

# Actuators

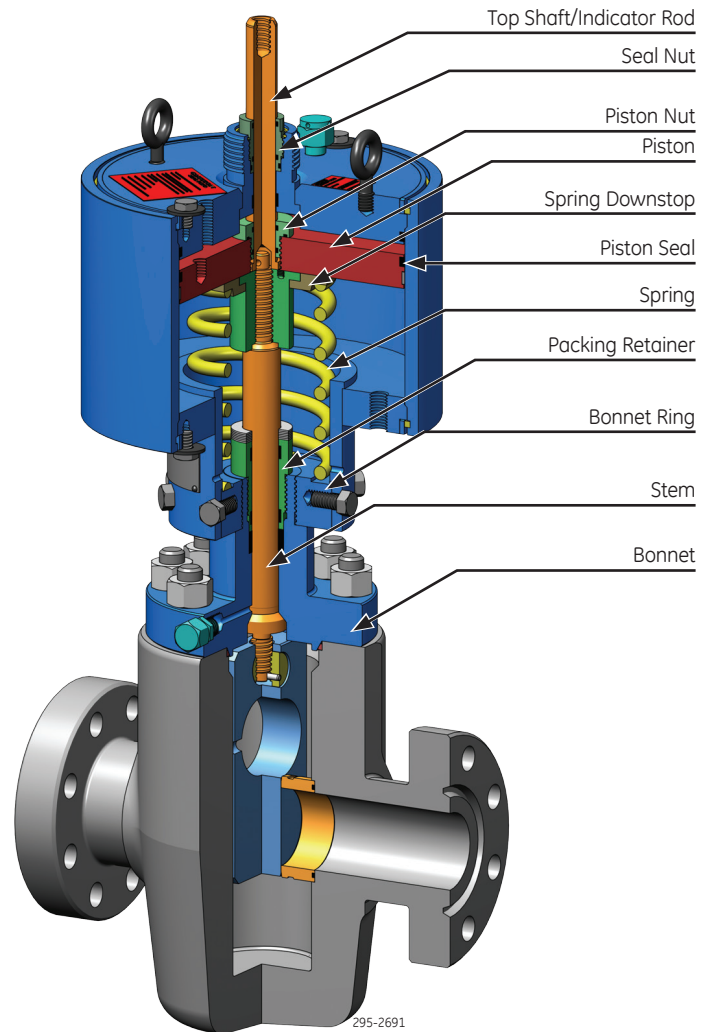
## Pressure Control Model P Pneumatic Piston Actuator

The Model P Pneumatic Piston Actuator is designed for use on reverse-acting or direct acting gate valves. The actuator functions as a fail-safe closed device when mounted on a reverse-acting gate valve and as a fail-safe open device when mounted on a direct acting gate valve. Suitable for use in onshore and offshore applications, Model P pneumatic piston actuators deliver reliable open/close performance for control of wellbore or pipeline fluids and natural gas.

When used as a fail-safe closed shutdown valve (SDV), the actuator will require sufficient supply pressure to open the valve. Refer to the actuator sizing chart on the reverse side to determine applicable actuator opening pressure. Supply pressure is applied to the actuator supply port onto an internal piston where it forces a downward movement, compressing an actuator coil spring and generating sufficient actuator forces to open the valve. Valve closure is obtained when supply pressure is vented from actuator. Rugged in design, Model P piston actuators may be used in applications where diaphragm actuators are not desirable.

### Features —

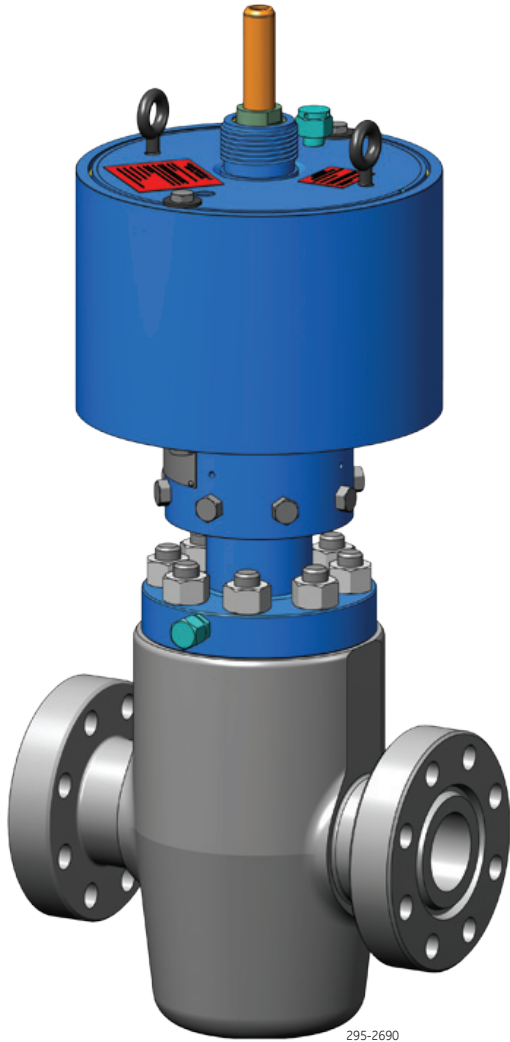
- Simplicity
  - Compact
  - Easy to install and maintain — lifting eyes standard on all models
  - Seal nut elastomers can be replaced without removal of actuator indicator rod or upper/lower case disassembly
  - Drift spacers allow for permanent drift adjustment
  - No special tools required for repair
- Long service life
  - Non stainless components are coated with Xylan to provide corrosion resistance in harsh environments
  - Aluminum bronze material used for seal and diaphragm nut to minimize wear
  - Wear bearings in bonnet packing retainer eliminate metal-to-metal contact with bonnet stem
  - Actuator top shaft/indicator rod is free-floating, thus eliminating torque transfer when using manual hold open device
  - Floating piston travels on wear bearing, eliminating internal metal-to-metal contact



- Designed for safety
  - Actuator external relief valve protects equipment and personnel from overpressurization
  - Heavy-duty actuator compression spring ensures engagement of metal-to-metal fire-safe bonnet stem backseat and valve closure
  - Design of actuator seal nut allows for venting of internal actuator pressure during removal and alerts service technician of an unsafe condition that pressure remains in actuator
  - Actuator seal nut elastomers accessed and easily replaced without removal of actuator top shaft/indicator rod or upper/lower case disassembly
  - Bonnet communication port is located above bonnet stem metal-to-metal fire seal and below stem packing



# Model P Pneumatic Piston Actuator



## Specifications —

Model P	
Models	P13, P18, P20, P26
Applicable Valve Sizing	1-13/16" thru 7-1/16"
API Specification	API 6A
Pneumatic Actuator	Standard Service
PR2	Annex F
Temperature	0°F to +150°F (-18°C to +66°C)
Maximum Working Pressure	150 psi (10 bars)
Maximum Test Pressure	225 psi (16 bars)

## Pneumatic Actuator Sizing Chart —

Valve Bore	Actuator				
	psi	Model	Size	Operating Pressure	Volume Displacement
1-13/16"	10,000	P13	P 1301	.014 x WP (140 psi/10 bars)	308.2 in <sup>3</sup>
	15,000	P18	P 1801	.007 x WP (110 psi/8 bars)	846.0 in <sup>3</sup>
2-1/16"	2,000	P13	P 1302	.015 x WP (35 psi/2 bars)	370.0 in <sup>3</sup>
	3,000	P13	P 1302	.015 x WP (50 psi/3 bars)	370.0 in <sup>3</sup>
	5,000	P13	P 1302	.015 x WP (80 psi/6 bars)	370.0 in <sup>3</sup>
	10,000	P13	P 1302	.015 x WP (150 psi/10 bars)	370.0 in <sup>3</sup>
	15,000	P18	P 1802	.008 x WP (120 psi/8 bars)	714.0 in <sup>3</sup>
		P20	P 2002	.006 x WP (90 psi/6 bars)	1,089.3 in <sup>3</sup>
2-9/16"	2,000	P13	P 1302	.019 x WP (40 psi/3 bars)	437.1 in <sup>3</sup>
	3,000	P13	P 1302	.019 x WP (55 psi/4 bars)	437.1 in <sup>3</sup>
	5,000	P13	P 1302	.019 x WP (90 psi/6 bars)	437.1 in <sup>3</sup>
	10,000	P18	P 1802	.010 x WP (100 psi/7 bars)	846.0 in <sup>3</sup>
	15,000	P18	P 1802	.010 x WP (150 psi/10 bars)	846.0 in <sup>3</sup>
		P20	P 2002	.008 x WP (120 psi/8 bars)	1,089.3 in <sup>3</sup>
3-1/8"	2,000	P13	P 1303	.026 x WP (50 psi/3 bars)	519.1 in <sup>3</sup>
	3,000	P13	P 1303	.026 x WP (75 psi/5 bars)	519.1 in <sup>3</sup>
	5,000	P13	P 1303	.026 x WP (125 psi/9 bars)	519.1 in <sup>3</sup>
	10,000	P18	P 1803	.012 x WP (125 psi/9 bars)	978.0 in <sup>3</sup>
		P20	P 2003	.010 x WP (100 psi/7 bars)	1,297.0 in <sup>3</sup>
		P20	P 2003	.010 x WP (150 psi/10 bars)	1,297.0 in <sup>3</sup>
4-1/16"	2,000	P18	P 1804	.021 x WP (42 psi/3 bars)	1,245.0 in <sup>3</sup>
	3,000	P18	P 1804	.021 x WP (63 psi/4 bars)	1,245.0 in <sup>3</sup>
	5,000	P18	P 1804	.021 x WP (105 psi/7 bars)	1,245.0 in <sup>3</sup>
		P20	P 2004	.016 x WP (80 psi/6 bars)	1,599.9 in <sup>3</sup>
5-1/8"	2,000	P18	P 1805	.030 x WP (60 psi/4 bars)	1,350.0 in <sup>3</sup>
	3,000	P18	P 1805	.030 x WP (90 psi/6 bars)	1,350.0 in <sup>3</sup>
		P20	P 2005	.024 x WP (75 psi/5 bars)	1,978.3 in <sup>3</sup>
	5,000	P18	P 1805	.030 x WP (150 psi/10 bars)	1,536.0 in <sup>3</sup>
		P20	P 2005	.024 x WP (120 psi/8 bars)	1,978.3 in <sup>3</sup>



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