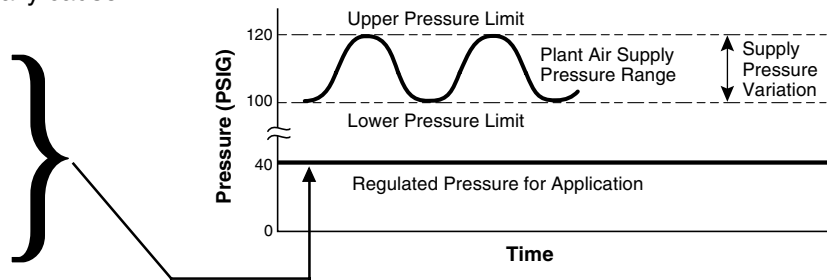


Precision Regulators Application Guide

Pneumatic pressure regulators are designed to provide a constant pressure output from a fluctuating supply pressure – much the way an electronic voltage regulator works. Pressure regulators provide varying degrees of accuracy with regard to their reduced pressure output. General Purpose pressure regulators work for most fluid power applications. However, for more pressure-critical applications precision regulators can provide the customer with the control they need.

A partial listing of things that can potentially cause regulator output pressure variation are:

- Temperature changes
- Inlet pressure changes
- Variations in flow
- Excess downstream pressure
- Cycling
- Time
- Leakage



Who needs precision regulators?

Design level applications:

When designing a pneumatic system it is important to determine not only the air flow that the application will require but also the acceptable level of pressure variation. Some pneumatic applications cannot tolerate fluctuations in pressure. These applications can include static situations with only a steady pressure maintained, or dynamic flow situations involving any number of changing variables in play while trying to maintain a constant pressure.

Problem solving device for existing applications:

Sometimes an existing pneumatic application does not meet the customer's needs with regards to pressure control and/or stability. Any or all of the variables listed above can cause issues with pressure stability. As applications are expanded, added on to, or modified the pressure and flow requirements can change.

How do precision regulators differ from general purpose pneumatic regulators?

Examples-→	High Precision Regulators <i>P17, P19</i>	Precision Regulators <i>P15, P16</i>	General Purpose Regulators <i>R18, R28, R39</i>
Sensitivity: <i>Reduced pressure repeatability/variation under no-flow condition</i>	0.005 to 0.010 PSIG (1/8" to 1/4" of water column)	0.5 to 1 PSIG	2 to 4 PSIG
Regulator's ability to control backpressure accurately: <i>*key for cylinder applications</i>	Begins to relieve at 0.005 to 0.010 PSIG overpressure	Begins to relieve at 0.5 to 2 PSIG overpressure	Begins to relieve at 5 to 10 PSIG overpressure
Regulator's ability to maintain set pressure under varying flow, input pressure, temperature conditions:	High	Medium	Standard
Constant Bleed - does the regulator constantly bleed a small volume of air to the atmosphere to maintain stability?	Yes	No	No

Application Chart

Original Equipment Manufacturers (OEMs)

Air Gauging	Manufacturers of Air Gauging Equipment.
Anesthesia Equipment	Manufacturers
Calibration Stands	Similar to Test Stands
Clamping Pressure Control	End Effect Grippers, Roll Loading
Control Panels	Manufacturers and Users
Coordinate Measuring Machines	Manufacturers use in Force Counterbalance Applications in Z-axis
Dispensing Equipment	Adhesive, Paint, or any other form of Liquid or Gas
Food Process Machinery	Manufacturers
Gas Analyzers	Used for Reference and Calibration Air Pressures
Ink or Paint Robotics Spraying Systems	Manufacturers use to Maintain an Even Pressure on System
Leak Testing Equipment	Manufacturers of Equipment that Detects Leaks (i.e., Plastic Bottles)
Medical Equipment	Manufacturers that Utilize for Blood Processing and Sampling as Examples
Oxygen Ventilators	Manufacturers
Pharmaceutical Process Machinery	Pill or Tablet Making Machines
Phone Cable Pressurization Systems	Manufacturers
Polishing Machinery	Used to Maintain Even Pressure on Polishing Head
Semi-conductor Manufacturing Machinery	Manufacturers
Smoke Stack Analyzers	Used for Reference and Calibration Air Pressures
Soil or Environmental Analysis Equipment	Used for Reference and Calibration Air Pressures
Tank Blanketing	Maintain Pressure on Top Level of a Tank or Storage Vessel
Test Equipment	Similar to Test Stands
Test Stands	Manufacturers of Test Stands, Laboratory Test Stands, Engineering Test Stands, Production Test Stands
Tool Balancers	Manufacturers of Tool Balancers, Manipulators, and Articulating Arms use High Relief Capacity Precision Regulators in a Force-balancing Application. Used as part of a Pneumatic Counter-balance System, the Regulator helps suspend the tool in the air and then makes it easy to move out of the way when not in use.
Web Tensioning	Machinery Builders for Printing Presses, Paper Converting, Packaging, Textiles, Plastics. Primarily Unwind Stands and Rewind Stands.

System Integrators

Automation Integrators	Anyone Involved in Designs or Projects that Automate Processes
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Energy Controls Systems

HVAC	Anyone who would be involved in Designs that would include Damper and Louvre Control for HVAC Applications
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End Users

Instrumentation Supervisors	
Instrumentation Technicians	
Project Engineers	
Store Room Supervisors	

MRO

Chemical	
Petrochemical	
Pulp & Paper	
Food & Drug	
Refineries	
Power	
Mining	
Oil & Gas	