EQV SERIES

PROPORTIONAL PINCH VALVES

The EQV series of proportional pinch valves controls the flow rate of a liquid or gas passing through a tube by squeezing from the outside, providing complete media isolation. This makes the EQV series ideal for control of hygienic, high-purity, sanitary, and corrosive liquids and gases.

To squeeze and relax the tubing, a high force stepper motor, actuates in both directions providing repeatable, consistent flow - ideal for pharmaceutical, bio-tech, semiconductor, life science, and food & dairy applications.

KEY ADVANTAGES

* FULL MEDIA SEPERATION

A flow control solution that provides complete media separation. The liquid or gas never comes in contact with valve. The only wetted material is the tubing itself.

* SIMPLIFIED FLOW PATH

By increasing or decreasing the force on the outside of the tube to meter flow, the media never has to enter the valve. This reduces pressure drops and eliminates changes in flow direction

* EASY TO CLEAN

Because the tubing is the only material in contact with the media, the system become easy to maintain. In applications which require periodic cleaning, tubing can easily be flushed or replaced.

* ZERO DEAD VOLUME

Without re-directing the media through the valve, the EQV series has zero dead volume. This helps prevent bacteria growth and increases measurement accuracy.

* REPEATABLE

Driven by a high force linear stepper motor, the EQV series of proportional pinch valves delivers repeatable, consistent flow in response to a command input.

* HIGH RESOLUTION

0.2% resolution allows the EQV series to make minute flow adjustments in response to very small changes in command input, providing excellent controllability.

ENFIELD® TECHNOLOGIES

MECHANICAL SPECIFICATIONS

Valve Type:
2-Way Proportional

Gating Element:
Pinched tube

Actuation Method:
Stepper Motor

Environmental Protection Class:
IP52

Mounting:
Through-hole (with optional mounting bracket)

Operating Temperature:
0...80C (32...176F)

Electrical Connector:
JST B4B-ZR(LF)(SN)

Compatible Drivers:
See Page 8.

Media:
Liquids & gases compatible with user selected tubing

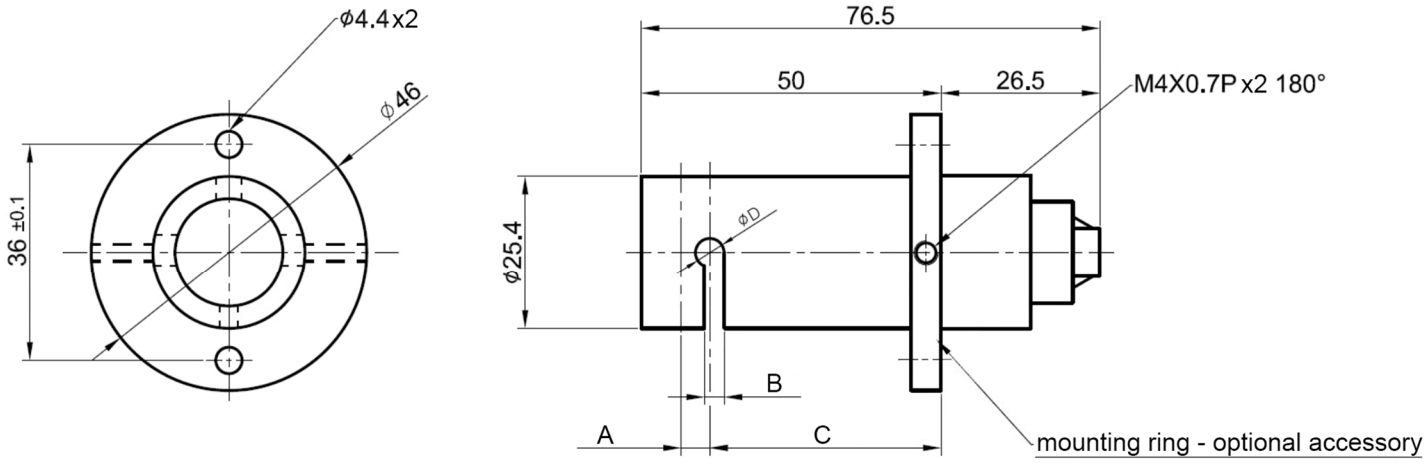
Compatible Tubing:
50-75 Shore A Hardness

	Units	EQV-0048	EQV-0060	EQV-0080
Tubing Size (OD)	Mm (in)	4.8 (3/16”)	6.0 (1/4”)	8.0 (5/16”)

MECHANICAL COMPONENTS INCLUDED

1. Proportional Pinch Valve
2. Mounting Ring
3. Tubing (see page 4)
4. Fittings (see page 4)

DIMENSIONS



	A	B	C	D
EQV-0048	4.75	3.3	38.6	4.8
EQV-0060	5.35	5.0	40.2	6.0
EQV-0080	6.35	6.0	41.2	8.0

ORDER CODES, FITTINGS, AND TUBING

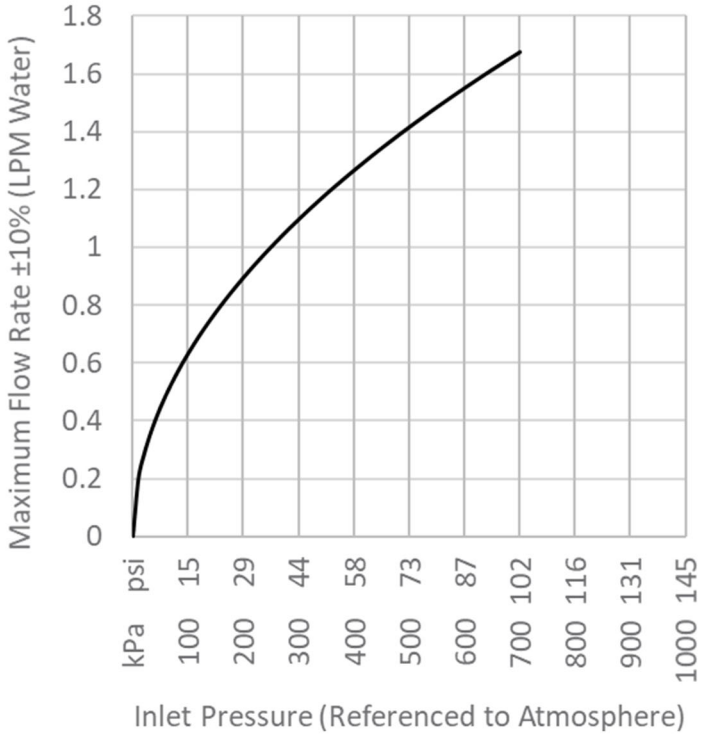
Order Code	Fittings Included	Tubing Included	Max Pressure	Max Flow Air (slpm)	Max Flow Water (lpm)
EQV-0048-002	https://www.mcmaster.com/5116K115/	https://www.mcmaster.com/6516T62/	7 bar (101.5 psi)	79	1.7
EQV-0060-002	https://www.mcmaster.com/5116K118/	https://www.mcmaster.com/3902N286/	8 bar (116 psi)	165	2.7
EQV-0080-002	https://www.mcmaster.com/5121K331/	https://www.mcmaster.com/3902N291/	6.5 bar (94 psi)	238	6
EQV-0080-003	https://www.mcmaster.com/5121K381/	https://www.mcmaster.com/6516T18/	3 bar (43.5 psi)	328	7.8

All tubings listed are made of Tygon PVC. All fittings listed are made of Polypropylene Plastic

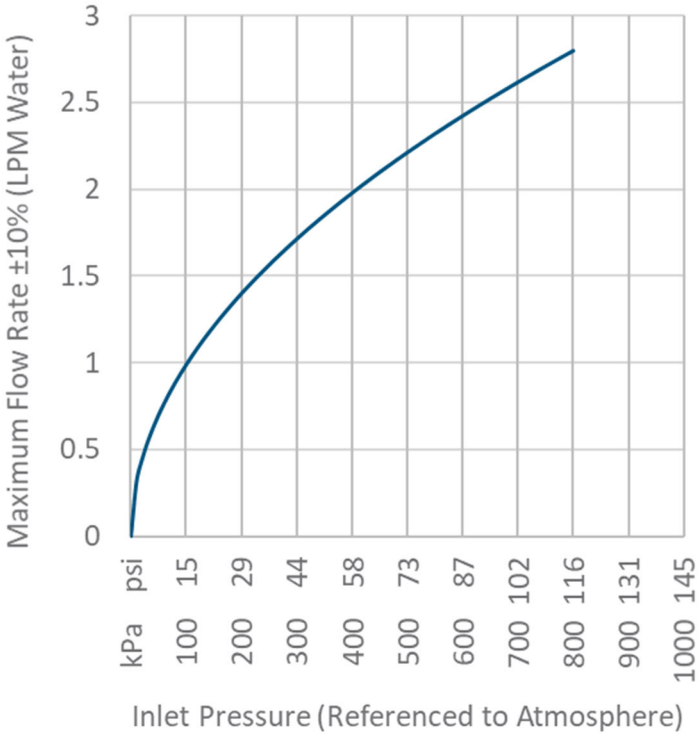
The tubing and fitting options above are selected to cover a broad range of applications. However certain applications may require different fittings and/or tubing and will require testing/re-configuration of the drive electronics to achieve maximum performance. For additional tubing or fitting options, please contact Enfield Technologies.

MAX FLOW VS. INLET PRESSURE (WATER)

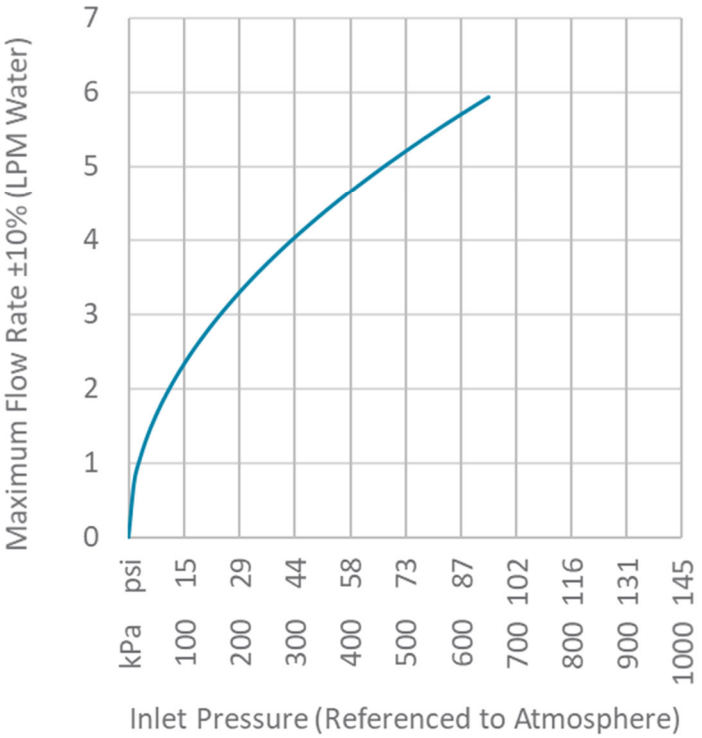
EQV-0048-002 Maximum Flow (Water)



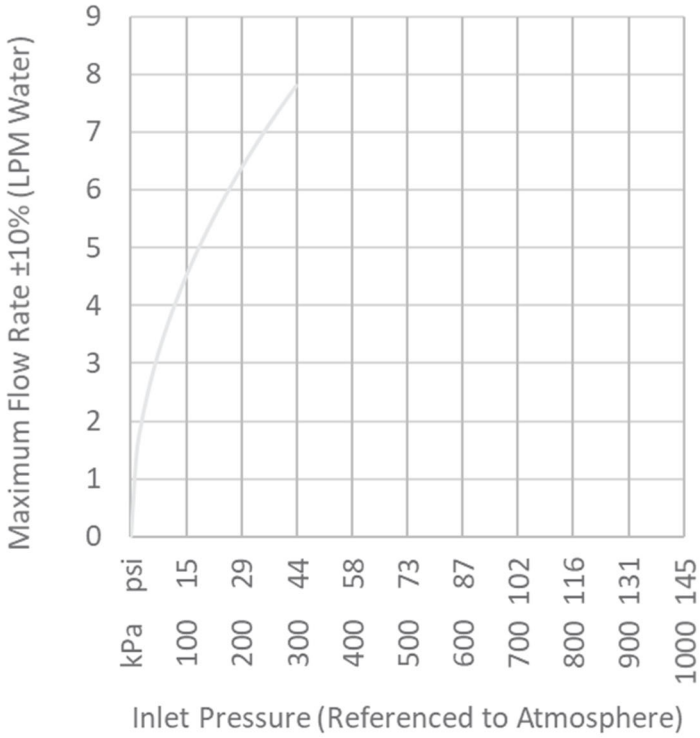
EQV-0060-002 Maximum Flow (Water)



EQV-0080-002 Maximum Flow (Water)

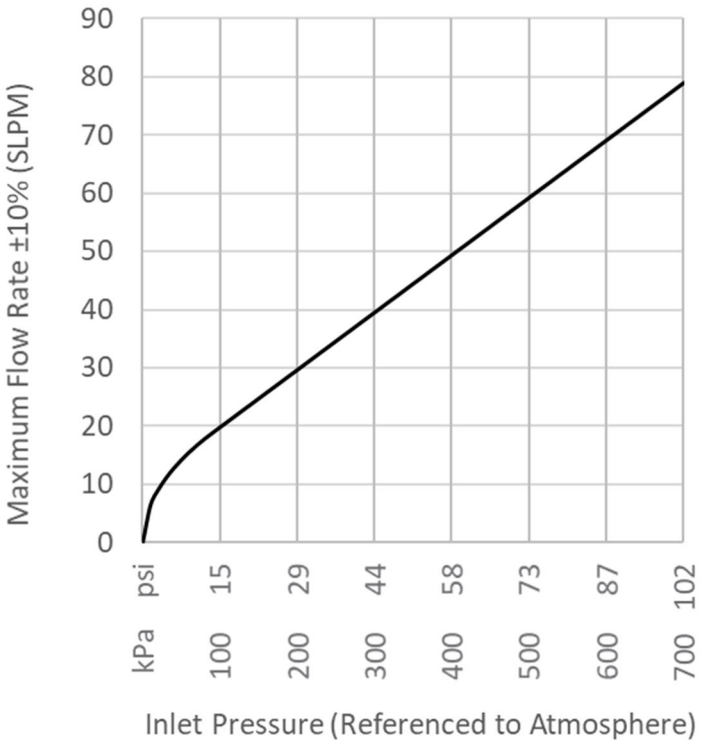


EQV-0080-003 Maximum Flow (Water)

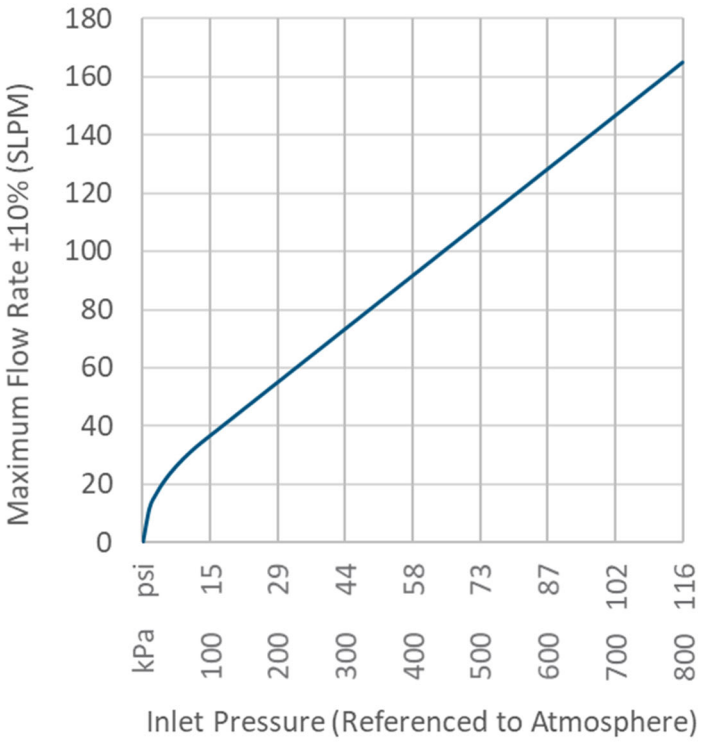


MAX FLOW VS. INLET PRESSURE (AIR)

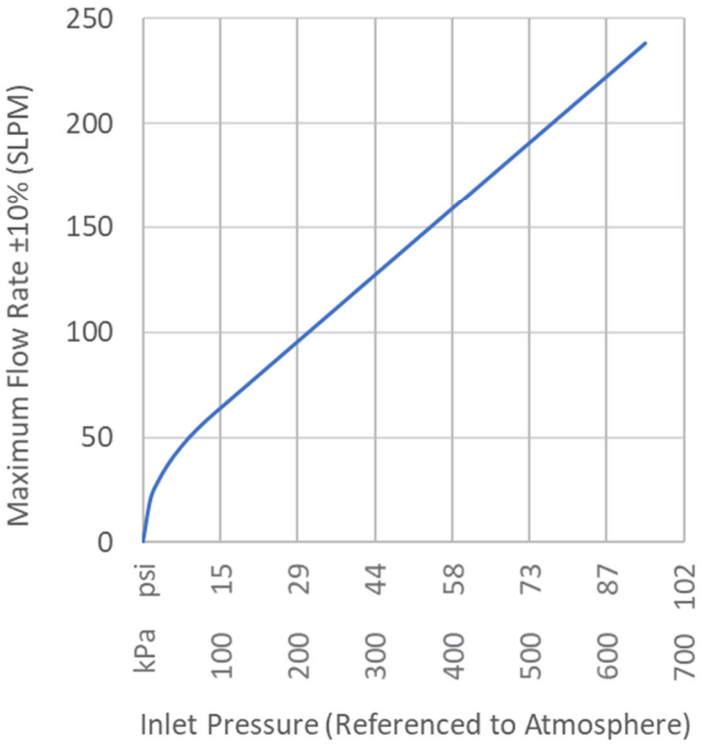
EQV-0048-002 Maximum Flow Rate (Air)



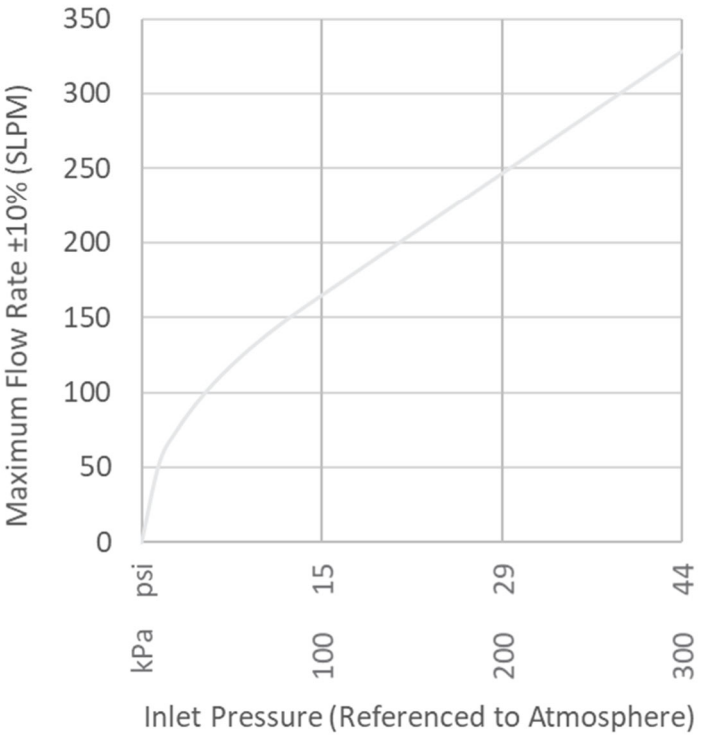
EQV-0060-002 Maximum Flow Rate (Air)



EQV-0080-002 Maximum Flow Rate (Air)



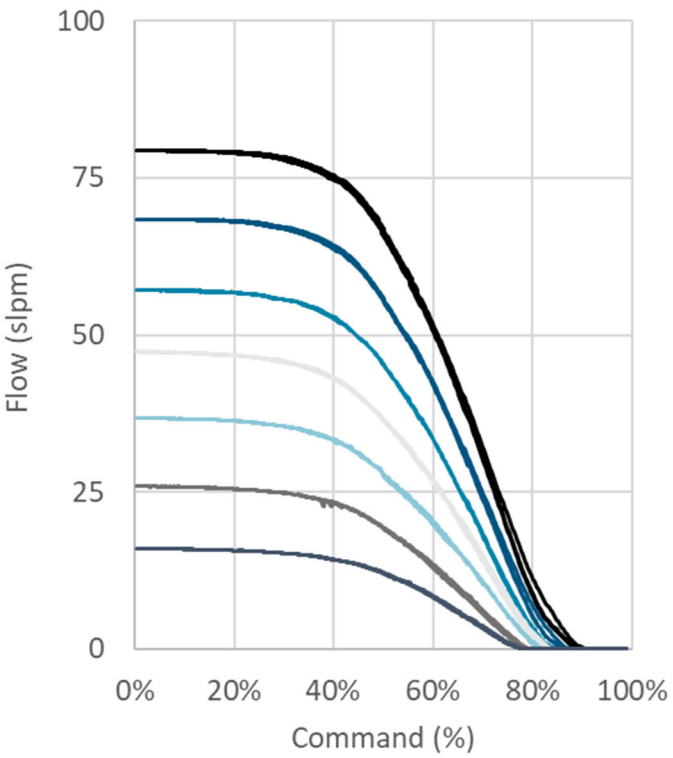
EQV-0080-003 Maximum Flow Rate (Air)



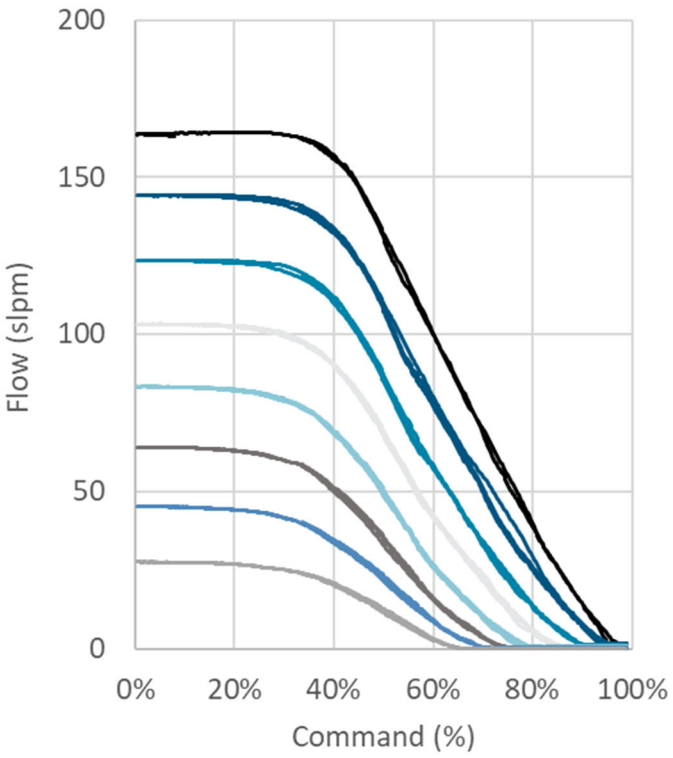
FLOW VS. COMMAND INPUT

Tested with air, 100 kPa (14.5 psi) inlet pressure increments, atm on exhaust, 500 mm (20”) length of tubing

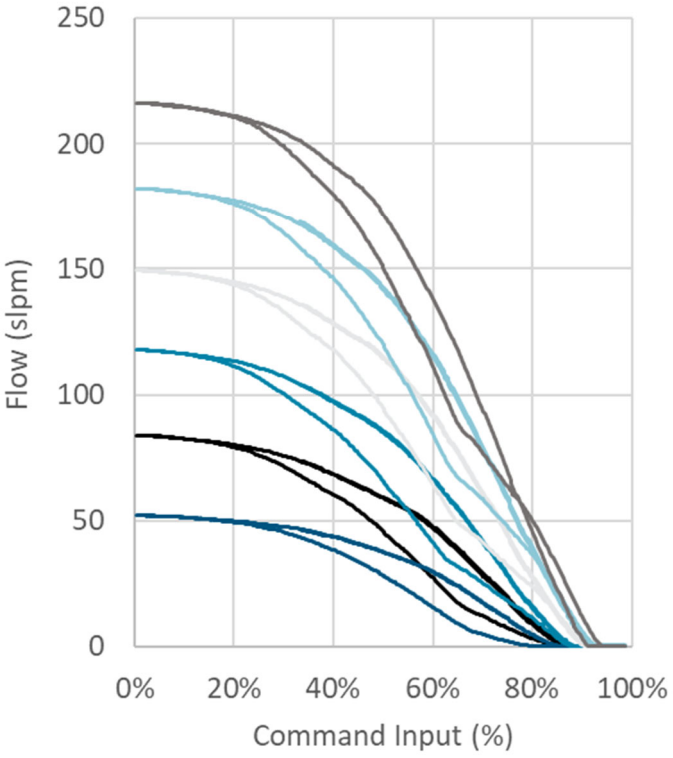
EQV-0048-002



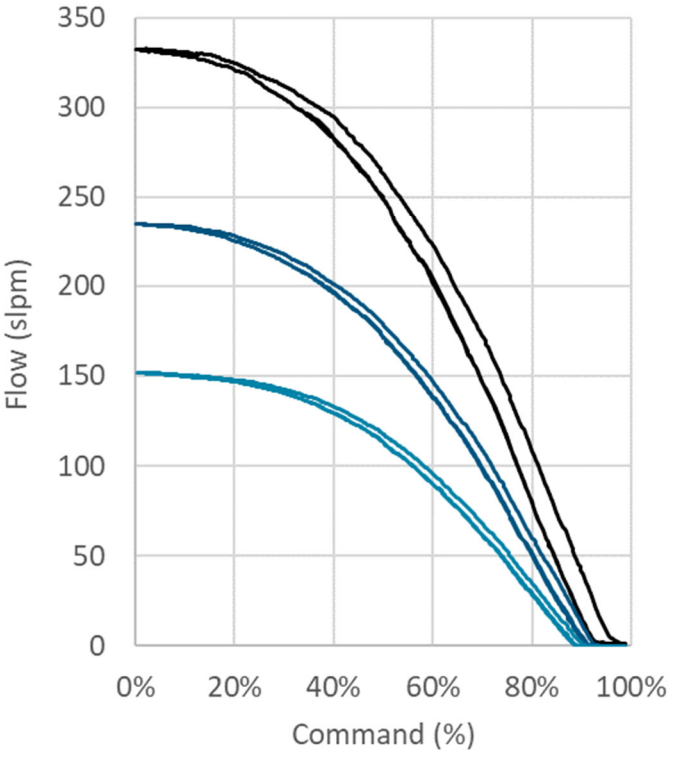
EQV-0060-002



EQV-0080-002



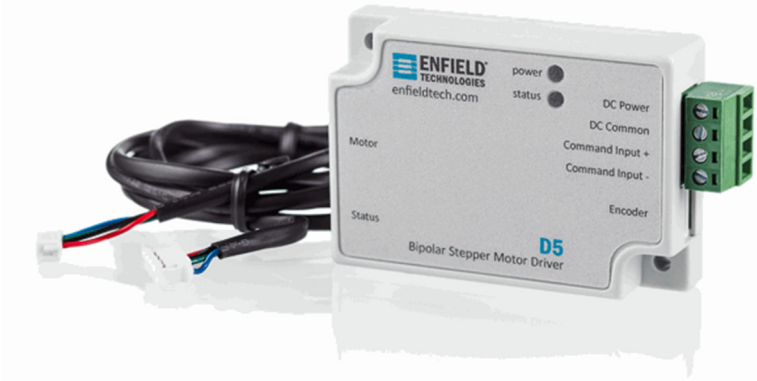
EQV-0080-003



RECOMMENDED DRIVERS

The D5 series of bipolar stepper motor drivers maximizes the performance of the EQV series of stepper valves by taking a 0...10Vdc command input and providing a step and direction output to the valve. Drivers gains and settings are optimized for the fittings and tubing selected to provide maximum resolution over the travel of the valve. For customizing a driver for specific tubing or fitting options, please contact Enfield Technologies.

Pinch Valve	Compatible Driver
EQV-0048-002	D5-14-U01-002
EQV-0060-002	D5-16-U01-002
EQV-0080-002	D5-18-U01-002
EQV-0080-003	D5-18-U01-003



ELECTRICAL SPECIFICATIONS

Power Requirement:
24Vdc

Power Consumption:
1.9 W—Maintaining Position
3.8 W—Changing Position

Maximum Power Consumption:
12W

Command Resolution:
0.03 Vdc

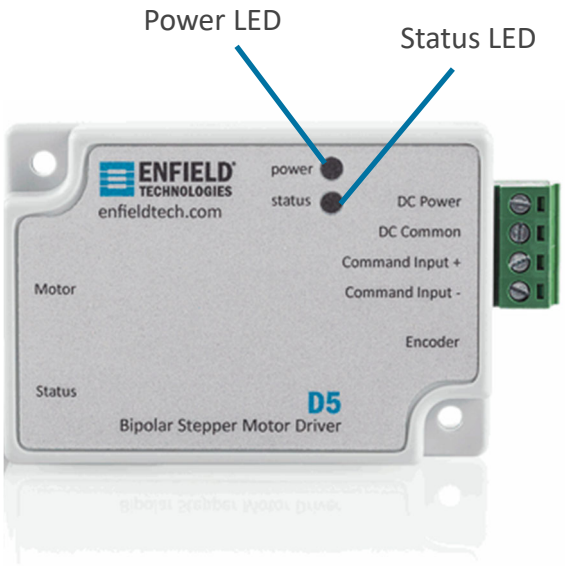
Ambient Temperature:
0...60C (32...140F)

Output:
Step and direction to valve

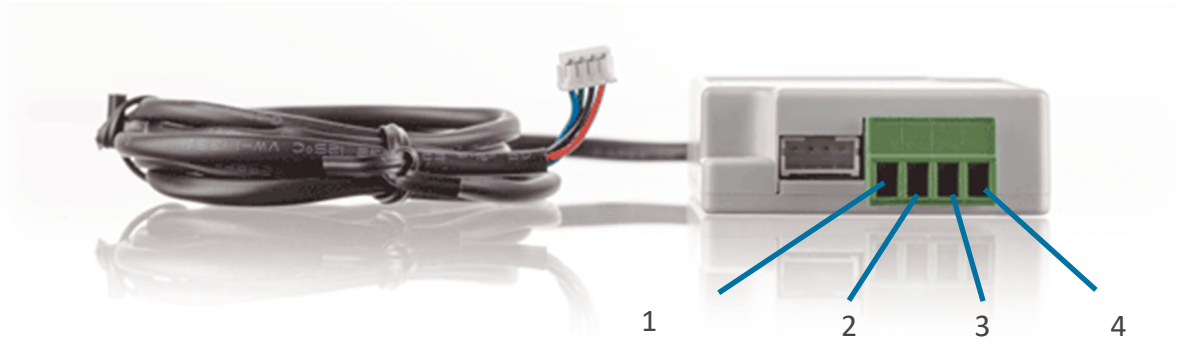
LEDS

LEDs:
Power
On: Board has power
Off: Board does not have power

Status
On: Changing Position
Off: Maintaining Position
Flashing: Error

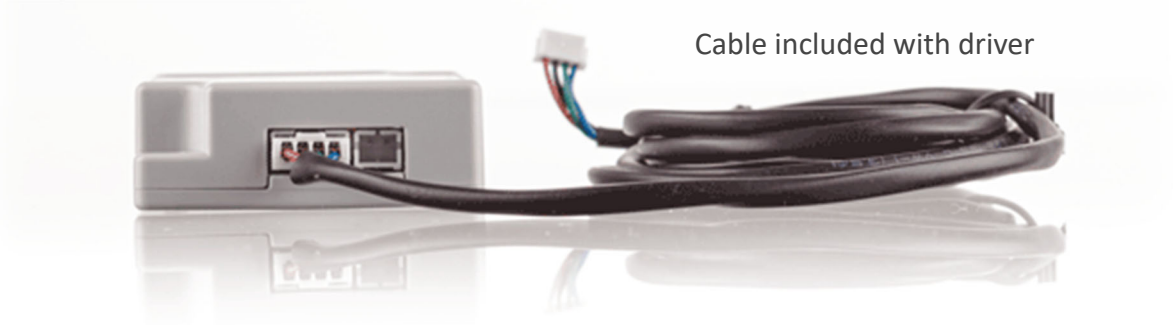


ELECTRICAL CONNECTIONS (INPUTS)



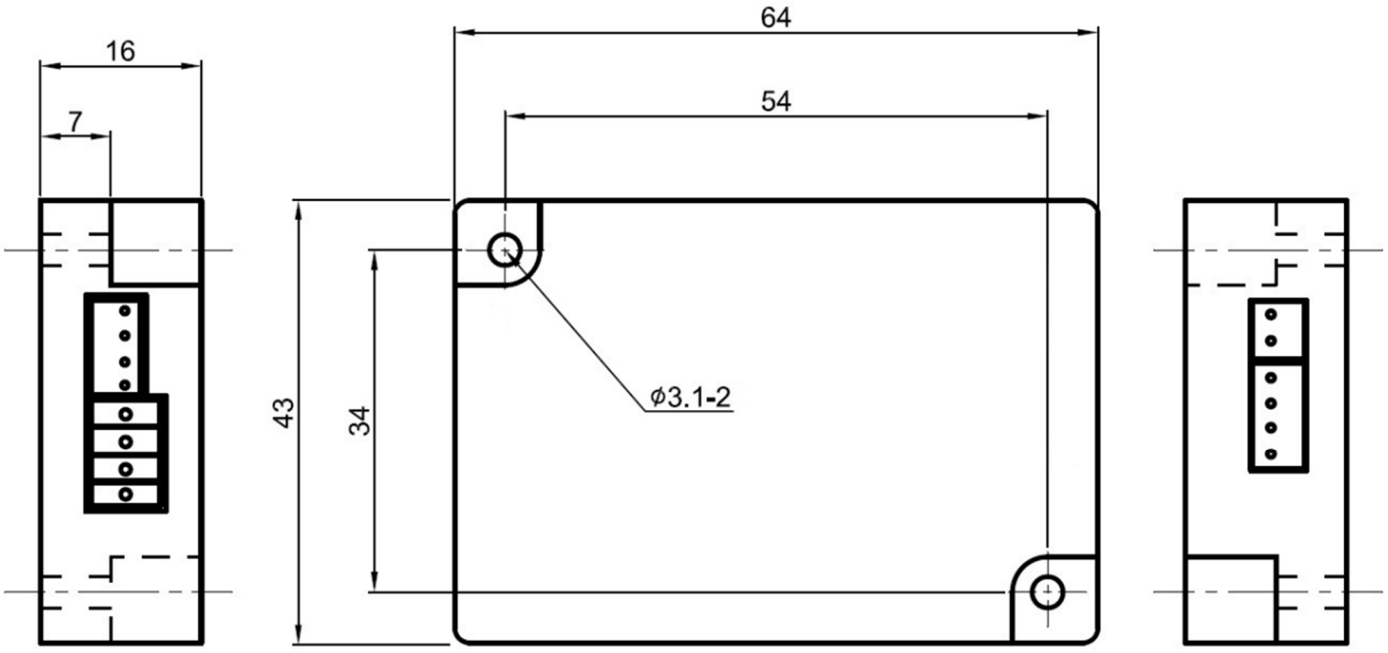
Pin #	1	2	3	4
Function	Command -	Command +	DC Common	DC Power
Input	0Vdc	0...10Vdc	0Vdc	24Vdc

ELECTRICAL CONNECTIONS (OUTPUTS)



Pin #	1	2	3	4
Color (at valve)	Red	Black	Green	White
Output	A+	A-	B+	B-

DIMENSIONS



Enfield Technologies is an expert in high performance proportional control systems. Our standard product line focuses on pneumatics. With custom products and engineering services, we also apply our expertise in other areas of fluid power, electromechanical systems, and control electronics. New developments in pneumatic technology are opening doors for design engineers to create unique, market leading products and systems.

Enfield Technologies is leading this innovation. Our control valves and electronics solve many of the challenges posed by compressible fluids. The additional functionality and performance from Enfield Technologies helps our customers create breakthrough applications and enhance existing systems. Simply put, we make pneumatics do things that others declare impossible.

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