

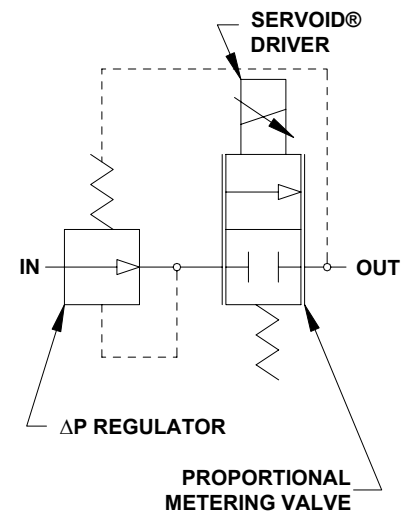
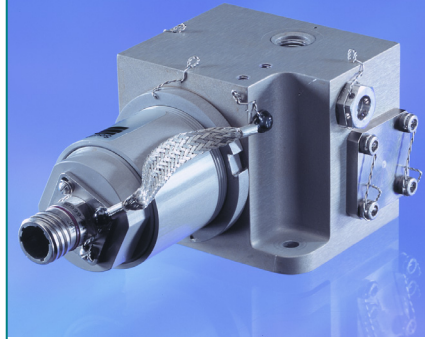
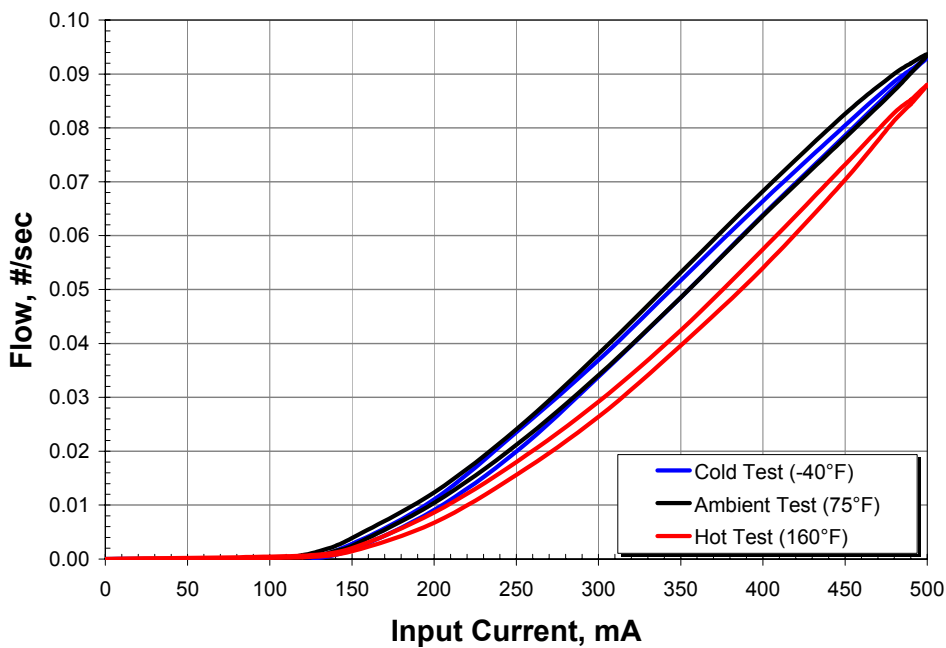
PROPORTIONAL FUEL CONTROL VALVE

PROPORTIONAL FLOW CONTROL VALVE WITH DELTA-P PRESSURE REGULATION

COMPONENT FEATURES

- Aerospace qualified in defense applications
- Single-stage metering for fast response
- Compensates for varying inlet & outlet pressure
- Continuous-duty proportional Servoid™ driver
- Each unit is tested under high, low and ambient temperatures
- Configured specifically to the requirements of each system
- Porting, manifold, and mounting flexibility

ACTUAL PERFORMANCE CURVE



FLOW SCHEMATIC

SPECIFICATIONS

1.0 Valve Type: Proportional, Pressure Compensated Flow Control

2.0 Media: JP-4 Jet Fuel

3.0 Pressure

3.1 Operating: 1,020 to 1700 +/- 15 psig

3.2 Proof: 2,985 psig

3.3 Burst: 4,250 psig

4.0 Internal Regulation: 200 psi differential

5.0 Temperature

5.1 Ambient: -40°F to +275°F

5.2 Media: -40°F to +275°F

6.0 Flow: 0.108 Pounds per second at 70 psi differential*
(*across metering orifice)

7.0 Electrical

7.1 Coil Current: 0 to 500 milliamps

7.2 Coil Resistance: 19.7 Ω @ 77°F +/- 3 Ohm

7.3 Insulation Resistance: 1x10⁸ Ω minimum

8.0 Performance

8.1 Calibration: Per ATP Requirements

9.0 Leakage

9.1 External None

9.2 Internal 15 cc/min @ 1700 psig Inlet
150 psig Outlet

10.0 Weight:

3.20 lb [1.45 kg]

South Bend Controls, Inc.

1237 NORTHSIDE BOULEVARD • SOUTH BEND, IN 46615

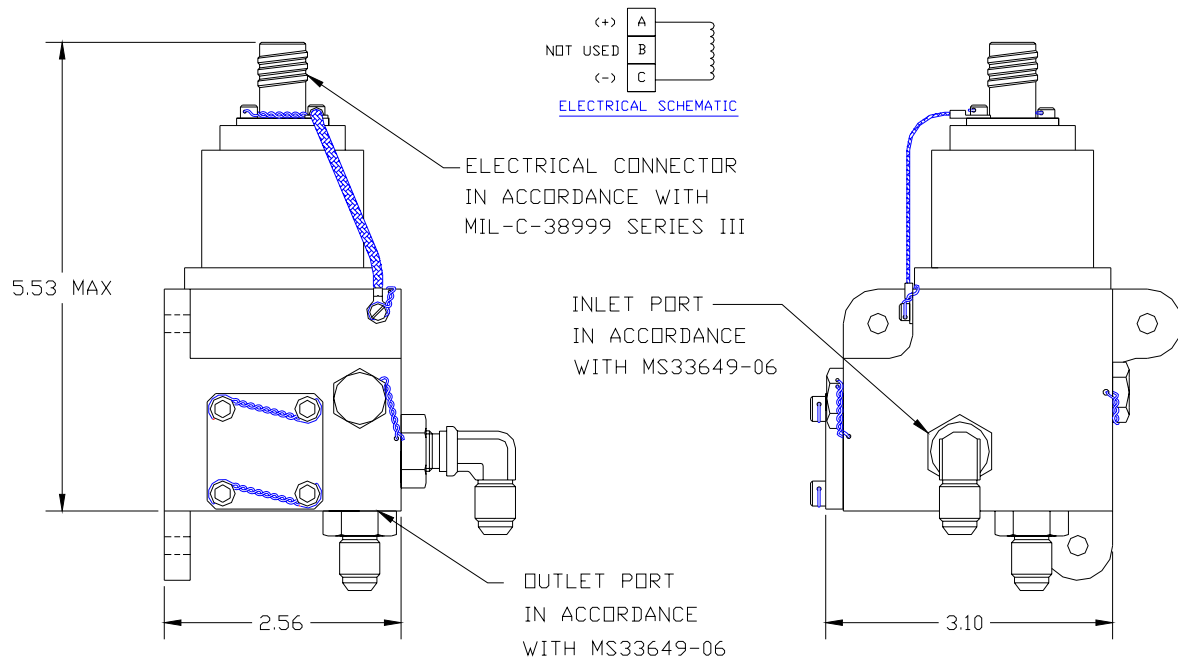
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BULLETIN PV-213

PROPORTIONAL FUEL CONTROL VALVE TECHNOLOGY

- The Proportional Fuel Control Valve is comprised of three primary components, the Servoid®-Driver, a Proportional Metering Valve and the Delta-P Regulator.
- The Servoid® Driver, is a current-driven, proportional DC solenoid which responds to either analog or digital (1 kHz pulse width modulated) signals. Input current (0 to 500 mA) is translated into a specific displacement with infinite resolution. The displacement is applied to a precision metering poppet with resulting flow control. Servoid drivers also include suspended armature construction with no sliding elements. This provides low hysteresis and long component life.
- The Proportional Metering Valve is a proprietary configuration providing extremely high flow capacity in a single stage.
- The Delta-P Regulator is a pressure reducing differential pressure regulator that maintains a constant pressure differential across the metering orifice. This pressure differential insures a constant net flow even while supply and downstream pressures vary, as is common with turbine engines.

This valve and a corresponding air metering valve control the flow and ratio of air & fuel to airborne turbine auxiliary power units (Reference PV-212). These systems include complex feedback to account for a wide range of startup parameters. Servoid valves also function well under open-loop conditions with high repeatability. This valve can be used anywhere highly repeatable flow control of liquid media is a requirement and similar valves are also available for control of gases such as air, nitrogen, and hydrogen.



JPG 1006

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