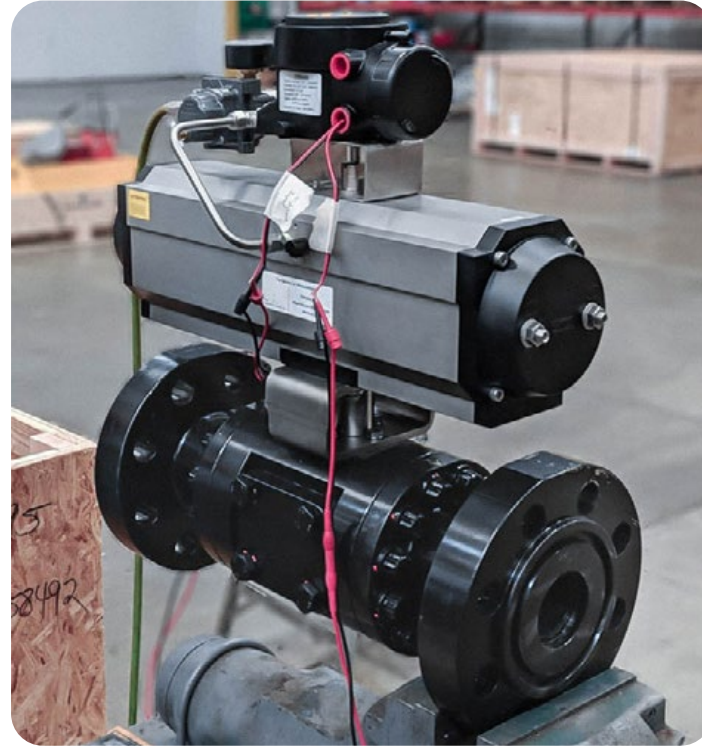


## Special Rotations

UT 180° actuators offer an extended range of rotation beyond 90° quarter turn applications. Double acting actuators can be ordered in custom lengths between 120° and 180°, or extended travel stops can be used on the stock 180° actuator to adjust travel anywhere between 0° and 180°. Spring return actuators are available in a standard configuration (0°-180° travel, spring return to one end) or in "center return" configuration (0° ± 90° travel, spring return to the center). UT 180° actuators offer the same patented dual travel stop design (excluding 3 Position DA) w/ extended travel stop options and multiple mounting options for the ultimate flexibility.

### Standard Features:

- Compact Rack and Pinion Design
- 3D Models Available for All Designs and Sizes
- Direct ISO 5211 Standard Valve Mounting
- Direct NAMUR Accessory Mounting
- Anti-Blowout Bi-Directional Pinion Retention
- High Visibility Open/Closed Beacon
- Pre-Loaded Spring Cartridges



### UT 180° Series Aluminum

Max-Air's unique and patented design delivers rotation beyond 90°, with configurable stroke end positions and fail directions. Standard housing is anodized aluminum, with optional coatings available.



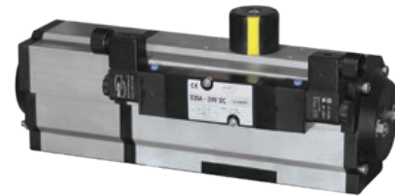
<b>Torque Range</b>	Up to 47,250 in-lbs (DA) & 22,746 in-lbs (SR)
<b>Materials</b>	Aluminum
<b>Coating/Finish Options</b>	Epoxy
<b>Ambient Temp. Ranges</b>	-4°F to 176°F Standard (-67°F Low, 300°F High)

<b>Rotation</b>	±10° Adjustment Standard on Spring Return or Double Acting, Special Rotation Options Available
<b>Operation Media</b>	Gas or Low Pressure Hydraulic Fluid
<b>Mounting</b>	ISO 5211, NAMUR VDI/VDE 3845
<b>Additional Options</b>	DD Pinions, Extended Travel Stops

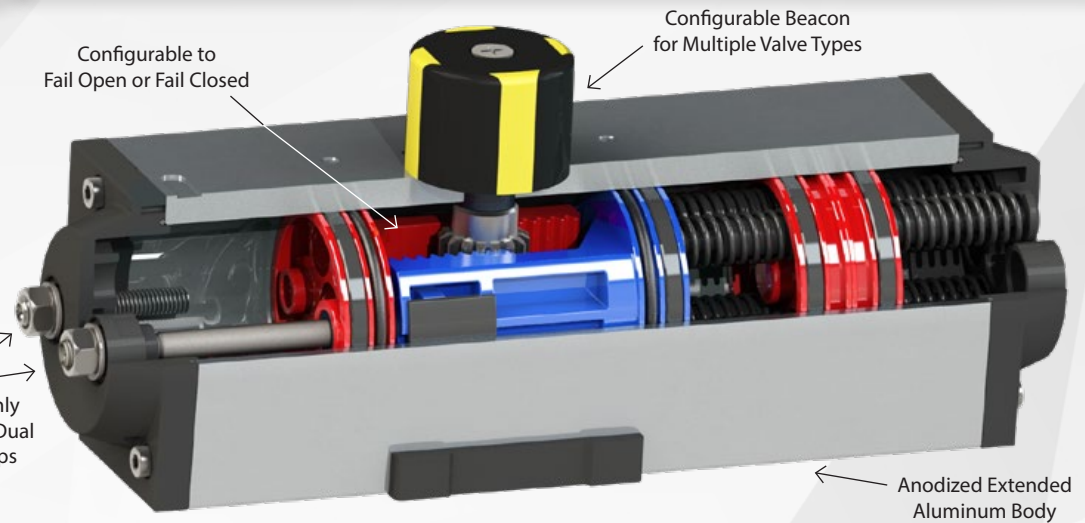
## 180° Rack & Pinion Series Selection

Start from the top of the chart and work down to select the correct Rack & Pinion Series.

Type	180° Double Acting Air to 0° or Air to 180°		180° Spring Return Air to 180° or Spring to 0°		180° Center Return Air to +90°/-90° or Spring to 0°	
	Standard	Extreme (High/Low)	Standard	Extreme (High/Low)	Standard	Extreme (High/Low)
<b>Environment</b>	Corrosive		Standard			
<b>Temperature</b>	Standard	Extreme (High/Low)	Standard	Extreme (High/Low)	Standard	Extreme (High/Low)
<b>Recommended Series/Options</b>	UT 180° Series w/ Special Coating	UT 180° Series w/ Special Coating & Temp Seals	UT 180° Series	UT 180° Series	UT 180° Series	UT 180° Series w/ Temp Seals



Center-Return 180° actuator shown with open centers S36A solenoid valve.



## UT 180° Series Aluminum

**Double Acting** Max-Air's 180 degree double acting actuators maintain the operating torques and many of the key features of the standard UT and MT actuators. With the same travel stop adjustability, honed bore, rugged teeth, and Namur accessory mounting, we can reliably operate multiport and other 180 degree valves and with an almost infinite travel stop adjustability, we can handle a wide variety of special travel/rotation requirements.

**Spring Return** The Max-Air Technology 180° actuator maintains the same high output torques as the standard MT actuators while providing a solid solution for a lifetime of consistent performance without hassling with an oversized unit.

**Center Return** For applications where returning to center is imperative, Max-Air Technology has this optimal solution. Specially designed and machined, this unit saves hours of engineering redesign for fail-to-center applications.

**3-Position** Max Air's 3-position actuator has been developed for use with multiport valves in mind. Its unique design and operating system creates hard travel stops at three distinct positions for the ultimate reliability in positioning.

### Increased Corrosion Resistance & Relative Cost

Materials/Coatings w/ Properties & Limitations

Options	Aluminum: Hard Anodized (Standard)	Aluminum: Anodized w/ Polyamide Epoxy Coating
<b>Properties</b>	Good general corrosion properties in most "natural" environments with pH from 4.5 to 8.5. Good resistance to salt air environments. The coating is extremely hard and resistant to abrasion.	The epoxy coating is relatively thick, which creates a barrier against many of the chemicals which anodizing alone cannot adequately resist. It will resist more acidic or basic environments than anodizing alone.
<b>Performance Limitations</b>	Highly acidic or basic environments will break down the coating.	Good general corrosion resistance, particularly in salt or alkaline environments. Limited resistance to acids. Surface chalking will occur when exposed to UV radiation. Also suitable for low concentrations of caustic washdown solutions.

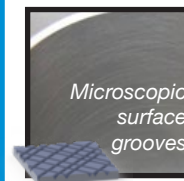
## Temperature Seal Options

Available for MT Series and SS Series Actuators

Seals	Temperature Range
Super Low Temp. (FVMQ)	-67°F (-55°C) to 250°F continuous & 300°F cyclic
Low Temp. (Silicone)	-49°F (-45°C) to 250°F continuous & 300°F cyclic
Standard (BUNA-N)	-4°F (-20°C) to 176°F (80°C)
High Temp. (VITON)	-10°F (-23°C) to 250°F continuous & 300°F cyclic
Low Temp. Buna	-40°F (-40°C) to 212°F (100°C)

## High Cycle Life Design

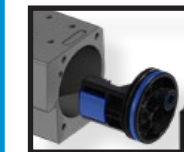
Precision Honed Bore, High Cycle Wear Bearings, Rugged Tooth Design



Microscopic surface grooves

### Precision Honed Bore

This high end feature, is not industry standard. A uniform bore surface provides consistent seal contact and compression. Micro-scratches provide even lubrication which minimizes the "wiping" effect.



### High Cycle Wear Bearings

High performance technopolymer bearings eliminate metal-to-metal sliding contact.



### Rugged Tooth Rack & Pinion Design

The Rugged Tooth Design reduces "slamming" and other dynamic forces. Max-Air's tooth profile is refined for higher strength and resiliency, but with minimal backlash.