

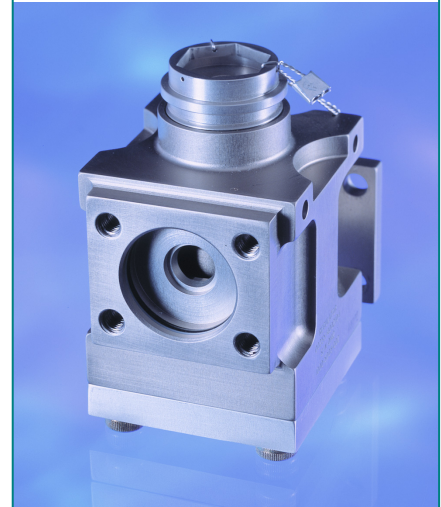
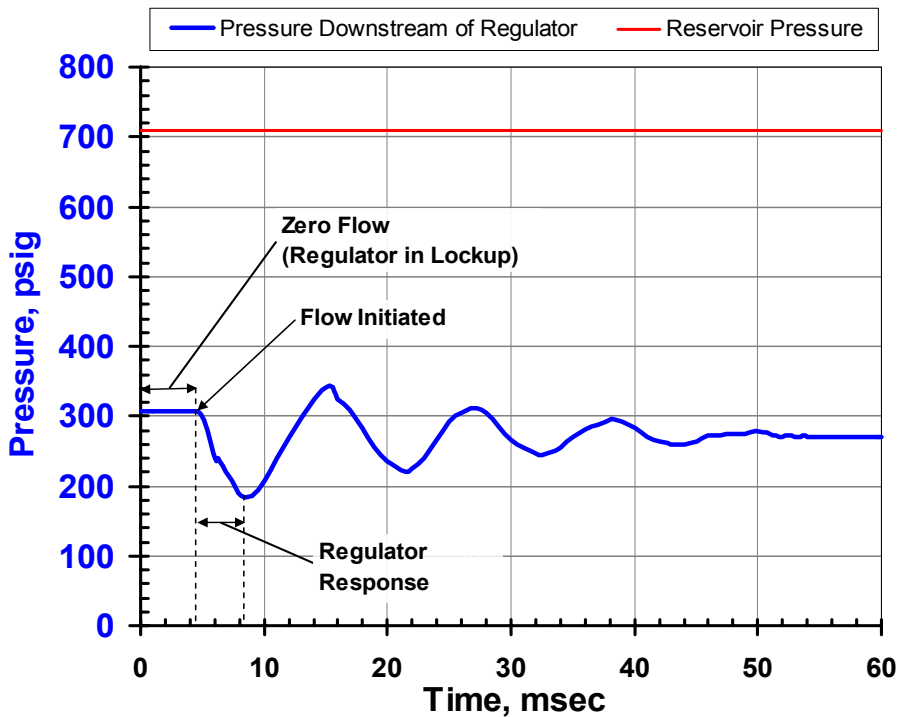
HIGH PRESSURE PNEUMATIC REGULATOR

PRESSURE REDUCING REGULATOR FOR LAUNCH VEHICLE COLD-GAS THRUST AND REACTION CONTROL SYSTEMS

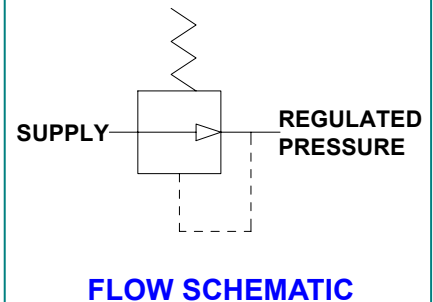
COMPONENT FEATURES

- High pressure & extremely high flow capacity
- Single-stage metering = Fast Response ~ 4 milliseconds
- Aerospace qualified for launch & defense applications
- Vibration / acceleration resistant
- Assembled, tested, & packaged in class 100,000 cleanroom
- Configurable to the special requirements of each system
- Compact & lightweight with porting, manifold & mounting flexibility

TYPICAL RESPONSE CURVE



HIGH PRESSURE REGULATOR



SPECIFICATIONS

1.0 Valve Type: Pressure Reducing Regulator	5.0 Flow: Greater than 1.0 lbm/sec (GN ₂ at 270 psig)
2.0 Media: Nitrogen, Helium, Argon, etc.	6.0 Leakage: Bubble-tight (Internal & External)
3.0 Supply Pressure	7.0 Integral Filtration: 85 micron nom. 150 micron absolute (optional)
3.1 MAOP: 5,000 psig [346 bar]	8.0 Temperature
3.2 Proof: 7,500/1,200 psia (Inlet/Outlet)	8.1 Ambient: -65°F to +300°F [-54°C to 149°C]
3.3 Burst: 12,500/1,250 psia (Inlet/Outlet)	8.2 Media: -35°F to +160°F [-37°C to 71°C]
4.0 Regulated Pressure	9.0 Porting
4.1 Setting: 270 psig +/- 25 psig at full flow (Pressure settings from 150 to 500 psig)	9.1 Inlet: Flange Mount or Fitting
4.2 Supply: 750 to 5,000 psig	9.2 Outlet: Flange Mount – 3/4" Line Size
4.3 Lock-up Pressure: 435 psig (max)	10.0 Materials: Aluminum, Stainless Steel, Nickel
	11.0 Weight: 2.2 lb [1.0 kg] max

TECH DATA

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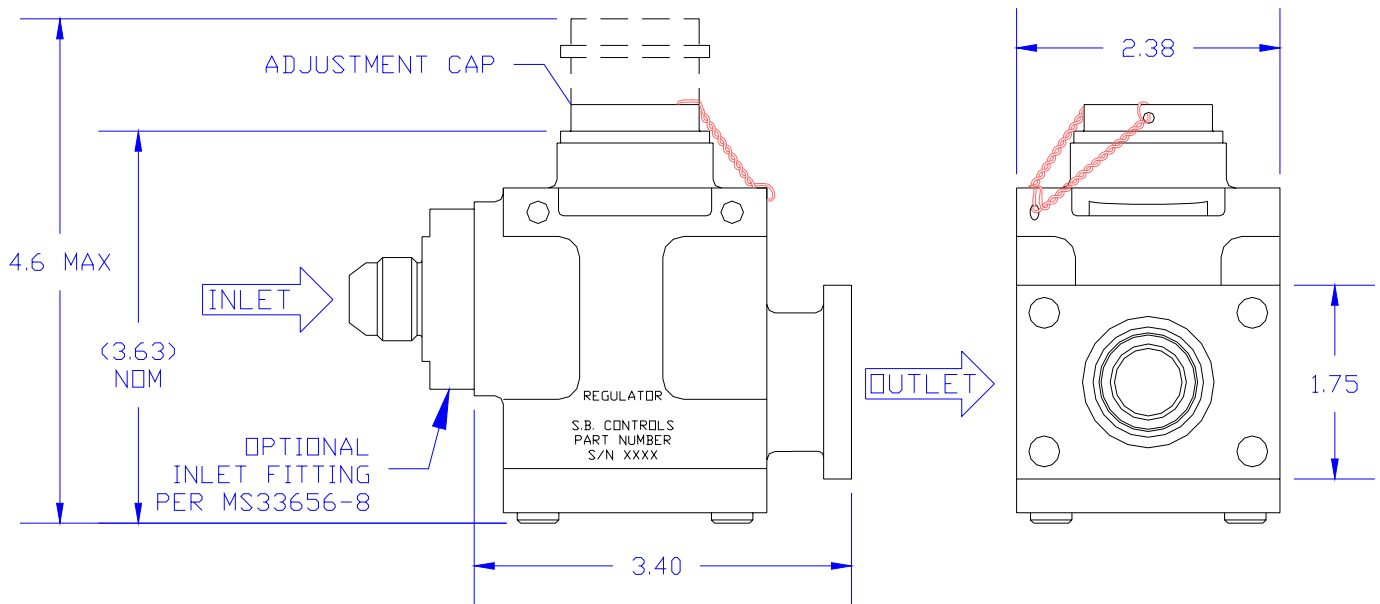
BULLETIN AV-501

HIGH PRESSURE REGULATOR TECHNOLOGY

What is it? This is a single-stage, pressure reducing valve (regulator) for use with cold gasses such as air, nitrogen, oxygen, helium, and argon. Valves in this family are rated for up to 5,000 psig supply / reservoir pressure. The outlet pressure is factory calibrated to a fixed setting between 150 and 500 psig with a maximum flow rate greater than 1.0 lbm/sec of gaseous nitrogen at 270 psig regulated pressure.

How does it work? The floating poppet design provides a variable orifice which responds to maintain the pre-adjusted pressure. A low-stress spring preloads the poppet in the normally open position. Outlet pressure is used in a feedback loop to deflect the poppet against the spring, which changes the effective area of the variable orifice. As outlet pressure rises, the poppet is moved toward the closed position which prevents the outlet pressure of the valve from exceeding the factory set value. The poppet will maintain set pressure up to the maximum flow capacity of the valve. The inlet port is interchangeable for various sizes and types of porting. An integral inlet filter is also available to insure against large particle contamination.

How is it used? The single-stage design provides rapid response in a small, lightweight package and is common to cold gas stored energy and reaction control systems. The regulated pressure is supplied to solenoid-operated valves which are pulsed to provide a net thrust.



Related products: see tech data bulletins AV-502 for Relief Valves, AV-503 for Fill Valves and AV-505 for Pneumatic Solenoid Valves.



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PRINTED IN USA
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