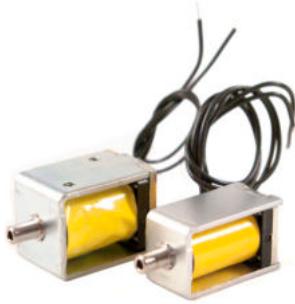


# PND Series Miniature Pneumatic Solenoid Valve

## 10 mm Normally Open Exhaust Valve



### Typical Applications

- Non-Invasive Blood Pressure Devices
- Normally Open Fail-Safe Exhaust

The PND Series miniature pneumatic solenoid valve is an economical 2-way normally open exhaust valve designed for rapid pressure relief. The PND Series miniature pneumatic solenoid valve is the perfect solution for safety oriented applications that require pressure relief to atmosphere upon power loss.

### Features

- Compact, economical design to reduce size and cost of integration
- Normally Open configuration to ensure rapid deflation upon power loss
- Low power design reduces heat generation and power consumption
- Proven performance tested to 250,000 life cycles
- RoHS compliant 

## Product Specifications

### Mechanical

|  |
|--|
| <b>Valve Type:</b>   |
| 2 Port, Direct-acting poppet style<br>- Normally Open (NO)   |
| <b>Media:</b>  |
| Air, Nitrogen, Argon, Carbon Dioxide,<br>& other non-reacting gasses   |
| <b>Operating Environment:</b>  |
| 32 to 131°F (0 to 55°C)  |
| <b>Storage Temperature:</b>  |
| -13 to 158°F (-25 to 70°C)   |
| <b>Dimensions:</b>   |
| PND-05D:<br>- Length: 1.01 in (25.7 mm)<br>- Width: 0.39 (10.0 mm)<br>- Height: 0.47 in (12.0 mm)                    |
| <b>Porting:</b>  |
| Single Barb for 0.078" (2.0 mm)<br>I.D. Tubing   |
| <b>Weight (Typical):</b>   |
| PND-05A: 0.60 oz (17.0 g)<br>PND-05D: 0.40 oz (11.4 g)   |
| <b>Internal Volume:</b>  |
| PND-05A: 0.0035 in <sup>3</sup> (0.056 cm <sup>3</sup> )<br>PND-05D: 0.0025 in <sup>3</sup> (0.041 cm <sup>3</sup> ) |
| <b>Filtration:</b>   |
| 40 micron (recommended)  |

### Electrical

|   |
|---|
| <b>Power:</b>   |
| PND-05A: 0.36 Watt<br>PND-05D: 0.50 Watt  |
| <b>Voltage:</b>   |
| 3, 6 or 12 VDC<br>Further power reduction can be<br>achieved with the use of PWM control. |

### Wetted Materials

|                                  |
|----------------------------------|
| <b>Bobbin:</b>                   |
| PBT (Polybutylene terephthalate) |
| <b>Plunger/Barb:</b>             |
| SUM24L Steel                     |
| <b>Seal:</b>                     |
| Silicone                         |
| <b>Frame:</b>                    |
| SPCC Steel (Treatment: MFZn-c)   |
| <b>Other:</b>                    |
| 304 Stainless Steel              |

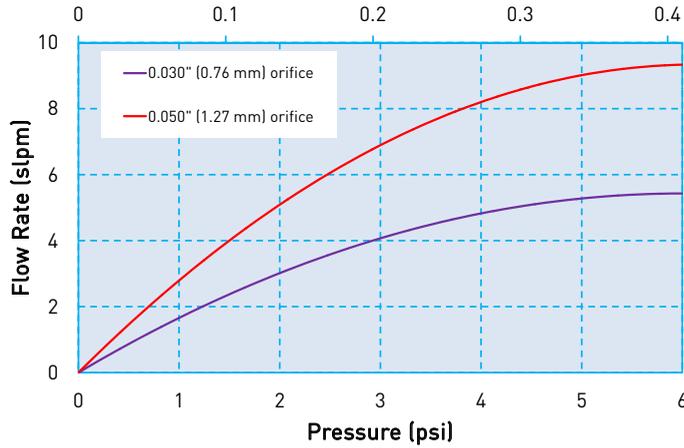
### Performance Characteristics

|   |
|---|
| <b>Leak Rate:</b>   |
| < 0.016 sccm of air   |
| <b>Response:</b>  |
| < 100 ms cycling  |
| <b>Pressure:</b>  |
| 0 to 6 psig (0.4 bar)   |
| <b>Orifice Sizes/Equivalent Cv:</b>   |
| PND-05A:<br>0.050" (1.27 mm) / 0.035  |
| PND-05D:<br>0.030" (0.75 mm) / 0.017  |
| <b>Reliability:</b>   |
| Life cycle rating of 250,000 cycles<br>(worst case tested, no<br>performance degradation) |

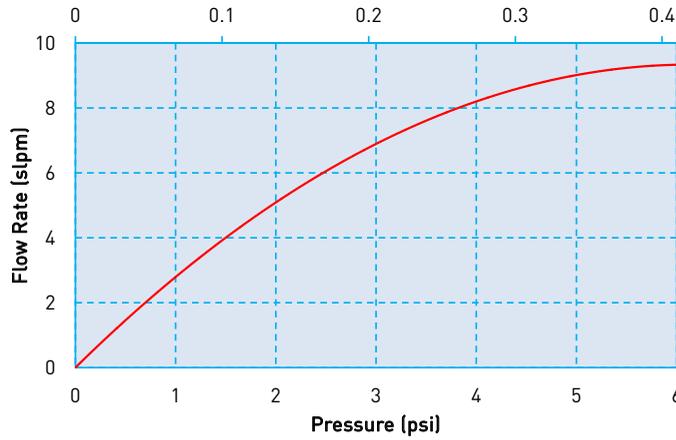
# PND Series Miniature Pneumatic Solenoid Valves

## Typical Flow Curve

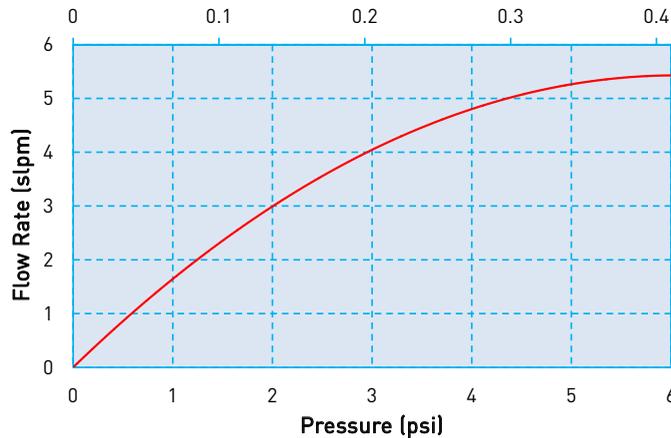
**All Models**  
(Tested w/air 24° C)  
Pressure (bar)



**Model PND-05A – 0.050" (1.27 mm) Orifice**  
Pressure (bar)



**Model PND-05D – 0.030" (0.76 mm)**  
Pressure (bar)



# PND Series Miniature Pneumatic Solenoid Valves

## Pressure and Flow Capabilities/Power

| Model No. | Orifice Size       | Nominal Cv | Maximum Supply Pressure | Power Consumption |
|-----------|--------------------|------------|-------------------------|-------------------|
| PND-05A   | 0.050 in (1.27 mm) | 0.035      | 6 psig (0.4 bar)        | 0.36 Watt         |
| PND-05D   | 0.030 in (0.76 mm) | 0.017      | 6 psig (0.4 bar)        | 0.50 Watt         |

## Pneumatic Interface

PND Series 05D



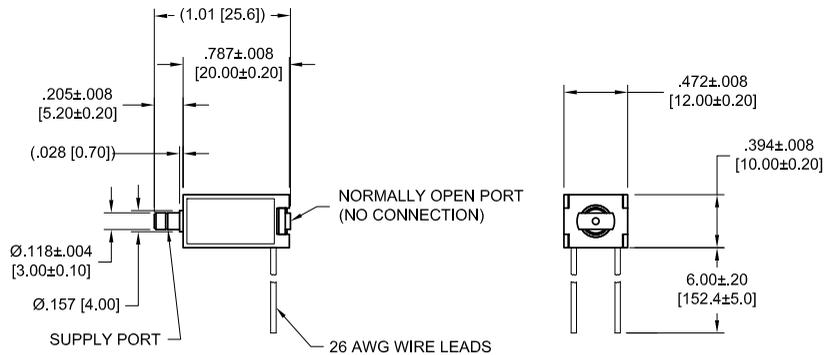
PND Series 05A



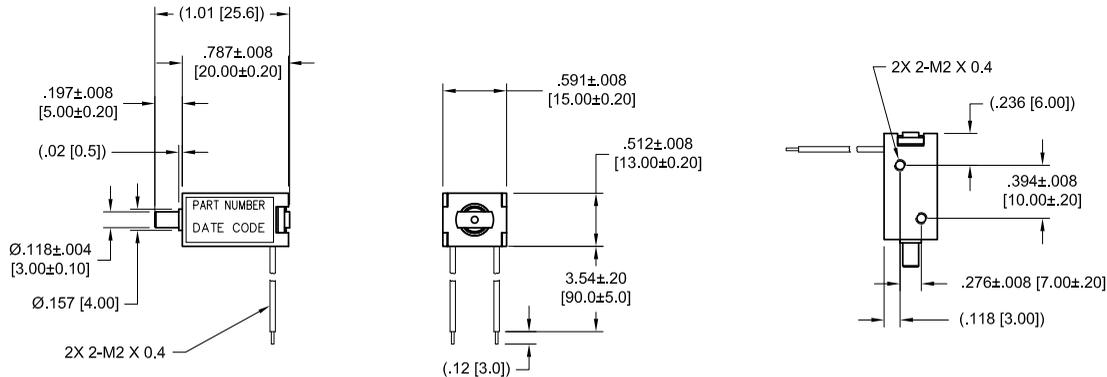
## Mechanical Integration

### Dimensions

Basic Dimensions, PND-05D



Basic Dimensions, PND-05A



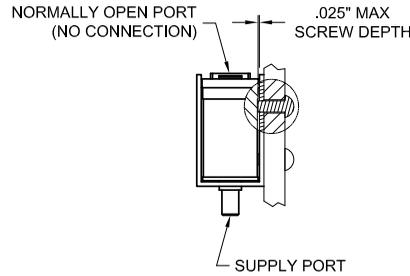
|           |
|-----------|
| UNITS     |
| IN. [mm.] |



# PND Series Miniature Pneumatic Solenoid Valves

## Installation and Use

### Mounting Guidelines (PND-05A Only)



## Ordering Information

| Sample Part ID | PND    | - | 05D  | - | 12                                  |
|----------------|--------|---|--|---|-------------------------------------|
| Description    | Series | - | Model:<br>Orifice / Power                          | - | Voltage                             |
| Options        | PND    | - | 05A: 0.050" / 0.36 Watt<br>05D: 0.030" / 0.50 Watt | - | 03: 3 VDC<br>06: 6 VDC<br>12:12 VDC |



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/pndvalve](http://www.parker.com/precisionfluidics/pndvalve)) to configure your PND Miniature Pneumatic Solenoid Valve. For more detailed information, visit us on the Web, or call and refer to Performance Spec. #790-002198-001 and Drawing #s: PND-05A-DWG and PND-05D-DWG.