

V² Valve

Miniature Pneumatic Solenoid Valve

15 mm Pneumatic Solenoid Valve



Typical Applications

- Oxygen Conservers
- Flow control/shut-off valve
- Portable Medical Devices

The V² miniature pneumatic solenoid valve is a proven product with a reputation for reliable and consistent performance. Designed for medical device and system manufacturers, the V² miniature pneumatic solenoid valve is made from lightweight PBT plastic and provides flexible mounting and termination options. The V² miniature pneumatic solenoid valve also offers pneumatic and electrical design flexibility. It is available in manifold mount or 1/8" (3 mm) barbed tube configurations and is also available with either wire lead, quick connect spade or 4 pin printed circuit board electrical termination.

Features

- Lightweight PBT plastic body to reduce system weight
- Manifold mount or molded barbed fittings for added system design flexibility
- Printed circuit board mount, quick connect spade or wire lead coil termination to ease integration
- Proven performance tested to 25 million life cycles
- RoHS compliant

Product Specifications

Mechanical

Valve Type:
2/3 Port, Direct-acting poppet style
- Normally Closed (NC)
- Normally Open (NO)
- Distributor (Dist)
Media:
Air, Oxygen, Helium, Nitrogen, Carbon Dioxide/Monoxide, & other non-reactive gases.
Operating Environment:
32 to 158°F (0 to 70°C)
Storage Temperature:
-40 to 158°F (-40 to 70°C)
Dimensions:
- Length: 1.73 in (43.9 mm)
- Width: 0.63 in (15.9 mm)
- Height: 0.67 in (17.0 mm)
Weight:
1.2 oz (34.3 g)
Internal Volume:
0.0009 in ³ (0.016 cm ³)
Filtration:
40 micron (recommended)

Electrical

Power Options:
0.5, 1.0, or 2.0 Watts
Voltage Options:
5, 12 or 24 VDC

Further power reduction may be achieved through the use of spike and hold or PWM electrical control.

Wetted Materials

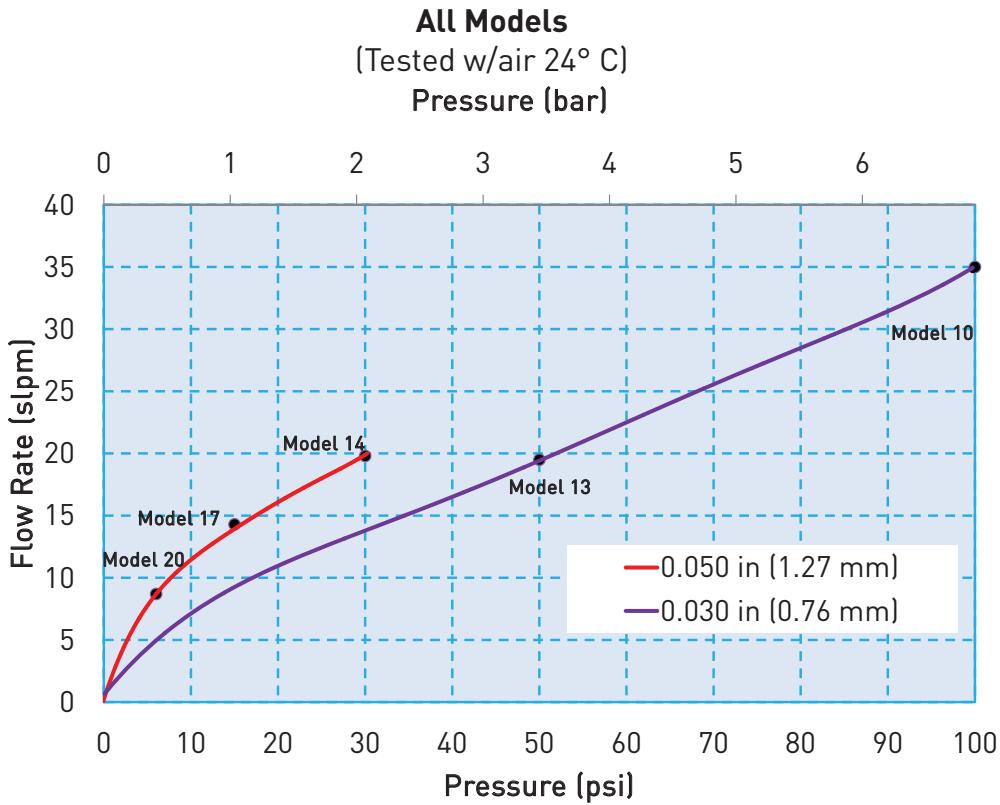
Body:
PBT
Stem Base:
36000 HO2 Brass
All Others:
FKM
430 FR Series Stainless Steel
302 Series Stainless Steel

Performance Characteristics

Leak Rate (Air):
≤0.2 sccm
Response:
<30 ms cycling
Pressure:
0 to 100 psig (6.89 bar)
Vacuum:
0-27 in Hg (686 mm Hg)
Orifice Sizes:
0.030" (0.76 mm)
0.050" (1.27 mm)
Reliability:
Life cycle rating of 25 million (worst case tested, no performance degradation)

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Typical Flow Curve



All models reflect typical flow output capability based on rated pressure

Pressure and Flow Capabilities

Model No.	Orifice Size	Nominal Cv	Maximum Supply Pressure	Power Consumption
10	0.030 in (0.76 mm)	0.017	100 psig (6.89 bar)	2 Watts
13	0.030 in (0.76 mm)	0.017	50 psig (3.45 bar)	1 Watt
14	0.050 in (1.27 mm)	0.034	30 psig (2.07 bar)	2 Watts
16	0.030 in (0.76 mm)	0.017	25 psig (1.72 bar)	0.5 Watt
17	0.050 in (1.27 mm)	0.032	15 psig (1.03 bar)	1 Watt
20	0.050 in (1.27 mm)	0.030	6 psig (0.41 bar)	0.5 Watt

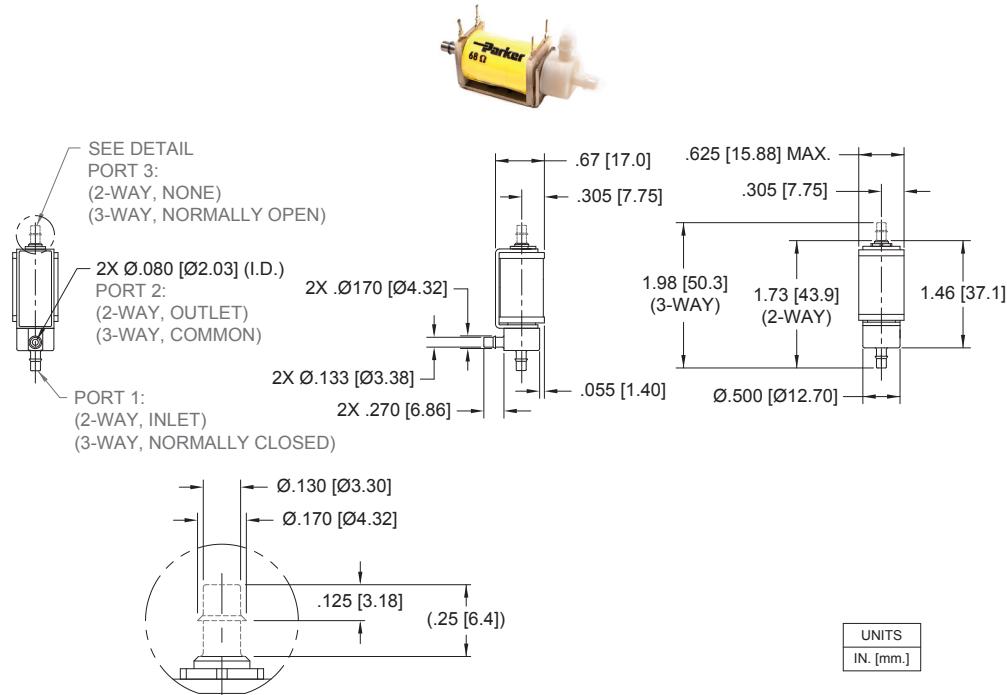
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Mechanical Integration

Dimensions

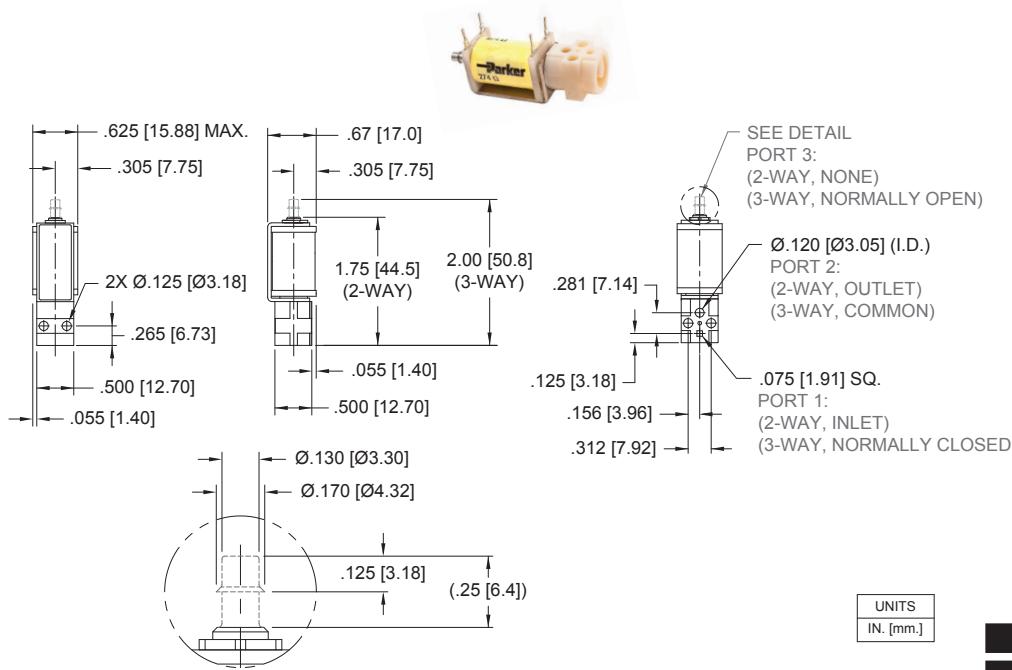
V² Basic Dimensions, Barbed Configuration

Barbed



V² Basic Dimensions, Manifold Mount Configuration

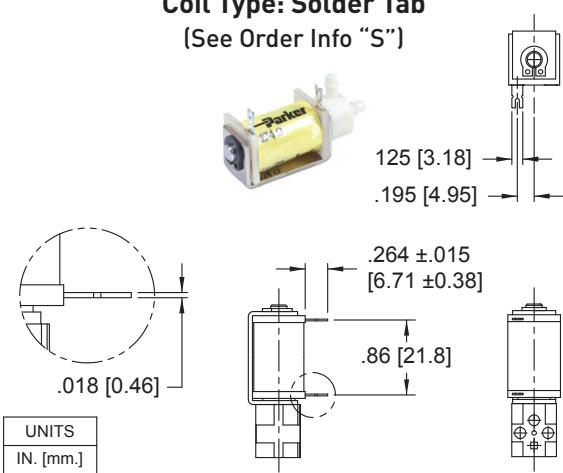
Manifold Mount



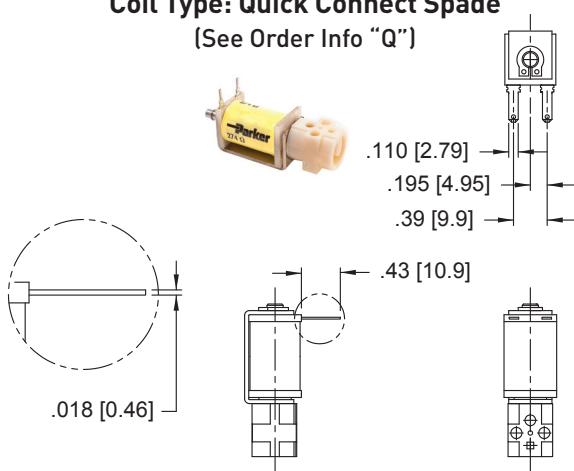
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Electrical Interface

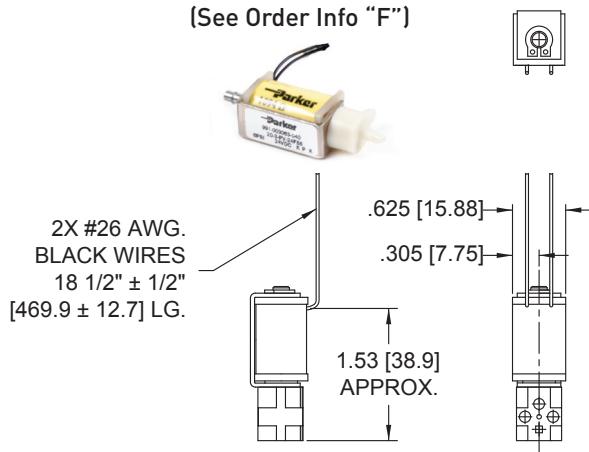
Coil Type: Solder Tab
(See Order Info "S")



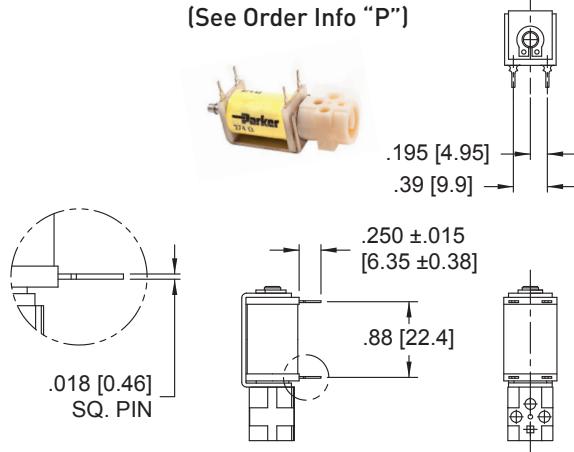
Coil Type: Quick Connect Spade
(See Order Info "Q")



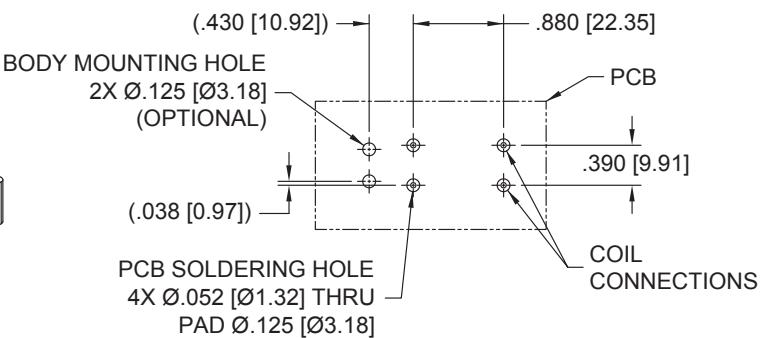
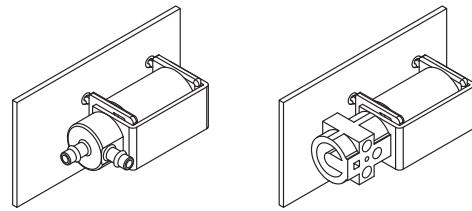
Coil Type: Wire Leads
(See Order Info "F")



Coil Type: 4 PC Pins*
(See Order Info "P")



***PCB Pin Layout (Coil Type 4 PC Pin)**



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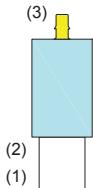
ANSI Symbols

LEGEND:	
SUPPLY:	Pneumatic Source or Supply Pressure
EXHAUST:	Exhaust to Atmospheric Pressure
REQMT:	Customer Requirement or Application
ATM:	Atmospheric Pressure

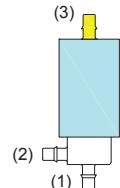
Pneumatic Schematics by Valve Types

PORT LOCATIONS

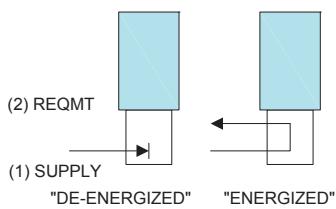
MANIFOLD BODY OPTION



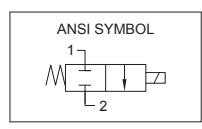
BARB BODY OPTION



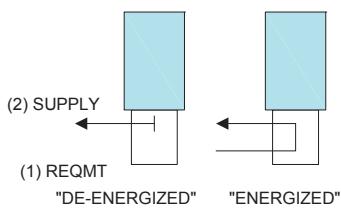
PRESSURE



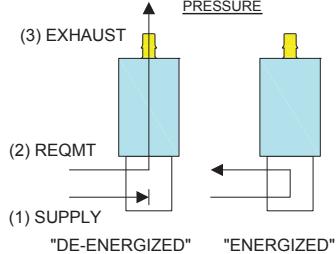
TYPE 1 2-WAY NORMALLY CLOSED



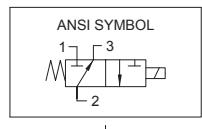
VACUUM



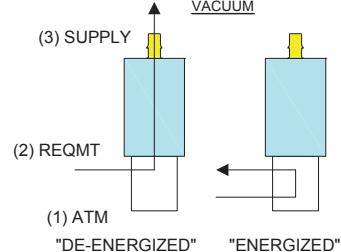
PRESSURE



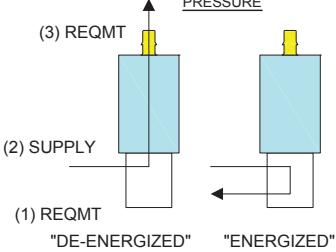
TYPE 3 3-WAY NORMALLY CLOSED



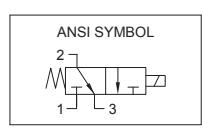
VACUUM



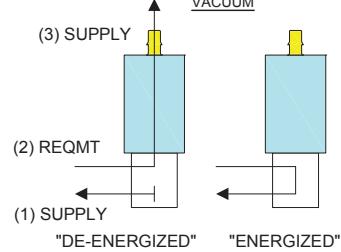
PRESSURE



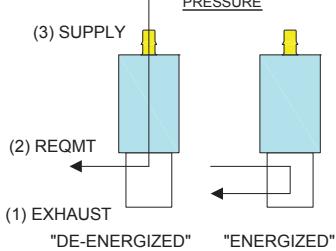
TYPE 3 3-WAY DISTRIBUTOR



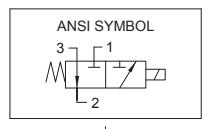
VACUUM



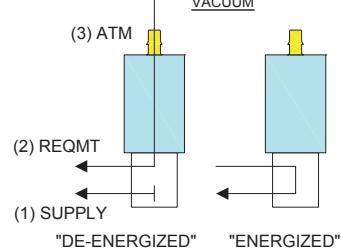
PRESSURE



TYPE 4 3-WAY NORMALLY OPEN



VACUUM



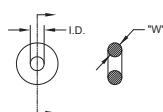
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Accessories

O-Ring (Manifold Seal) Dimensions

190-007024-002

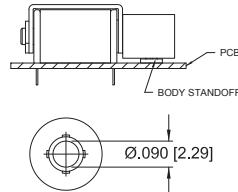
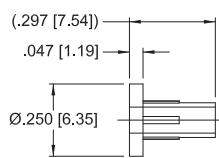
I.D. = $\varnothing 0.114 \pm .005$ [$\varnothing 2.90 \pm 0.13$]
 W = $.070 \pm .003$ [1.78 ± 0.08]
 O.D. = $\varnothing 0.254$ [0.645] REFERENCE



Body Standoff

890-000027-001

(2 required for each valve)



Screw 4-40 x 5/8" Pan Head

191-000115-010

(2 required for each valve)



Ordering Information

Sample Part ID	V2	14	3	PV	12	P	8	8
Description	Series	Model Number: Pressure / Orifice / Power	Type	Material XX: Body / Poppet Seal	Voltage	Coil Type	Body Styles	Topseat Barbs
Options	V2	10: 0-100 psi / 0.030" orifice / 2 Watts 13: 0-50 psi / 0.030" orifice / 1 Watt 14: 0-30 psi / 0.050" orifice / 2 Watts 16: 0-25 psi / 0.030" orifice / 0.5 Watt 17: 0-15 psi / 0.050" orifice / 1 Watt 20: 0-6 psi / 0.050" orifice / 0.5 Watt	1: 2-Way NC 3: 3-Way NC or Distributor 4: 3-Way NO	PV: Plastic / FKM	5: 5 VDC 12: 12 VDC 24: 24 VDC	F: Wire Leads, 18", No Termination P: PC Mount, 4 PC Pins S: PC Mount, 2 Solder Tabs Q: Quick Connect Spade	0: Manifold Mount 8: 1/8" (3 mm) Barbs	0: None (2-Way NC Only) 8: 1/8" (3 mm) Barbs

Accessories

191-000115-010: Screw 4-40 x 5/8" Pan Head, Phillips

890-000027-001: Body Standoff

190-007024-002: O-ring, FKM

Used to create a flush mount between coil and valve body

Used as seal between manifold and valve body



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
- Media
- Ambient Temperature Range

Please click on the Order On-line button (or go to www.parker.com/precisionfluidics/v2) to configure your V² Miniature Pneumatic Solenoid Valve. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002156-001 and Drawing #890-003080-001.