

Asahi/America's Series 79P pneumatic actuators for quarter-turn ball and butterfly valves provide accurate and dependable control, especially in corrosive applications.

The units are compact, yet extremely durable and available in output torques from 59 to 40,710 inch-pounds based on an 80psi air supply. Series 79P can be cycled using air, water, or non-combustable gas.

Three standard actuator materials are offered: glass-reinforced polyamide, cataphoresis and Rilsan® coated cast aluminum alloy, and 316 stainless steel; all of which incorporate ISO and NAMUR mounting configurations for simple installation of valves and accessories. These material choices provide excellent protection from adverse environments and corrosive process materials.

Two versions of this actuator are offered: single acting (air-to-spring or fail safe) and double acting (air-to-air), both versions utilize a double piston, double rack and pinion design.

Dual Stage Corrosion Resistance: Internal and external **Cataphoresis** and **Rilsan®** coating

Cataphoresis is an electro-chemical process of uniformly applying 20 microns of epoxy resin to the internal and external surfaces. Once this resin is applied, the next step is curing in a 400 degree oven (very similar to a powder coating process). This process provides high corrosion resistance

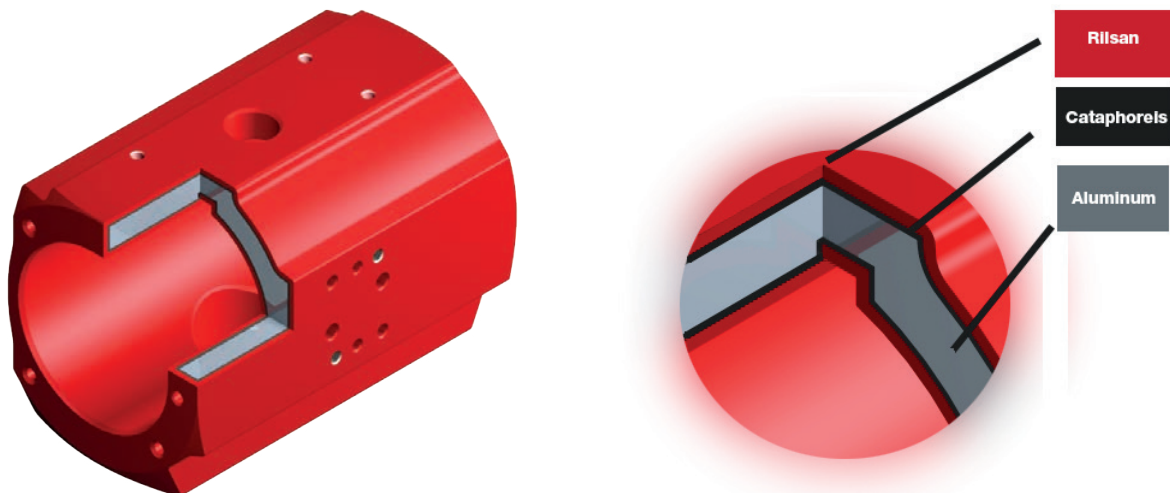
Rilsan® is a Nylon 11 that is uniformly applied to the internal and external surfaces to a thickness of 250 microns. This process offers high corrosion resistance, high resistance to wearing, and is also impact resistant

Engineering Specifications

- Body and End Cap Material: Cast aluminum body (cataphoresis and Rilsan coated inside and outside), glass-filled polyamide, 316 SS
- Shaft: 303 SS or cataphoresis coated with double O-ring seal on top and bottom
- Temperature Range: -25°F to 195°F
- O-ring Material: Self-lubricating BUNA-N
- Output Torque Range: 59 in./lbs. to 40,710 in./lbs.
- Supply Air: 60psi minimum, 120psi maximum
- Air Connections: 1/4" FNPT
- Mounting Dimensions: ISO and NAMUR standards
- Springs: Captive design
- Travel Stops: End adjustment
- End Caps: Bolt design

Sample Specification

All Series 79 pneumatic actuators shall be double piston, double rack and pinion design with body and end cap materials cast aluminum cataphoresis and Rilsan® coated inside and outside, glass-filled polyamide, or 316 stainless steel. Shaft shall be 303 stainless steel or cataphoresis coated steel with double O-ring seals on top and bottom. Actuators shall have 1/4" FNPT air connections, end adjustment travel stops, and visual position indicator. Single acting versions (spring return) shall have captive springs. All actuators shall have ISO bolt circle and NAMUR mounting dimensions for the installation of valve and optional accessories, as manufactured by Asahi/America, Inc.



Pneumatic Actuator Sales Questionnaire

The following questions need to be asked to make a proper recommendation:

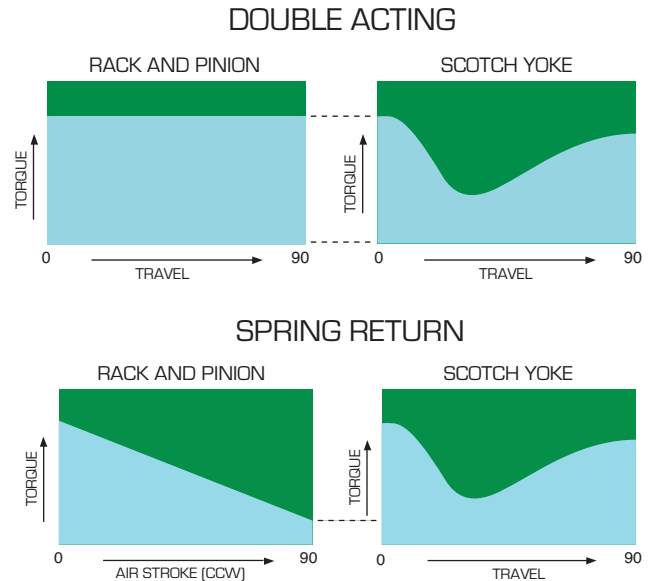
- Air-to-air or Air-to-spring?
- Supply air available?
- On/off or modulating?
- Modulating 3-15psi or 4-20 mA (Analogue or digital?)
- Solenoid Nema Type rating? 4 or 7?
- Environment ? Temp, corrosion resistance?
- Feedback? Switches Type 4 or Type 7?

Torque output for single acting (spring return) models varies according to the compression rate of the springs. Output torque decreases on the air stroke as the springs are compressed, and decreases in the spring stroke as the springs relax and extend. Reference the torque charts on pages xxx - xxx and use it to determine the correct number of springs required for your application.

Torque and Air Pressure

Two pieces of information are required for proper selection of a pneumatic actuator:

First is valve breakaway torque. This is the amount of torque required to "break" the ball, plug or disc away from the seat. It is calculated from the differential pressure, type of media, contact area between sealing members, etc. Once this is determined, it is multiplied by a safety factor to take into account unknowns such as the amount of time a valve has been in the closed position (some sealing members may take a set, making them difficult to separate), and corrosion buildup.



Second is the air supply, to which a conservative approach is required. If an actuator is located adjacent to the compressor, it will most likely see the full 80psi. But if the actuator is located 100 yards away with leaky air fittings, then the actuator may see only a fraction of the 80psi that the compressor is producing. So, if an actuator is sized for a supply of 80psi, and the actuator sees 60psi because of leaky fittings, there will not be enough output torque from the actuator to cycle the valve.

If the required torque of a valve (including the safety factor) equals or exceeds the output torque of the actuator, then the next size actuator should be selected.

Example of Pneumatic Actuator Selection

Select the proper actuator for the following application:

Single Acting (Spring Return) Fail Close

SPECS: Valve torque = 225 in./lbs.

Air supply pressure = 60psi

FIND: Required valve torque 281 in./lbs.

Spring end torque (362)

Air start torque at 60psi (307)

ANSWER: C579PASN with 5 springs per side

Pneumatic Actuator Options

- **Solenoid:** The solenoid is a means of supplying and exhausting the compressed air required to the cycle the actuator. Every pneumatic actuator requires a solenoid.
- **Voltages:** There are solenoid voltage options available to meet a variety of customer needs: 230 VAC, 12 VDC, 24 VDC, 12VAC, 24 VAC
- **Double limit switches:** Double (additional) limit switches are typically used as valve position confirmation (end of travel) with a PLC, DCS, etc. Other applications are for interlocking with other equipment or valves. These switches are SPDT with a 15 amp rating, and dry contact.
- **Feedback potentiometer:** This option is typically installed within a double limit switch enclosure. A 1000-ohm, 1 watt feedback potentiometer provides position feedback to a PLC, DCS, etc. This varies from the auxiliary limit switches, as the feedback potentiometer provides a varying degree opening percentage from 0-1000 ohms.
- **Electro-Pneumatic Positioner:** A smart positioner can be installed on top of the actuator for precise modulating control. The positioner accepts a 4-20mA control signal.
- **Transmitter:** A 4-20mA transmitter, which is standard equipment for our Smart positioner, will provide precise valve position (position feedback) to a PLC, DCS, etc. This feedback is output from the actuator NOT a control signal to the actuator.
- **Pneumatic Positioner:** A pneumatic positioner that operates via a 3-15 psi control signal can be installed on top of the actuator for precise modulating control. This positioner can be provided with an optional transmitter or limit switches.
- **De-Clutchable Manual Override:** This option is essentially a gear operator that allows for the automated valve to be cycled manually when compressed air is not present.