

RCV Low Pressure High Flow Servo Valve



The RCV valve is a low pressure, high flow servo valve that enables precision flow control applications by providing poppet positioning to within $\pm 0.5\%$ of full travel. Analog command input or SPI communications enable fast, accurate commands and status updates between the valve and microprocessor.

Features

- Servo Feedback
- Onboard Electronics
- Status Updates
- Dual Stage Flow
- SPI Communications
- Large Effective Orifice
- Low Power Consumption
- Manifold Mount

Applications

- Respirators
- Mixing
- Oxygen Concentrators
- Dosing
- Diagnostics
- Ventilators

Industries

- Life Sciences
- Medical Equipment
- Industrial Automation
- Semiconductor
- Pharmaceutical

Mechanical Specifications:

- Valve Type:**
2-Way Proportional Normally Closed
- Gating Element:**
Poppet Seat Valve
- Valve Actuation:**
Direct-Acting Linear Force Motor
- Operating Temperature**
0...50°C (32...122°F)
- Storage Temperature**
-20...50°C (-4...122°F)
- Filtration:**
5 μ m Particulate
- Media:**
Neutral Gases, Oxygen
Other Compatibilities Available
- Pneumatic Connections:**
Manifold Mount
- Mounting:**
4 x \varnothing 4.3mm Mounting Holes
- Height:**
94.0 mm (3.70 in)
- Width:**
39.0 mm (1.54 in)
- Length:**
39.0 mm (1.54 in)
- Weight:**
280g (0.62 lbs)

Wetted Material Specifications:

- Body & Poppet:**
Anodized Aluminum Type II & III
- Seals:**
EPDM, FKM (Viton®) - other materials available on request

Electrical Specifications:

- Power:**
+10Vdc Coil Drive Power
+5Vdc Microprocessor Power
Analog Versions: 9...30Vdc
- Connector:**
SPI Version:
JST 10-PIN PA series connector
BM-10B-PASS
Analog Versions: 8 Pin M12 Male
- Command Input:**
Serial Peripheral Interface (SPI)
Analog Versions: 4...20mA, 0...5Vdc
or 10Vdc based on order code

Performance Specifications:

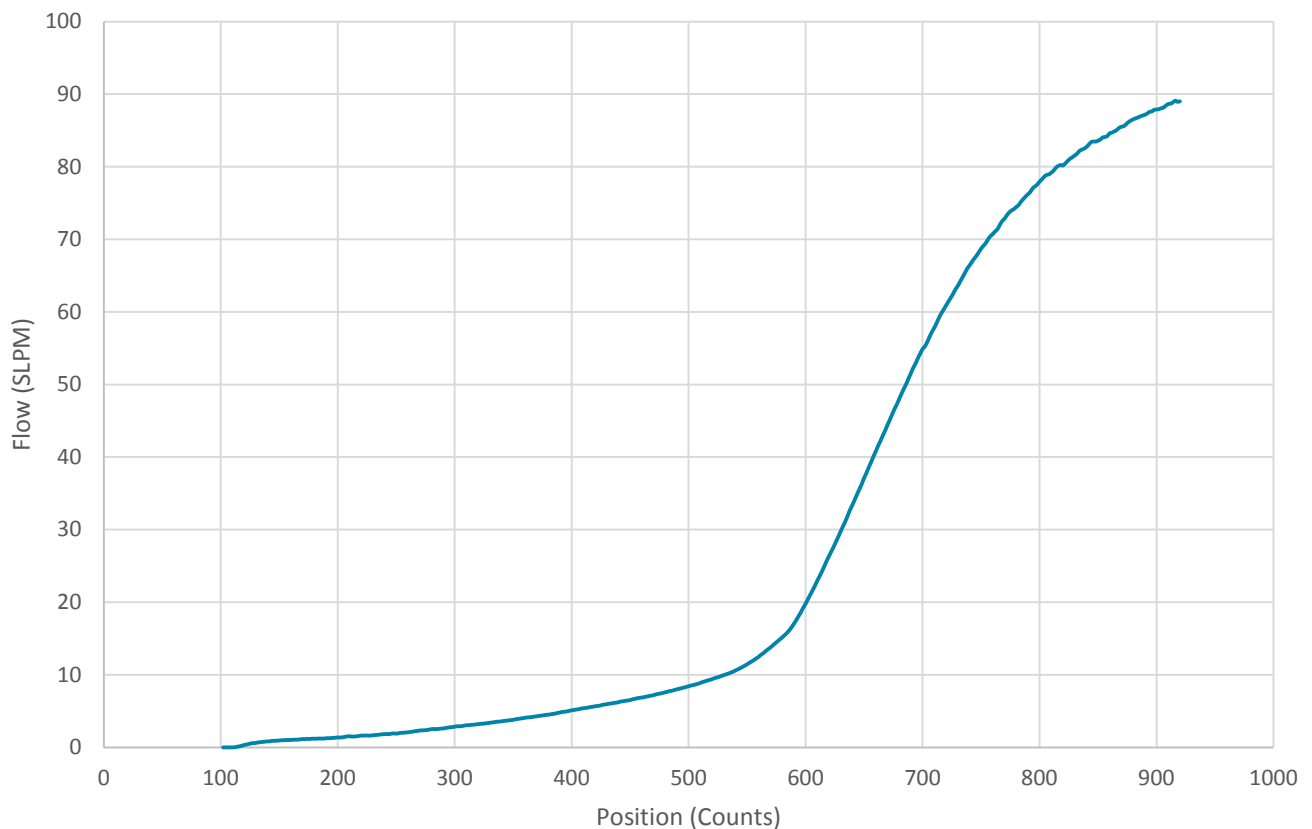
- Flow Rate Air:**
90 SLPM (5 cmH₂O \rightarrow 0 cmH₂O)
- Position Accuracy:**
 $\pm 0.5\%$ of Full Travel
- Life:**
 ≥ 15 Million Cycles
- Leakage:**
 ≤ 0.1 SLPM
- Response Time (10-90%):**
 ≤ 10 ms
- Bandwidth:**
30 Hz
- Maximum Pressure:**
150 cmH₂O (2.17 psig)

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The RCV Low Pressure High Flow Servo Valve has a specialized “bullet” shape to its poppet dividing its flow curve into two distinct regions. The first region, a low flow, high resolution area allows for precise regulation at minimal opening. As the valve enters the second region, the valve opens towards a maximum orifice of 75 mm². This enables larger flow rates to be achieved at minimal inlet pressures. Controlling the poppet is a on-board poppet position controller based on the valve’s servo feedback and position commands issued to the valves via an SPI communication protocol with the master device.

Flow vs. Position at 5 cm H₂O



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