

Product Overview

The M2s is the inaugural release of the M2 family of valves from Enfield Technologies. In addition to the proportional response and ultra-fast response time (2.8ms) that have come to be associated with Enfield Technologies' valves, the M2 valves boast an IP65 environmental protection rating, allowing it to stand up to the most punishing of environments. With their 3/8" ports and direct flow-paths, the M2 valves offer the highest flow capacity ($C_v = 1.1$, $K_v = 0.95$), of Enfield Technologies' entire product line.



M2s Pneumatic Control Valve

Features

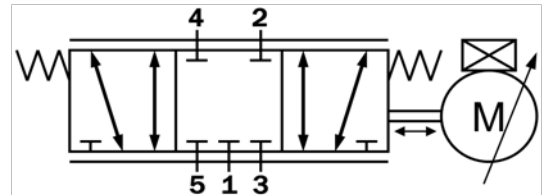
- 5/3 Bi-Directional Proportional Flow Control
- Patented Linear Force Motor
- Infinitely Variable Valve Positioning (3 Extreme Positions)
- Fast Response Time ($t_r = 2.8\text{msec typ.}$)
- High Bandwidth ($f_{BW} = 109\text{ Hz}$)
- Low Hysteresis
- High Linearity

Typical Applications

- High-Performance Pneumatic Systems:
 - Position Control
 - Motion Control
 - Flow Control
 - Force Control
 - Pressure Control
- Ultra-Fast Switching (<5.6ms)

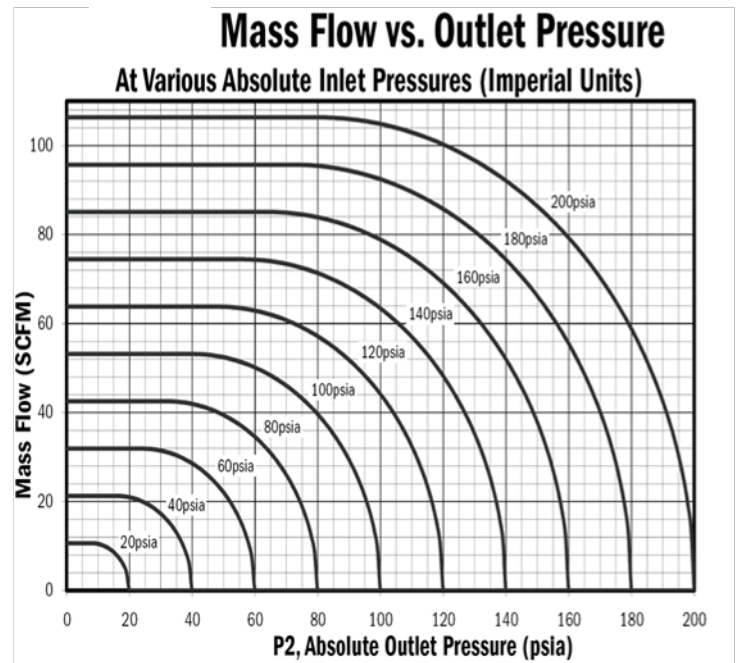
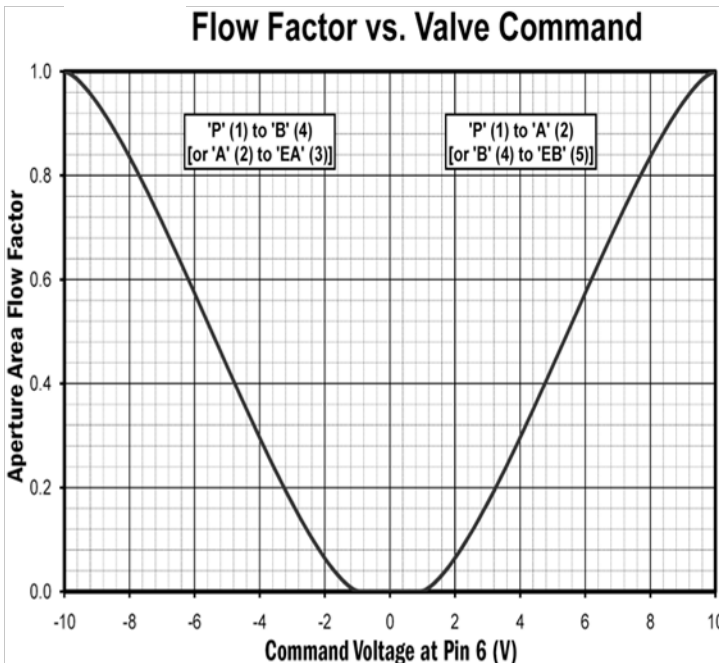
Industries

- Laboratory Test & Measurement
- Industrial Automation
- Animatronics
- Medical Equipment/Devices
- Analytical Devices



M2s Valve Diagram (ISO 1219-1:1991)

¹1Hz = One cycle through all three extreme valve positions



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Specification	Value	
	SI Units	Imperial Units
Physical Characteristics		
Mass (Weight)	0,795 kg	(28.0 oz)
Approximate Physical Dimensions (L x W x H)	158.3 mm x 55.0 mm x 45.0 mm	6.23" x 2.17" x 1.77"
Materials	Aluminum, Nitrile, 440C SS, 316 SS, Nickel Plated Steel, Glass Filled Nylon	
Valve Function	5-Port Bi-Directional Flow Control Valve, Normally Closed Center	
Valve Type	Lapped Spool and Sleeve	
Control Mechanism	Direct-Acting, Patented Linear Force Motor	
Ports	3/8" NPTF	
Mounting Direction	Any	

Performance Characteristics		
Shifting Time (ISO 12238)	2.8 ms	
Bandwidth	109 Hz	
Pressure (at any port)	Vacuum → 1.03 MPa (10.3 bar)	Vacuum → 150 psig
Maximum Effective Aperture	30 mm ²	0.047 in ²
Flow Capacity and Critical Pressure Ratio (ISO 6358)	$C = 25.4 \times 10^{-8} \text{ s} \cdot \text{m}^3 / \text{kg}$; $b \approx 0.35$	$C_v = 1.1$, $K_v = 0.95$
Flow Rate of Air at 20 °C (68°F) and 65% RH (refer to Mass Flow Graphs)	30.0 g/s (6.0 bar → 5.0 bar)	51 SCFM (1,445 SLPM) (80 psig → atm)

Air Quality Requirements

Clean, dry, non-lubricated air; 0.3 micron coalescing filter.

Lubrication Requirements

Lubrication is not recommended and may void warranty.

Operating Fluids

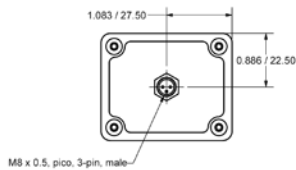
Inert, non-flammable pneumatic fluids only. No liquids.

Electrical Characteristics

Power	3.6W Nominal	
Current	1.0A Max	
Electrical Connection	M8 3-Pin (Male)	

Environmental Characteristics

Environmental Protection Class	IP65	
Temperature	0°C - 50°C	32°F - 122°F
Humidity	5% - 95% RH	



M8 x 0.5, pico, 3-pin, male

M8 3-Pin Male Connector

not used
 valve +  valve -

