

ProControl™ Proportional Valves

PV3 & PV10 Series



Humphrey's ProControl™ proportional valves deliver variable flow control of compressed air or inert gas. Offered inline or manifold mount, miniature PV3 and PV10 series feature low hysteresis, excellent turn down ratios and repeatability. The design is flexible and, in certain applications, may be tailored at factory to meet unique requirements.

FEATURES

- Low hysteresis
- Excellent resolution
- Low power consumption
- Compact construction
- Up to 75 SLPM flow
- 2-PIN connector provided

USES

- Anesthesia gas delivery
- Oxygen delivery
- Sensor calibration
- Gas chromatography
- Pressure control via dump circuit
- Medical support equipment
- Industrial control circuit
- Inducing or mixing gases

INSTALLATION

- Installation instructions can be found in our online catalog in the Documentation section of each model's product detail page.



PV3P
2-Port, Inline

PV10PM
2-Port, Manifold Mount

ProControl™ Valve Family



Miniature,
2-Port
PV3, PV10

Small, 2-Port
PC30

Large, 2-Port
BALANCED
SERVOID

PCD
PROPORTIONAL
VALVE DRIVER



How to Order

ProControl™ Proportional Valves || PV3 & PV10 Series



MODEL

PV3
PV10

BODY

P: Inline
PM: Manifold
EP: Metric Inline

VOLTS

12: 12VDC
24: 24VDC

ORIFICE SIZE

032: 0.032" [0.8] (PV3)
080: 0.080" [2] (PV10)

MAXIMUM

PRESSURE SETTING

25: 25 PSI (1.7 bar) **75:** 75 PSI (5.2 bar)
50: 50 PSI (3.4 bar) **A0:** 100 PSI (6.9 bar)

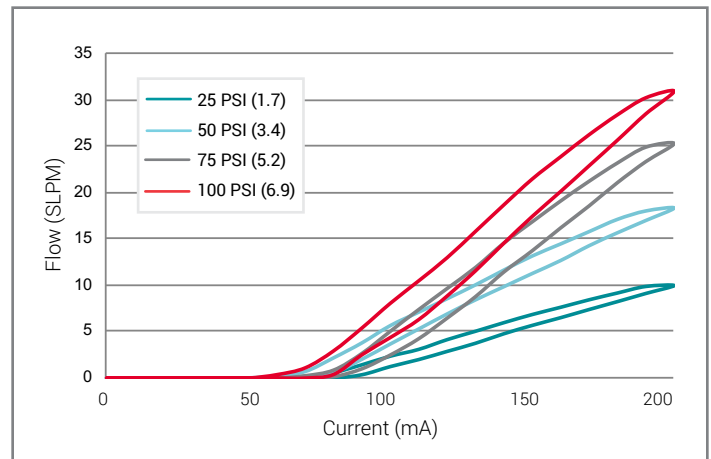
ORDER EXAMPLE

PV3PM12032A0

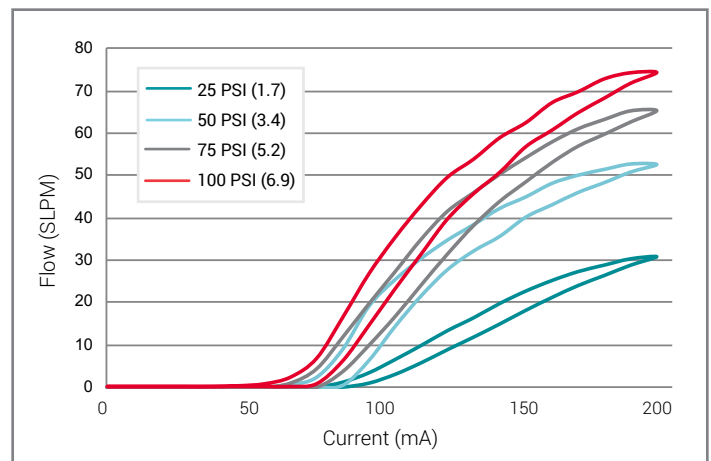
ProControl™ Proportional Valves PV3 & PV10 Series

SPECIFICATIONS	PV3	PV10
TYPE OF OPERATION	Direct Solenoid	
FUNCTION	2-Way, Normally Closed	
MEDIA	Air, Inert Gas	
MOUNTING	Refer to Manifold Mount drawing below.	
PRESSURE SETTINGS - PSI (BAR)	25 (1.7), 50 (3.4), 75 (5.2), 100 (6.9)	
HYSTERESIS (TYP)	8%	
MAXIMUM FLOW (TYP)	30 SLPM	75 SLPM
AMBIENT TEMPERATURE	32-125° F (0-52° C)	
POWER CONSUMPTION (WATTS)		
AT RATED CURRENT	2	4
MAXIMUM	2.4	4.8
NORMAL RESISTANCE (OHMS)		
12V MODEL @72°F (22°C)	50	25
24V MODEL @72°F (22°C)	200	100
OPERATING CURRENT RANGE		
12V MODEL (MA)	0-200	0-400
24V MODEL (MA)	0-100	0-200
WETTED MATERIALS	ENP Brass, SST, Nickel plated, FKM	
ELECTRICAL ENTRY – PLUG-IN	ZHR-3 connector, 26 AWG x 18" wire supplied. Positions 1 & 3 are used.	
WEIGHT – OZ (GRAMS)	3 (93)	
COMPLIANCE	RoHS, REACH	

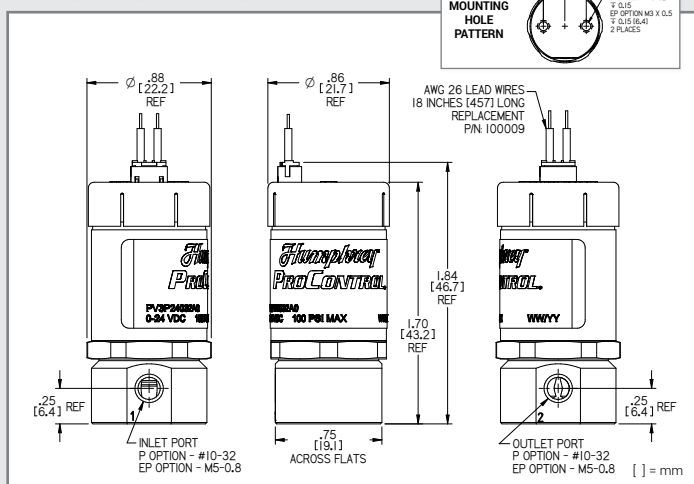
PV3 12V OPTIMIZED FOR FLOW VS CURRENT



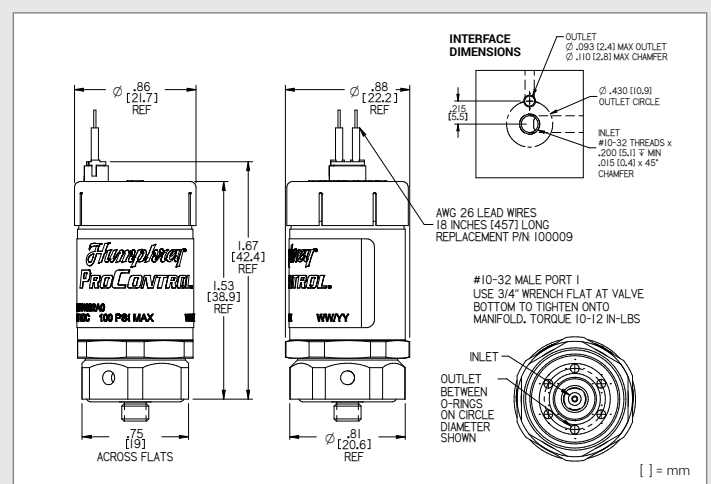
PV10 24V OPTIMIZED FOR FLOW VS CURRENT



INLINE DIMENSIONAL DRAWINGS



MANIFOLD MOUNT DIMENSIONAL DRAWINGS



Certified: ISO 9001:2015



ProControl™ Products & Services Guide Proportional Flow Solutions



May We Help You? The ProControl™ Way

Proportional Control Solenoid Valves can be an excellent addition to any device or equipment, offering flexibility, precise flow control, and economy not available from ON/OFF solenoid valve systems. Finalizing your proportional control valve can be rather complex, particularly in critical or precision applications. A number of factors and conditions should be captured early in the specifying and testing process.

Our application specialists can guide you quickly to the best proportional control solution. Here's how:

STEP 1: DISCOVERY. We'll listen and learn your application parameters and expectations on valve performance. We'll suggest a product to test.

STEP 2: EVALUATE. Specialist remains available through valve testing, and can assist with set up issues and questions on proper valve assessment.

STEP 3: FINALIZE. Compressible fluid includes variables and initial testing may or may not require optimization. Your specialist knows what can be done and how to adjust valve performance.

BOTTOM LINE: Humphrey can help. Reach out to our specialists and streamline your understanding and use of proportional valve control ... **The ProControl™ Way**

CONTACT PROCONTROL™ APPLICATION SPECIALISTS:

Toll Free 1.844.447.9009

procontrolway@humphrey-products.com



Humphrey®

ProControl™ Series Proportional Flow Solutions

All ProControl™ valves feature low hysteresis, excellent repeatability, high turndown ratios for better resolution, fast response times, tight sealing and design flexibility. Our standard valves are calibrated for specific lift-off points and peak flows for optimal performance and repeatability valve to valve. Each valve may be tailored to your particular requirement.

MINIATURE – 2-port **PV3** and **PV10** Series; 10-32 UNF ports; Select from standard* pressure calibration settings of 25, 50, 75 and 100 PSI.

SMALL – Rugged 2-port **PC30** Series; 1/4 PIPE ports; Select from standard* pressure calibration settings of 25, 50 and 100 PSI.

HIGH FLOW, SERVOID SERIES – Features perfected cartridge style, flat spring armature, achieving unmatched precise control to high flows. Long history of reliability in hospital critical care patient ventilation systems. The flexible design of the balanced servoid allows custom calibration for optimal performance and resolution in your application.

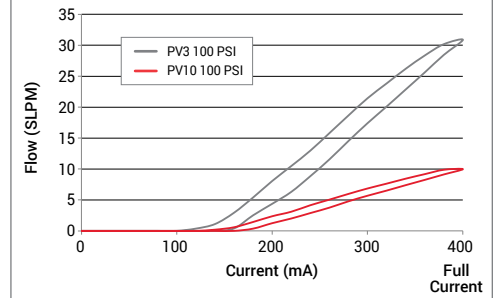
*Contact a ProControl™ specialist for custom pressures.



PV10

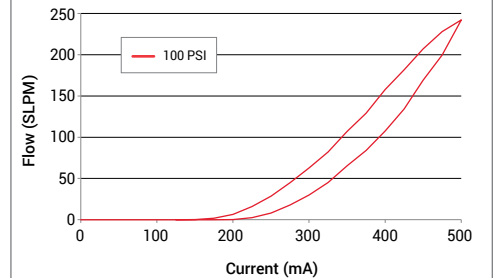
PV3

PV3-PV10 | Flow vs Current



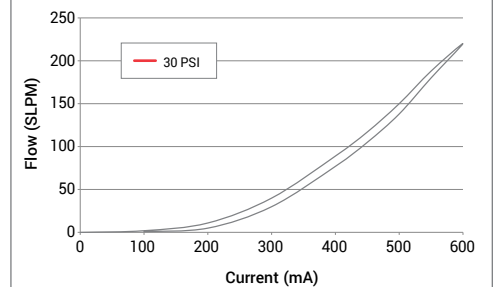
PC30

PC30 | Flow vs Current



Balanced Servoid

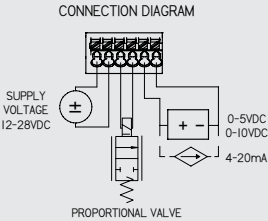
BALANCED SERVOID | Flow vs Current



SPECIFICATIONS	PV3	PV10	PC30	BALANCED SERVOID
MEDIA	Air, Inert Gas			
SIZE (H X DIA)	1.62 x 0.88		3.27 x 1.82	5.03 x 2.0
MAX FLOW CAPACITY (SLPM)	30	75	225	200
MAX CURRENT (MA)	12V: 200 24V: 100	12V: 400 24V: 200	10V: 525 20V: 285	600
MAX POWER CONSUMPTION (WATTS)	2.4	4.8	7.7	8.0
PRESSURE SETTING (PSI)	100 MAX			11

Standard valves may be custom configured to your application. Consult factory.

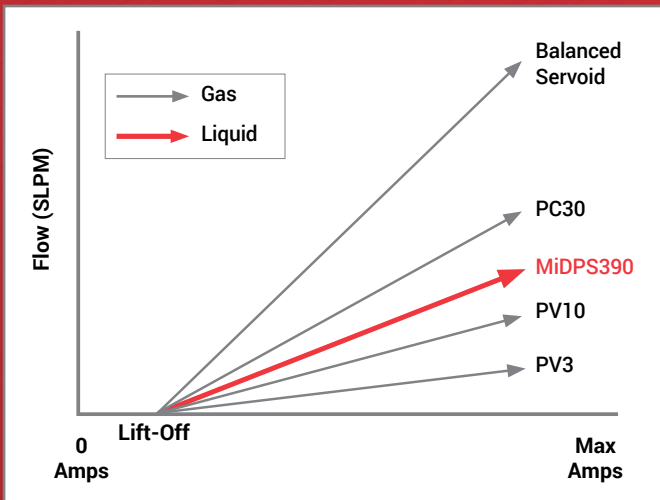
ProControl™ Series PCD Proportional Valve Driver



Conveniently produces appropriate electrical control to drive any proportional valve of 1 amp or less via PWM or constant current. For such control, the PCD can receive a signal from various data acquisition sources or manually via navigation buttons.

- LCD screen
- Push-button wire connection
- User friendly with a range of both input and output options.
- Easy transition from manual mode to DAQ controlled.
- Simple design with no jumpers or pots to adjust.
- Instructions included.

ProControl™ Series Valve Products – Range



ProControl™ Series MiDP Stepper Proportional Valves

Variable flow control of aggressive liquid and gases with exceptional repeatability and low power consumption.

Safely isolated from media is Humphrey's stepper motor operator delivering exceptional hysteresis and performance.

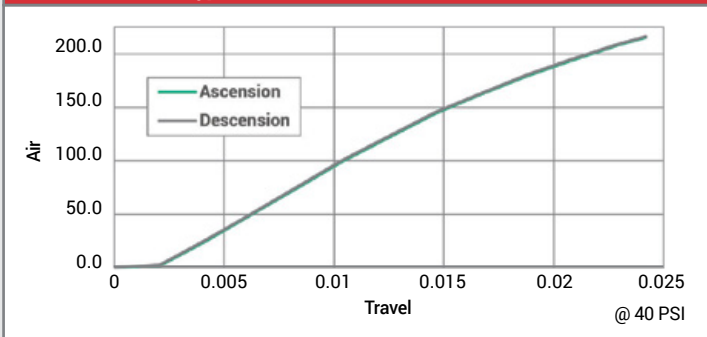


S390
2-Port
Inline, Direct Piping

S391
2-Port
Manifold Mount

SPECIFICATIONS	S390, S391
TYPE OF OPERATION	Stepper Motor, Media Isolated
MEDIA	Aggressive Liquid or Gases
SIZE (H X D X W)	3.29 x 1.21 x 1.21
PRESSURE RANGE – PSI (BAR)	0 - 60 (0 - 4.1)
TYPICAL HYSTERESIS	< 2%
TYPICAL FLOW RANGE (0.150" ORIFICE)	0-8.5 SLPM Water / 0-325 SLPM Air @ 60 PSI
POWER CONSUMPTION (WATTS)	2.6 MAX

MiDP S390/S391 | Typical Flow vs. Stroke 0.150" Orifice



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Humphrey

ProControl™

MODEL: PV3P12032A0

TYPICAL PERFORMANCE

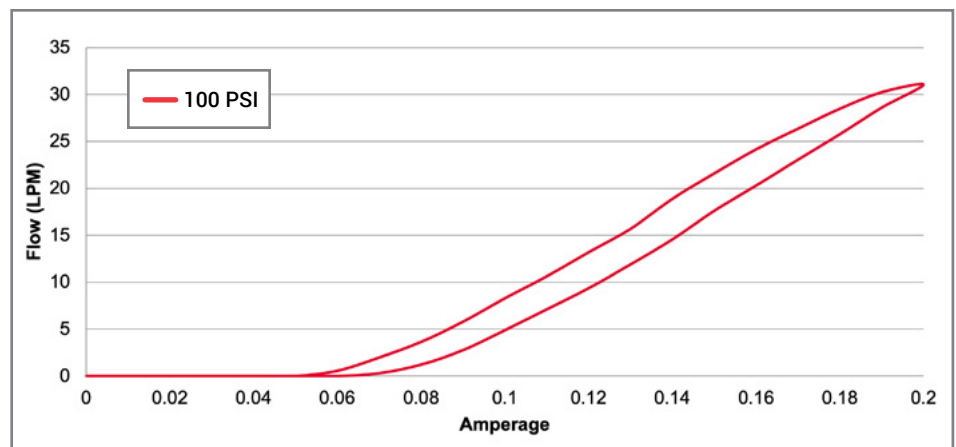
CONNECTIONS

Pneumatic	10-32 UNF ports
Electrical	18" Lead Wires (red)
Mounting	#6-32 x 0.25" Dp (2x)

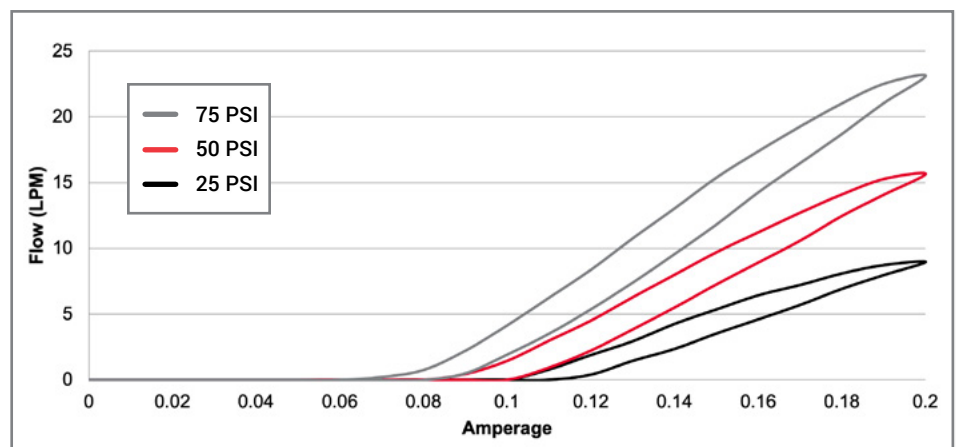
FEATURES

- Each ProControl™ Valve is tested for unactuated seat leakage not to exceed 2ccm at rated pressure (Port 1 > Port 2).
- Typical hysteresis is 8% or less and measured from ascension and descension of current at a given flow point.
- Control flow with direct current to 200mA or with PWM. For best results, we recommend PWM of 5k Hz or greater.
- When testing and evaluating proportional valves, consider the Humphrey Valve Driver, model PCD. PCD accepts a 4-20mA, 0-5VDC or 0-10VDC signal and drives the proportional valve accordingly.
- PV3P12032A0 may be calibrated to specific customer parameters in some applications. Contact an application specialist for details (below).
- For additional assistance in understanding, selecting and using proportional control valves, contact a Humphrey application specialist at:
1-844-447-9009
procontrolway@humphrey-products.com

Graph depicts typical performance of Humphrey Proportional Valve Model PV3P12032A0 using a stabilized upstream pressure of 100 PSI, filtered air, at Port 1 and amperage of 0-200mA. Performance is repeatable for millions of cycles. If pressure or current exceed maximum recommended values, performance may be compromised.



Calibrated with stabilized upstream pressure of 100 PSI to a flow of 30 SLPM @ 200mA.



PV3P12032A0 will have precision control but less flow when upstream pressure is lower than 100 PSI. Typical curves with stabilized upstream pressures of 25, 50 and 75 PSI are shown.

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ACCESS ONLINE CATALOG

Obtain 3D CAD Download, CAD Viewer,
2D Dimensional Drawings, Product Images,
DataSheet PDFs, Product Accessories

Certified: ISO 9001:2015

ProControl™ PV3 & PV10 Series Inline Body Type

Humphrey®

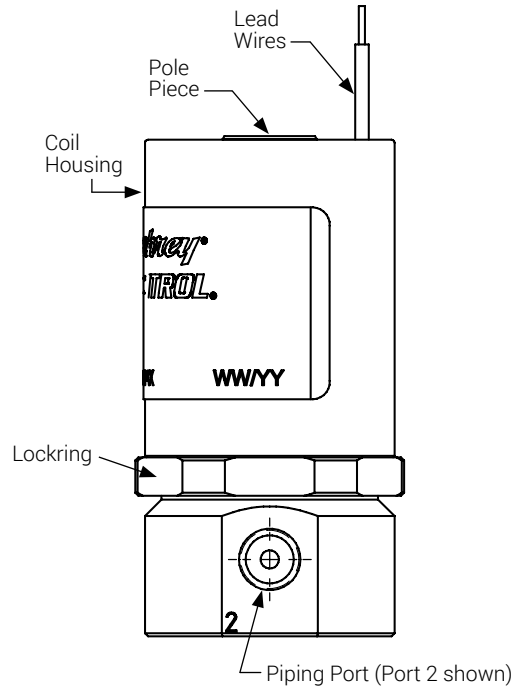
Installation & Handling Instructions

INSTALLATION

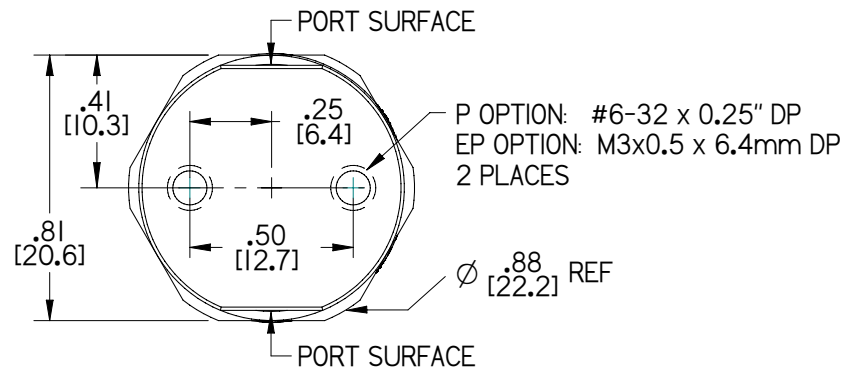
- Valve is designed to operate with pressurized gas media piped to Inlet port, labeled 1 on valve body. Outlet port is labeled 2.
- Port thread for option P: 10-32 UNF
- Port thread for option EP: M5x0.8
- Using clean compressed air, blow out fittings and tubing, removing any chips or debris, which can cause valve malfunction or failure.
- Fittings are not included. Follow fitting manufacturer's installation and torque specifications to ensure appropriate connection.
- Valve may be mounted in any orientation. Secure valve to equipment using valve's mounting holes. Mounting hole pattern relative to piping port surfaces is shown in drawing at right.
- When mounting to equipment, do not tamper with valve's Lockring or Coil Housing.
- Terminate lead wires appropriately. Valve is polarity neutral.

HANDLING

- Do not adjust (loosen, tighten) Lockring or screwdriver slot of the Pole Piece. See drawing. Otherwise, valve will malfunction.
- Do not handle (carry) valve using its lead wires. Do not pull lead wires excessively. Otherwise, valve may malfunction, or fail to operate.
- Valve will function using vacuum as media. For best results with vacuum, connect source to outlet port (2). Consult factory for details.



MOUNTING HOLE PATTERN



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