P3RA302 High Precision Regulators

The P3RA302 Regulator is designed for applications that require high capacity and accurate process control in a small package. A poppet valve which is balanced by utilizing a convoluted diaphragm, insures a constant output pressure even during wide supply pressure variations. Stability of regulated pressure is maintained under varying flow conditions through the use of an aspirator tube which adjusts the air supply in accordance with the flow velocity.

- Control sensitivity of .250" (.010 psig) (.64 cm) water column variation allows use in precision applications
- A compensating diaphragm lets the regulator remain unaffected by supply pressure changes
- An aspirator tube compensates downstream pressure droop under flow conditions
- A separate control chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing
- Unit construction lets you service the regulator without removing it from the line
- 1/4" port (NPT)

Genera

Dial

Pilot

Proportional

Precision

Water



Size	Description	Part Number
1/4"	0.5 to 30 psig	P3RA30232
1/4"	1 to 60 psig	P3RA30242
1/4"	2 to 100 psig	P3RA30252



Operating information

250 psig (17.2 bar), (1700 kPa) max
-40°F to 200°F (-40°C to 93°C)
.250" (.010 psig) (.64 cm) water column
40 scfm (68 m ³ /HR) @ 100 psig (7.0 bar), (700 kPa) supply and 20 psig (1.5 bar), (150 kPa) setpoint
2.0 scfm (3.4 m3/HR) where downstream pressure is 5 psig (.35 bar), (35 kPa) above 20 psig (1.5 bar), (150 kPa) setpoint
Less than 0.2 psig, (.014 bar), (.14 kPa) for 100 psig, (7.0 bar), (700 kPa) change in supply pressure
Acceptable for use in zones 1 and 2 for gas atmosphere: Groups IIA and IIB and zones 21 and 22 for dust atmospheres

Ordering Information:



Most popular.

Material Specifications

Body and housing	Aluminum
Diaphragms	Nitrile on dacron
Trim	Brass

Repair and Service Kits

Nitrile, standard - $1/2$ to 30, 1 to 60, & 2 to 100 psig	P\$16116-13
Nitrile, non-relieving - 1/2 to 30, 1 to 60, & 2 to 100 psig	PS16116-14
Tamper Resistant Kit	PS12163
Mounting Bracket Kit	PS21667-1

Mounting bracket



WARNING Product rupture can cause serious injury. Do not connect regulator to bottled gas. Do not exceed Maximum primary pressure rating.

CAUTION:

REGULATOR PRESSURE ADJUSTMENT – The working range of knob adjustment is designed to permit outlet pressures within their full range. Pressure adjustment beyond this range is also possible because the knob is not a limiting device. This is a common characteristic of most industrial regulators, and limiting devices may be obtained only by special design. For best performance, regulated pressure should always be set by increasing the pressure up to the desired setting.



Inches (mm)

Regulator Products

Flow Charts

P3RA302 1/4" Regulator





Operating Principles

The P3RA302 Regulator uses the force balance principal to control the movement of the valve assembly which in turn controls the output pressure. When the regulator is adjusted for a specific set point, the downward force of the Positive Bias Spring causes the Diaphragm Assembly to move downward. The Supply Valve opens and allows air to pass to the Outlet Port. As the set point is reached, the downward force exerted by the Positive Bias spring is balanced by the upward force of the downstream pressure acting on the bottom of the Diaphragm Assembly. The resultant force moves the supply Valve upward to reduce the flow of air to the Outlet Port.

Outlet pressure is maintained as a result of balance between forces acting on the top and bottom of the Diaphragm Assembly.

General

Dial

Pilot

Proportional

