



Hybrid Proportional Pinch Valve
HPPV-PS Series

Proportional Pinch Valves With Position Sensing

Applications

- Biopharmaceutical Manufacturing
- Biochemical/Bioprocess Engineering
- Bioreactors
- Dosage Systems
- Lab Analysis

Advantages

- 12x pinch force (50lbs.) of solenoid valve
- Tube O.D. size range:0.250"-0.500"
- Real-Time position feedback
- Non-Contact fluid metering
- Position memory after power loss



Resolution Air, Ltd. expands its innovative portfolio of patented Proportional Pinch Valves with their HPPV-PS Position Sensor Series. This advanced feature integrates a compact position sensor offering precise linear position feedback for critical fluid handling applications. Replacing traditional home sensors and encoder combinations, this technology provides a streamlined solution with numerous benefits for industries requiring precision, reliability, and continuous position feedback. As well as providing fluid metering, the HPPV-PS series generates 12x (50 lbs.) the pinch force of a typical solenoid pinch valve.

Proportional Pinch Valves with Position Sensing

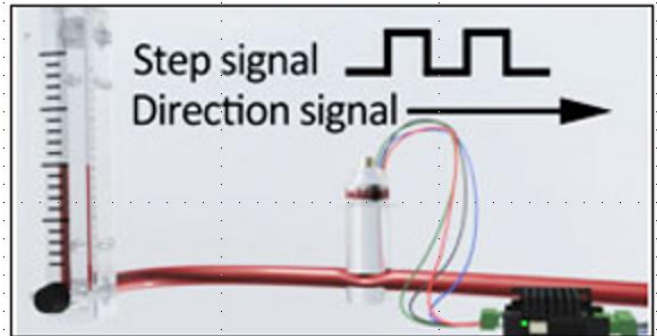
Resolution Air, Ltd. expands its innovative portfolio of patented Proportional Pinch Valves with their HPPV-PS Position Sensor Series. This advanced feature integrates a compact position sensor, offering precise linear position feedback for critical fluid handling applications. The new technology replaces traditional home sensors and encoder combinations, providing a streamlined solution with numerous benefits for industries requiring precision, reliability, and continuous position feedback.

Control Requirements

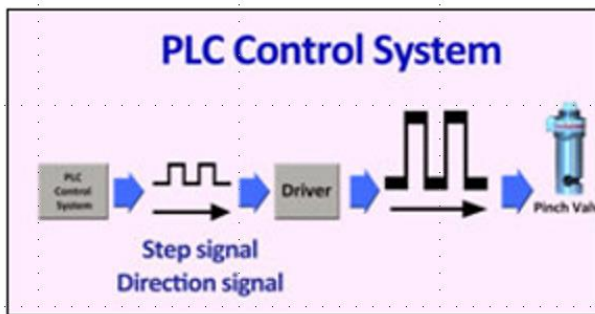
The bi-polar stepper motors used in the Resolution Air, Ltd. Proportional Pinch Valves require two input control signals, a step signal and a direction signal.

Step Signal- A pulse width modulated (PWM) signal. Each pulse generates a single step. For the MPPV-Series, a single step equates to 7.5 degrees of motor rotation (1.8 degrees for the HPPV-Series). Since the motor shaft is coupled to an integral leadscrew, this rotation translates into 0.0005”/step of linear motion.

Direction Signal- A digital binary signal which determines the clockwise/anti clockwise motor rotation.

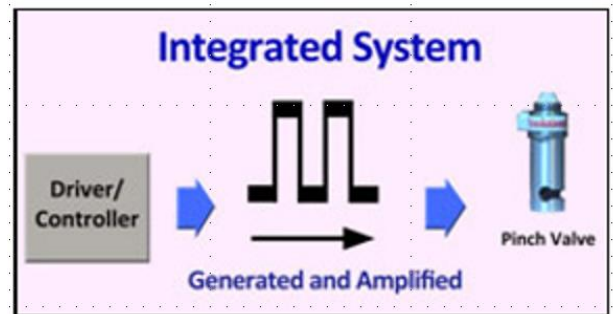


There are two primary methods for generating, sequencing, and amplifying the step and direction signals required for stepper motor control.



PLC Based Control System

Signals generated by a Programmable Logic Controller (PLC) are amplified and sequenced by a Bi-Polar Chopper Driver (DRV-1) to the level required to drive the Proportional Pinch Valve.



Bi-Polar Driver/Controller System

The Step and Direction signals are generated, sequenced, and amplified by a single control device known as a Bi-Polar Driver/Controller.

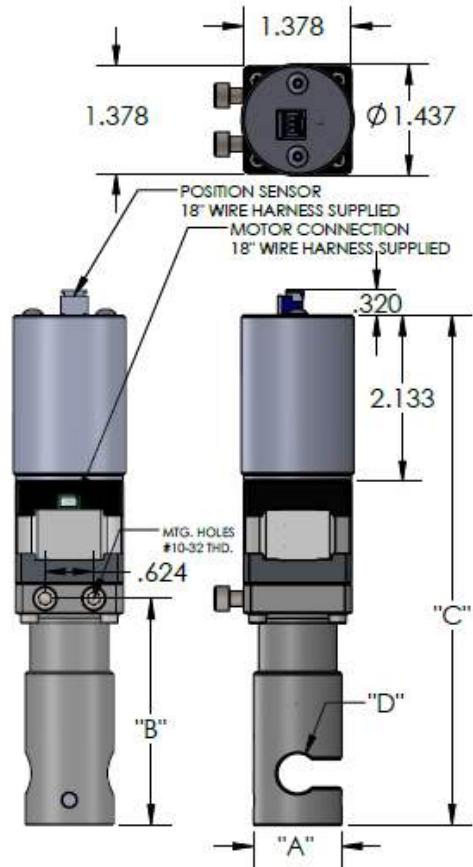


Hybrid Proportional Pinch Valve HPPV-PS Series

VALVE DIMENSIONS				
	Dim. A (in.)	Dim. B (in.)	Dim. C (in.)	Dim. D (in.)
HPPV-8-PS	1.125	2.902	6.535	0.500
HPPV-6-PS	0.937	2.549	6.182	0.375
HPPV-4-PS	0.937	2.400	6.032	0.250

POSITION SENSOR PERFORMANCE CHARACTERISTICS	
Supply Voltage	8-24 VDC
Output Smoothness	0.1% max. at 10" to 18" per minute
Backlash	0.003" maximum
Sensor Output	4-20 mA (2 wire)
Sensor Resolution	Essentially infinite
Valve Position Resolution	0.0005"/Full Step
Electrical Connection	18" Wire Harness included
POSITION SENSOR SETTINGS	
Piston Position	mA Value
Full Open-Hard Stop	4.00 mA.
Full Open-Top of Tube	
Full Travel-0.500"	20 mA

ELECTRICAL SPECS.: STEPPER MOTOR	
Wiring	BiPolar
Step Angle	7.5 Degrees
Motor Voltage *	5 VDC
Supply Voltage	24 VDC - 40 VDC
Current/Phase	.385 A Max
Resistance/Phase	13 Ω
Inductance/Phase	10.6 mH
Power Consumption	3.85 Watts
Rotor Inertia	1.07 gcm ²
Temperature Rise	135° F
Insulation Resistance	20 MΩ



Wiring Schematic Example

HPPV-PS + PLC + P.SUPPLY + BI-POLAR CHOPPER DRIVE

