

BP Proportional Valves

Digitally Modulated Proportional Valves



Typical Applications:

- Life Science
- Analytical Instrumentation
- Diagnostic Test Equipment
- Gas Controllers
- Semiconductor Processing
- Pressure & Flow Control

Parker's Fluid Control Division offers true proportional flow control for air and compatible gases with the BP Proportional Valve. The BP valve is an economical solenoid valve that can be used in open- or closed-loop systems to control flow, pressure, temperature, speed, or position parameters.

Product Features:

The BP combines a solenoid valve with electronics that digitally modulate the control signal to provide analog proportional control.

Parker's long-time use of a spider spring allows for linear proportional control, long life, and fast response times. The solenoid includes a non-contact plunger / sleeve assembly to create frictionless movement and ultra-low hysteresis.



Product Specifications

Mechanical

Valve Type:

2-Way Normally Closed

Media:

Air and gases compatible with valve materials

Porting:

1/8" NPT

Wetted Materials:

Stainless Steel and FKM

Electrical

Voltage:

12 - 24 VDC

Control Signal:

0 - 5 V

0 - 10 V

4 - 20 mA

Connections:

18" Leads

Red - DC Power Supply

Grey - Control Signal (+)

Black - Common

Power:

7 Watts (maximum)

Performance

Orifice sizes / Cv / MOPD:

1/32" (0.8mm) / 0.02 / 200 psi (13.4 bar)

3/64" (1.2mm) / 0.04 / 100 psi (6.9 bar)

1/16" (1.6mm) / 0.08 / 60 psi (4.1 bar)

5/64" (2.0mm) / 0.12 / 40 psi (2.8 bar)

Linear Control Range:

15 - 85% of full flow

Media Temperature Range:

0° to 180°F (-18° to 82°C)

Ambient Temperature Range:

14° to 122°F (-10° to 50°C)

Hysteresis:

10% of full flow (open loop)

Response Time:

40 msec (Full Cycle at 0 pressure)

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Standard Valve Part Numbers

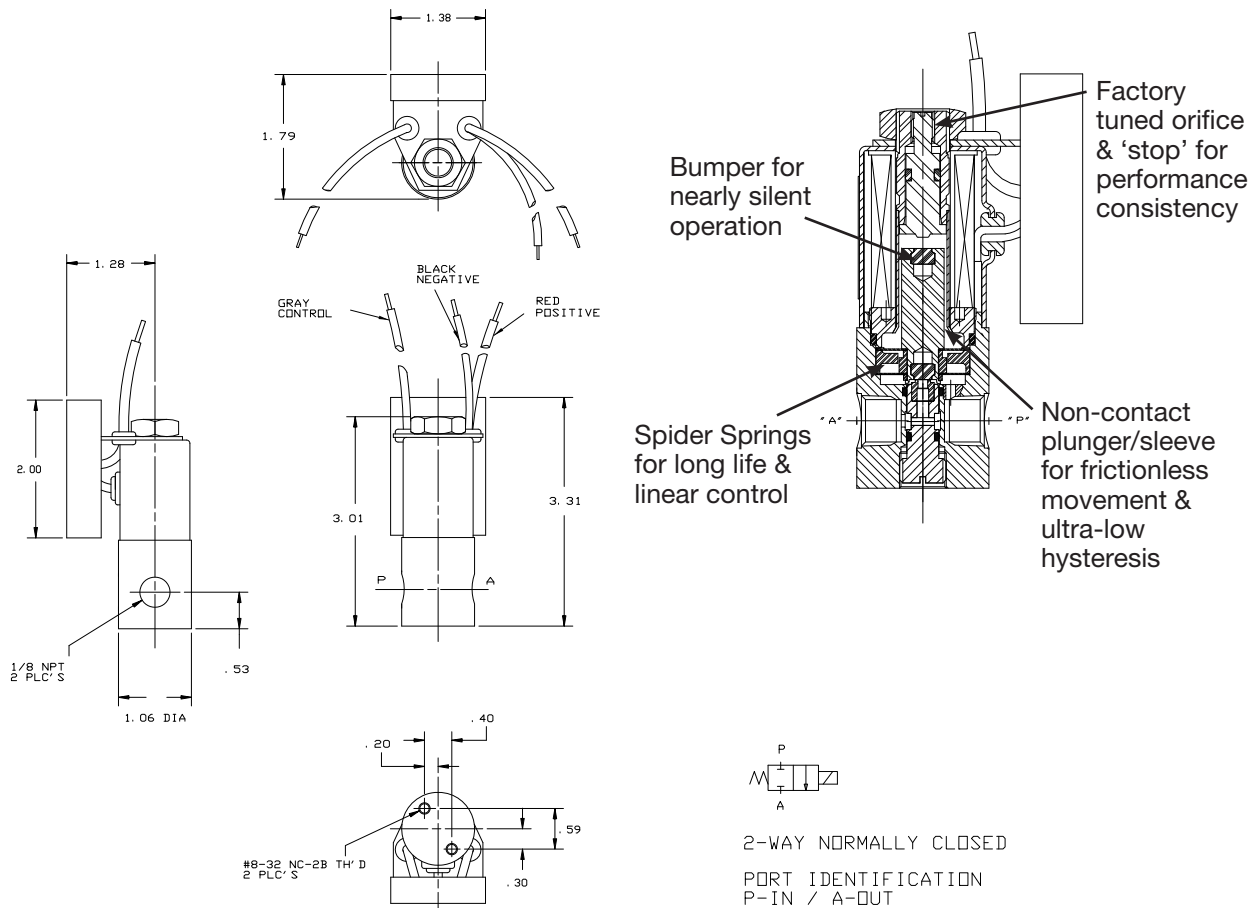
Port Size NPT	Orifice in	Flow Factor Cv	Operating Pressure Differential MOPD		Max Power Watts	Part Number		
			psi	bar		Input signal 0-5 V	Input Signal 0-10 V	Input Signal 4-20 mA
1/8"	1/32 (0.8mm)	0.02	200	13.4	7	BP2EV0012	BP2EV0013	BP2EV0029
1/8"	3/64 (1.2mm)	0.05	100	6.9	7	BP2EV0010	BP2EV0011	BP2EV0024
1/8"	1/16 (1.6mm)	0.08	60	4.1	7	BP2EV0005	BP2EV0009	BP2EV0020
1/8"	5/64 (2.0mm)	0.12	40	2.8	7	BP2EV0006	BP2EV0008	BP2EV0014

How to Order

Select valve Part Number from listing above – based on required performance and input signal.

Example: 1/8" NPT, 3/64" orifice, 0-10 V input signal = Part Number: **BP2EV0011**

Dimensions



Standard Cartridge Part Numbers

Operating Principle

The BP valve is an analog proportional device. The current supplied to the coil of the BP valve is digitally modulated by the electronic package. The mechanism which opens and closes the valve's flow orifice moves in a linear manner in response to the varying coil current. The amount that the orifice is opened is a function of the input signal to the valve. Benefits of analog control technology used in the BP valve include longer valve life, linear flow control, no pressure or flow spikes, faster response time, simplified control systems, and less power consumption.

Media Filtration

Filtration of air or gas lines is recommended to 40 micron. Install the filter on the inlet side

as close to the valve as possible. These valves have a non-contact plunger /sleeve design and are generally not sensitive to a small amount of foreign material, however, they do contain soft rubber inserts. Dirt or foreign material in the media may cause excessive leakage, excessive wear, or in exceptional cases, malfunction.

BP Valves in Closed-Loop Systems

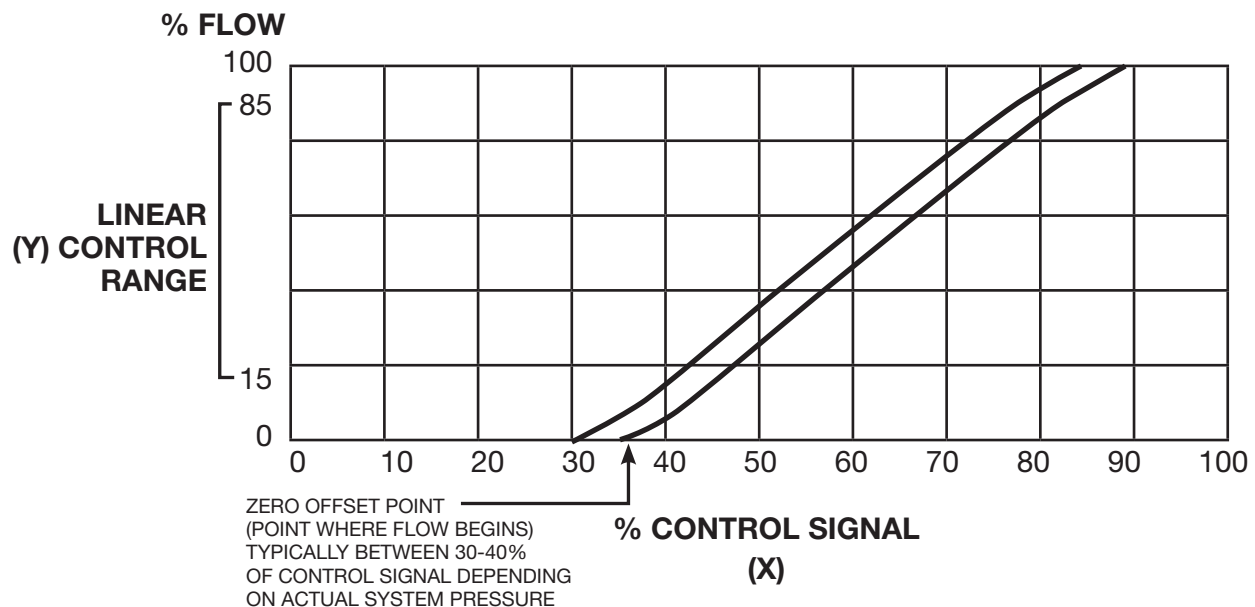
For applications requiring more precise control, closed-loop control systems are recommended. In closed-loop control, sensors provide system information (pressure, flow, temperature) to the controller, which then adjusts the input signal to the valve until the desired condition is reached. In such systems, measurements

of process parameters (provided by pressure, temperature and/or flow sensors) are compared to a desired set-point by a controller. If a discrepancy exists, the controller will change the input signal to the BP valve until the desired set point is achieved.

BP Valves in Open-Loop Systems

Non-critical applications can be controlled in an open-loop fashion. In open-loop control, the input signal to the valve is not coupled to feedback from the system. Under steady state conditions an input signal to the valve will open the orifice and produce a certain amount of flow. However, when system conditions change, such as pressure, the output of the valve will also change.

Proportional Valve Flow Curve



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Options and Accessories

3000 Series Solenoid Valves



A small solenoid with BIG potential! The 3000 Series valves are available in brass or stainless steel and measures only 1 inch in diameter. The 3000 is ideal for a variety of markets where performance is required in small spaces.

Please consult our 3000 Series Bulletin 3SV1014, available at www.parker.com/fcd.

204 Series Valves and Manifolds



Enhance system integrity with cost effective, manifolded solenoid valves. Simplify valve installation while reducing total purchasing, installation, and testing costs. Many offerings available in stainless steel and aluminum.

Please consult our Solenoid Valve Manifold Bulletin SVM1014, available at www.parker.com/fcd.

Media Isolated Valves



Media Isolated Valves (or dry operator valves) have been specially designed for non-contaminating and corrosive applications. Available in Stainless Steel, PTFE, and Noryl™, the valves assure absolute purity and inertness to corrosion when used with a broad range of fluids.

Please consult our Media Isolated Solenoid Valve Bulletin MIV0215, available at www.parker.com/fcd.

FCD Express



Need a valve quickly? The **Fluid Control Express** offers valves and coils shipped next day! Hundreds of valve and coil options provide for thousands of combinations, including 2-, 3- & 4-Way flow patterns and 5 voltages.

Repair Kits are available for many valve designs in the **Fluid Control Express**. New products are being added to the Express program on a regular basis.

Please consult our Fluid Control Express Catalog FCDEXP0912, available at www.parker.com/fcd.