



### Max-Air Design Superiority over 4-Piston Actuators

The 4-Piston pneumatic actuator puts a spin on the standard 2-Piston rack-and-pinion approach in an effort to achieve the same torque in a smaller package. While this may be advantageous in some circumstances, actuators with the 4-Piston design have twice as many pistons and inherently twice as many moving parts, and may offer only minimal space savings or none at all. The design changes required for the 4-Piston actuator come at the cost of simplicity, design flexibility, production cost, and long term reliability. As the number of moving parts increases twofold, so does the potential for wear, tear and failure. Additionally, the complexity of a 4-Piston setup can make maintenance difficult and configuration changes can be time-consuming. For companies which require a robust and dependable actuator designed for a high cycle life application, Max-Air Technology's MT Series rack-and-pinion actuator sets the standard. The MT Series provides a robust, proven, and highly flexible design all within a compact footprint that rivals equivalent 4-Piston actuators. Our 2-Piston design offers an actuator simple enough for easy configurability and trouble-free maintenance, yet highly engineered for consistent long-life performance. Max-Air is so confident in the durability of our design that we stand behind our MT Series actuators with an unlimited cycle life warranty. (See Max-Air Unlimited Cycle Life Warranty for details.)

### 4-Piston Design Actuators

#### Benefit

- A slightly smaller sized actuator

#### Disadvantages

- Twice as many moving parts and seals (potential leak paths); more parts, more possibility for failure
- Higher level of complication to modify or repair, making last minute modifications frustrating
- Limited travel adjustment capability – this is a major disadvantage
- Utilization of different end caps for double acting (DA) and spring return (SR) units, making inventory less useful
- Concentric nested springs are not the best design for many reasons – difficult to change, store, and remove
- Ability to modify actuator for high and low temperature
- Not available in multiple rotations (i.e. 180°, 150° and 120°); difficult to automate multi-port valves
- No honed piston bore; the 4-piston design makes this advanced feature very costly and difficult to manufacture
- No alternative materials (i.e. 316 SS, LockMesh, Epoxy, and Electroless Nickel)

### Max-Air Actuators

#### Standard Features

- Compact Design; Max-Air has one of the most compact designs available in the market today

#### Advantages

- The only design with a high visibility position indication, and alternative beacon options
- Standard NAMUR mounting for all limit switch and solenoid valves; no adapters required
- +/- 10° Travel Adjustment on BOTH the open and closed positions – a “Max-Air Exclusive” Feature
- Multiple out shafts available (i.e. ISO, Double-D, Keyed)
- Rugged tooth design – no actuator has teeth like Max-Air MT Series – robust rack & pinions for demanding service
- Safe preloaded spring cartridges; adding and removing springs is safe, fast, and easy
- A honed piston bore for high cycle life – the backbone of our unlimited cycle life warranty and ability to handle super high and low temperatures
- A wide variety of alternative materials and coatings available (i.e. 316 SS, LockMesh, Epoxy, and Electroless Nickel)
- An extensive list of options for 180° valve applications, multi-port, diverting, 3/4 position control, and modulation
- More size actuators available than any other manufacturer – more precisely match actuator to torque requirement without unnecessary oversizing

Max-Air Technology is the worldwide leader in automation technology and process control products; we design automation technologies that provide competitive advantages. For more than 15 years we have engineered improvements and added flexibility and interchangeability features to our products to provide customers in the chemical, pharmaceutical, food and beverage, power, oil and gas, wastewater, and damper industries with advanced automation solutions.

Our full line of pneumatic control products—including our industry recognized rack & pinion actuators—provide cost-effective solutions for the most complicated flow requirements, including diverting and multi-port flow applications across a wide array of industries. Our patented adjustable dual-travel stops provide the greatest degree of control in the industry at ±10 degrees on each end of the stroke. Our product line is made complete with all of the control accessories required—solenoid valves, limit switches, positioners, and a wide assortment of automation hardware.

Max-Air Technology means patented innovation, trusted products, and flexible design; our company provides *The Best Way to Automate Your Process*.