LowPro HF

Miniature Proportional Valve

Low Profile High Flow Proportional Valve



Power high-flow respiratory control in a smaller, lighter package. Parker's LowPro™ High Flow miniature proportional valve brings true high-flow performance to portable respiratory and patient-therapy OEM designs—without the size and power penalties of traditional proportional valves. Despite being the smallest high-flow proportional valve available today, LowPro HF supports inlet pressures up to 100 psig (6.9 bar) and delivers flow capability comparable to much larger devices. With a Cv > 0.15, LowPro HF can control up to 120 SLPM at just 38 psi inlet pressure, helping you meet demanding therapy flow requirements while protecting battery life. At only 18 g and < 3.0 W power consumption, it enables lighter handheld systems, smaller enclosures, and improved portability—ideal for next-generation respiratory and patient-support platforms. Integration is straightforward: a simple manifold-mount design with supplied O-rings helps reduce assembly complexity and leak paths, supporting faster development cycles and reliable production builds.

Typical Applications

- Ventilators
- Insufflators
- Anethesia delivery
- Robotics/Industrial automation

Features

- Consistent flow controllability: Smooth flow control maintained across the entire range, from liftoff to maximum flow
- Low power consumption: Operates efficiently at under 3 watts
- Proven performance: Rated for 100 million cycles with a 0.95 reliability factor and 95% confidence interval
- Manifold mount design: offset porting with integrated seals simplifies integration and reduces manifold complexity
- Oxygen-ready: Cleaned for oxygen used per ISO 15001
- Regulatory compliance: Meets REACH and RoHS standards
- US Patent 10240683

Product Specifications

Physical Properties

Valve Type:
2-Way, Normally Closed
Media:
Air, Oxygen or any non-reactive, non-condensing gases
Operating Environment:
32 to 131°F (0 to 55°C)
Storage Temperature:
-40 to 158°F (-40 to 70°C)
Length:
0.80 in (20 mm)
Width:
0.63 in (16 mm)
Height:
0.74 in (19 mm)
Porting:
Face Seal to Manifold (O-rings included)
Weight:
0.63 oz (18 g)

Electrical

Power:
3.0 Watt Maximum
Voltage:
5 and 12 VDC
Electrical Termination:
4.5" (114 mm) Wire leads [26 AWG] with Molex 50-57-9402 connector

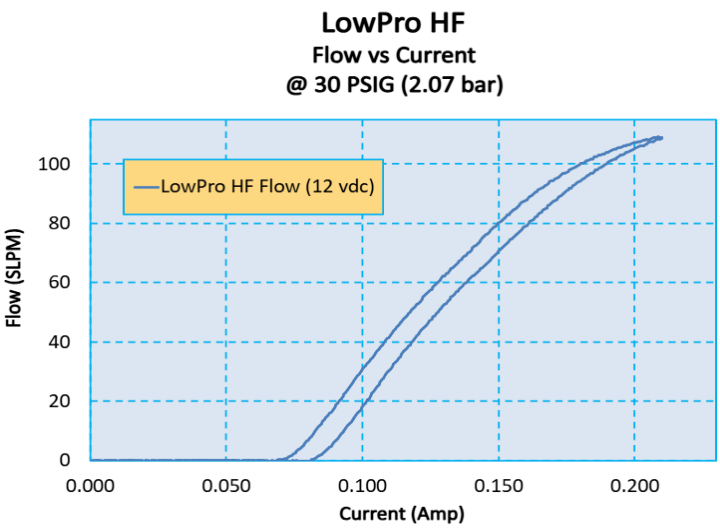
Wetted Materials

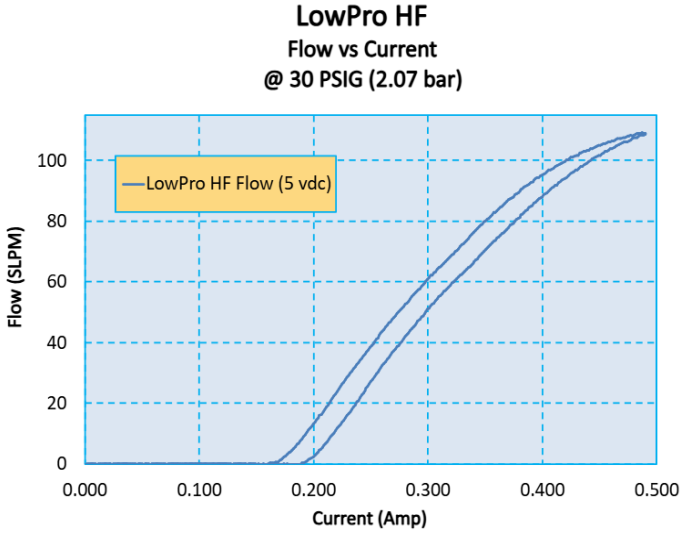
Body & Cover:
Aluminum & Stainless Steel
Armature & Spring:
Carbon Steel (Nickel Plated) Stainless Steel
Coil:
Urethane, Polyvinyl Butyral
All Others:
FKM, Epoxy

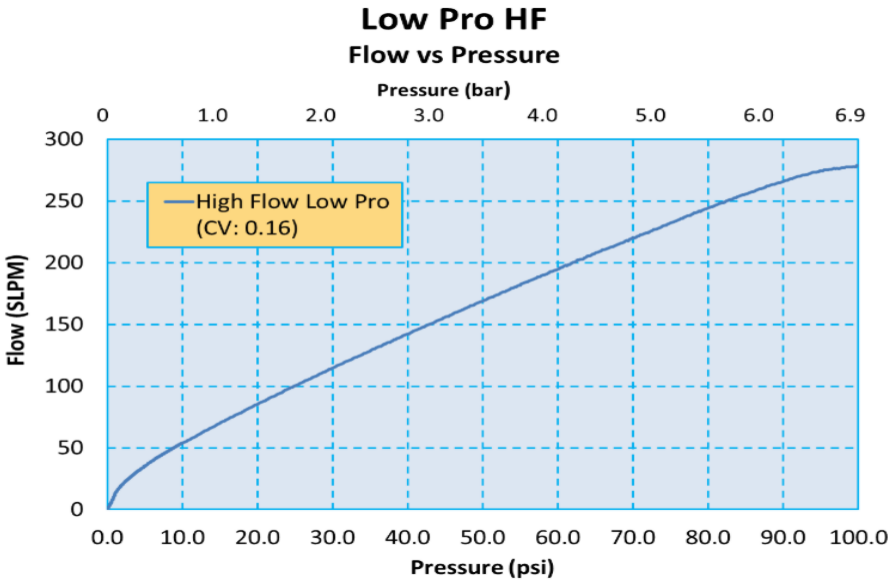
Performance Characteristics

Leak Rate:
Internal: 5.0 SCCM of Air at 5 & 100 psig inlet, 0 psig outlet External: 1.0 SCCM of Air at 110 psig (7.6 bar)
Operating Pressure:
5 - 100 psi (0.34 - 6.9 bar)
Vacuum:
Consult factory
Proof Pressure:
150 psi (10.3 bar)
Effective Orifice:
0.100 in (2.54 mm)
Hysteresis:
10% of full scale current (Maximum)
Recommended Filtration:
40 µm (not supplied)
Response time:
10 ms Typical
Reliabilty:
100 Million Cycles 0.95 Reliability Factor 95% Confidence Interval

LowPro HF Low Profile High Flow Proportional Valve
Typical Flow Curve





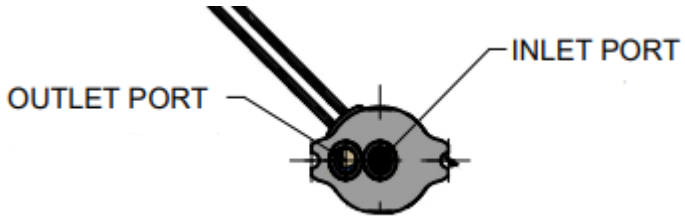


Pressure and Flow Capabilities

Model	Effective Orifice	CV	Max Inlet Pressure (PSI)	Max Differential Pressure (PSI)
LowPro HF	0.100" (2.55 mm)	0.16	100	100

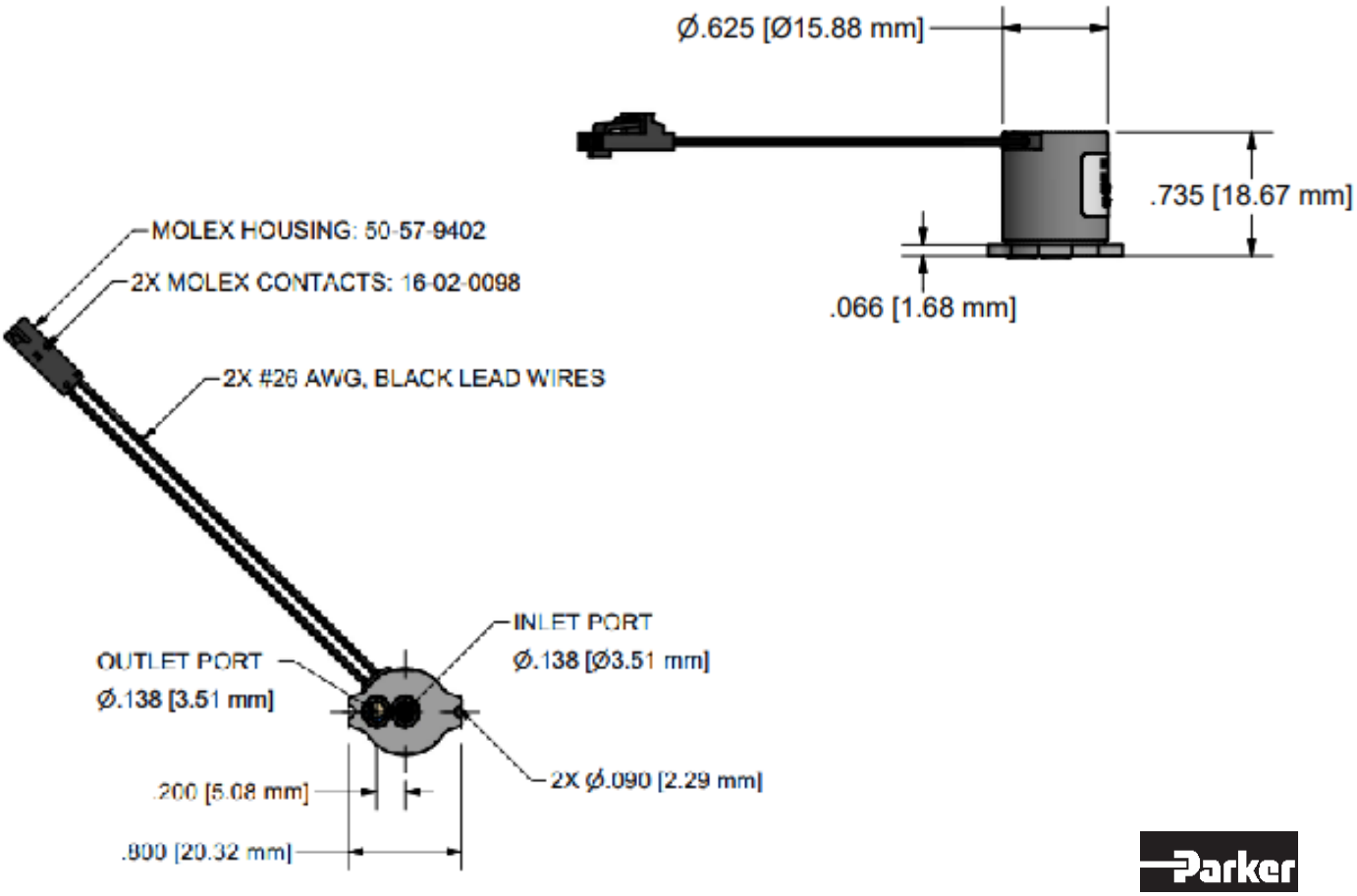
LowPro HF Low Profile High Flow Proportional Valve
Pneumatic Interface & Flow Direction

LowPro HF Manifold Mount



Mechanical Integration
Dimensions

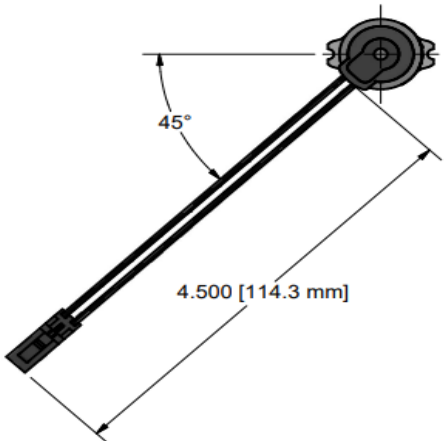
LowPro HF Basic Valve Dimensions



LowPro HF Low Profile High Flow Proportional Valve

Electrical Interface

4.5" (114 mm) Wire leads [26 AWG]
with Molex 50-57-94

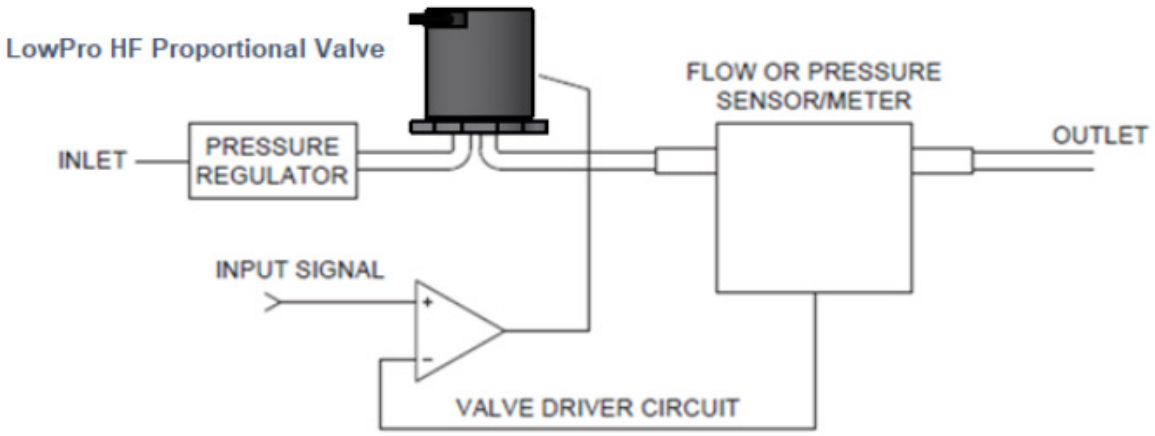


Electrical Requirements

Rated Voltage	Maximum DC Voltage (VCD)	Nominal Coil Resistance @ 20°C (Ohms ±10%)	Input Current for Full Flow (Amps)
5 vdc	6.1	8.64	0.512
12 vdc	14.1	45.6	0.222

Installation and Use

Typical Valve Set-up



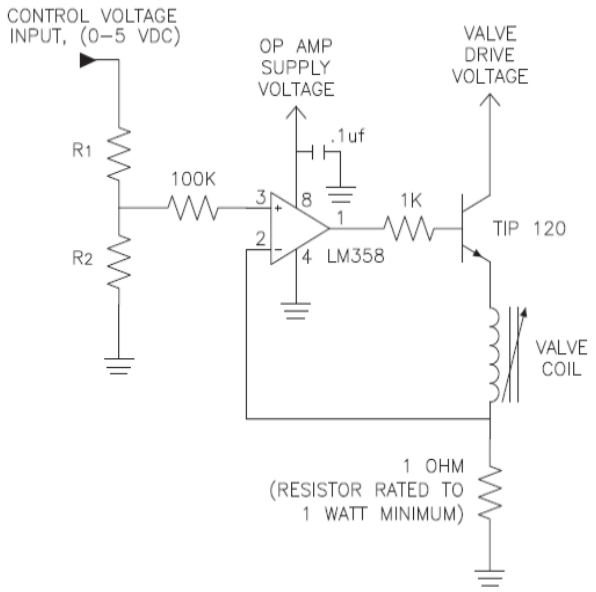
Basic Control:
The LowPro HF valve can be controlled by either voltage or current; however, it is highly recommended that current control be employed to ensure the most repeatable valve flow performance.

PWM Control:
For PWM control, the signal applied to the valve should have a frequency of 10 kHz or greater. Optimum frequency will be application dependent.

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Installation and Use

Suggested LowPro HF Current Driver Schematic



This simple current driver circuit draws only 1 mA at the input control (0-5VDC) and provides control for any Low Pro HF valve configuration regardless of valve voltage or resistance.

Table 3 (below) describes the recommended R1 and R2 resistor values based upon the full shut-off current.

Maximum Solenoid Voltage (VDC)
Circuit Supply
Voltage (VDC)
Nominal Coil
Resistance @ 20 ℃
(Ohms)
Maximum Output

Table 3: Selectable Resistor Values for a Low Current (1 mA) LM358-Based Current Driver (All Models)

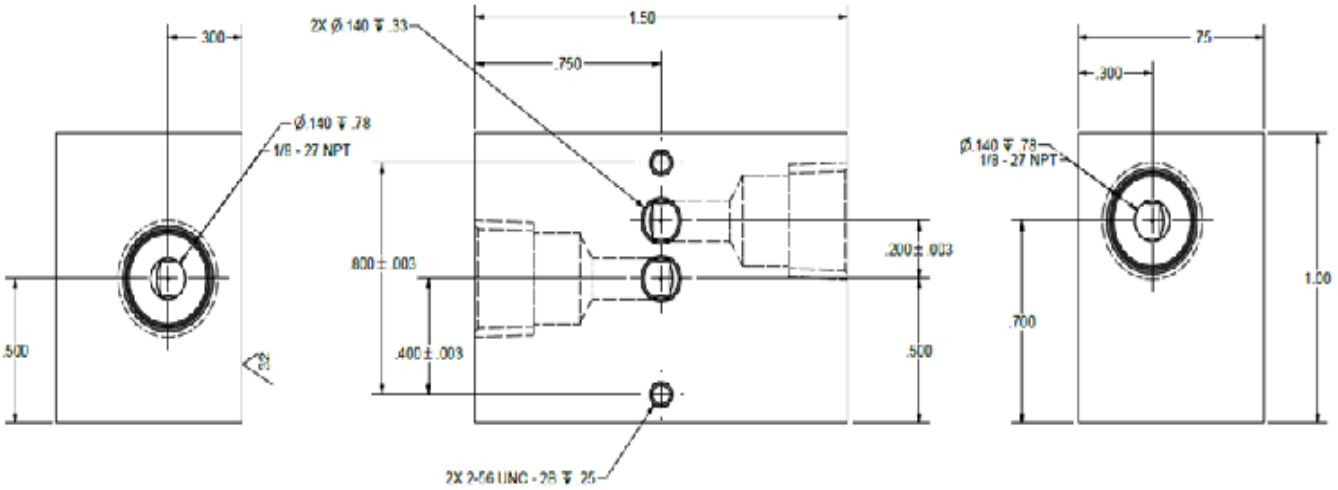
Model Voltage	Minimum Available Voltage (VCD)	Valve Drive Voltage (VDC)	Nominal Coil Resistance @ 20°C (Ohms ±10%)	Input Current for Full Flow (mA)	R1 (Ohms)	R2 (Ohms)
5	5.5	7.5	8.64	495	5110	562
12	13.5	15.5	45.6	212	5110	226
24	29.0	31.0	173	110	5110	115

LowPro HF Low Profile High Flow Proportional Valve
Installation and Use

Manifold Dimensions & Design

Not shipped with valves.

Parker Precision Fluidics reccomends 24 in-oz (17 N-cm) of torque for the screws.

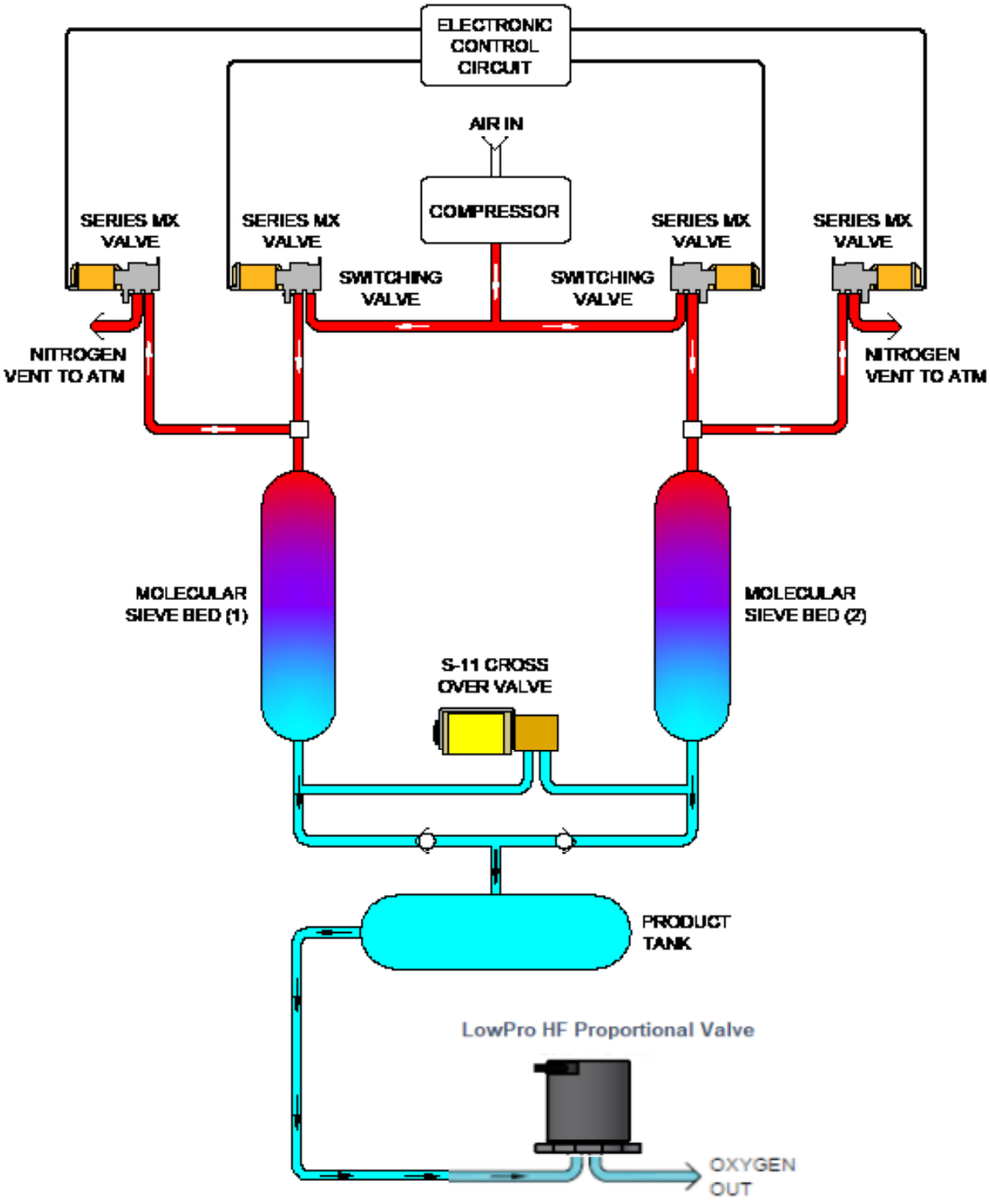


Screw torque:	24 in-oz [2]

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Typical Flow Diagram

Oxygen Concentrator Application



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Ordering Information

Sample Part ID	93	9	-	000	05	0	-	000
Options	93: Low Pro	9: High Flow	-		Voltage		-	
			-	000	05: 5VDC	0	-	000
			-	000	12: 12VDC	0	-	000

Accessories (not included)
290-006061-003: 12.5 in (318 mm) Adapter Wire Leads
890-009054-001: Manifold, Single Station, 1/8 in NPT
190-007079-001: Manifold O-Ring (FKM)
191-000112-404 Screw #2-56 x 2/16 In Socket Head Cap Screw

Screw #2-56 x 3/16"
Socket Head Cap Screw
191-00112-404
(see valve mounting recommendations above)



Single Station Manifold
890-009054-001



12.5" Adapter Wire Leads
290-006061-003



Manifold O-Ring (FKM)
190-007079-001
(supplied with valve)



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Notes:

NOTE: In order to provide the best possible solution for your application, please provide the following requirements when contacting Applications Engineering:

- Media, Inlet & Outlet Pressures
- Minimum Required Flow Rate
- System Supply Voltage
- Ambient Temperature Range

Please go to www.parker.com/ppf to configure your LowPro HF Miniature Prportional Valve. For more detailed information, call and refer to Performance Spec. #790-002737-001 and Drawing #890-003686001. For installation assistance, please refer to the User's Manual.

Parker Hannifin's Precision Fluidics Division reserves the right to make changes. Drawings are for reference only.

For more information call +1 603 595 1500 or email ppf.support@support.parker.com
Visit www.parker.com/ppf