WARNING

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Offer of Sale

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### Introduction
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- 15mm Solenoid Valve

### Direct Acting
- Moduflex Series
- "PVL" Series

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- Viking Xtreme

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- "B" Series
- "ADEX" Series
- "N" Series

### Subbase & Manifold
- Isys Micro Series
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- Fieldbus Systems
- "DX" ISOMAX Series
- Valvair II

### Manual / Mechanical
- Directair 2 & 4 Series, Manual/Mechanical
- "42" Lever / Pedal Series
- Viking Xtreme Lever Series
- "M0" Series
- "LV" / "EZ" Lockout Valves
- Brass Poppet / Sliding Seal / "PL"/"VL" / "HV"

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- Control Panel Products
- Sensing
- Flow Controls & Accessories

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# Pneumatic Products

## Catalog 0600P-E

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- Valve Selector Chart (By Flow) • Fieldbus Solutions Guide
- Fluid Power Graphic Symbols • Technical Information • 5-Year Warranty
- Direct Acting Solenoid • 3-Way & 4-Way • Inline • IEM Bar Manifold
- Subbase Valve Manifolds • .15 Cv
- Compact & Simplified Design • Subbase or Manifold Option • 3-Way
- NO & NC on Same Manifold • Wide Range of Voltage • .033 to .05 Cv
- Stand Alone Valves • Valve Island • Collective Wiring or Fieldbus Configuration • 3-Way & 4-Way
- Modular & Flexible Design • Multiple Pressure Option • Compact & Low Weight • .18 to .80 Cv
- Compact Composite Design • Modular with a Wide Range of Voltages • 3-Way & 4-Way
- Fieldbus Available • .6 to 1.2 Cv
- Inline valve. Optional aluminum bar manifolds • 3 valve sizes: 1/8, 1/4 & 3/8. CV: 0.6 to 2.5
- Pressures up to 145 PSI & temperatures between 14°F to 122°F • Bi-directional WCS spool
- Extreme Temperature & Pressure Ranges • ATEX Options • 4-Way
- Wide Range of Voltages for Mobile Industries • Unique Overmoulded Spool Technology • .7 to 2.7 Cv
- Wide Range of Sizes & Flows • Multiple Options • IEM Bar Manifold • 3-Way & 4-Way
- Wear Compensating Dynamic Sealing System • .75 to 7.0 Cv
- 10mm 3-Way • 15mm & 20mm 4-Way • Low Power Consumption
- Subbase & Inline Body • Individual & Collective Wiring Solutions • .01 to .47 Cv
- Robust Poppet Design • Fast Response & High Flow • 2-Way & 3-Way
- High Maximum Pressure Option • 3.6 to 29.9 Cv
- Compact Valves with High Flow • Innovative Back to Back Mounting Style with 4 Valves in a 42mm Width • Plug-in Design with Collective Wiring on Fieldbus or 25 Pin Cable • .35 Cv
- ISO Valve Platform, 18mm, 26mm, Size 1, Size 2, & Size 3 Plug-in • Collective Wiring on Fieldbus or 25-Pin or M23 Cable • Non Plug-in Valves with 3 Pin Din or Mini Connectors • .55 to 6.0 Cv
- Isys Micro Fieldbus • Moduflex Fieldbus • Isysnet Fieldbus • Turck Fieldbus
- ISO Valve Platform, 18mm, 26mm, Size 1, Size 2, & Size 3
- Non Plug-in Valves with 3 Pin Din or Mini Connectors • .55 to 4.15 Cv
- Robust Spool Design • Fast Response & High Flow • Plug-in & Direct Pipe Design • 4-Way
- Hazardous Duty Option • 1.9 to 12.0 Cv
- Robust Poppet & Spool Designs • 3-Way & 4-Way • Manual & Mechanical • Plunger, Roller, One-Way Tripper, Button, Hand Lever, Toggle, Treadle • 1/8' & 1/4' NPT • .17 to .83 Cv
- Heavy Duty Design • 4-Way • Lever, Pedal Operated • 1/4' & 3/8' NPT • 1.3 to 2.8 Cv
- Heavy Duty Lever Operated • 4-Way • 1/8 to 1/2' NPT • .7 to 2.7 Cv
- Heavy Duty Design • Bronze Body • 3-Way & 4-Way, Air Pilot Manual & Mechanical Valves
- 1/4' to 1' NPTF Ports • 2.4 to 12.4 Cv
- Compliant with OSHA Standard 29 CFR 1910
- Lockout / Soft Start • 3.7 to 14.0 Cv
- Manual Valves • Lever & Button Operators • 1/8’ thru 1/2’ Ports
- Wide Range of Sizes & Flows • .5 to 1.25 Cv
- Variety of Control Panel Options • Push Buttons - Indicators - Foot Pedals
- Large Selection of Options • Two-Hand Control Conformance with EN 574
- Large Variety of Limit & Pressure Switches • Limit Switches for Standard & Heavy Duty Service
- Blocking Valves for Air, Gas & Liquid Service • Threshold Sensors for Monitoring Cylinder Exhaust
- Flow Controls • Check Valves • Needle Valves • Muffler & Silencers • Relief Valves
- Quick Exhaust Valves • Ball Valves • Fittings • Tubing & Hose • Quick Couplings
- Safety Guide • Offer of Sale

## Catalog 0600P-E

### Pneumatic Products

### Direct Acting

- **“XM” Series**
  - Direct Acting Solenoid
  - 3-Way & 4-Way
  - Inline
  - IEM Bar Manifold
  - Subbase Valve Manifolds
  - .15 Cv

### Stacking

- **Stacking Moduflex Series**
  - Stand Alone Valves
  - Valve Island
  - Collective Wiring or Fieldbus Configuration
  - 3-Way & 4-Way
  - Modular & Flexible Design
  - Multiple Pressure Option
  - Compact & Low Weight
  - .18 to .80 Cv

### In-line

- **Viking Lite**
  - Inline valve. Optional aluminum bar manifolds
  - 3 valve sizes: 1/8, 1/4 & 3/8. CV: 0.6 to 2.5
  - Pressures up to 145 PSI & temperatures between 14°F to 122°F
  - Bi-directional WCS spool

### Subbase & Manifold

- **Isys Micro Series**
  - Compact Valves with High Flow
  - Innovative Back to Back Mounting Style with 4 Valves in a 42mm Width
  - Plug-in Design with Collective Wiring on Fieldbus or 25 Pin Cable
  - .35 Cv

### Manual / Mechanical

- **Directair 2 & 4 Series, Manual / Mechanical**
  - Robust Poppet & Spool Designs
  - 3-Way & 4-Way
  - Manual & Mechanical
  - Plunger, Roller, One-Way Tripper, Button, Hand Lever, Toggle, Treadle
  - 1/8” & 1/4” NPT
  - .17 to .83 Cv

### Accessories

- **Control Panel Products**
  - Variety of Control Panel Options - Push Buttons - Indicators - Foot Pedals

- **Sensing**
  - Large Variety of Limit & Pressure Switches

- **Flow Controls & Accessories**
  - Flow Controls
  - Check Valves
  - Needle Valves
  - Muffler & Silencers
  - Relief Valves

- **Brass Poppet / Sliding Seal / “PL”/“VL” / “HV”**
  - Manual Valves
  - Lever & Button Operators
  - 1/8” thru 1/2” Ports

- **Safety Guide**

- **Offer of Sale**
Viking Lite
Inline Series

Air Control Valves
P2LAZ – 1/8"
P2LBZ – 1/4"
P2LCZ – 3/8"

Section D
www.parker.com/pneu/vikingx

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Basic Valve Features .......................................................... D3
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Dimensions ........................................................................ D6-D10

BOLD ITEMS ARE MOST POPULAR.
**Basic Valve Functions**

**Single solenoid**

3-Way, 2-Position NC (NPN)

![Diagram]

**Double solenoid**

3-Way, 2-Position

![Diagram]

**Single remote pilot**

3-Way, 2-Position NC (NPN)

![Diagram]

**Double remote pilot**

3-Way, 2-Position

![Diagram]

**Single solenoid**

Normal Closed:
- De-energized position – Solenoid #12 de-energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.
- Energized position – Solenoid #12 energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

**Double solenoid**

Normal Closed:
- Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.
- Solenoid operator #10 energized last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

**Single remote pilot**

Normal Closed:
- Normal position – Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.
- Operated position – Maintained air signal at port 12. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

**Double remote pilot**

Normal Closed:
- Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.
- Momentary air signal at port 10 last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

**Single remote pilot**

Normal Closed:
- Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.
- Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

**Double remote pilot**

Normal Closed:
- Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.
- Momentary air signal at port 10 last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.
Viking Lite Series Valves
Air Control Valves

Specifications

- P2LAZ: 0.6 Cv
- P2LBZ: 1.5 Cv
- P2LCZ: 2.5 Cv

Materials of Construction

- Valve Body: Anodized Aluminum
- Spool: Aluminum
- End Caps: Anodized Aluminum
- Piston: Acetal Plastic / Anodized Aluminum
- End Cover Sealings: Nitrile Rubber
- End Cover Screws: Stainless Steel
- Springs: Stainless Steel
- Spool Seals: Nitrile

Operating Temperature

- Normal: 14°F to 122°F (-10°C to 50°C)

Operating Pressure

- Normal: Vacuum to 145 PSIG (Vacuum to 10 bar)
- Minimum: Single solenoid - spring return 43.5 PSIG (3.0 bar)
  - Double solenoid - 2-position 22 PSIG (1.5 bar)
  - Double solenoid - 3-position 43.5 PSIG PSIG (3.0 bar)

Ports

- P2LAX: 1/8” NPT & BSPP
- P2LBX: 1/4” NPT & BSPP
- P2LCX: 3/8” NPT & BSPP

Compliance / Approval

- IP65 Rated, RoHS, CE

Solenoids

- 2.5 Watts
  - 22mm, 3-Pin (DIN 43650),
- 24VDC to 120VAC

Mounting

- Inline
- IEM Aluminum Bar

WCS

- Maximum Performance
  - Low friction - fast response - less wear
- Long Cycle Life
  - Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore
- Non-Lube Service
  - No lubrication required for continuous valve shifting
- Bi-Directional Spool Seals
  - Common spool used for any pressure

Wear Compensation System

- Robust anodized aluminum valve body
- Stainless steel spring return
- The bore is polished to a very high surface finish for maximum flow capacity and long life.
- Diecast end covers with zinc plated screws.
- Solenoid operated, IP65, RoHS, CE
- 90° rotation
- Maximum Performance
- Low friction - fast response - less wear
- Long Cycle Life
- Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore
- Non-Lube Service
- No lubrication required for continuous valve shifting
- Bi-Directional Spool Seals
- Common spool used for any pressure
### Viking Lite Series Valves

#### Normal Operating Pressure / Temperature

<table>
<thead>
<tr>
<th>Part number (NPT)</th>
<th>Part number (BSPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAZ391ESNDBB49</td>
<td>P2LAZ311ESNDBB49</td>
</tr>
<tr>
<td>P2LAZ391ESNDBB53</td>
<td>P2LAZ311ESNDBB53</td>
</tr>
<tr>
<td>P2LBZ392ESNDBB49</td>
<td>P2LBZ312ESNDBB49</td>
</tr>
<tr>
<td>P2LBZ392ESNDBB53</td>
<td>P2LBZ312ESNDBB53</td>
</tr>
<tr>
<td>P2LCZ393ESNDBB49</td>
<td>P2LCZ313ESNDBB49</td>
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<td>P2LCZ313ESNDBB53</td>
</tr>
<tr>
<td>P2LAZ391EENDBB49</td>
<td>P2LAZ311EENDBB49</td>
</tr>
<tr>
<td>P2LAZ391EENDBB53</td>
<td>P2LAZ311EENDBB53</td>
</tr>
<tr>
<td>P2LBZ392EENDBB49</td>
<td>P2LBZ312EENDBB49</td>
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<tr>
<td>P2LBZ392EENDBB53</td>
<td>P2LBZ312EENDBB53</td>
</tr>
<tr>
<td>P2LCZ393EENDBB49</td>
<td>P2LCZ313EENDBB49</td>
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<tr>
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<td>P2LCZ313EENDBB53</td>
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<tr>
<td>P2LAZ591ESNDBB49</td>
<td>P2LAZ511ESNDBB49</td>
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<td>P2LBZ512ESNDBB53</td>
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<tr>
<td>P2LCZ693EENDBB53</td>
<td>P2LCZ513EENDBB53</td>
</tr>
</tbody>
</table>

#### Notes:
Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).
### 5/3 - 3 Position, Pressure Center

<table>
<thead>
<tr>
<th>Port size</th>
<th>Cv</th>
<th>Response time (msec)</th>
<th>Weight (lb)</th>
<th>Voltage</th>
<th>Part number (NPT)</th>
<th>Part number (BSPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>0.6</td>
<td>18 / 40</td>
<td>0.57 (0.26)</td>
<td>24VDC</td>
<td>P2LAZ791EENDBB49</td>
<td>P2LAZ711EENDBB49</td>
</tr>
<tr>
<td>1/4</td>
<td>1.5</td>
<td>22 / 55</td>
<td>0.62 (0.28)</td>
<td>24VDC</td>
<td>P2LBZ792EENDBB49</td>
<td>P2LBZ712EENDBB49</td>
</tr>
<tr>
<td>3/8</td>
<td>2.5</td>
<td>30 / 90</td>
<td>1.32 (0.60)</td>
<td>24VDC</td>
<td>P2LCZ793EENDBB49</td>
<td>P2LCZ713EENDBB49</td>
</tr>
</tbody>
</table>

### 5/3 - 3 Position, Center Exhaust

<table>
<thead>
<tr>
<th>Port size</th>
<th>Cv</th>
<th>Response time (msec)</th>
<th>Weight (lb)</th>
<th>Voltage</th>
<th>Part number (NPT)</th>
<th>Part number (BSPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>0.6</td>
<td>18 / 40</td>
<td>0.57 (0.26)</td>
<td>24VDC</td>
<td>P2LAZ891EENDBB49</td>
<td>P2LAZ811EENDBB49</td>
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<tr>
<td>1/4</td>
<td>1.5</td>
<td>22 / 55</td>
<td>0.62 (0.28)</td>
<td>24VDC</td>
<td>P2LBZ892EENDBB49</td>
<td>P2LBZ812EENDBB49</td>
</tr>
<tr>
<td>3/8</td>
<td>2.5</td>
<td>30 / 90</td>
<td>1.32 (0.60)</td>
<td>24VDC</td>
<td>P2LCZ893EENDBB49</td>
<td>P2LCZ813EENDBB49</td>
</tr>
</tbody>
</table>

**Notes:**
- Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

### Single & Double Solenoid Operated Valves

<table>
<thead>
<tr>
<th>P2L A Z 5</th>
<th>91 E S</th>
<th>N D C B 49</th>
</tr>
</thead>
</table>

#### Valve size
- 1/8" A
- 1/4" B
- 3/8" C

#### Series
- Viking Lite Z

#### Valve type / function
- Internal pilot supply to solenoid
  - 3/2 NC - 2-position
  - 5/2 2-position
  - 5/3 3-position, APB
  - 5/3 3-position, PC
  - 5/3 3-position, CE

#### Main port thread
- 1/8" (P2LA) 11
- 1/4" (P2LB) 12
- 3/8" (P2LC) 13
- 1/8" NPT (P2LA) 91
- 1/4" NPT (P2LB) 92
- 3/8" NPT (P2LC) 93

#### Voltage / frequency
- 49 24VDC
- 53 120VAC
- Blank Valve less coil

#### Enclosures / lead length
- B 22mm rectangular 3-pin – type B industrial (male only)
- N Valve less coil

#### Overrides
- C Extended - locking
- B Flush - non-locking

#### Solenoid pilot type
- D Pilot exhaust vented

#### Valve type
- 12 End operator
  - E Double solenoid operated valve
  - S* Single solenoid spring return

*Not available with 3-position valves.

**Bold items are most popular.**
Common Part Numbers

IEM Bar Manifolds & Accessories

IEM Bar Manifold, Inline Valve Only*

<table>
<thead>
<tr>
<th>Valve series</th>
<th>Valve function</th>
<th># of Stations</th>
<th>Weight lb (kg)</th>
<th>Manifold only (NPT)</th>
<th>Manifold only (BSPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAZ / P2LBZ</td>
<td>3-way</td>
<td>2</td>
<td>0.84 (0.38)</td>
<td>91213202SXZN</td>
<td>91213202SXZ</td>
</tr>
<tr>
<td>P2LAZ / P2LBZ</td>
<td>3-way</td>
<td>4</td>
<td>1.41 (0.64)</td>
<td>91213204SXZN</td>
<td>91213204SXZ</td>
</tr>
<tr>
<td>P2LAZ / P2LBZ</td>
<td>3-way</td>
<td>6</td>
<td>1.96 (0.89)</td>
<td>91213206SXZN</td>
<td>91213206SXZ</td>
</tr>
<tr>
<td>P2LAZ / P2LBZ</td>
<td>3-way</td>
<td>8</td>
<td>2.54 (1.15)</td>
<td>91213208SXZN</td>
<td>91213208SXZ</td>
</tr>
<tr>
<td>P2LAZ / P2LBZ</td>
<td>3-way</td>
<td>10</td>
<td>3.09 (1.40)</td>
<td>91213210SXZN</td>
<td>91213210SXZ</td>
</tr>
</tbody>
</table>

Kits include: Manifold, valve hold down bolts, gaskets.

IEM Bar Manifold, Inline Valve Only

<table>
<thead>
<tr>
<th>Valve series</th>
<th>Valve function</th>
<th># of Stations</th>
<th>Weight lb (kg)</th>
<th>Manifold only (NPT)</th>
<th>Manifold only (BSPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAZ</td>
<td>4-way</td>
<td>2</td>
<td>0.68 (0.31)</td>
<td>9121658068N</td>
<td>9121658068</td>
</tr>
<tr>
<td>P2LAZ</td>
<td>4-way</td>
<td>4</td>
<td>1.06 (0.48)</td>
<td>9121658075N</td>
<td>9121658075</td>
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<tr>
<td>P2LAZ</td>
<td>4-way</td>
<td>6</td>
<td>1.39 (0.63)</td>
<td>9121658076N</td>
<td>9121658076</td>
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<tr>
<td>P2LAZ</td>
<td>4-way</td>
<td>8</td>
<td>1.76 (0.80)</td>
<td>9121658077N</td>
<td>9121658077</td>
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<tr>
<td>P2LAZ</td>
<td>4-way</td>
<td>10</td>
<td>2.16 (0.98)</td>
<td>9121658078N</td>
<td>9121658078</td>
</tr>
</tbody>
</table>

Kits include: Manifold, valve hold down bolts, gaskets.

Manifold Accessories / Parts

<table>
<thead>
<tr>
<th>Valve series</th>
<th>Description</th>
<th>Weight lb (kg)</th>
<th>Kit number</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAZ / P2LBZ</td>
<td>* 3-way: Blanking kit with mounting screws (2)</td>
<td>0.22 (0.10)</td>
<td>912132BPSXZ</td>
</tr>
<tr>
<td>P2LAZ</td>
<td>* 4-way: Blanking kit with mounting screws (2)</td>
<td>0.11 (0.05)</td>
<td>9121658063</td>
</tr>
<tr>
<td>P2LBZ</td>
<td>* 4-way: Blanking kit with mounting screws (2)</td>
<td>0.04 (0.02)</td>
<td>9121594809X</td>
</tr>
</tbody>
</table>

*Note: O-ring for blanking kit included with manifold. For replacement o-rings or fastener bolts, use Viking Xtreme Kits.

22mm Rectangular 3-Pin – Type B Industrial (Use with Enclosure “B”)

<table>
<thead>
<tr>
<th>Description</th>
<th>Connector with 6' (2m) cord</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unlighted</td>
<td>PS2429JBP</td>
<td>PS2429BP</td>
</tr>
<tr>
<td>Light – 24VDC</td>
<td>PS2430J79BP</td>
<td>PS243079BP</td>
</tr>
<tr>
<td>Light – 120V/60Hz</td>
<td>PS2430J83BP*</td>
<td>PS243083BP</td>
</tr>
</tbody>
</table>

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6' (2m) cord. IP65 rated when properly installed.

Engineering data:
- Conductors: 2 poles plus ground; cable range (connector only): 6 to 8mm (0.24 to 0.31 Inch); contact spacing: 11mm

* Most popular.

Valve Less Coil

Remove the last 3 digits of the part number of the full valve and add “N” at the end for valve less coil.

Part number example:
P2LBZ592ESNDBBB49 valve with 24VDC solenoid
P2LBZ592ESNDBN valve less coil

Replacement Solenoid Coil

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
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<tbody>
<tr>
<td>24VDC coil kit</td>
<td>P2FCB449</td>
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<td>110VAC coil kit</td>
<td>P2FCB453</td>
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Replacement Solenoid Nut

<table>
<thead>
<tr>
<th>Description</th>
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<tbody>
<tr>
<td>Solenoid diffuser nut</td>
<td>PS1556</td>
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<tr>
<td>Solenoid vented nut</td>
<td>PS2892P</td>
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</table>
### P2LAZ 3/2 Single & Double Operators – Solenoid

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>P2LAZ 3/2 (solenoid)</th>
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<tbody>
<tr>
<td>A</td>
<td>A1</td>
</tr>
<tr>
<td>5.35</td>
<td>7.68</td>
</tr>
<tr>
<td>(136)</td>
<td>(195)</td>
</tr>
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<td>D</td>
<td>E</td>
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<tr>
<td>3.84</td>
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<tr>
<td>(97.5)</td>
<td>(10)</td>
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<tr>
<td>H1</td>
<td>J</td>
</tr>
<tr>
<td>.43</td>
<td>.65</td>
</tr>
<tr>
<td>(11)</td>
<td>(16.5)</td>
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<td>N</td>
<td>N1</td>
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<td>.02</td>
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<td>(.5)</td>
<td>(11)</td>
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Inches (mm)

### P2LAZ 3/2 Single & Double Operators – IEM Aluminum Bar Manifold

<table>
<thead>
<tr>
<th>Number of valves</th>
<th>X</th>
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<tbody>
<tr>
<td>2</td>
<td>2.91 (74)</td>
</tr>
<tr>
<td>4</td>
<td>4.80 (122)</td>
</tr>
<tr>
<td>6</td>
<td>6.69 (170)</td>
</tr>
<tr>
<td>8</td>
<td>8.58 (218)</td>
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<tr>
<td>10</td>
<td>10.47 (266)</td>
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</table>

Manifold bolt Torque value

<table>
<thead>
<tr>
<th>Manifold bolt</th>
<th>Torque value</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3x40 SHCS</td>
<td>4 in.lb (0.45 Nm)</td>
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Inches (mm)

### P2LAZ 5/2 & 5/3 Single & Double Operators – Solenoid

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>P2LAZ 5/2 &amp; 5/3 (solenoid)</th>
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<tbody>
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<td>A</td>
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<td>5.47</td>
<td>7.76</td>
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<td>(139)</td>
<td>(197)</td>
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<td>C1</td>
<td>D</td>
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<tr>
<td>.14</td>
<td>3.88</td>
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<tr>
<td>(3.5)</td>
<td>(98.5)</td>
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<tr>
<td>E3</td>
<td>F</td>
</tr>
<tr>
<td>.33</td>
<td>.63</td>
</tr>
<tr>
<td>(8.5)</td>
<td>(16)</td>
</tr>
<tr>
<td>J</td>
<td>J1</td>
</tr>
<tr>
<td>.63</td>
<td>.12</td>
</tr>
<tr>
<td>(16)</td>
<td>(3)</td>
</tr>
<tr>
<td>N1</td>
<td>P</td>
</tr>
<tr>
<td>(.43)</td>
<td>(11)</td>
</tr>
</tbody>
</table>

Inches (mm)
Viking Lite Series Valves
P2LAZ & P2LBZ Inline Valves

P2LAZ 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold

P2LBZ 3/2 Single & Double Operators – Solenoid

P2LBZ 3/2 Single & Double Operators – IEM Aluminum Bar Manifold
### Viking Lite Series Valves

#### P2LBZ & P2LCZ Inline Valves

**P2LBZ 5/2 & 5/3 Single & Double Operators – Solenoid**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Inch</th>
<th>mm</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>6.14</td>
<td>156</td>
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<tr>
<td>A1</td>
<td>8.46</td>
<td>215</td>
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<tr>
<td>A2</td>
<td>9.29</td>
<td>236</td>
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<tr>
<td>B</td>
<td>1.57</td>
<td>39</td>
</tr>
<tr>
<td>C</td>
<td>1.26</td>
<td>32</td>
</tr>
<tr>
<td>D</td>
<td>4.23</td>
<td>107.5</td>
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<td>D1</td>
<td>4.65</td>
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<tr>
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<td>0.39</td>
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<tr>
<td>E2</td>
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<td>29</td>
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<td>E3</td>
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<td>10</td>
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<tr>
<td>F</td>
<td>0.79</td>
<td>20</td>
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<td>H</td>
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<tr>
<td>H1</td>
<td>0.43</td>
<td>11</td>
</tr>
<tr>
<td>H2</td>
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<td>1.5</td>
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<tr>
<td>J</td>
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<td>16.5</td>
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<td>J1</td>
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<td>2.8</td>
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<tr>
<td>K2</td>
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<td>38</td>
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<tr>
<td>M</td>
<td>0.79</td>
<td>20</td>
</tr>
<tr>
<td>N</td>
<td>0.08</td>
<td>2</td>
</tr>
<tr>
<td>N1</td>
<td>0.43</td>
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<tr>
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<td>0.12</td>
<td>3.1</td>
</tr>
<tr>
<td>Ø1</td>
<td>0.17</td>
<td>4.3</td>
</tr>
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**P2LBZ 5/2 & 5/3 (solenoid)**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Inch</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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<td>165</td>
</tr>
<tr>
<td>A1</td>
<td>8.66</td>
<td>220</td>
</tr>
<tr>
<td>A2</td>
<td>9.89</td>
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</tr>
<tr>
<td>B</td>
<td>1.89</td>
<td>47</td>
</tr>
<tr>
<td>C</td>
<td>1.46</td>
<td>37</td>
</tr>
<tr>
<td>D</td>
<td>4.33</td>
<td>110</td>
</tr>
<tr>
<td>E</td>
<td>1.04</td>
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<td>1.10</td>
<td>28</td>
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<td>2.09</td>
<td>53</td>
</tr>
<tr>
<td>H</td>
<td>1.18</td>
<td>30</td>
</tr>
<tr>
<td>H1</td>
<td>0.59</td>
<td>15</td>
</tr>
<tr>
<td>J</td>
<td>0.91</td>
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</tr>
<tr>
<td>J1</td>
<td>1.50</td>
<td>38</td>
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<tr>
<td>K2</td>
<td>0.53</td>
<td>13.5</td>
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<tr>
<td>M</td>
<td>0.79</td>
<td>20</td>
</tr>
<tr>
<td>N</td>
<td>0.08</td>
<td>2</td>
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<tr>
<td>N1</td>
<td>0.43</td>
<td>11</td>
</tr>
<tr>
<td>Ø</td>
<td>0.12</td>
<td>3.1</td>
</tr>
<tr>
<td>Ø1</td>
<td>0.17</td>
<td>4.3</td>
</tr>
</tbody>
</table>

**P2LBZ 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold**

<table>
<thead>
<tr>
<th>Number of valves</th>
<th>X</th>
<th>Number of stations</th>
</tr>
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<tbody>
<tr>
<td>2</td>
<td>2.91</td>
<td>(74)</td>
</tr>
<tr>
<td>4</td>
<td>4.80</td>
<td>(122)</td>
</tr>
<tr>
<td>6</td>
<td>6.69</td>
<td>(170)</td>
</tr>
<tr>
<td>8</td>
<td>8.58</td>
<td>(218)</td>
</tr>
<tr>
<td>10</td>
<td>10.47</td>
<td>(266)</td>
</tr>
</tbody>
</table>

**Manifold bolt Torque value**

- M3x40 SCHS: 9 in.lbf (0.75 Nm)

**P2LCZ 3/2 Single & Double Operators – Solenoid**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Inch</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.50</td>
<td>165</td>
</tr>
<tr>
<td>A1</td>
<td>8.66</td>
<td>220</td>
</tr>
<tr>
<td>A2</td>
<td>9.89</td>
<td>248</td>
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<tr>
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<td>1.89</td>
<td>47</td>
</tr>
<tr>
<td>C</td>
<td>1.46</td>
<td>37</td>
</tr>
<tr>
<td>D</td>
<td>4.33</td>
<td>110</td>
</tr>
<tr>
<td>E</td>
<td>1.04</td>
<td>26</td>
</tr>
<tr>
<td>E1</td>
<td>1.10</td>
<td>28</td>
</tr>
<tr>
<td>E2</td>
<td>2.09</td>
<td>53</td>
</tr>
<tr>
<td>H</td>
<td>1.18</td>
<td>30</td>
</tr>
<tr>
<td>H1</td>
<td>0.59</td>
<td>15</td>
</tr>
<tr>
<td>J</td>
<td>0.91</td>
<td>23</td>
</tr>
<tr>
<td>J1</td>
<td>1.50</td>
<td>38</td>
</tr>
<tr>
<td>K2</td>
<td>0.53</td>
<td>13.5</td>
</tr>
<tr>
<td>M</td>
<td>0.79</td>
<td>20</td>
</tr>
<tr>
<td>N</td>
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<td>N1</td>
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<tr>
<td>Ø</td>
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<td>3.1</td>
</tr>
<tr>
<td>Ø1</td>
<td>0.17</td>
<td>4.3</td>
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</table>

**P2LCZ 3/2 (solenoid)**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Inch</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.50</td>
<td>165</td>
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<tr>
<td>A1</td>
<td>8.66</td>
<td>220</td>
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<tr>
<td>A2</td>
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<td>248</td>
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<tr>
<td>B</td>
<td>1.89</td>
<td>47</td>
</tr>
<tr>
<td>C</td>
<td>1.46</td>
<td>37</td>
</tr>
<tr>
<td>D</td>
<td>4.33</td>
<td>110</td>
</tr>
<tr>
<td>E</td>
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</tr>
<tr>
<td>E1</td>
<td>1.10</td>
<td>28</td>
</tr>
<tr>
<td>E2</td>
<td>2.09</td>
<td>53</td>
</tr>
<tr>
<td>H</td>
<td>1.18</td>
<td>30</td>
</tr>
<tr>
<td>H1</td>
<td>0.59</td>
<td>15</td>
</tr>
<tr>
<td>J</td>
<td>0.91</td>
<td>23</td>
</tr>
<tr>
<td>J1</td>
<td>1.50</td>
<td>38</td>
</tr>
<tr>
<td>K2</td>
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<td>13.5</td>
</tr>
<tr>
<td>M</td>
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<tr>
<td>N</td>
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<td>2</td>
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<tr>
<td>N1</td>
<td>0.43</td>
<td>11</td>
</tr>
<tr>
<td>Ø</td>
<td>0.12</td>
<td>3.1</td>
</tr>
<tr>
<td>Ø1</td>
<td>0.17</td>
<td>4.3</td>
</tr>
</tbody>
</table>

**P2LCZ 3/2 Single & Double Operators – IEM Aluminum Bar Manifold**

<table>
<thead>
<tr>
<th>Number of valves</th>
<th>X</th>
<th>Number of stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2.91</td>
<td>(74)</td>
</tr>
<tr>
<td>4</td>
<td>4.80</td>
<td>(122)</td>
</tr>
<tr>
<td>6</td>
<td>6.69</td>
<td>(170)</td>
</tr>
<tr>
<td>8</td>
<td>8.58</td>
<td>(218)</td>
</tr>
<tr>
<td>10</td>
<td>10.47</td>
<td>(266)</td>
</tr>
</tbody>
</table>

**Manifold bolt Torque value**

- M3x40 SCHS: 9 in.lbf (0.75 Nm)
## P2LCZ 5/2 & 5/3 Single & Double Operators – Solenoid

<table>
<thead>
<tr>
<th>A</th>
<th>A1</th>
<th>A2</th>
<th>B</th>
<th>C</th>
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<tr>
<td>7.68</td>
<td>9.88</td>
<td>10.70</td>
<td>1.89</td>
<td>1.46</td>
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<table>
<thead>
<tr>
<th>D</th>
<th>D1</th>
<th>E</th>
<th>E1</th>
<th>E2</th>
</tr>
</thead>
<tbody>
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<td>4.94</td>
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<th>H</th>
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<th>H2</th>
<th>J</th>
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<td>2.80</td>
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<td>.59</td>
<td>.12</td>
<td>.91</td>
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<table>
<thead>
<tr>
<th>J1</th>
<th>K2</th>
<th>M</th>
<th>N</th>
<th>N1</th>
</tr>
</thead>
<tbody>
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<td>.14</td>
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<td>1.18</td>
<td>.08</td>
<td>.59</td>
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<table>
<thead>
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<tbody>
<tr>
<td>Ø .17</td>
<td>Ø .27</td>
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### P2LCZ 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold

### Number of valves

<table>
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<th>(X = \text{Number of Stations})</th>
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<tbody>
<tr>
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<td>3.29 (84)</td>
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<td>4</td>
<td>5.96 (152)</td>
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<td>6</td>
<td>8.44 (215)</td>
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<tr>
<td>8</td>
<td>10.93 (278)</td>
</tr>
<tr>
<td>10</td>
<td>13.41 (341)</td>
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</table>

### Manifold bolt Torque value

| M4x50 SCHS | 15 in lb (2.0 Nm) |

### P2LCZ 5/2 & 5/3 IEM Aluminum bar manifold

<table>
<thead>
<tr>
<th>C</th>
<th>D</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.97</td>
<td>4.41</td>
<td>.24</td>
<td>7.68</td>
<td>9.88</td>
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</table>

<table>
<thead>
<tr>
<th>J1</th>
<th>K2</th>
<th>L</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.70</td>
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<td>3.43</td>
<td>1.54</td>
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<table>
<thead>
<tr>
<th>Q</th>
<th>R</th>
<th>S</th>
<th>T</th>
</tr>
</thead>
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<tr>
<td>1.77</td>
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<td>.26</td>
<td>.24</td>
</tr>
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<table>
<thead>
<tr>
<th>R</th>
<th>(R = \text{Number of Stations})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>(P x (n-1))</td>
</tr>
</tbody>
</table>

Inches (mm)
Air Control Valves

P2LAX – 1/8"
P2LBX – 1/4"
P2LCX – 3/8"
P2LDX – 1/2"

Section D
www.parker.com/pneu/vikingx

BOLD ITEMS ARE MOST POPULAR.

ATEX Complete Valve & Solenoid Pilot Assemblies ...... D21
22mm Solenoid Pilot Operators & Coils, ATEX ..........D22-D23
Intrinsically Safe & Hazardous Duty Solenoid .......... D24
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DOT Fittings ............................................. D28-D29
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Basic Valve Features ..................................... D13
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   Solenoid Common Part Numbers .................... D14-D15
Extreme Operation
   Solenoid Common Part Numbers .................... D16-D17
   Solenoid Valve Model Number Index ............... D18
Remote Air Pilot Common Part Numbers ............... D19
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Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics
**Basic Valve Functions**

### Single solenoid

3-Way, 2-Position NC (NNP)

**Normally Closed:**
- De-energized position – Solenoid #12 de-energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.
- Energized position – Solenoid #12 energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

### Double solenoid

3-Way, 2-Position

- Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.
- Solenoid operator #10 energized last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

### Single solenoid

Single pressure at inlet port 1:

- De-energized position – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 3.
- Energized position – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

### Double solenoid

Single pressure at inlet port 1:

- Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.
- Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

### Double solenoid 3-position

With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.
- With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.
- All Ports Blocked
  - All ports blocked in the center position.
  - Center Exhaust
  - Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.
- Pressure Center
  - Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

### Single remote pilot

3-Way, 2-Position NC (NNP)

**Normally Closed:**
- Normal position – Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.
- Operated position – Maintained air signal at port 12. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

### Double solenoid

3-Way, 2-Position

- Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.
- Momentary air signal at port 10 last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

### Single remote pilot

Single pressure at inlet port 1:

- Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.
- Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

### Double remote pilot

Single pressure at inlet port 1:

- Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.
- Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.
Specifications

**Specifications**

<table>
<thead>
<tr>
<th>Series</th>
<th>Model</th>
<th>Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAX</td>
<td>0.7 Cv</td>
<td></td>
</tr>
<tr>
<td>P2LBX</td>
<td>1.3 Cv</td>
<td></td>
</tr>
<tr>
<td>P2LCX</td>
<td>2.5 Cv</td>
<td></td>
</tr>
<tr>
<td>P2LDX</td>
<td>2.7 Cv</td>
<td></td>
</tr>
</tbody>
</table>

**Materials of Construction**

- **Valve Body**: Anodized Aluminum
- **Spool**: Aluminum & Nitrile Rubber
- **End Caps**: Anodized Aluminum
- **Coils**: Thermoplastic
- **Fasteners**: Stainless Steel

**Operating Temperature**

- **Normal**: 14°F to 122°F (-10°C to 50°C)
- **Xtreme**: -40°F to 140°F (-40°C to 60°C)

**Operating Pressure**

- **Normal**: Vacuum to 145 PSIG (Vacuum to 10 bar)
- **Xtreme**:
  - (P2LAX & P2LBX) Vacuum to 232 PSIG (Vacuum to 16 bar)
  - (P2LCX & P2LDX) Vacuum to 174 PSIG (Vacuum to 12 bar)

**Ports**

- **P2LAX**: 1/8” NPT & BSPP
- **P2LBX**: 1/4” NPT & BSPP
- **P2LCX**: 3/8” NPT & BSPP
- **P2LDX**: 1/2” NPT & BSPP

**Compliance / Approval**

- IP65 Rated
- CSA Approved to 145 PSIG (10 bar)
- ATEX Option Available

**Solenoids**

- 2.5 to 7.3 Watt – Conduit, Grommet, 22mm & 30mm 3-Pin (DIN 43650), Hazardous Duty, Intrinsically Safe
- 12VDC to 240VAC

**Mounting**

- Inline
- IEM Aluminum Bar

**Mobile Applications**

- Viking Xtreme Tested to +5g Shock and Vibration
- Solenoids Operate with Wide Voltage Tolerance Bands
- Corrosion Resistant Design

---

**Over Molded Spool**

- Aluminum spool with nitrile rubber coating ground to exact size for optimum performance
- Precision ground for maximum performance
- Wide operating temperature range
  - Low temperature to -40°

---

**Over Molded Spool**

- Robust anodized aluminum valve body
- Stainless steel spring return
- Sintered bronze pilot chamber breathers provide increased protection against ingress of dust and dirt.

---

**Viking Xtreme Series Valves**

**Air Control Valves**

---

**Basic Valve Features**
### Single Solenoid, 3-way, 2-position, Normal Operating Pressure / Temperature

<table>
<thead>
<tr>
<th>Solenoid</th>
<th>Port size (NPT)</th>
<th>Cv</th>
<th>Valve type</th>
<th>Response time (msec)</th>
<th>Weight (lb)</th>
<th>Voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>22mm DIN</td>
<td>1/8”</td>
<td>0.7</td>
<td>P2LAX 18/40</td>
<td>0.84 (0.38)</td>
<td>0.49 (0.22)</td>
<td>24VDC</td>
<td>P2LAX391ESNDDG49</td>
</tr>
<tr>
<td></td>
<td>1/4”</td>
<td>1.3</td>
<td>P2LBX 18/45</td>
<td>0.84 (0.38)</td>
<td>0.49 (0.22)</td>
<td>24VDC</td>
<td>P2LBX392ESNDDG49</td>
</tr>
<tr>
<td></td>
<td>3/8”</td>
<td>2.5</td>
<td>P2LCX 25/75</td>
<td>1.72 (0.78)</td>
<td>0.84 (0.38)</td>
<td>24VDC</td>
<td>P2LCX393ESNDDG49</td>
</tr>
<tr>
<td></td>
<td>1/2”</td>
<td>2.7</td>
<td>P2LDX 25/75</td>
<td>1.72 (0.78)</td>
<td>0.84 (0.38)</td>
<td>24VDC</td>
<td>P2LDX394ESNDDG49</td>
</tr>
</tbody>
</table>

#### P2LAX 22mm DIN Shown

<table>
<thead>
<tr>
<th>Port size (NPT)</th>
<th>Cv</th>
<th>Valve type</th>
<th>Response time (msec)</th>
<th>Weight (lb)</th>
<th>Voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8”</td>
<td>0.7</td>
<td>P2LAX 18/40</td>
<td>0.84 (0.38)</td>
<td>0.49 (0.22)</td>
<td>24VDC</td>
<td>P2LAX391ESNDDG49</td>
</tr>
<tr>
<td>1/4”</td>
<td>1.3</td>
<td>P2LBX 18/45</td>
<td>0.84 (0.38)</td>
<td>0.84 (0.38)</td>
<td>24VDC</td>
<td>P2LBX392ESNDDG49</td>
</tr>
<tr>
<td>3/8”</td>
<td>2.5</td>
<td>P2LCX 25/75</td>
<td>1.72 (0.78)</td>
<td>1.68 (0.76)</td>
<td>24VDC</td>
<td>P2LCX393ESNDDG49</td>
</tr>
<tr>
<td>1/2”</td>
<td>2.7</td>
<td>P2LDX 25/75</td>
<td>1.72 (0.78)</td>
<td>1.68 (0.76)</td>
<td>24VDC</td>
<td>P2LDX394ESNDDG49</td>
</tr>
</tbody>
</table>

#### 18” Grommet

<table>
<thead>
<tr>
<th>Port size (NPT)</th>
<th>Cv</th>
<th>Valve type</th>
<th>Response time (msec)</th>
<th>Weight (lb)</th>
<th>Voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8”</td>
<td>0.7</td>
<td>P2LAX 18/40</td>
<td>0.84 (0.38)</td>
<td>0.49 (0.22)</td>
<td>24VDC</td>
<td>P2LAX391ESNDDG49</td>
</tr>
<tr>
<td>1/4”</td>
<td>1.3</td>
<td>P2LBX 18/45</td>
<td>0.84 (0.38)</td>
<td>0.84 (0.38)</td>
<td>24VDC</td>
<td>P2LBX392ESNDDG49</td>
</tr>
<tr>
<td>3/8”</td>
<td>2.5</td>
<td>P2LCX 25/75</td>
<td>1.72 (0.78)</td>
<td>1.68 (0.76)</td>
<td>24VDC</td>
<td>P2LCX393ESNDDG49</td>
</tr>
<tr>
<td>1/2”</td>
<td>2.7</td>
<td>P2LDX 25/75</td>
<td>1.72 (0.78)</td>
<td>1.68 (0.76)</td>
<td>24VDC</td>
<td>P2LDX394ESNDDG49</td>
</tr>
</tbody>
</table>

#### P2LAX 18” Grommet Shown

#### Notes:
- Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
- Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).
### Double Solenoid, 4-way, 2-position, Normal Operating Pressure / Temperature

<table>
<thead>
<tr>
<th>Solenoid (NPT)</th>
<th>Cv</th>
<th>Valve type</th>
<th>Response time (msec)</th>
<th>Weight lb (kg)</th>
<th>Voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot;</td>
<td>0.7</td>
<td>P2LAX</td>
<td>10 / 10</td>
<td>0.60 (0.27)</td>
<td>24VDC</td>
<td>P2LAX591EENDDB49</td>
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<tr>
<td>1/4&quot;</td>
<td>1.3</td>
<td>P2LBX</td>
<td>12 / 12</td>
<td>0.93 (0.42)</td>
<td>24VDC</td>
<td>P2LBX592EENDDB53</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>2.5</td>
<td>P2LCX</td>
<td>17 / 17</td>
<td>1.78 (0.81)</td>
<td>24VDC</td>
<td>P2LCX593EENDDB49</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>2.7</td>
<td>P2LDX</td>
<td>17 / 17</td>
<td>1.78 (0.81)</td>
<td>24VDC</td>
<td>P2LDX594EENDDB49</td>
</tr>
</tbody>
</table>

### Double Solenoid, 4-way, 3-position All Ports Blocked, 3-position Center Exhaust, Normal Operating Pressure / Temperature

<table>
<thead>
<tr>
<th>Solenoid (NPT)</th>
<th>Cv</th>
<th>Valve type</th>
<th>Response time (msec)</th>
<th>Weight lb (kg)</th>
<th>Voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot;</td>
<td>0.5</td>
<td>P2LAX</td>
<td>18 / 40</td>
<td>0.62 (0.28)</td>
<td>24VDC</td>
<td>P2LAX691EENDDB49</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>0.9</td>
<td>P2LBX</td>
<td>22 / 55</td>
<td>0.97 (0.44)</td>
<td>24VDC</td>
<td>P2LBX692EENDDB49</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>1.8</td>
<td>P2LCX</td>
<td>30 / 90</td>
<td>2.45 (1.11)</td>
<td>24VDC</td>
<td>P2LCX693EENDDB49</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>1.9</td>
<td>P2LDX</td>
<td>30 / 90</td>
<td>2.45 (1.11)</td>
<td>24VDC</td>
<td>P2LDX694EENDDB49</td>
</tr>
</tbody>
</table>

**Notes:**
- Above valves are rated for an operating temperature from 14°F to 122°F (-10°C to 50°C). See model code matrix for additional options.
- Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

---

BOLD ITEMS ARE MOST POPULAR.
### Single Solenoid, 3-way, 2-position, Xtreme Operating Pressure / Temperature

<table>
<thead>
<tr>
<th>Solenoid</th>
<th>Port size (NPT)</th>
<th>Cv</th>
<th>Valve type</th>
<th>Response time (msec)</th>
<th>Weight lb (kg)</th>
<th>Voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LBX</td>
<td>1/8&quot;</td>
<td>0.7</td>
<td>P2LAX</td>
<td>15 / 45</td>
<td>0.84 (0.38)</td>
<td>12VDC</td>
<td>P2LAX391ESHDDB47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24VDC</td>
<td>P2LAX391ESHDDB48</td>
</tr>
<tr>
<td></td>
<td>1/4&quot;</td>
<td>1.3</td>
<td>P2LBX</td>
<td>25 / 65</td>
<td>0.84 (0.38)</td>
<td>12VDC</td>
<td>P2LBX392ESHDDB47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24VDC</td>
<td>P2LBX392ESHDDB48</td>
</tr>
<tr>
<td></td>
<td>3/8&quot;</td>
<td>2.5</td>
<td>P2LCX</td>
<td>25 / 85</td>
<td>1.01 (0.46)</td>
<td>12VDC</td>
<td>P2LCX393ESHDDB47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>24VDC</td>
<td>P2LCX393ESHDDB48</td>
</tr>
<tr>
<td></td>
<td>1/2&quot;</td>
<td>2.7</td>
<td>P2LDX</td>
<td>25 / 85</td>
<td>1.01 (0.46)</td>
<td>12VDC</td>
<td>P2LDX394ESHDDG47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24VDC</td>
<td>P2LDX394ESHDDG48</td>
</tr>
</tbody>
</table>

**Notes:** Above valves have Mobile Rate Coils and are rated for an operating temperature from -40°F to 140°F (-40°C to 60°C). See model code matrix for additional options. Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

### Single Solenoid, 4-way, 2-position, Xtreme Operating Pressure / Temperature

<table>
<thead>
<tr>
<th>Solenoid</th>
<th>Port size (NPT)</th>
<th>Cv</th>
<th>Valve type</th>
<th>Response time (msec)</th>
<th>Weight lb (kg)</th>
<th>Voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LBX</td>
<td>1/8&quot;</td>
<td>0.7</td>
<td>P2LAX</td>
<td>15 / 45</td>
<td>0.84 (0.38)</td>
<td>12VDC</td>
<td>P2LAX591ESHDDB47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24VDC</td>
<td>P2LAX591ESHDDB48</td>
</tr>
<tr>
<td></td>
<td>1/4&quot;</td>
<td>1.3</td>
<td>P2LBX</td>
<td>20 / 55</td>
<td>0.84 (0.38)</td>
<td>12VDC</td>
<td>P2LBX592ESHDDB47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24VDC</td>
<td>P2LBX592ESHDDB48</td>
</tr>
<tr>
<td></td>
<td>3/8&quot;</td>
<td>2.5</td>
<td>P2LCX</td>
<td>25 / 85</td>
<td>1.01 (0.46)</td>
<td>12VDC</td>
<td>P2LCX593ESHDDB47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>24VDC</td>
<td>P2LCX593ESHDDB48</td>
</tr>
<tr>
<td></td>
<td>1/2&quot;</td>
<td>2.7</td>
<td>P2LDX</td>
<td>25 / 85</td>
<td>1.01 (0.46)</td>
<td>12VDC</td>
<td>P2LDX594ESHDDG47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24VDC</td>
<td>P2LDX594ESHDDG48</td>
</tr>
</tbody>
</table>

**Notes:** Above valves have Mobile Rate Coils and are rated for an operating temperature from -40°F to 140°F (-40°C to 60°C). See model code matrix for additional options. Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).
### Common Part Numbers

**Viking Xtreme Series Valves**

#### Double Solenoid, 4-way, 2-position, Xtreme Operating Pressure / Temperature

<table>
<thead>
<tr>
<th>Solenoid</th>
<th>Port size (NPT)</th>
<th>Cv</th>
<th>Valve type</th>
<th>Response time (msec)</th>
<th>Weight lb (kg)</th>
<th>Voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/8&quot;</td>
<td>0.7</td>
<td>P2LAX</td>
<td>11 / 11</td>
<td>0.60 (0.27)</td>
<td>12VDC</td>
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<tr>
<td></td>
<td>1/4&quot;</td>
<td>1.3</td>
<td>P2LBX</td>
<td>13 / 13</td>
<td>0.93 (0.42)</td>
<td>12VDC</td>
<td>P2LBX592EHDDB47</td>
</tr>
<tr>
<td></td>
<td>3/8&quot;</td>
<td>2.5</td>
<td>P2LCX</td>
<td>18 / 18</td>
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<td>P2LDX</td>
<td>18 / 18</td>
<td>1.06 (0.48)</td>
<td>12VDC</td>
<td>P2LDX594EHDDB47</td>
</tr>
</tbody>
</table>

#### Double Solenoid, 4-way, 3-position All Ports Blocked, 3-position Center Exhaust, Xtreme Operating Pressure / Temperature

<table>
<thead>
<tr>
<th>Solenoid</th>
<th>Port size (NPT)</th>
<th>Cv</th>
<th>Valve type</th>
<th>Response time (msec)</th>
<th>Weight lb (kg)</th>
<th>Voltage</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/8&quot;</td>
<td>0.7</td>
<td>P2LAX</td>
<td>18 / 40</td>
<td>0.62 (0.28)</td>
<td>12VDC</td>
<td>P2LAX691EHDDB47</td>
</tr>
<tr>
<td></td>
<td>1/4&quot;</td>
<td>0.9</td>
<td>P2LBX</td>
<td>22 / 55</td>
<td>0.97 (0.44)</td>
<td>12VDC</td>
<td>P2LBX692EHDDB47</td>
</tr>
<tr>
<td></td>
<td>3/8&quot;</td>
<td>1.8</td>
<td>P2LCX</td>
<td>30 / 90</td>
<td>2.45 (1.11)</td>
<td>12VDC</td>
<td>P2LCX693EHDDB47</td>
</tr>
<tr>
<td></td>
<td>1/2&quot;</td>
<td>1.9</td>
<td>P2LDX</td>
<td>30 / 90</td>
<td>2.45 (1.11)</td>
<td>12VDC</td>
<td>P2LDX694EHDDB47</td>
</tr>
</tbody>
</table>

#### Notes:
- Above valves have Mobile Rate Coils and are rated for an operating temperature from -40°F to 140°F (-40°C to 60°C). See model code matrix for additional options.
- Response time: Actuate to 90% pressure / return to exhaust to 10% of supply pressure. 93 PSIG (6.3 bar) / temperature 68°F (20°C).

### BOLD ITEMS ARE MOST POPULAR.
### Viking Xtreme Series Valves

#### Solenoid Operated Valves

**Catalog 0600P-E**

**Model Number Index**

**Richland, Michigan**

**www.parker.com/pneumatics**

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**Single & Double Solenoid Operated Valves**

#### Valve size

<table>
<thead>
<tr>
<th>Size</th>
<th>Code</th>
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</thead>
<tbody>
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</tr>
<tr>
<td>1/4&quot;</td>
<td>B</td>
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<tr>
<td>3/8&quot;</td>
<td>C</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>D</td>
</tr>
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</table>

#### Series

| Viking | X |

#### Valve size

<table>
<thead>
<tr>
<th>Size</th>
<th>Code</th>
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<tbody>
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<td>A</td>
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<tr>
<td>1/4&quot;</td>
<td>B</td>
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<td>3/8&quot;</td>
<td>C</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>D</td>
</tr>
</tbody>
</table>

#### Valve type / function

<table>
<thead>
<tr>
<th>Type / Function</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal pilot supply to solenoid*</td>
<td>3</td>
</tr>
<tr>
<td>5/2 2-position</td>
<td>5</td>
</tr>
<tr>
<td>5/3 3-position, APB</td>
<td>6</td>
</tr>
<tr>
<td>5/3 3-position, PC</td>
<td>7</td>
</tr>
<tr>
<td>5/3 3-position, CE</td>
<td>8</td>
</tr>
<tr>
<td>External pilot supply to the solenoids through ports #12 &amp; #14</td>
<td></td>
</tr>
<tr>
<td>3/2 NC - 2-position</td>
<td>L</td>
</tr>
<tr>
<td>5/2 2-position</td>
<td>N</td>
</tr>
<tr>
<td>5/3 3-position, APB</td>
<td>P</td>
</tr>
<tr>
<td>5/3 3-position, PC</td>
<td>Q</td>
</tr>
<tr>
<td>5/3 3-position, CE</td>
<td>R</td>
</tr>
</tbody>
</table>

* Size A & B solenoid valves can be field converted from internal to external pilot. See page D46 for details.

#### Main port thread

<table>
<thead>
<tr>
<th>Thread</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1/8 (P2LA)</td>
<td>11</td>
</tr>
<tr>
<td>G1/4 (P2LB)</td>
<td>12</td>
</tr>
<tr>
<td>G1/4 (P2LB) NAMUR Mount</td>
<td>1N*</td>
</tr>
<tr>
<td>G3/8 (P2LC)</td>
<td>13</td>
</tr>
<tr>
<td>G1/2 (P2LD)</td>
<td>14</td>
</tr>
<tr>
<td>1/8&quot; NPT (P2LA)</td>
<td>91</td>
</tr>
<tr>
<td>1/4&quot; NPT (P2LB)</td>
<td>92</td>
</tr>
<tr>
<td>1/4&quot; NPT (P2LB) NAMUR Mount</td>
<td>9N*</td>
</tr>
<tr>
<td>3/8&quot; NPT (P2LC)</td>
<td>93</td>
</tr>
<tr>
<td>1/2&quot; NPT (P2LD)</td>
<td>94</td>
</tr>
</tbody>
</table>

* NAMUR mount available for 5/2, 2-position only.

#### Voltage / frequency

<table>
<thead>
<tr>
<th>Voltage / Frequency</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>24VAC</td>
<td>42</td>
</tr>
<tr>
<td>12VDC</td>
<td>45</td>
</tr>
<tr>
<td>12 VDC mobile</td>
<td>47*</td>
</tr>
<tr>
<td>24 VDC mobile</td>
<td>48*</td>
</tr>
<tr>
<td>24VDC</td>
<td>49</td>
</tr>
<tr>
<td>120VAC</td>
<td>53</td>
</tr>
<tr>
<td>240VAC</td>
<td>57</td>
</tr>
<tr>
<td>Valve less coil</td>
<td>Blank</td>
</tr>
</tbody>
</table>

* Only available with enclosures "A", "B" & "G". Additional voltages are available upon request. Contact customer support for more information.

#### Enclosures / lead length

<table>
<thead>
<tr>
<th>Enclosure / Lead Length</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>30mm square 3-pin – ISO 4400 Form A (male only)</td>
<td>A</td>
</tr>
<tr>
<td>22mm rectangular 3-pin – type B industrial (male only)</td>
<td>B</td>
</tr>
<tr>
<td>Intrinsically safe, FM / CSA</td>
<td>E*</td>
</tr>
<tr>
<td>Hazardous duty, FM / CSA</td>
<td>F‡</td>
</tr>
<tr>
<td>Grommet - 18&quot; leads</td>
<td>G</td>
</tr>
<tr>
<td>1/2&quot; NPT conduit - 18&quot; leads</td>
<td>H</td>
</tr>
<tr>
<td>Solenoid pilot operator less coil</td>
<td>N</td>
</tr>
</tbody>
</table>

* Only available with voltage code "49" & override option "A", valve type "N" only. Solenoid coil only CSA approved.

* Valve Type "N" Only. Solenoid coil only CSA approved.

#### Overrides

<table>
<thead>
<tr>
<th>Override</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>No override</td>
<td>A</td>
</tr>
<tr>
<td>Flush - locking</td>
<td>C*</td>
</tr>
<tr>
<td>Extended non-locking</td>
<td>D</td>
</tr>
</tbody>
</table>

* Override for valve type N only.

#### Solenoid pilot type

<table>
<thead>
<tr>
<th>Pilot Type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot exhaust vented</td>
<td>D</td>
</tr>
<tr>
<td>Tapped pilot exhaust (MS)</td>
<td>N</td>
</tr>
</tbody>
</table>

#### Valve type

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal, vacuum to 145 PSIG (10 bar)</td>
<td>N</td>
</tr>
<tr>
<td>14°F to 122°F (-10°C to 50°C)</td>
<td>CSA Approved</td>
</tr>
<tr>
<td>Xtreme, vacuum to 145 PSIG (10 bar)</td>
<td>K</td>
</tr>
<tr>
<td>-40°F to 140°F (-40°C to 60°C)</td>
<td>CSA Approved</td>
</tr>
<tr>
<td>Xtreme, vacuum to 232 PSIG (16 bar)</td>
<td>H*</td>
</tr>
<tr>
<td>-40°F to 140°F (-40°C to 60°C)</td>
<td></td>
</tr>
</tbody>
</table>

* P2LC and P2LD solenoid operated valves have a maximum pressure rating of 175 PSIG (12 bar)

---

**Bold items are most popular.**

---

**Parker Hannifin Corporation**

Pneumatic Division

Richland, Michigan

www.parker.com/pneumatics
### Valve Products

#### Remote Pilot Operated Valves

| Single Remote Pilot, 3-way, 2-position, Xtreme Operating Pressure / Temperature |
|---|---|---|---|---|---|
| **Port size (NPT)** | **Cv** | **Response time (msec)** | **Weight lb (kg)** | **Valve type** | **Part number** |
| 1/8" | 0.7 | 15 / 45 | 0.68 (0.31) | P2LAX | P2LAX391PS |
| 1/4" | 1.3 | 25 / 65 | 0.68 (0.31) | P2LBX | P2LBX392PS |
| 3/8" | 2.5 | 25 / 65 | 0.88 (0.40) | P2LCX | P2LCX393PS |
| 1/2" | 2.7 | 25 / 65 | 0.88 (0.40) | P2LDX | P2LDX394PS |

**P2LAX Shown**

| Single Remote Pilot, 4-way, 2-position, Xtreme Operating Pressure / Temperature |
|---|---|---|---|---|---|
| **Port size (NPT)** | **Cv** | **Response time (msec)** | **Weight lb (kg)** | **Valve type** | **Part number** |
| 1/8" | 0.7 | 15 / 45 | 0.33 (0.15) | P2LAX | P2LAX591PS |
| 1/4" | 1.3 | 20 / 55 | 0.68 (0.31) | P2LBX | P2LBX592PS |
| 3/8" | 2.5 | 25 / 85 | 0.90 (0.41) | P2LCX | P2LCX593PS |
| 1/2" | 2.7 | 25 / 85 | 0.90 (0.41) | P2LDX | P2LDX594PS |

**P2LAX Shown**

| Double Remote Pilot, 4-way, 2-position, Xtreme Operating Pressure / Temperature |
|---|---|---|---|---|---|
| **Port size (NPT)** | **Cv** | **Response time (msec)** | **Weight lb (kg)** | **Valve type** | **Part number** |
| 1/8" | 0.7 | 11 / 11 | 0.33 (0.15) | P2LAX | P2LAX591PP |
| 1/4" | 1.3 | 13 / 13 | 0.68 (0.31) | P2LBX | P2LBX592PP |
| 3/8" | 2.5 | 18 / 18 | 0.90 (0.41) | P2LCX | P2LCX593PP |
| 1/2" | 2.7 | 18 / 18 | 0.90 (0.41) | P2LDX | P2LDX594PP |

**P2LBX Shown**

| Double Remote Pilot, 4-way, 3-position All Ports Blocked, 3-position Center Exhaust, Xtreme Operating Pressure / Temperature |
|---|---|---|---|---|---|
| **Port size (NPT)** | **Cv** | **Response time (msec)** | **Weight lb (kg)** | **Valve type** | **Part number** |
| 1/8" | 0.5 | 18 / 50 | 0.31 (0.14) | P2LAX | P2LAX691PP P2LAX891PP |
| 1/4" | 0.9 | 25 / 65 | 0.73 (0.33) | P2LBX | P2LBX692PP P2LBX892PP |
| 3/8" | 1.8 | 30 / 90 | 0.93 (0.42) | P2LCX | P2LCX693PP P2LCX893PP |
| 1/2" | 1.9 | 30 / 90 | 0.93 (0.42) | P2LDX | P2LDX694PP P2LDX894PP |

**P2LBX Shown**

**Notes:** Above valves are rated for an operating temperature from -40°F to 140°F (-40°C to 60°C). See model code matrix for additional options.

**Remote Air Pilot Operated Valves**

<table>
<thead>
<tr>
<th>Valve size</th>
<th>1/8&quot;</th>
<th>1/4&quot;</th>
<th>3/8&quot;</th>
<th>1/2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P2L A X 5 91 PS</strong></td>
<td>A</td>
<td>B</td>
<td>C*</td>
<td>D*</td>
</tr>
</tbody>
</table>

*P2LCX and P2LDX manual & remote air pilot valves have a maximum pressure rating of 175 PSIG (12 bar).*

**Valve type / function**

- Internal pilot supply to solenoid
- 3/2 NC - 2-position
- 5/2 2-position
- 5/3 3-position, APB
- 5/3 3-position, PC
- 5/3 3-position, CE

**BOLD ITEMS ARE MOST POPULAR.**

**Operators / return**

- PP Double remote pilot
- PS* Single remote pilot, spring return

*Not available with 3-position valves.*

**Main port thread**

- 11 G1/8 (P2LA)
- 12 G1/4 (P2LB)
- 13 G3/8 (P2LC)
- 14 G1/2 (P2LD)
- 91 1/8" NPT (P2LA)
- 92 1/4" NPT (P2LB)
- 93 3/8" NPT (P2LC)
- 94 1/2" NPT (P2LD)

Note: NAMUR Mount for P2LBX is available upon request.
## Model Number Index

### Viking Xtreme Series Valves

### IEM Bar Manifolds & Accessories

**IEM Bar Manifold, Viking Xtreme Solenoid / Remote Pilot Valves**

<table>
<thead>
<tr>
<th>Valve series</th>
<th>Valve function</th>
<th>## -Stations</th>
<th>Manifold only (NPT)</th>
<th>Manifold only (BSPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAX*</td>
<td>3-way</td>
<td>02 - 12</td>
<td>P2LAXGAXG##NP</td>
<td>P2LAXGAXG##NP</td>
</tr>
<tr>
<td>P2LAX*</td>
<td>4-way</td>
<td>02 - 12</td>
<td>P2LAXMAXN##NP</td>
<td>P2LAXMAXN##NP</td>
</tr>
<tr>
<td>P2LBX*</td>
<td>3-way</td>
<td>02 - 12</td>
<td>P2LBXGAXG##NP</td>
<td>P2LBXGAXG##NP</td>
</tr>
<tr>
<td>P2LBX*</td>
<td>4-way</td>
<td>02 - 12</td>
<td>P2LBXMAXN##NP</td>
<td>P2LBXMAXN##NP</td>
</tr>
<tr>
<td>P2LCX</td>
<td>3-way / 4-way</td>
<td>02 - 12</td>
<td>P2LCXMAXN##NP</td>
<td>P2LCXMAXN##NP</td>
</tr>
</tbody>
</table>

Kits include: (1) manifold, valve hold down bolts and o-rings. Replace ## with number of valve stations.

* 30mm solenoid coil option “A” not available on IEM bar manifold P2LAX or P2LBX.

### IEM Bar Manifold Add-A-Fold Assembly (Viking Xtreme Solenoid / Remote Pilot Valves Only)

<table>
<thead>
<tr>
<th>Valve series</th>
<th>Valve function</th>
<th>## -Stations</th>
<th>Manifold only (NPT)</th>
<th>Manifold only (BSPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAX*</td>
<td>3-way</td>
<td>02 - 12</td>
<td>AAPL2AXGAXG##NP</td>
<td>AAPL2AXGAXG##NP</td>
</tr>
<tr>
<td>P2LAX*</td>
<td>4-way</td>
<td>02 - 12</td>
<td>AAPL2AXMAXN##NP</td>
<td>AAPL2AXMAXN##NP</td>
</tr>
<tr>
<td>P2LBX*</td>
<td>3-way</td>
<td>02 - 12</td>
<td>AAPL2BXGAXG##NP</td>
<td>AAPL2BXGAXG##NP</td>
</tr>
<tr>
<td>P2LBX*</td>
<td>4-way</td>
<td>02 - 12</td>
<td>AAPL2BXMAXN##NP</td>
<td>AAPL2BXMAXN##NP</td>
</tr>
<tr>
<td>P2LCX</td>
<td>3-way / 4-way</td>
<td>02 - 12</td>
<td>AAPL2CXMAXN##NP</td>
<td>AAPL2CXMAXN##NP</td>
</tr>
</tbody>
</table>

Kits include: (1) manifold, valve hold down bolts, o-rings and assembly. Replace ## with number of valve stations.

* 30mm solenoid coil option “A” not available on IEM bar manifold P2LAX or P2LBX.

### How to Order:

1. List Add-A-Fold assembly part number as line item 1
2. List the desired valves series part number in subsequent line items after the Add-A-Fold Assembly part number to complete the ordering code. Include all valves and blanking kits required. The left most station is station # 1 looking at the #12 end of the manifold.

### Example:

B3, 4-way manifold with station #1 blanked off with valves assembled

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty</th>
<th>Part number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>AAPL2BXMAXN02NP</td>
<td>Add-A-Fold Assembly, 2-station IEM bar manifold</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>P2LBX591ESNNDB49</td>
<td>4-way, Station 1, 2</td>
</tr>
</tbody>
</table>

### Blanking Plate

- **Type**: P2LAX - 4-way
- **Kit number**: 9121658063
- **Type**: P2LBX - 4-way
- **Kit number**: 9121594809X
- **Type**: P2LCX - 3 & 4 way
- **Kit number**: P2LCXK20P
- **Type**: P2LAX - 3-way
- **Kit number**: 912132BPSXZ
- **Type**: P2LBX - 3-way
- **Kit number**: 912132BPSXZ

Kit includes: plate, screws, o-rings

### Manifold Bolts

<table>
<thead>
<tr>
<th>Type</th>
<th>Qty</th>
<th>Kit number</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAX</td>
<td>12</td>
<td>P2LAXK87P</td>
</tr>
<tr>
<td>P2LBX</td>
<td>12</td>
<td>P2LBXK87P</td>
</tr>
<tr>
<td>P2LCX</td>
<td>12</td>
<td>P2LCXK87P</td>
</tr>
</tbody>
</table>

### Manifold O-rings

<table>
<thead>
<tr>
<th>Type</th>
<th>Qty</th>
<th>Kit number</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAX</td>
<td>30</td>
<td>P2LAXK84P</td>
</tr>
<tr>
<td>P2LBX</td>
<td>18</td>
<td>P2LBXK84P</td>
</tr>
<tr>
<td>P2LCX</td>
<td>12</td>
<td>P2LCXK84P</td>
</tr>
</tbody>
</table>

BOLD ITEMS ARE MOST POPULAR.
ATEX Certified Single & Double Solenoid Operated Valves

Vacuum to 145 PSIG (Vacuum to 10 bar)
14°F to 122°F 22mm Coils (Enclosure Option M)
-4°F to 122°F 30mm Coils (Enclosure Option S)

**Valve Size**

<table>
<thead>
<tr>
<th>Size</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot;</td>
<td>A</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>B</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>C</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>D</td>
</tr>
</tbody>
</table>

**Valve Type / Function**

**Internal Pilot Supply to Solenoid**

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Position Valve</td>
<td>5</td>
</tr>
<tr>
<td>3-Position Valve APB</td>
<td>6</td>
</tr>
<tr>
<td>3-Position Valve PC</td>
<td>7</td>
</tr>
<tr>
<td>3-Position Valve CE</td>
<td>8</td>
</tr>
</tbody>
</table>

**External Pilot Supply to Solenoids through Ports #12 & #14**

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Position Valve</td>
<td>N</td>
</tr>
<tr>
<td>3-Position Valve APB</td>
<td>P</td>
</tr>
<tr>
<td>3-Position Valve PC</td>
<td>Q</td>
</tr>
<tr>
<td>3-Position Valve CE</td>
<td>R</td>
</tr>
</tbody>
</table>

**Main Port Thread**

<table>
<thead>
<tr>
<th>Thread</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1/8 (P2LA)</td>
<td>11</td>
</tr>
<tr>
<td>G1/4 (P2 LB)</td>
<td>12</td>
</tr>
<tr>
<td>G3/8 (P2LC)</td>
<td>13</td>
</tr>
<tr>
<td>G1/2 (P2LD)</td>
<td>14</td>
</tr>
<tr>
<td>1/8&quot; NPT (P2LA)</td>
<td>91</td>
</tr>
<tr>
<td>1/4&quot; NPT (P2LB)</td>
<td>92</td>
</tr>
<tr>
<td>3/8&quot; NPT (P2LC)</td>
<td>93</td>
</tr>
<tr>
<td>1/2&quot; NPT (P2LD)</td>
<td>94</td>
</tr>
</tbody>
</table>

**Solenoid Pilot Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>D Vented Pilot Exhaust</td>
<td></td>
</tr>
<tr>
<td>N Tapped Pilot Exhaust (M5)</td>
<td></td>
</tr>
</tbody>
</table>

**Voltage**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>24VDC</td>
<td></td>
</tr>
</tbody>
</table>

**Enclosures**

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX 8-22T EExm T4 135°C</td>
<td>M</td>
</tr>
</tbody>
</table>

**Overrides**

<table>
<thead>
<tr>
<th>Override</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended Non-Locking</td>
<td>D</td>
</tr>
</tbody>
</table>

**12 End Operator**

<table>
<thead>
<tr>
<th>Operator</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Solenoid Operated Valve</td>
<td>E</td>
</tr>
<tr>
<td>Single Solenoid Spring Return</td>
<td>S</td>
</tr>
</tbody>
</table>

**NOTE:** For ATEX Certified Manual and Remote Air Pilot Valves, build the valve part number from the model number index on page D81 and add "-EX" following the number.

**Example:** P2LAX591PS-EX

**NOTE:** All valves include a 3 Meter Sealed Cable with Assembly.

**ATEX Certified Solenoid Pilot Assemblies**

**Voltage**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>24VDC</td>
<td></td>
</tr>
</tbody>
</table>

**Enclosures**

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX 8-22T EExm T4 135°C</td>
<td>M</td>
</tr>
</tbody>
</table>

**NOTE:** All valves include a 3 Meter Sealed Cable with Assembly.

**BOLD ITEMS ARE MOST POPULAR.**
22mm Solenoid Pilot Options

The P2FP134 (NC) 3/2 solenoid pilot operators are designed for piloting pneumatic control valves with compressed air or other inert gases.

The P2FP operator is available for Normal operating pressures up to 10 bar or the Xtreme maximum operating pressure of 16 bar and wide band voltage tolerances required for mobile applications.

Corrosion Resistant Design

The pilot valve body is manufactured in thermoplastic PA6 material and the core tube brass / stainless steel. The plunger / core is made from stainless steel and the valve seats from FKM.

Solenoid Pilot Exhaust

These operators all exhaust out of the top of the core tube which is tapped M5. The standard solenoid nut fitted to the core tube is a diffuser nut which allows the exhaust to escape to atmosphere. This nut also minimizes ingress of dirt into the valve through this port. The alternative plastic knurled nut can be specified (refer to part number system) if the exhaust air needs captured and piped away using the M5 tapped port.

Mobile Applications

Viking Xtreme valves are tested to +5g shock and vibration. Solenoid operated valves are designed to operate with wide voltage tolerance bands within the ambient temperature ranges stated in the technical section.

Coils

Coils are wound with enameled copper wire, having a temperature index of 180°C with class F insulation (155°C) and are encapsulated in Thermoplastic resin. When fitted with suitable connector and correct gasket, they give protection to IP65.

Manual Override Options

The pilot operators can be supplied with locking or non-locking manual override. The standard manual override is the monostable (spring return) extended brass override. Alternatively the bistable (locking) override can be specified as an alternative for the Normal duty 10 bar option.

Spares

Solenoid operators are available as spares complete with mounting screws and seals. Coils and connectors should be ordered separately unless ATEX certified and intrinsically safe is needed. ATEX certified operators and coils must be ordered together.

Transients

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavorable conditions, can amount to several hundred times the rated operating voltage. Normally, these transients do not cause problems, but to achieve the maximum life of relays in the circuit (and particularly of transistors, thyristors and integrated circuits) it is desirable to provide protection by means of voltage-dependent resistors (varistors). All connectors / cable plugs with LEDs include this type of circuit protection.

Materials

Pilot Valve

Body .................................................................Polyamide

Armature Tube:
Normal Pilot Operator.................................Brass
Extreme Pilot Operator.................................Stainless Steel

Plunger & Core ...........................................Corrosion resistant Cr-Ni Steel

Seals.................................................................Fluorocarbon (FKM)

Screws.............................................................Stainless Steel

Coil

Encapsulation Material ................................Thermoplastic

ATEX

ATEX is a European Directive (94/9/EC) valid for products to be used within an explosive atmosphere.

Both ATEX certified solenoid, remote pilot and manual operated valves, as well as complete solenoid pilot assemblies are available. For specific information regarding ATEX certification please visit www.parker/pneumatics.
Viking Xtreme Series Valves

22mm Solenoid Pilot Operator & Solenoid Kits

Pilot Operator Kits

```
<table>
<thead>
<tr>
<th>Type</th>
<th>Override</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>A</td>
</tr>
</tbody>
</table>

Pressure / Temperature

145 PSIG (10 bar)
14°F to 122°F (-10°C to 50°C)

232 PSIG (16 bar)
-40°F to 158°F (-40°C to 70°C)

Solenoid Information (Solenoids are rated for continuous duty.)

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Enclosure “A”</th>
<th>Enclosure “B” to “R”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>AC 60Hz</td>
<td>DC 50Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>45</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>47*</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>48*</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>49</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>53</td>
<td>120</td>
<td>110</td>
</tr>
<tr>
<td>57</td>
<td>240</td>
<td>230</td>
</tr>
</tbody>
</table>

* Mobile voltages. Solenoid voltage characteristics for all coils located on page D49.

Replacement Solenoid Nut

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffuser nut</td>
<td>PS1556</td>
</tr>
<tr>
<td>Vented nut</td>
<td>PS2892P</td>
</tr>
</tbody>
</table>

Solenoid Kits

```
<table>
<thead>
<tr>
<th>Type</th>
<th>Enclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2F</td>
<td>C</td>
</tr>
</tbody>
</table>

Enclosures / lead length

- 30mm square 3-pin – ISO 4400 Form A (male only) - A
- 22mm rectangular 3-pin – Type B Industrial (male only) - B
- Hazardous duty, FM / CSA - P*
- Grommet - 18” leads - G
- 1/2” NPT conduit - 18” leads - H
- Grommet 72” leads - Q
- 1/2” conduit 72” leads - R

* Only available with voltage codes “45”, “49”, “53” & “57”. Not for use with the Xtreme version. (-40°C to 70°C).

Solenoid Enclosures

```
<table>
<thead>
<tr>
<th>Option A</th>
</tr>
</thead>
<tbody>
<tr>
<td>30mm Square, 3-Pin ISO 4400, DIN 43650A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option B</th>
</tr>
</thead>
<tbody>
<tr>
<td>22mm Rectangular, 3-Pin DIN, Type B Industrial</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option G &amp; Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grommet, 18” or 72” Leads</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option H &amp; R</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2” Conduit, 18” or 72” Leads</td>
</tr>
</tbody>
</table>
Viking Xtreme Series Valves
Intrinsically Safe Valves, Pilot Conversion

Intrinsically safe solenoid valves (“E” option)

Hazardous location class:
Class I; Groups A, B, C & D
Class II; Groups E, F, & G
Class III; Div. I

For use in low voltage (24VDC) Intrinsically Safe applications. NO OTHER VOLTAGE IS APPROVED.
Comes standard with non-lighted solenoid connector. 36mm Coil width.
Must be connected to an FM approved Barrier.

For dimensions, reference standard solenoid models. Maximum internally piloted valve pressure is 115 PSIG. Pressures to 145 PSIG can be used when external pilot is utilized and pilot pressure is limited to 115 PSIG.

Intrinsically safe solenoid pilot assembly kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>24VDC</td>
<td>P2FS13N1AE49</td>
</tr>
</tbody>
</table>

Kit includes: coil, connector, o-ring & screws

Internal to external pilot conversion (size A & B only)

To convert from Internal to External Pilot Valve, simply remove the (2) fasteners that attach the end cap to the valve body. Rotate the end cap 180° and attach back to the valve body. For single solenoid valves, only the 14-End needs to be rotated. For double solenoid valves, both ends must be converted for proper function.

Viking Xtreme Series Valves
Intrinsically Safe Valves, Pilot Conversion

Hazardous duty solenoid valves (“F” option)

Hazardous location class:
Class I; Zone I EX, M, II & T4
Class I; Div. I, Groups A, B, C, & D
Class II & III; Div. I, Groups E, F, & G

Comes standard with 1/2” conduit connection.

Voltage range = ±10%
Ambient temperature range = -20°C (-4°F) to 60°C (140°F)
Duty factor = 100%
IP65 Rated (with connected conduit connector)

Notes:
1. Maximum non-hazardous location voltage not to exceed 250V RMS.
2. Connect per Barrier Manufacturers instructions.
3. Factory Mutual requires connections per ISA RP 12.6 instructions.
4. CSA requires “Installation to be in accordance with the Canadian Electrical Code. Part I.”
5. The hazardous duty coils are wider in size than size A, B, C & D valves. If mounted on a manifold, the valves need to be staggered to fit.
## Viking Xtreme Series Valves
### Flow, Operating Pressure & Response Times

#### Technical Data

**Flow Rating**

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Port Size</th>
<th>2-Position</th>
<th>3-Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2LAX</td>
<td>1/8&quot;</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>P2LBX</td>
<td>1/4&quot;</td>
<td>1.3</td>
<td>0.9</td>
</tr>
<tr>
<td>P2LCX</td>
<td>3/8&quot;</td>
<td>2.5</td>
<td>1.8</td>
</tr>
<tr>
<td>P2LDX</td>
<td>1/2&quot;</td>
<td>2.7</td>
<td>1.9</td>
</tr>
</tbody>
</table>

**Operating Temperature**

- Normal: 14°F to 122°F (-10°C to 50°C)
- Extreme: -40°F to 158°F (-40°C to 70°C)

**Solenoid Voltage Characteristics**

**Non-mobile Coils**

- +10% / -10% for all Coils with Normal and Extreme Operators

**Mobile Coils - Normal Pilot Operator**

**22mm 12 & 24VDC - Mobile (47 & 48 Voltage Code)**

<table>
<thead>
<tr>
<th>Minimum Inlet Pressure (bar)</th>
<th>Operating Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10°C</td>
<td>+10°C</td>
</tr>
<tr>
<td>3</td>
<td>+30 / -25% VDC</td>
</tr>
<tr>
<td>6</td>
<td>+30 / -30% VDC</td>
</tr>
<tr>
<td>8</td>
<td>+30 / -30% VDC</td>
</tr>
<tr>
<td>10</td>
<td>+30 / -30% VDC</td>
</tr>
</tbody>
</table>

**Mobile Coils - Extreme Pilot Operator**

**22mm 12 & 24VDC - Mobile (47 & 48 Voltage Code)**

<table>
<thead>
<tr>
<th>Minimum Inlet Pressure (bar)</th>
<th>Operating Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40°C</td>
<td>+10°C</td>
</tr>
<tr>
<td>4</td>
<td>+30 / -25% VDC</td>
</tr>
<tr>
<td>8</td>
<td>+30 / -30% VDC</td>
</tr>
<tr>
<td>12</td>
<td>+30 / -30% VDC</td>
</tr>
<tr>
<td>16</td>
<td>+30 / -30% VDC</td>
</tr>
</tbody>
</table>

**30mm 12 & 24VDC - Mobile (47 & 48 Voltage Code)**

<table>
<thead>
<tr>
<th>Minimum Inlet Pressure (bar)</th>
<th>Operating Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40°C</td>
<td>+10°C</td>
</tr>
<tr>
<td>4</td>
<td>+30 / -30% VDC</td>
</tr>
<tr>
<td>8</td>
<td>+30 / -30% VDC</td>
</tr>
<tr>
<td>12</td>
<td>+30 / -30% VDC</td>
</tr>
<tr>
<td>16</td>
<td>+30 / -30% VDC</td>
</tr>
</tbody>
</table>

**Note:** All table ratings are based on 100% continuous duty and 5G shock vibration. At 50% continuous duty all ratings are +30% / -30% for all Temperatures and Pressures.
### Female Electrical Connectors / Accessories

#### 30mm Square 3-Pin – ISO 4400, DIN 43650A
(Use with Enclosure “A”)

<table>
<thead>
<tr>
<th>Description</th>
<th>Connector with 6' (2m) cord</th>
<th>Connector</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unlighted</td>
<td>PS2028JCP</td>
<td>PS2028BP</td>
<td></td>
</tr>
<tr>
<td>Light – 6-48V, 50/60Hz, 6-48VDC</td>
<td>PS2032J79CP*</td>
<td>PS203279BP</td>
<td></td>
</tr>
<tr>
<td>Light – 120V/60Hz</td>
<td>PS2032J83CP*</td>
<td>PS203283BP</td>
<td></td>
</tr>
<tr>
<td>Light – 240V/60Hz</td>
<td>N/A</td>
<td>PS203283BP</td>
<td></td>
</tr>
</tbody>
</table>

* LED with surge suppression.

**Note:** Max ø6.5mm cable size required for connector w/o 6’ (2m) cord. IP65 rated when properly installed.

**Engineering data:**
- Conductors: 2 poles plus ground; cable range (connector only): 8 to 10mm (0.31 To 0.39 Inch); contact spacing: 11mm.

#### 22mm Rectangular 3-Pin – Type B Industrial
(Use with Enclosure “B”)

<table>
<thead>
<tr>
<th>Description</th>
<th>Connector with 6' (2m) cord</th>
<th>Connector</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unlighted</td>
<td>PS2429JBP</td>
<td>PS2429BP</td>
<td></td>
</tr>
<tr>
<td>Light – 24V/60Hz, 24VDC</td>
<td>PS2430J79BP*</td>
<td>PS243079BP</td>
<td></td>
</tr>
<tr>
<td>Light – 120V/60Hz</td>
<td>PS2430J83BP*</td>
<td>PS243083BP</td>
<td></td>
</tr>
<tr>
<td>Light – 240V/60Hz</td>
<td>N/A</td>
<td>PS243087BP</td>
<td></td>
</tr>
</tbody>
</table>

* LED with surge suppression.

**Note:** Max ø6.5mm cable size required for connector w/o 6’ (2m) cord. IP65 rated when properly installed.

**Engineering data:**
- Conductors: 2 poles plus ground; cable range (connector only): 6 to 8mm (0.24 To 0.31 Inch); contact spacing: 11mm.

### Exhaust Mufflers

<table>
<thead>
<tr>
<th>Pipe thread</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>P6M-PAC5</td>
</tr>
<tr>
<td>1/8&quot; NPT</td>
<td>EM12</td>
</tr>
<tr>
<td>1/4&quot; NPT</td>
<td>EM25</td>
</tr>
<tr>
<td>3/8&quot; NPT</td>
<td>EM37</td>
</tr>
<tr>
<td>1/2&quot; NPT</td>
<td>EM50</td>
</tr>
</tbody>
</table>

P6M - Plastic; EM - Sintered bronze

### Plastic Silencers

<table>
<thead>
<tr>
<th>Thread size</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>.43 (11)</td>
<td>.32 (8)</td>
<td>AS-5</td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>1.57 (40)</td>
<td>.63 (16)</td>
<td>ASN-6</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>2.56 (65)</td>
<td>.83 (21)</td>
<td>ASN-8</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>3.35 (85)</td>
<td>.98 (25)</td>
<td>ASN-10</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>3.74 (95)</td>
<td>1.18 (30)</td>
<td>ASN-15</td>
</tr>
</tbody>
</table>
Exhaust Protector

Features
- 1/8 and 1/4 NPT male sizes
- Fitted with a brass pipe adapter and a fluorocarbon membrane
- Resistant to rust, clog, wash down and contamination

Applications
These protectors are intended for mobile applications, quick venting applications and alternative exhaust port breathers that require protection against clogging.
Ideal for valves exposed to harsh environmental conditions (which can cause a “caking up” in the exhaust pipe ports where the bronze mufflers or breather vents are installed).
Particularly suitable for time-sensitive applications such as axle-lift suspensions or pushers or tag axles.

Flow data (SCFM)

<table>
<thead>
<tr>
<th>Size</th>
<th>60 PSIG Inlet</th>
<th>90 PSIG Inlet</th>
<th>125 PSIG Inlet</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8”</td>
<td>40.1</td>
<td>56.5</td>
<td>75.5</td>
<td>E90016</td>
</tr>
<tr>
<td>1/4”</td>
<td>44.6</td>
<td>62.7</td>
<td>83.5</td>
<td>E90017</td>
</tr>
</tbody>
</table>

Operating information
- Operating pressure: 0 to 150 PSIG (0 to 10 bar)
- Operating temperature: -40°F to 140°F (-40°C to 60°C)

Material specifications
- Body & pipe adapter: Brass
- Membrane: Fluorocarbon

Spool Service Kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Includes items (qty.)</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size A, 4-way, 2-position, solenoid &amp; air pilot valves</td>
<td>1 (1), 3 (2), 4 (2)</td>
<td>P2LAXSK1</td>
</tr>
<tr>
<td>Size A, 4-way, 3-position, solenoid &amp; air pilot valves</td>
<td>1 (1), 2 (2), 3 (2), 4 (2)</td>
<td>P2LAXSK2</td>
</tr>
<tr>
<td>Size A, 4-way, 2-position, manual valves</td>
<td>Spool only (not shown)</td>
<td>P2LAXSK3</td>
</tr>
<tr>
<td>Size A, 4-way, 3-position, manual valves</td>
<td>Spool only (not shown)</td>
<td>P2LAXSK4</td>
</tr>
<tr>
<td>Size B, 4-way, 2 &amp; 3-position valves</td>
<td>1 (1), 3 (2), 4 (2)</td>
<td>P2LBXSK1</td>
</tr>
<tr>
<td>Size C &amp; Size D, 4-way, 2 &amp; 3-position valves</td>
<td>1 (1), 3 (2), 4 (2)</td>
<td>P2LCXDXSK1</td>
</tr>
</tbody>
</table>

A - 30mm Square 3-Pin ISO Form A
B - 22mm Rectangular 3-Pin DIN 43650B
H - 1/2” Conduit 18” Leads
R - 1/2” Conduit 72” Leads
G - Grommet 18” Leads
Q - Grommet 72” Leads
### 68PM Male Connector

<table>
<thead>
<tr>
<th>Part number</th>
<th>Tube size</th>
<th>Pipe thread (NPTF)</th>
<th>C hex</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>68PM-2-1</td>
<td>1/8</td>
<td>1/16</td>
<td>3/82</td>
<td>0.93</td>
</tr>
<tr>
<td>68PM-2-2</td>
<td>1/8</td>
<td>1/8</td>
<td>7/16</td>
<td>0.88</td>
</tr>
<tr>
<td>68PM-5/32-1</td>
<td>5/32</td>
<td>1/16</td>
<td>3/8</td>
<td>0.95</td>
</tr>
<tr>
<td>68PM-5/32-2</td>
<td>5/32</td>
<td>1/8</td>
<td>7/16</td>
<td>0.74</td>
</tr>
<tr>
<td>68PM-5/32-4</td>
<td>5/32</td>
<td>1/4</td>
<td>9/16</td>
<td>0.99</td>
</tr>
<tr>
<td>68PM-3-1</td>
<td>3/16</td>
<td>1/16</td>
<td>7/16</td>
<td>0.95</td>
</tr>
<tr>
<td>68PM-3-2</td>
<td>3/16</td>
<td>1/8</td>
<td>7/16</td>
<td>0.92</td>
</tr>
<tr>
<td>68PM-3-4</td>
<td>3/16</td>
<td>1/4</td>
<td>9/16</td>
<td>1.10</td>
</tr>
</tbody>
</table>

### 68PMT Male Connector

<table>
<thead>
<tr>
<th>Part number</th>
<th>Tube size</th>
<th>Pipe thread (NPTF)</th>
<th>C hex</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>68PMT-4-2</td>
<td>1/4</td>
<td>1/8</td>
<td>1/2</td>
<td>1.06</td>
</tr>
<tr>
<td>68PMT-4-4</td>
<td>1/4</td>
<td>1/2</td>
<td>9/16</td>
<td>1.19</td>
</tr>
<tr>
<td>68PMT-4-6</td>
<td>1/4</td>
<td>3/8</td>
<td>3/4</td>
<td>1.27</td>
</tr>
<tr>
<td>68PMT-6-2</td>
<td>3/8</td>
<td>1/8</td>
<td>3/4</td>
<td>1.37</td>
</tr>
<tr>
<td>68PMT-6-4</td>
<td>3/8</td>
<td>1/4</td>
<td>3/4</td>
<td>1.43</td>
</tr>
<tr>
<td>68PMT-6-6</td>
<td>3/8</td>
<td>3/8</td>
<td>3/4</td>
<td>1.33</td>
</tr>
<tr>
<td>68PMT-6-8</td>
<td>3/8</td>
<td>3/8</td>
<td>7/8</td>
<td>1.38</td>
</tr>
<tr>
<td>68PMT-8-4</td>
<td>1/2</td>
<td>1/4</td>
<td>7/8</td>
<td>1.72</td>
</tr>
<tr>
<td>68PMT-8-6</td>
<td>1/2</td>
<td>3/8</td>
<td>7/8</td>
<td>1.52</td>
</tr>
<tr>
<td>68PMT-8-8</td>
<td>1/2</td>
<td>1/2</td>
<td>7/8</td>
<td>1.44</td>
</tr>
<tr>
<td>68PMT-10-6</td>
<td>5/8</td>
<td>3/8</td>
<td>1</td>
<td>1.88</td>
</tr>
<tr>
<td>68PMT-10-8</td>
<td>5/8</td>
<td>1/2</td>
<td>1</td>
<td>1.88</td>
</tr>
<tr>
<td>68PMT-12-8</td>
<td>3/4</td>
<td>1/2</td>
<td>1-3/16</td>
<td>2.03</td>
</tr>
</tbody>
</table>

### 68PMNS Male Elbow Non-Swivel 90°

<table>
<thead>
<tr>
<th>Part number</th>
<th>Tube size</th>
<th>Pipe thread (NPTF)</th>
<th>Wrench flats</th>
<th>L</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>169PMNS-2-2</td>
<td>1/8</td>
<td>1/8</td>
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<td>0.86</td>
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### 169PMT Male Elbow Swivel 90°

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### 171PMT Male Run Tee Non-Swivel

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### 172PMT Male Branch Tee Swivel

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Viking Xtreme Series Valves

P2LAX Inline Dimensions

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P2LAX 3/2 Single & Double Operators – Remote Pilot

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P2LAX 5/2 & 5/3 Single & Double Operators, 4-way

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Inches (mm)
P2LAX 5/2 & 5/3 Single & Double Operators – Remote Pilot

P2LAX 3/2 Single & Double Operators – IEM Aluminum Bar Manifold

P2LAX 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold
P2LBX 3/2 Single & Double Operators – Solenoid

P2LBX 3/2 (solenoid)

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Inches (mm)

P2LBX 3/2 Single & Double Operators – Remote Pilot

P2LBX 3/2 (remote)

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Inches (mm)

P2LBX 5/2 & 5/3 Single & Double Operators – Solenoid

P2LBX 5/2 & 5/3 (solenoid)

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Inches (mm)
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## P2LBX 5/2 Single & Double Operators – Solenoid _ NAMUR

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Parker Hannifin Corporation
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics
Viking Xtreme Series Valves

P2LBX IEM Bar Manifold Dimensions

### P2LBX 3/2 Single & Double Operators – IEM Aluminum Bar Manifold

![Diagram of P2LBX 3/2 operators]

### P2LBX 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold

![Diagram of P2LBX 5/2 & 5/3 operators]

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- **B**: Number of Stations
- **C**: Number of Stations
- **D**: Number of Stations
- **E**: Number of Stations
- **F**: Number of Stations
- **G**: Number of Stations
- **H**: Number of Stations
- **J**: Number of Stations
- **K**: Number of Stations
- **L**: Number of Stations
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- **P**: Number of Stations
- **Q**: Number of Stations
- **R**: Number of Stations
- **S**: Number of Stations
- **T**: Number of Stations

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Parker Hannifin Corporation
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Richland, Michigan
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### Viking Xtreme Series Valves

#### Dimensions

**P2LCX 3/2 Single & Double Operators – Solenoid**

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**P2LCX 3/2 (solenoid)**

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Inches (mm)

**P2LCX 3/2 Single & Double Operators – Remote Pilot**

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Inches (mm)

**P2LCX 5/2 & 5/3 Single & Double Operators – Solenoid**

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**P2LCX 5/2 & 5/3 (solenoid)**

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<td>Ø (6.9)</td>
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Inches (mm)
Viking Xtreme Series Valves

P2LCX Inline & Manifold Dimensions

**P2LCX 5/2 & 5/3 Single & Double Operators – Remote Pilot**

**P2LCX 5/2 & 5/3 (remote)**

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<tr>
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<td>(1)</td>
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Inches (mm)

**P2LCX 3/2 Single & Double Operators – IEM Aluminum Bar Manifold**

**P2LCX 3/2**

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<table>
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<th>J</th>
<th>K</th>
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<td>(87)</td>
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<table>
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<tr>
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Inches (mm)

**P2LCX 5/2 & 5/3 Single & Double Operators – IEM Aluminum Bar Manifold**

**P2PCX 5/2 & 5/3**

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<tr>
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<tbody>
<tr>
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<td>.24</td>
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<td>(31.5)</td>
<td>(45)</td>
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<td>Ø (6.5)</td>
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Inches (mm)

n = Number of Stations
**P2LDX 3/2 Single & Double Operators – Solenoid**

**Dimensions**

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**P2LDX 3/2 (solenoid)**

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<td>F</td>
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<td>G</td>
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<td>H</td>
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**P2LDX 3/2 (remote)**

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<td>D</td>
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<tr>
<td>E</td>
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**P2LDX 5/2 & 5/3 Single & Double Operators – Solenoid**

**Dimensions**

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<td>C</td>
<td>1.59</td>
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**P2LDX 5/2 & 5/3 (solenoid)**

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**P2LDX 5/2 & 5/3 (remote)**

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**P2LDX 5/2 & 5/3**

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Inches (mm)

---

Viking Xtreme Series Valves

P2LDX Inline Dimensions

Dimensions

**P2LDX 3/2 Single & Double Operators – Solenoid**

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**P2LDX 3/2 (solenoid)**

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**P2LDX 3/2 (remote)**

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**P2LDX 5/2 & 5/3 Single & Double Operators – Solenoid**

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**P2LDX 5/2 & 5/3 (solenoid)**

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**P2LDX 5/2 & 5/3 (remote)**

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**P2LDX 5/2 & 5/3**

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Inches (mm)
P2LDX 5/2 & 5/3 Single & Double Operators – Remote Pilot

P2LDX 5/2 & 5/3 (remote)

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<td>(40.5)</td>
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<td>G</td>
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<td>H₃</td>
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<td>(6.6)</td>
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<td>(4.4)</td>
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Inches (mm)
“B” Series

Air Control Valves

<table>
<thead>
<tr>
<th>Model</th>
<th>Cv</th>
<th>Port</th>
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<tr>
<td>B3</td>
<td>.75</td>
<td>1/8&quot;, 1/4&quot; Port</td>
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<td>1.40</td>
<td>1/4&quot;, 3/8&quot; Port</td>
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<td>2.70</td>
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<td>5.90</td>
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<tr>
<td>B8</td>
<td>7.00</td>
<td>3/4&quot; Port</td>
</tr>
</tbody>
</table>

Section D

www.parker.com/pneu/b
**Single Solenoid**

*4-Way, 2-Position*

- **De-energized position** – Solenoid operator #14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.
- **Energized position** – Solenoid operator #14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

**Double Solenoid**

*4-Way, 2-Position*

- Solenoid operator #14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.
- Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

**Double Solenoid**

*4-Way, 3-Position*

- With #12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.
- With #14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

**Function 5:** All Ports Blocked
All ports blocked in the center position.

**Function 6:** Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

**Function 7:** Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

**Double Remote Pilot**

*4-Way, 2-Position*

- Normal position – Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.
- Operated position – Maintained air signal at port 14. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

**Double Remote Pilot**

*4-Way, 2-Position*

- Momentary air signal at port 14 last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.
- Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

**Double Remote Pilot**

*4-Way, 3-Position*

- With #12 operator signaled – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.
- With #14 operator signaled – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

**Function 8:** All Ports Blocked
All ports blocked in the center position.

**Function 9:** Center Exhaust
Cylinder ports 2 and 4 connected to exhaust ports 3 and 5 in center position. Port 1 is blocked.

**Function 0:** Pressure Center
Pressure port 1 connected to cylinder ports 2 and 4, and exhaust ports 3 and 5 blocked in center position.

**Dual Pressure:**
May be used for dual pressure service with pressure at ports 3 & 5. (Use either external pilot source option “K”, “W” or “X”, or dual pressure pilot source option “D” or “E”). If pilot source “D” or “E” is selected, the high pressure must be at port #3. If pilot source “K”, “W” or “X” is selected, the external pilot must be plumbed to port #14 or “X” respectively. NOTE: The “B6” valve is also available with dual pressure using Port 5 for high pressure (Option “G” & “H”). This is only to be used if converting from a “42” (“CM”) Series traditional valve.

In the 3-Position valve, the effect of dual pressure is extremely important when the valve is in the center position, as the CE and PC functions are reversed. Therefore, care should be used when selecting a 3-Position valve.
### Basic Valve Functions

#### Single Solenoid
3-Way, 2-Position
NC (NNP)

**Normally Closed:**
- *De-energized position* – Solenoid #12 de-energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.
- *Energized position* – Solenoid #12 energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

#### Single Solenoid
3-Way, 2-Position
NO (NP)

**Normally Open:**
- *De-energized position* – Solenoid #10 de-energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.
- *Energized position* – Solenoid #10 energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

#### Double Solenoid
3-Way, 2-Position

- Solenoid operator #12 energized last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.
- Solenoid operator #10 energized last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

### “B” Series Valves

#### Single Remote Pilot
3-Way, 2-Position
NC (NNP)

** Normally Closed:**
- *Normal position* – Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.
- *Operated position* – Maintained air signal at port 12. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

#### Single Remote Pilot
3-Way, 2-Position
NO (NP)

** Normally Open:**
- *Normal position* – Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.
- *Operated position* – Maintained air signal at port 10. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

#### Double Remote Pilot
3-Way, 2-Position

- Momentary air signal at port 12 last. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.
- Momentary air signal at port 10 last. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

### 3-Way Configuration

**B6, B7, B8:**
Looking at the #1 and #3 ports, the solenoid (or remote operator) is always on the #3 port end. Different spools are used for NO and NC functions.

**B3, B5:**
Looking at the #1 and #3 ports, the solenoid (or remote operator) is on the #3 port end for NC and the #1 port end for NO. The same spool is used for both.
**WCS**

Wear Compensation System

- **Maximum Performance**
  - Low Friction
  - Lower Operating Pressures
  - Fast Response
  - Less Wear

- **Long Cycle Life** - Under pressure, radial expansion of the seal occurs to maintain sealing contact with the valve bore.

- **Non-Lube Service** - No lubrication required for continuous valve shifting.

- **Bi-Directional Spool Seals** - Common spool used for any pressure, including vacuum.

Refer to [www.parker.com/pneu/b](http://www.parker.com/pneu/b)

Click on Catalog B Series-E/USA
“B” Series

Flow Characteristics

- B3: 0.75 Cv
- B5: 1.40 Cv
- B6: 2.50 Cv
- B7: 5.90 Cv
- B8: 7.00 Cv

Operating Pressure

- Vacuum to 145 PSIG

Ports

- B3: 1/8, 1/4 Inch
- B5: 1/4, 3/8 Inch
- B6: 3/8 Inch
- B7: 1/2 Inch
- B8: 3/4 Inch

Mounting

- Inline
- Subbase
- IEM Stackable Base
- IEM Aluminum Bar
- 5-Port Subbase Aluminum Bar

Solenoids

- 1.2 Watt – 15mm 3-Pin (EN 175301-803)
- 2.5 to 7.3 Watt – Conduit, Grommet, 22mm & 30mm 3-Pin DIN (43650)
- 12VDC to 240VAC
- Female DIN Electrical Connectors

Certification / Approval

- Approved to be CE marked
- IP65 Rated
- CSA C/US*

* See catalog technical section for more information.
### "B" Series Valves

#### Solenoid, 3-Way & 4-Way

##### Single Solenoid

4-Way, 2-Position

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<thead>
<tr>
<th>Series</th>
<th>Part Number</th>
<th>Voltage</th>
<th>Size</th>
<th>Flow Rate</th>
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<tbody>
<tr>
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<td>1/8&quot;</td>
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<td>1.4 Cv</td>
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<td>B6</td>
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<td>3/8&quot;</td>
<td>2.7 Cv</td>
</tr>
<tr>
<td></td>
<td>B7</td>
<td>120VAC</td>
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<td></td>
<td>B8</td>
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**Subbase**

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3-Pin DIN 43650C Electrical Connection.
Non-Locking Flush Override.

##### Double Solenoid

4-Way, 2-Position

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<th>Series</th>
<th>Part Number</th>
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</table>
**Catalog 0600P-E**

**Common Part Numbers**

### “B” Series Valves

**Remote Pilot, 3-Way & 4-Way**

#### Single Remote Pilot

**4-Way, 2-Position**

- **Inline**
  - B3: B330000XXC 1/8” 0.75 Cv
  - B5: B531000XXC 1/4” 1.4 Cv
  - B6: B632000XXA 3/8” 2.7 Cv
  - B7: B733000XXA 1/2” 5.9 Cv
  - B8: B834000XXA 3/4” 7.0 Cv

- **Subbase**
  - B3: B33V000XXC Less Base 0.65 Cv

#### Double Remote Pilot

**4-Way, 2-Position**

- **Inline**
  - B3: B340000XXC 1/8” 0.75 Cv
  - B5: B541000XXC 1/4” 1.4 Cv
  - B6: B642000XXA 3/8” 2.7 Cv
  - B7: B743000XXA 1/2” 5.9 Cv
  - B8: B844000XXA 3/4” 7.0 Cv

- **Subbase**
  - B3: B34V000XXC Less Base 0.65 Cv

### Single Remote Pilot

**3-Way, 2-Position, NC**

- **Inline**
  - B3: B3K0000XXC 1/8” 0.75 Cv
  - B5: B5K1000XXC 1/4” 1.4 Cv
  - B6: B6X2000XXA 3/8” 2.7 Cv
  - B7: B7X3000XXA 1/2” 5.9 Cv
  - B8: B8X4000XXA 3/4” 7.0 Cv

- **Subbase**
  - B3: B3K0000XXC Less Base 0.65 Cv

### Double Remote Pilot

**4-Way, 3-Position, APB**

- **Inline**
  - B3: B380000XXC 1/8” 0.60 Cv
  - B5: B581000XXC 1/4” 1.1 Cv
  - B6: B682000XXA 3/8” 2.1 Cv
  - B7: B783000XXA 1/2” 5.7 Cv
  - B8: B884000XXA 3/4” 6.6 Cv

- **Subbase**
  - B3: B38V000XXC Less Base 0.50 Cv
### B3 Series

#### Operator Function

**3-Way**
- Single Solenoid, 2-Position NC - Air Return G
- Single Solenoid, 2-Position NO - Air Return H
- Double Solenoid, 2-Position J
- Single Remote Pilot, 2-Position NC - Air Return K
- Single Remote Pilot, 2-Position NO - Air Return L
- Double Remote Pilot, 2-Position M
- Single Solenoid, 2-Position NC - Air Return / Spring Assist V
- Single Solenoid, 2-Position NO - Air Return / Spring Assist W
- Single Remote Pilot, 2-Position NC - Air Return / Spring Assist X
- Single Remote Pilot, 2-Position NO - Air Return / Spring Assist Y

**4-Way**
- Single Solenoid, 2-Position - Air Return 1
- Double Solenoid, 2-Position 2
- Single Remote Pilot, 2-Position - Air Return 3
- Double Remote Pilot, 2-Position 4
- Double Solenoid, 3-Position - APB 5
- Double Solenoid, 3-Position - CE 6
- Double Solenoid, 3-Position - PC 7
- Double Remote Pilot, 3-Position - APB 8
- Double Remote Pilot, 3-Position - CE 9
- Double Remote Pilot, 3-Position - PC 10
- Single Solenoid, 2-Position - Air Return / Spring Assist E
- Single Remote Pilot, 2-Position - Air Return / Spring Assist F

#### Port Size / Thread Type

**3-Way**
- 1/8" NPT Inline 0*
- 1/8" BSPP "G" Inline 5*
- 1/8" BSPP "G" Inline 5*
- 1/4" NPT Subbase 6*
- 1/8" NPT Face Mount 7*
- Subbase Valve Less Base 8*

**4-Way**
- 1/8" NPT Inline 0*
- 1/8" BSPP "G" Inline 5*
- 1/8" BSPP "G" Inline 5*
- 1/4" NPT Subbase 6*
- 1/8" NPT Face Mount 7*

* Available for use on IEM Manifolds.
** 4-Way only.
† Subbase valves available for 4-Way valves only.

#### Pilot Source / Pilot Exhaust

**B1**
- Internal - Port #1 / Vented

**K**
- External - Body / Tapped M5

**X**
- External - Manifold / Vented

* Not available for 3-Way Valves.
† Not available for Remote Pilot Valves.
‡ See Pilot Source Note below.

### Options

**Blank**
- None

**02**
- Solenoid Rotated 180° - Pins Down

**Voltage**

<table>
<thead>
<tr>
<th>Code</th>
<th>AC 60Hz</th>
<th>DC 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
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<td>110</td>
</tr>
<tr>
<td>57</td>
<td>240</td>
<td>230</td>
</tr>
</tbody>
</table>

**XX**
- Remote Pilot - MS or Valve Less 15mm Solenoid

**YY**
- Remote Pilot - 5/32" (4mm) Tube

#### Enclosure / Lead Length

0
- None, Remote Pilot Valve

5
- 15mm 3-Pin DIN 43650C (Male Only)

X
- Valve Less 15mm Solenoid

**Overrides**

- B Flush - Non-Locking
- C Flush - Locking
- D Extended - Non-Locking
- E Extended - Locking
- F Valve Less 15mm Solenoid

### Pilot Source ‘X’

External-Manifold / Vented

**INLINE & SUBBASE Valves**

- Only used IF an IEM or 5-Ported Subbase Aluminum Bar Manifold requires a common external pilot signal thru the manifold for low pressure / vacuum applications OR when used with Sandwich Regulators.
**B5 Series Valves**

**3 & 4-Way, 2 & 3-Position Valves**

**BOLD OPTIONS ARE MOST POPULAR.**

| B5 | 1 | 1 | B | B | 5 | 49 | C |

**Operator Function**

**3-Way**
- Single Solenoid, 2-Position NC - Air Return
- Single Solenoid, 2-Position NO - Air Return
- Double Solenoid, 2-Position
- Single Remote Pilot, 2-Position NC - Air Return
- Single Remote Pilot, 2-Position NO - Air Return
- Single Remote Pilot, 2-Position NO - Air Return / Spring Assist
- Single Remote Pilot, 2-Position NC - Air Return / Spring Assist

**4-Way**
- Single Solenoid, 2-Position - Air Return
- Double Solenoid, 2-Position
- Single Remote Pilot, 2-Position - Air Return
- Double Remote Pilot, 2-Position
- Single Solenoid, 2-Position - Air Return / Spring Assist
- Single Remote Pilot, 2-Position - Air Return / Spring Assist

**Port Size / Thread Type**

**3-Way**
- 1/4" NPT Inline
- 3/8" NPT Inline
- 1/4" BSPP "G" Inline
- 3/8" BSPP "G" Inline
- 1/4" NPT Subbase
- 1/4" BSPP "G" NAMUR Mount
- Subbase Valve Less Base - NPT

**4-Way**
- 1/4" NPT Inline
- 1/4" BSPP "G" Inline
- 3/8" BSPP "G" Inline
- 3/8" NPT Subbase
- 1/4" BSPP "G" NAMUR Mount
- Subbase Valve Less Base - NPT

**Pilot Source / Pilot Exhaust**

**Enclosures "0, 5 & X"**
- None, Remote Pilot Valve
- Internal - Port #1 / Tapped M5
- Internal - Port #1 / Vented
- Dual Pressure - Port #3 / Tapped M5
- External - Body / Tapped M5
- External - Manifold / Vented
- Dual Pressure - Port #3 / Tapped M5
- External - Body / Tapped 1/8"

**Enclosures "A, B, C, D, E, F, G, H, N, O & R"**
- Internal - Port #1 / Tapped M5
- Internal - Port #1 / Vented
- Dual Pressure - Port #3 / Tapped M5
- External - Body / Tapped M5
- External - Body / Tapped 1/8"

**Pilot Source 'X'**
- External-Manifold / Vented or Tapped M5

**INLINE & SUBBASE Valves**
- Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal thru the manifold for low pressure / vacuum applications.

**Pilot Source Note**
- Available for use on IEM Manifolds.
- 4-Way only.
- With pilot source "0", "A", and "B" only.

**Overrides**

**None. Remote Pilot Valve**
- Override A
- Flush - Non-Locking B
- Flush - Locking D
- Valve Less 15mm Solenoid X

**Enclosure / Lead Length**

**0**
- None, Remote Pilot Valve

**5**
- 15mm 3-Pin DIN 43650C (Male Only)

**A**
- 30mm Square 3-Pin - ISO 4400 Form A (Male Only)

**B**
- 22mm Rectangular 3-Pin - Type B Industrial (Male Only)

**C**
- 3-Pin Automotive - Mini

**D**
- 5-Pin Automotive - Mini

**E**
- Intrinsically Safe - 30mm 3-Pin

**F**
- Hazardous Duty 1/2" NPT Conduit - 18" Leads

**G**
- Grommet - 18" Leads

**H**
- 1/2" NPT Conduit - 18" Leads

**N**
- Valve Less "A - R" Coil

**Q**
- Grommet - 72" Leads

**R**
- 1/2" NPT Conduit - 72" Leads

**X**
- Valve Less 15mm Solenoid

**Voltage**

<table>
<thead>
<tr>
<th>AC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>60Hz</td>
<td>50Hz</td>
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<td>53</td>
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<tr>
<td>57</td>
<td>24</td>
</tr>
</tbody>
</table>

**Note:** For Mobile Voltages, Contact the Application Team.

**Enclosure 'S' – Override / Voltage Availability**

**S**
- Standard

**O**
- Option

**Voltage Code**

<table>
<thead>
<tr>
<th>Voltage Code</th>
<th>Override Code</th>
<th>Option Code</th>
</tr>
</thead>
<tbody>
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<td>S</td>
</tr>
<tr>
<td>57</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

**Note:**
- Available with Encl. "S", "X".
- Also Available with Encl. "E".
- 34 VDC & Override "A" Only.
- **24 VDC, 24 VDC, 120 VAC or 240 VAC.**

---

**Parker Hannifin Corporation**
Pneumatic Division
Richland, Michigan
www.parker.com/pneumatics
B6 Series

**B6** Series Valves

3 & 4-Way, 2 & 3-Position Valves

---

### Operator Function

#### 3-Way

- Single Solenoid, 2-Position NC - Air Return / Spring Assist
- Single Solenoid, 2-Position NO - Air Return / Spring Assist
- Single Remote Pilot, 2-Position NC - Air Return / Spring Assist
- Single Remote Pilot, 2-Position NO - Air Return / Spring Assist

#### 4-Way

- Single Solenoid, 2-Position - Air Return
- Double Solenoid, 2-Position
- Single Remote Pilot, 2-Position - Air Return
- Double Remote Pilot, 2-Position
- Single Solenoid, 3-Position - APB
- Double Solenoid, 3-Position - CE
- Double Solenoid, 3-Position - PC
- Double Remote Pilot, 3-Position - APB
- Double Remote Pilot, 3-Position - CE
- Double Remote Pilot, 3-Position - PC
- Single Solenoid, 2-Position - Air Return / Spring Assist
- Single Remote Pilot, 2-Position - Air Return / Spring Assist

### Options

- Blank None
- 02 Solenoid Rotated 180° - Pins Down
- 42* Series Cylinder Mount Replacement
  - Only Available with Port Size "I" and "O", "A" and "B" Pilot Source.

### Voltage

<table>
<thead>
<tr>
<th>Voltage Code</th>
<th>AC 60Hz</th>
<th>DC 50Hz</th>
</tr>
</thead>
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<td>230</td>
</tr>
<tr>
<td>XX</td>
<td></td>
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</tbody>
</table>

### Enclosure / Lead Length

- 0: None, Remote Pilot Valve
- S: 15mm 3-Pin DIN 43650C (Male Only)
- A: 22mm Square 3-Pin - ISO 4400 Form A (Male Only)
- E*: Intrinsically Safe - 30mm 3-Pin
- F**: Hazardous Duty 1/2" NPT Conduit - 18" Leads
- G: Grommet - 18" Leads
- H: 1/2" NPT Conduit - 18" Leads
- N: Valve Less "A - R" Coil
- Q: Grommet - 72" Leads
- R: 1/2" NPT Conduit - 72" Leads
- X: Valve Less 15mm Solenoid

### Inline Valves

- Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal thru the manifold for low pressure / vacuum applications.

---

*Available for use on IEM Manifolds.
† 4-Way only. Available with pilot source "0", "A" and "B" only.

---

* Not available for 3-Way Valves.
† Not available for Remote Pilot Valves.

---

* 24 VDC & Override “A” Only.
** 12 VDC, 24 VDC, 120 VAC or 240 VAC.
### B7 & B8 Series

**Basic Series**
- **B7 Series**
- **B8 Series**

#### Operator Function
**3-Way**
- Single Solenoid, 2-Position NC - Air Return / Spring Assist
- Single Solenoid, 2-Position NO - Air Return / Spring Assist
- Single Remote Pilot, 2-Position NC - Air Return / Spring Assist
- Single Remote Pilot, 2-Position NO - Air Return / Spring Assist

**4-Way**
- Single Solenoid, 2-Position - Air Return
- Double Solenoid, 2-Position
- Single Remote Pilot, 2-Position - Air Return
- Double Remote Pilot, 2-Position
- Double Solenoid, 3-Position - APB
- Double Solenoid, 3-Position - CE
- Double Solenoid, 3-Position - PC
- Double Remote Pilot, 3-Position - APB
- Double Remote Pilot, 3-Position - CE
- Double Remote Pilot, 3-Position - PC
- Single Solenoid, 2-Position - Air Return / Spring Assist
- Single Remote Pilot, 2-Position - Air Return / Spring Assist

#### Voltage

<table>
<thead>
<tr>
<th>Voltage Code</th>
<th>AC 60Hz</th>
<th>DC 50Hz</th>
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</thead>
<tbody>
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</tr>
<tr>
<td>57</td>
<td>240</td>
<td>230</td>
</tr>
</tbody>
</table>

#### Enclosure / Lead Length
- **0** None, Remote Pilot Valve
- **5** 15mm 3-Pin DIN 43650C (Male Only)
- **A** 30mm Square - ISO 4400 Form A (Male Only)
- **B** 22mm Rectangular - Type B Industrial (Male Only)
- **C** Intrinsically Safe - 30mm 3-Pin
- **E** Hazardous Duty 1/2" NPT Conduit - 18” Leads
- **G** Grommet - 18” Leads
- **H** 1/2” NPT Conduit - 18” Leads
- **N** Valve Less “A - R” Coil
- **R** 1/2” NPT Conduit - 72” Leads
- **X** Valve Less 15mm Solenoid

#### Pilot Source / Pilot Exhaust
- Enclosures “0, 5 & X”
  - None, Remote Pilot Valve
  - Internal - Port #1 / Tapped M5
  - Internal - Port #1 / Vented
  - External - Body / Tapped M5
- Enclosures “A, B, C, D, E, F, G, H, N, Q & R”
  - Internal - Port #1 / Tapped M5
  - Internal - Port #1 / Vented
  - External - Body / Tapped 1/8

#### Overrides
- None, Remote Pilot Valve
- No Override
- Flush - Non-Locking
- Flush - Locking
- Extended - Non-Locking
- Extended - Locking
- Valve Less 15mm Solenoid

#### Inline Valves
- Only used IF an IEM Aluminum Bar Manifold requires a common external pilot signal thru the manifold for low pressure / vacuum applications.
**IEM Stackable Manifolds**

<table>
<thead>
<tr>
<th>Series</th>
<th>Type</th>
<th>Kit Number</th>
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</thead>
<tbody>
<tr>
<td>B3</td>
<td>4-Way</td>
<td>PS2917P</td>
</tr>
<tr>
<td>B5</td>
<td>4-Way</td>
<td>PS2817P</td>
</tr>
</tbody>
</table>

- Individual Manifold Bases stack together to form lightweight custom length manifold system.
- Easy-to-connect male / female tie rods for modular assembly.
- Utilizes B3 and B5 4-Way Inline Valves.
- Low-cost built-in Flow Controls with heavy-duty brass adjusting needles to control meter-out exhaust flow.
- Accessories include Isolator Plugs for pressure isolation and Universal Blanking Plates for auxiliary inlet and exhaust supply and future valve additions.
- Kit includes: (1) Manifold Base, (2) Hold-down Bolts, Tie-rods, Gaskets and O-rings.

**Isolator Plugs**

<table>
<thead>
<tr>
<th>Series</th>
<th>Kit Number</th>
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<tbody>
<tr>
<td>B3</td>
<td>PS2919P</td>
</tr>
<tr>
<td>B5</td>
<td>PS2819P</td>
</tr>
</tbody>
</table>

- Used to isolate the #1, #3 or #5 gallery between two Manifold Bases. (IEM STACKABLE ONLY)
- Kit includes: (3) plugs and (6) o-rings

**End Plate Kits**

<table>
<thead>
<tr>
<th>Series</th>
<th>Type</th>
<th>Kit Number</th>
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<tbody>
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<td>PS2915P</td>
</tr>
<tr>
<td>B5</td>
<td>4-Way</td>
<td>PS2815P*</td>
</tr>
</tbody>
</table>

Kit includes: Right and Left End Plate, O-rings, Socket Head Cap Screws, Flat Washers and Lockwashers.

* B5 4-Way use the same Kit.
Utilizes Subbase mount B3 valves.

Available for 4-Way valves. If 3-Way function is required, plug a cylinder port.

Common External Pilot galley is standard.

Standard Internal Pilot valves need not use this galley, and the galley does not need to be plugged.

External Pilot Valves – “X” or “W”, must have Common External Galley pressurized.

Kit includes:
Subbase – (1) Manifold (bolts & gasket come with subbase valve).

Assembly Model Number

<table>
<thead>
<tr>
<th>PS</th>
<th>J</th>
<th>3</th>
<th>B</th>
<th>1</th>
<th>N</th>
<th>04</th>
<th>N</th>
<th>P</th>
</tr>
</thead>
</table>
| Station Options
| N | None |
| Type
| 4-Way |
| Subbase Bottom Port
| K |
| Subbase End Port
| J |
| Series
| B3 Series |
| 3 |
| Pilot
| External (B3) |
| B |
| Port Type
| G | BSPP “G” |
| N | NPT |
| Cylinder Ports
| 1 | 1/8” |
**IEM Bar Manifold Model Number**

<table>
<thead>
<tr>
<th>Manifold</th>
<th>Options</th>
<th>PS</th>
<th>M</th>
<th>5</th>
<th>B</th>
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<td></td>
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</tr>
</tbody>
</table>

**Type**
- IEM 3-Way: G*  
- IEM 4-Way: M

*Not available with B7 or B8.*

<table>
<thead>
<tr>
<th>Series</th>
<th>2nd Digit</th>
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<tbody>
<tr>
<td>B3 Series</td>
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<td>B5 Series</td>
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<tr>
<td>B6 Series</td>
<td>6</td>
</tr>
<tr>
<td>B7 / B8 Series</td>
<td>7</td>
</tr>
</tbody>
</table>

- Utilizes Inline mount “B” Series valves.
- Different manifold for 3-Way & 4-Way valves (B7 and B8 use common manifolds).
- Common External Pilot galley is standard. Standard Internal Pilot valves need not use this galley. This galley does not require a plug for internally piloted valves.
- External Pilot Valves – “X” or “W”, must have Common External Galley pressurized.
- **Kits (PS....) include:** (1) Manifold, Valve Hold Down Bolts, Gaskets.
How To Order Aluminum Bar Manifold Assemblies

1. List Manifold Assembly call out. Use AA + the part number of the aluminum bar manifold. This automatically includes the aluminum bar manifold and assembly.

2. List complete valve model number, listing left to right, LOOKING AT THE #12 END of the manifold. The left most station is station 1.
   (If a blank station is needed, list the blanking plate part number at the desired station.)

AA PS*****##NP

Use Aluminum Bar Manifold Kit Numbers from previous pages.

Example: Application requires a 3-station “B3” 4-Way manifold with station #1 blanked off with valves assembled.

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Part No.</th>
<th>Comment</th>
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<tr>
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<td>AAPSM3BXN03NP</td>
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<tr>
<td>1</td>
<td>PS2920P</td>
<td>Station 1</td>
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<tr>
<td>1</td>
<td>B330000XXC</td>
<td>Station 2</td>
</tr>
<tr>
<td>1</td>
<td>B310BB549C</td>
<td>Station 3</td>
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### Subbase

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<td>4-Way 1/4&quot;</td>
<td>PS2934P</td>
</tr>
<tr>
<td>B5</td>
<td>4-Way 3/8&quot;</td>
<td>PS2834P</td>
</tr>
</tbody>
</table>

Kit includes: (1) subbase. (Hold down bolts & gasket are included with valve.)

### Blanking Plate

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<th>Type</th>
<th>Kit Number</th>
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<tbody>
<tr>
<td>B3</td>
<td>PS2966P</td>
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<tr>
<td>B5</td>
<td>PS2967P</td>
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</table>

Kit includes: (1) Plate, (2) Screws, Seal / Gaskets

### DIN Rail Hardware Kits

<table>
<thead>
<tr>
<th>Series</th>
<th>Length</th>
<th>Part Number</th>
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</thead>
<tbody>
<tr>
<td>B3</td>
<td>6 Feet</td>
<td>AM1DE200</td>
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</tbody>
</table>

Kit includes: (2) Screws, (2) Nuts, (2) Clamps
B3 Series

Sandwich Regulators

- Use with B3 Subbase Valves on 5-Ported Subbase Bar Manifolds.
- Common Port or Dual Port regulation control.
- Unregulated Pressure Supplied to Valve Pilot - Use Pilot Source - 'X'.
- Easy adjust knob control.

<table>
<thead>
<tr>
<th>B3</th>
<th>Common Port with Gauge *</th>
<th>Dual Port without Gauge</th>
<th>Cv</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-125 PSI</td>
<td>PS2930166P</td>
<td>PS2930233P</td>
<td>.33</td>
</tr>
</tbody>
</table>

* Gauge is 160 PSI. Gauge shipped unassembled. For different gauge mounting configuration, use brass adapters listed at bottom of page.

Common Port

Dual Port

Brass Adapters for Gauge –

| 1/8" to 1/8" Female Coupling | 207P-2 |
| 1/8" Male Pipe Nippled 1.5" | 215PNL-2-15 |
| 1/8" Male to Female Adapter | 222P-2-2 |

| 1/8" to 1/8" 45° Female Elbow | 2201P-2-2 |
| 1/8" to 1/8" 90° Female Elbow | 2200P-2-2 |

Gauge 1" Face –

| 0-160 PSI | PS4051160BP |
### Featured Valve Options

#### Solenoid Rotated 180° - Pins Down

<table>
<thead>
<tr>
<th>B3</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
</tr>
</thead>
</table>

- 1.8W (2.4VA) solenoids – Enclosure “5”.
- Override on top for easy access.
- “02” in the Options code.

#### Valve Less Solenoid

<table>
<thead>
<tr>
<th>B3</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
</tr>
</thead>
</table>

- Valve ordered & shipped without solenoid.
- Efficient method in place of valve repair, fully tested at factory.

#### Alternate Solenoid Enclosures

<table>
<thead>
<tr>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
</tr>
</thead>
</table>

- Enclosure “A”: 2.6W - 4.1VA (Coil rotates in 45° increments)
- Enclosure “B” – “R”: 4.6W - 7.3VA (Coil rotates in 90° increments)

#### Tube Fitting Remote Pilot

<table>
<thead>
<tr>
<th>B3</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
</tr>
</thead>
</table>

- “YY” Option
- 5/32” (4mm) Tube Fitting
**Featured Valve Options**

### Intrinsically Safe Solenoid Valves ("E" Option)

**Hazardous Location Class:**
- Class I; Groups A, B, C & D
- Class II; Groups E, F, & G
- Class III; Div. I

For use in low voltage (24VDC) Intrinsically Safe applications. NO OTHER VOLTAGE IS APPROVED.

36mm Coil width.

Comes standard with non-lighted solenoid connector.

Must be connected to an FM approved Barrier.

For dimensions, reference standard solenoid models. Maximum internally piloted valve pressure is 115 PSIG. Pressures to 145 PSIG can be used when external pilot is utilized and pilot pressure is limited to 115 PSIG.

### Intrinsically Safe Solenoid Pilot Assembly Kits

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2FS13N1AE49</td>
<td>24VDC</td>
</tr>
</tbody>
</table>

### "B" Series Valves

**Featured Valve Options**

### Hazardous Duty Solenoid Valves ("F" Option)

**Hazardous Location Class:**
- Class I; Zone I EX, M, II & T4
- Class I; Div. I Groups A, B, C, & D
- Class II & III; Div. I Groups E, F, & G

Comes standard with 1/2" conduit connection.

Voltage Range = ± 10%

Ambient Temp. Range = -20°C (-4°F) to 60°C (140°F)

Duty Factor = 100%

IP65 Rated (with Connected Conduit Connector)

**Notes:**
1. Maximum non-hazardous location voltage not to exceed 250V RMS.
2. Connect per Barrier Manufacturers instructions.
3. Factory Mutual requires connections per ISA RP 12.6 instructions.
4. CSA requires "Installation to be in accordance with the Canadian Electrical Code. Part I.”
5. The hazardous duty coils are wider in size than both the B5 and the B6 valve. If mounted on a manifold, the valves need to be staggered to fit.

### B5 With Manual Detent

- Positive mechanical contact of the override knob assures actuation of valve, however, knob does not move during normal cycling.
- Hard coated override to resist harsh environments.
- Override return spring is stainless steel, for harsh environments.
- Heavy duty locking mechanism to maintain position.
- Use in combination with mobile voltages or valve less solenoid.
## Female Electrical Connectors

### 15mm 3-Pin DIN 43650C
(Use with Enclosure “5”)

<table>
<thead>
<tr>
<th>Connector</th>
<th>Connector with Cord</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS2932BP</td>
<td>PS2932HBP 18 Inches</td>
<td>Unlit Unlit</td>
</tr>
<tr>
<td>PS2932BP</td>
<td>PS2932JBP 6 Feet</td>
<td>Unlit Unlit</td>
</tr>
<tr>
<td>PS294675BP</td>
<td>PS2946J75BP* 6 Feet</td>
<td>Light – 12VAC or DC</td>
</tr>
<tr>
<td>PS294679BP</td>
<td>PS2946J79BP* 6 Feet</td>
<td>Light – 24VAC or DC</td>
</tr>
<tr>
<td>PS294683BP</td>
<td>PS2946J83BP* 6 Feet</td>
<td>Light – 110/120VAC</td>
</tr>
<tr>
<td>PS294687BP</td>
<td>N/A</td>
<td>Light – 240/230VAC</td>
</tr>
</tbody>
</table>

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6’ (2m) cord.
IP65 rated when properly installed.

### Engineering Data:
- Conductors: 2 Poles Plus Ground
- Cable Range (Connector Only): 4 to 6mm (0.16 to 0.24 Inch)
- Contact Spacing: 8mm

### 15mm 3-Pin DIN 43650C to 1/2” Conduit
(Use with Enclosure “5”)

<table>
<thead>
<tr>
<th>Connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS2998BP</td>
<td>1/2” NPTF Conduit – Unlighted with 3' (1m) Leads 20 AWG Wire</td>
</tr>
</tbody>
</table>

Note: Rated up to 250VAC or VDC; 6 Amps
IP65 rated when properly installed.
Female Electrical Connectors / Accessories

30mm Square 3-Pin – ISO 4400, DIN 43650A
(Use with Enclosure “A”)

<table>
<thead>
<tr>
<th>Connector</th>
<th>Connector with 6’ (2m) Cord</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS2028BP</td>
<td>PS2028JCP</td>
<td>Unlighted</td>
</tr>
<tr>
<td>PS203279BP</td>
<td>PS2032J79CP*</td>
<td>Light – 6-48V, 50/60Hz, 6-48VDC</td>
</tr>
<tr>
<td>PS203283BP</td>
<td>PS2032J83CP*</td>
<td>Light – 120V/60Hz</td>
</tr>
<tr>
<td>PS203283BP</td>
<td>N/A</td>
<td>Light – 240V/60Hz</td>
</tr>
</tbody>
</table>

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6’ (2m) cord. IP65 rated when properly installed.

Engineering Data:
- Conductors: 2 Poles Plus Ground; Cable Range (Connector Only): 8 to 10mm (0.31 to 0.39 Inch); Contact Spacing: 11mm

22mm Rectangular 3-Pin – Type B Industrial
(Use with Enclosure “B”)

<table>
<thead>
<tr>
<th>Connector</th>
<th>Connector with 6’ (2m) Cord</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS2429BP</td>
<td>PS2429JBP</td>
<td>Unlighted</td>
</tr>
<tr>
<td>PS243079BP</td>
<td>PS2430J79BP*</td>
<td>Light – 24V60Hz, 24VDC</td>
</tr>
<tr>
<td>PS243083BP</td>
<td>PS2430J83BP*</td>
<td>Light – 120V/60Hz</td>
</tr>
<tr>
<td>PS243087BP</td>
<td>N/A</td>
<td>Light – 240V/60Hz</td>
</tr>
</tbody>
</table>

* LED with surge suppression.

Note: Max ø6.5mm cable size required for connector w/o 6’ (2m) cord. IP65 rated when properly installed.

Engineering Data:
- Conductors: 2 Poles Plus Ground; Cable Range (Connector Only): 8 to 10mm (0.31 to 0.39 Inch); Contact Spacing: 18mm

3-Pin / 5-Pin Male Automotive Connectors
(Use on 22mm Rectangular 3-Pin Solenoid)

<table>
<thead>
<tr>
<th>3-Pin</th>
<th>5-Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS2893CP</td>
<td>PS2893DP</td>
<td>Unlighted</td>
</tr>
<tr>
<td>PS2893C##P</td>
<td>PS2893D##P</td>
<td>Lighted - Voltage</td>
</tr>
</tbody>
</table>

## — 79 = 6 to 48VAC/VDC
83 = 100 to 240VAC/48 to 120 VDC

Exhaust Mufflers

<table>
<thead>
<tr>
<th>Pipe Thread</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>P6M-PAC5</td>
</tr>
<tr>
<td>1/8” NPT</td>
<td>EM12</td>
</tr>
<tr>
<td>1/4” NPT</td>
<td>EM25</td>
</tr>
<tr>
<td>3/8” NPT</td>
<td>EM37</td>
</tr>
<tr>
<td>1/2” NPT</td>
<td>EM50</td>
</tr>
</tbody>
</table>

P6M - Plastic; EM - Sintered Bronze

Plastic Silencers

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Part Number</th>
<th>A (mm)</th>
<th>B (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPT</td>
<td>BSPT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M5</td>
<td>AS-5</td>
<td>.43 (11)</td>
<td>.32 (8)</td>
</tr>
<tr>
<td>1/8”</td>
<td>ASN-6</td>
<td>1.57 (40)</td>
<td>.63 (16)</td>
</tr>
<tr>
<td>1/4”</td>
<td>ASN-8</td>
<td>2.56 (65)</td>
<td>.83 (21)</td>
</tr>
<tr>
<td>3/8”</td>
<td>ASN-10</td>
<td>3.35 (85)</td>
<td>.98 (25)</td>
</tr>
<tr>
<td>1/2”</td>
<td>ASN-15</td>
<td>3.74 (95)</td>
<td>1.18 (30)</td>
</tr>
</tbody>
</table>
**Flow Rating (Cv)**

<table>
<thead>
<tr>
<th>Size</th>
<th>Port Size</th>
<th>Mounting Style</th>
<th>2-Position</th>
<th>3-Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3</td>
<td>1/8&quot; Ports</td>
<td>Inline</td>
<td>.75</td>
<td>.60</td>
</tr>
<tr>
<td></td>
<td>1/4&quot; Tube</td>
<td>Inline</td>
<td>.45</td>
<td>.45</td>
</tr>
<tr>
<td></td>
<td>1/8&quot; Ports</td>
<td>Subbase</td>
<td>.65</td>
<td>.45</td>
</tr>
<tr>
<td></td>
<td>1/4&quot; Ports</td>
<td>Subbase</td>
<td>.65</td>
<td>.50</td>
</tr>
<tr>
<td>B5</td>
<td>1/4&quot; Ports</td>
<td>Inline</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>3/8&quot; Ports</td>
<td>Inline</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>1/4&quot; Ports</td>
<td>Subbase</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>3/8&quot; Ports</td>
<td>Subbase</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td>B6</td>
<td>3/8&quot; Ports</td>
<td>Inline</td>
<td>2.7</td>
<td>2.1</td>
</tr>
<tr>
<td>B7</td>
<td>1/2&quot; Ports</td>
<td>Inline</td>
<td>5.9</td>
<td>5.7</td>
</tr>
<tr>
<td>B8</td>
<td>3/4&quot; Ports</td>
<td>Inline</td>
<td>7.0</td>
<td>6.6</td>
</tr>
</tbody>
</table>

ANSI / (NFPA) T3.21.3-1990 standard for Cv measurement.

**Temperature Rating**

5°F to 120°F (-15°C to 49°C) ambient. (Buna-N and Fluorocarbon)

**Operating Pressure**

Maximum: 145 PSIG (1000 kPa)

### Minimum:

<table>
<thead>
<tr>
<th>Operator / Function</th>
<th>Internal Pilot</th>
<th>Minimum PSIG (kPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. G. H</td>
<td>Single Solenoid - Air Return</td>
<td>B3: 20 (138)</td>
</tr>
<tr>
<td>2. A. J. S</td>
<td>Double Solenoid</td>
<td>B5: 20 (138)</td>
</tr>
<tr>
<td>4. M</td>
<td>Double Remote Pilot</td>
<td>B7: 35 (241)</td>
</tr>
<tr>
<td>5. 6. 7</td>
<td>Double Solenoid - APB, CE, PC</td>
<td>B8: 35 (241)</td>
</tr>
<tr>
<td>8. 9. 0</td>
<td>Double Remote Pilot - APB, CE, PC</td>
<td></td>
</tr>
<tr>
<td>E. V. W</td>
<td>Single Solenoid - Air Return / Spring Assist</td>
<td>35 (241)</td>
</tr>
<tr>
<td>F. X. Y</td>
<td>Single Remote Pilot - Air Return / Spring Assist</td>
<td>35 (241)</td>
</tr>
</tbody>
</table>

**External Pilot***

- All “B” Series: Vacuum


**Note:** For CSA-NRTL/C approved solenoid valves – insert an 'L' at the end of the valve part number.

- B3: Maximum pressure - 120 PSI
- B5: Maximum pressure - 145 PSI
- B6: Maximum pressure - 145 PSI
- B7: Maximum pressure - 145 PSI
- B8: Maximum pressure - 145 PSI

* Enclosure Option E is CSA / FM approved at source. For certification of valve / solenoid assembly, consult factory.

† Not Available with Enclosure 5

‡ Not available with Enclosures 0. 5 & X
## Solenoid Information (Solenoids are rated for continuous duty.)

### 2-Position Single Solenoid / Internal Air Return

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Port Size</th>
<th>Voltage</th>
<th>Enclosure &quot;5&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;A&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;B&quot; to &quot;R&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3</td>
<td>1/8&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.6VA .065</td>
<td>AC 24 3.9VA .136</td>
<td>DC 7.3VA .309</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>1/4&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 1.2W .098</td>
<td>AC 12 2.6W .208</td>
<td>DC 4.6W .365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5</td>
<td>1/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 0.9W .033</td>
<td>AC 24 —</td>
<td>DC 4.8W .142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B6*</td>
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<td></td>
</tr>
<tr>
<td>B7</td>
<td>1/2&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B8</td>
<td>3/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2-Position Single Solenoid Spring / Air Return

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Port Size</th>
<th>Voltage</th>
<th>Enclosure &quot;5&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;A&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;B&quot; to &quot;R&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3</td>
<td>1/8&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.6VA .065</td>
<td>AC 24 3.9VA .136</td>
<td>DC 7.3VA .309</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>1/4&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 1.2W .098</td>
<td>AC 12 2.6W .208</td>
<td>DC 4.6W .365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5</td>
<td>1/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 0.9W .033</td>
<td>AC 24 —</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>B7</td>
<td>1/2&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B8</td>
<td>3/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2-Position Double Solenoid

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Port Size</th>
<th>Voltage</th>
<th>Enclosure &quot;5&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;A&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;B&quot; to &quot;R&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3</td>
<td>1/8&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.6VA .065</td>
<td>AC 24 3.9VA .136</td>
<td>DC 7.3VA .309</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>1/4&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 1.2W .098</td>
<td>AC 12 2.6W .208</td>
<td>DC 4.6W .365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
<td></td>
<td></td>
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<tr>
<td>B5</td>
<td>1/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 0.9W .033</td>
<td>AC 24 —</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>B5*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
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<td></td>
</tr>
<tr>
<td>B6*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
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<td>AC 12 —</td>
<td>DC 4.9W .298</td>
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</tr>
<tr>
<td>B7</td>
<td>1/2&quot;</td>
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<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B8</td>
<td>3/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3-Position Double Solenoid

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Port Size</th>
<th>Voltage</th>
<th>Enclosure &quot;5&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;A&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;B&quot; to &quot;R&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3</td>
<td>1/8&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.6VA .065</td>
<td>AC 24 3.9VA .136</td>
<td>DC 7.3VA .309</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>1/4&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 1.2W .098</td>
<td>AC 12 2.6W .208</td>
<td>DC 4.6W .365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5</td>
<td>1/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 0.9W .033</td>
<td>AC 24 —</td>
<td>DC 4.8W .142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B6*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B7</td>
<td>1/2&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B8</td>
<td>3/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: For enclosure "5" with "02" Option, solenoid wattage is 1.8W (2.4VA). Response time is 10% faster. Voltage rated +10 / -15%.

* 47 and 48 code are mobile voltages. voltage +25 / -30%.

### Response Time

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Port Size</th>
<th>Voltage</th>
<th>Enclosure &quot;5&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;A&quot;</th>
<th>Voltage</th>
<th>Enclosure &quot;B&quot; to &quot;R&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3</td>
<td>1/8&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.6VA .065</td>
<td>AC 24 3.9VA .136</td>
<td>DC 7.3VA .309</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>1/4&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 1.2W .098</td>
<td>AC 12 2.6W .208</td>
<td>DC 4.6W .365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5</td>
<td>1/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 0.9W .033</td>
<td>AC 24 —</td>
<td>DC 4.8W .142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B6*</td>
<td>3/8&quot;</td>
<td>AC 60Hz 12</td>
<td>DC 0.9W .074</td>
<td>AC 12 —</td>
<td>DC 4.9W .298</td>
<td></td>
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</tr>
<tr>
<td>B6</td>
<td>1/2&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
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<tr>
<td>B7</td>
<td>1/2&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B8</td>
<td>3/4&quot;</td>
<td>AC 60Hz 24</td>
<td>DC 1.2W .049</td>
<td>AC 24 2.7W .112</td>
<td>DC 4.8W .200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average Fill Time (Seconds): With 100 PSIG supply, time required to fill from 0-90 PSIG and exhaust from 100 PSIG to 10 PSIG is measured from instant of energizing, or de-energizing 120V/60Hz solenoid. Times shown are average.

* For 3/8" ported, 50 cu. in. test chamber is used. For 1/2" & 3/4", a 200 cu. in. test chamber is used.
**Technical Information**

**“B” Series Valves**

**Pilot Configuration**

<table>
<thead>
<tr>
<th>A</th>
<th>Internal - Port #1 / Tapped M5</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Diagram A" /></td>
<td></td>
</tr>
<tr>
<td>Tapped M5 Pilot Exhaust</td>
<td></td>
</tr>
<tr>
<td>B5 Shown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E</th>
<th>Dual Pressure - Port #3 / Vented</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2" alt="Diagram E" /></td>
<td></td>
</tr>
<tr>
<td>Vented Pilot Exhaust</td>
<td></td>
</tr>
<tr>
<td>Port #3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>Internal - Port #1 / Vented</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Diagram B" /></td>
<td></td>
</tr>
<tr>
<td>Vented Pilot Exhaust</td>
<td></td>
</tr>
<tr>
<td>B3 Shown</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>K</th>
<th>External - Body / Tapped M5</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4" alt="Diagram K" /></td>
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</tr>
<tr>
<td>Tapped M5 Pilot Exhaust</td>
<td></td>
</tr>
<tr>
<td>B3 Shown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D</th>
<th>Dual Pressure - Port #3 / Tapped M5</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5" alt="Diagram D" /></td>
<td></td>
</tr>
<tr>
<td>Tapped M5 Pilot Exhaust</td>
<td></td>
</tr>
<tr>
<td>Port #3</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>G</th>
<th>Dual Pressure - Port #5 / Tapped M5 (Similar)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image6" alt="Diagram G" /></td>
<td></td>
</tr>
<tr>
<td>Tapped M5 Pilot Exhaust</td>
<td></td>
</tr>
<tr>
<td>B5 Shown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H</th>
<th>Dual Pressure - Port #5 / Vented (Similar)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7" alt="Diagram H" /></td>
<td></td>
</tr>
<tr>
<td>Vented</td>
<td></td>
</tr>
</tbody>
</table>

---

D62

3-Pin, EN175301-803 (Former DIN 43650C), 15mm

---

**PS2982**

**Enclosure ‘5’**

<table>
<thead>
<tr>
<th>Override</th>
<th>42</th>
<th>45</th>
<th>47*</th>
<th>48*</th>
<th>49</th>
<th>53</th>
<th>57</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>O</td>
<td>O</td>
<td>–</td>
<td>–</td>
<td>S</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>C</td>
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<tr>
<td>D</td>
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<td>–</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>–</td>
</tr>
<tr>
<td>E</td>
<td>–</td>
<td>–</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>–</td>
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</tbody>
</table>

S - Standard; O - Option

* Mobile Voltage

**Kit Includes:** Solenoid, (2) Machine Screws, (2) Self Threading Screws, (1) Gasket, (1) 3-cell Gasket.

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**PS3541**

**Enclosure ‘5 with “02” Option**

<table>
<thead>
<tr>
<th>Override</th>
<th>42</th>
<th>45</th>
<th>49</th>
<th>53</th>
<th>57</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>O</td>
<td>O</td>
<td>S</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>C</td>
<td>O</td>
<td>O</td>
<td>S</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>D</td>
<td>–</td>
<td>–</td>
<td>O</td>
<td>O</td>
<td>–</td>
</tr>
<tr>
<td>E</td>
<td>–</td>
<td>–</td>
<td>O</td>
<td>O</td>
<td>–</td>
</tr>
</tbody>
</table>

---

**Solenoid Kits Alternate Enclosures**

**P2F C A 4 49**

<table>
<thead>
<tr>
<th>Type</th>
<th>Solenoid Kit</th>
<th>C</th>
</tr>
</thead>
</table>

**Enclosures / Lead Length**

- **30mm Square 3-Pin – ISO 4400 Form A (Male Only)**
  - A
- **22mm Rectangular 3-Pin – Type B Industrial (Male Only)**
  - B
- **Hazardous Duty, FM / CSA**
  - F*
- **Grommet - 18" Leads**
  - G
- **1/2" NPT Conduit - 18" Leads**
  - H
- **Grommet 72" Leads**
  - Q
- **1/2" Conduit 72" Leads**
  - R

* Only Available with Voltage Codes "45", "49", "53" & "57".

**Option A & E**

3-Pin ISO 4400, DIN 43650A

**Option B**

22mm Rectangular 3-Pin DIN, Type B Industrial

**Option G & Q**

Grommet, 18" or 72" Leads

**Option F, H & R**

1/2" Conduit, 18" or 72" Leads
B3 Series

Spool / Body Service Kits

Kit Includes:
- PS2901CP 4-Way, 2-Pos Item 15, 21 (2), 24, 25, 31 (2), grease packet
- PS2902CP 4-Way, 3-Pos APB Item 16, 21 (2), 31 (2), grease packet
- PS2903CP 4-Way, 3-Pos CE Item 16, 21 (2), 31 (2), grease packet
- PS2904CP 4-Way, 3-Pos PC Item 16, 21 (2), 31 (2), grease packet
- PS2971CP 3-Way, 2-Pos Item 15, 21 (2), 24, 25, 31 (2), grease packet

Valve to Manifold Kits
- PS2980P Gasket (10) - Inline 3-Way Valve to Segmented Manifold
- PS2981P Gasket (10) - Inline 4-Way Valve to Segmented Manifold
- PS2984P O-ring (10) - Inline Valve to IEM Bar Manifold
- PS2986P Gasket - Subbase Valve to Subbase Bar Manifold; Item 4 (10), 39 (10)
- PS2987P Mounting Bolts (10) - Inline Valve / Subbase Valve

Manifold to Manifold Kit
- PS2995P O-ring (10), Sleeves (10), Tie Rods (10) - 3-Way Manifold
- PS2996P Gasket (10), Tie Rods (10) - 4-Way Manifold

Sandwich Regulator Cartridge Kit
- PS29922P 2-60 PSI Cartridge (Item A, B)
- PS29933P 5-125 PSI Cartridge (Item A, B)

Solenoid Kit

Kit Includes: 35, 36, 34
- PS3982##P 3-Pin, EN175301-803, 15mm
- PS3984##P 3-Pin, EN175301-803, 15mm Option 2

15mm 3-Pin DIN

Remote Pilot Adapter - 5/32" (4mm) Tube

Item List – Parts not sold separately.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4*</td>
<td>O-ring - Ext Pilot Valve to Manifold</td>
<td>23</td>
<td>Return Piston</td>
<td>31*</td>
<td>Lip Seal - Operator Piston</td>
</tr>
<tr>
<td>5</td>
<td>Inline Body - Tapped Ports</td>
<td>24*</td>
<td>Lip Seal - Return Piston</td>
<td>32</td>
<td>Operator Piston Mechanism - 3-Position</td>
</tr>
<tr>
<td>6</td>
<td>Subbase Body</td>
<td>25*</td>
<td>Spring, Return Assist</td>
<td>33</td>
<td>Screws - Operator Adapter</td>
</tr>
<tr>
<td>7</td>
<td>Inline Body - Tube Ports</td>
<td>26</td>
<td>Screws - Return Operator</td>
<td>34*</td>
<td>Gasket - Solenoid to Adapter</td>
</tr>
<tr>
<td>15*</td>
<td>Spool - 2-Position (Seals Assembled)</td>
<td>27</td>
<td>Remote Pilot Operator</td>
<td>35*</td>
<td>15mm Solenoid</td>
</tr>
<tr>
<td>16*</td>
<td>Spool - 3-Position (Seals Assembled)</td>
<td>28a</td>
<td>Solenoid Adapter - Vent Exhaust</td>
<td>36*</td>
<td>Self Tapping Screw - Solenoid</td>
</tr>
<tr>
<td>17*</td>
<td>Spool Seal</td>
<td>28b</td>
<td>Solenoid Adapter - Ext Pilot, Vent Exhaust</td>
<td>(Effective May 99)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Remote Pilot Adapter (PVAP111)</td>
<td>28c</td>
<td>Solenoid Adapter - Ext Pilot, Tapped Exhaust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Screw - Remote Pilot Adapter</td>
<td>28d</td>
<td>Solenoid Adapter - Tapped Exhaust</td>
<td>36*</td>
<td>Machine Screw - Solenoid (Jan 96 - May 99)</td>
</tr>
<tr>
<td>20</td>
<td>Return Operator</td>
<td>29</td>
<td>O-ring - Remote Pilot</td>
<td>39*</td>
<td>Gasket - Subbase Valve to Base</td>
</tr>
<tr>
<td>21*</td>
<td>Gasket - Body to Operator</td>
<td>30</td>
<td>Operator Piston - 2-Position</td>
<td>40*</td>
<td>Mounting Screws - Subbase Valve</td>
</tr>
</tbody>
</table>

Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.
**B5 Series**

**Spool / Body Service Kits**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS2801P</td>
<td>4-Way, 2-Pos</td>
</tr>
<tr>
<td>PS2802P</td>
<td>4-Way, 3-Pos APB</td>
</tr>
<tr>
<td>PS2803P</td>
<td>4-Way, 3-Pos CE</td>
</tr>
<tr>
<td>PS2804P</td>
<td>4-Way, 3-Pos PC</td>
</tr>
<tr>
<td>PS2871P</td>
<td>2-Way, 2-Pos NC</td>
</tr>
</tbody>
</table>

* Fluorocarbon Seal Kit (i.e. PS2801VP)

**Pilot Replacement Kit – Alternate Enclosure**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS2897GBP</td>
<td>Non-Locking, BSPP</td>
</tr>
<tr>
<td>PS2897GCP</td>
<td>Locking, BSPP</td>
</tr>
<tr>
<td>PS2897NBP</td>
<td>Non-Locking, NPT</td>
</tr>
<tr>
<td>PS2897NCP</td>
<td>Locking, NPT</td>
</tr>
</tbody>
</table>

**Armature / Override Kit**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2FP13NAD</td>
<td>Non-Locking</td>
</tr>
<tr>
<td>P2FP13NAC</td>
<td>Locking</td>
</tr>
</tbody>
</table>

* Comes with a Thru Nut and A Diffuser Nut.

**Valve to Manifold Kits**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS2884P</td>
<td>O-ring (10) - Inline Valve to IEM Manifold (All)</td>
</tr>
<tr>
<td>PS2886P</td>
<td>Gasket (10) - Subbase Valve to Subbase</td>
</tr>
<tr>
<td>PS2887P</td>
<td>Mounting Bolts (10) - Inline &amp; Subbase Valve</td>
</tr>
</tbody>
</table>

**Manifold to Manifold Kit**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS2896P</td>
<td>Gasket (10), Tie Rods (10) - 4-Way Manifold</td>
</tr>
</tbody>
</table>

**Solenoid Kit**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>PS2982P#</td>
<td>3-Pin, EN175301-803, 15mm</td>
</tr>
<tr>
<td>PS3541P#</td>
<td>3-Pin, EN175301-803, 15mm Option 2</td>
</tr>
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</table>

**Item List – Parts not sold separately.**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>Spool Seal</td>
</tr>
<tr>
<td>2*</td>
<td>Spool - 2-Position (Seals Assembled)</td>
</tr>
<tr>
<td>3*</td>
<td>Spool - 3-Position (Seals Assembled)</td>
</tr>
<tr>
<td>4</td>
<td>Inline Body</td>
</tr>
<tr>
<td>6A*</td>
<td>Gasket - Body to Operator</td>
</tr>
<tr>
<td>6B</td>
<td>O-ring - Body to Operator</td>
</tr>
<tr>
<td>7</td>
<td>Remote Pilot Operator</td>
</tr>
<tr>
<td>9</td>
<td>Operator Piston - 2-Position</td>
</tr>
<tr>
<td>10*</td>
<td>Lip Seal - Operator Piston</td>
</tr>
<tr>
<td>11</td>
<td>Operator Piston Mechanism - 3-Position</td>
</tr>
<tr>
<td>12</td>
<td>Adapter - 3-Position</td>
</tr>
<tr>
<td>13*</td>
<td>Gasket - 3-Position Adapter to Body</td>
</tr>
<tr>
<td>14</td>
<td>Return Piston</td>
</tr>
<tr>
<td>15*</td>
<td>Lip Seal - Return Piston</td>
</tr>
<tr>
<td>16</td>
<td>Return Operator</td>
</tr>
<tr>
<td>17</td>
<td>Screws - Operator Adapter - 2-Position</td>
</tr>
<tr>
<td>18</td>
<td>Screws - Operator Adapter - 3-Position</td>
</tr>
<tr>
<td>19*</td>
<td>Operator Adapter - Alt Enclosure</td>
</tr>
<tr>
<td>20*</td>
<td>1/8&quot; NPT Pipe Plug</td>
</tr>
<tr>
<td>20B</td>
<td>O-ring - Small - Solenoid Base</td>
</tr>
<tr>
<td>21</td>
<td>O-ring - Large - Solenoid Base</td>
</tr>
<tr>
<td>24</td>
<td>Bolts - Solenoid Base</td>
</tr>
<tr>
<td>25</td>
<td>3-Pin, EN175301-803, 15mm Solenoid</td>
</tr>
<tr>
<td>26</td>
<td>Machine Screw - Solenoid</td>
</tr>
<tr>
<td>27</td>
<td>Remote Pilot Adapter - 5/32&quot; Tube (PVAP111)</td>
</tr>
<tr>
<td>28</td>
<td>Remote Pilot Adapter - 5/32&quot; Tube (PVAP111)</td>
</tr>
<tr>
<td>29</td>
<td>Remote Pilot Adapter - 5/32&quot; Tube (PVAP111)</td>
</tr>
<tr>
<td>30</td>
<td>Machine Screw - Solenoid</td>
</tr>
<tr>
<td>31</td>
<td>Remote Pilot Adapter - 5/32&quot; Tube (PVAP111)</td>
</tr>
<tr>
<td>32</td>
<td>Remote Pilot Adapter - 5/32&quot; Tube (PVAP111)</td>
</tr>
<tr>
<td>33</td>
<td>Machine Screw - Solenoid</td>
</tr>
<tr>
<td>34</td>
<td>Remote Pilot Adapter - 5/32&quot; Tube (PVAP111)</td>
</tr>
<tr>
<td>35</td>
<td>Machine Screw - Solenoid</td>
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<tr>
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**Technical Information**

**“B” Series Valves**

**“B5C” Exploded Views & Kits**

**Catalog 0600P-E**

**Technical Information**

(Richland, Michigan)

Parker Hannifin Corporation
Pneumatic Division
www.parker.com/pneumatics
B6 Series

Spool / Body Service Kits

<table>
<thead>
<tr>
<th>Kit</th>
<th>Description</th>
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<td>4-Way, 2-Position</td>
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<td>PS2602P</td>
<td>4-Way, 3-Position PB</td>
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<td>PS2603P</td>
<td>4-Way, 3-Position CE</td>
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<td>PS2604P</td>
<td>4-Way, 3-Position PC</td>
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<td>PS267101P</td>
<td>3-Way, 2-Position NC</td>
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<td>PS267102P</td>
<td>3-Way, 2-Position NO</td>
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Valve to Manifold Kits

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<thead>
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<th>Kit</th>
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<tr>
<td>PS2684P</td>
<td>O-Ring (10) - Inline Valve to IEM Manifold</td>
</tr>
<tr>
<td>PS2887P</td>
<td>Mounting Bolts (10) - Inline Valve</td>
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Pilot Replacement Kit – Alternate Enclosure

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<td>PS2897GBP</td>
<td>Non-Locking, BSPP</td>
</tr>
<tr>
<td>PS2897GCP</td>
<td>Locking, BSPP</td>
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<td>PS2897NBP</td>
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Armature / Override Kit – Alternate Enclosure

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<tr>
<td>P2FP13N4C*</td>
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Item List – Parts not sold separately.

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<thead>
<tr>
<th>Item</th>
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<tr>
<td>1</td>
<td>Spool Seal</td>
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<tr>
<td>2</td>
<td>Spool - 2-Position (Seals Assembled)</td>
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<tr>
<td>3</td>
<td>Spool - 3-Position (Seals Assembled)</td>
</tr>
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<td>4</td>
<td>Inline Body - 4-Way</td>
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<td>5</td>
<td>Gasket - Body to Operator</td>
</tr>
<tr>
<td>7</td>
<td>Remote Pilot Operator</td>
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<tr>
<td>8</td>
<td>Operator Piston - 2-Position</td>
</tr>
<tr>
<td>9</td>
<td>Lip Seal - Operator Piston</td>
</tr>
<tr>
<td>10</td>
<td>Operator Piston Mechanism - 3-Position</td>
</tr>
<tr>
<td>11A</td>
<td>Gasket - Body to Return Cap</td>
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<tr>
<td>11B</td>
<td>O-Ring - Body to Operator (Effective Feb. 2008)</td>
</tr>
<tr>
<td>12</td>
<td>Adapter - 3-Position</td>
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<tr>
<td>13</td>
<td>Gasket - 3-Position Adapter to Body</td>
</tr>
<tr>
<td>14</td>
<td>Spring, Return Assist</td>
</tr>
<tr>
<td>15A</td>
<td>Return Operator</td>
</tr>
<tr>
<td>15B</td>
<td>Return Operator - CSA Option</td>
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<td>16</td>
<td>Screws - Operator Adapter - 2-Position</td>
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<tr>
<td>17</td>
<td>Screws - Operator Adapter - 3-Position</td>
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<tr>
<td>18</td>
<td>Operator Adapter - Alt Enclosure</td>
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<tr>
<td>20</td>
<td>1/8&quot; NPT Pipe Plug</td>
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<tr>
<td>22</td>
<td>O-Ring - Small - Solenoid Base</td>
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<tr>
<td>23</td>
<td>O-Ring - Large - Solenoid Base</td>
</tr>
<tr>
<td>24</td>
<td>Bolts - Solenoid Base</td>
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<tr>
<td>98</td>
<td>Coils - Alternate Enclosure (see Page D87)</td>
</tr>
<tr>
<td>100</td>
<td>Self Tapping Screw - Solenoid</td>
</tr>
<tr>
<td>120</td>
<td>Solenoid Nut</td>
</tr>
</tbody>
</table>

Note: * Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.
**B & B8 Series**

**Spool / Body Service Kits**

- PS2501P 4-Way, 2-Pos
- PS2502P 4-Way, 3-Pos APB
- PS2503P 4-Way, 3-Pos CE
- PS2504P 4-Way, 3-Pos PC
- PS257101P 3-Way, 2-Pos. NC
- PS257102P 3-Way, 2-Pos. NO

**Valve to Manifold Kits**

- PS2584P O-ring (10) - Inline Valve to IEM Manifold
- PS2587P Mounting Bolts (10) - Inline Valve

**Pilot Replacement Kit – Alternate Enclosure**

**Item List** – Parts not sold separately.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>0</td>
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<td>16&quot;</td>
<td>Screws - Operator Adapter</td>
<td>98&quot;</td>
<td>Remote Pilot Adapter - 5/32&quot; Tube (PVAP111)</td>
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<tr>
<td>1</td>
<td>Armature / Override Kit – Alternate Enclosure</td>
<td>20&quot;</td>
<td>1/8&quot; NPT Pipe Plug</td>
<td>100</td>
<td>Screws - Remote Pilot Adapter</td>
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<td>2</td>
<td>Spool Seal</td>
<td>22&quot;</td>
<td>O-ring - Small - Solenoid Base</td>
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<td>Inline Body - 3-Way</td>
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<td>3</td>
<td>Spool - 2-Position (Seals Assembled)</td>
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<td>O-ring - Large - Solenoid Base</td>
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<td>Self Tapping Screw - Solenoid (Effective Jan 00)</td>
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<td>6</td>
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<td>Solenoid Adapter - Ext Pilot, Tapped Exhaust</td>
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**Catalog 0600P-E**

**Technical Information**

**“B” Series Valves**

**“B7A / B8A” Exploded Views & Kits**

- PS2962**##P 3-Pin, EN175301-803, 15mm
- PS3541**##P 3-Pin, EN175301-803, 15mm Option 2

**Note:** *Parts are available in kits shown. For kit components, order VALVE LESS SOLENOID for assembled and tested repair valve.*
**B3**

**Single & Double Operators – 4-Way Inline**

### Solenoid

- MS External Pilot Port (Optional)
- P (2 mtg. holes)
- 1/8 Pipe* 2 Ports
- A (2 Pos. Sing. Sol.)
- E (2 & 3-Pos. Dbl. Sol.)
- D (2 & 3-Pos.)
- G (2-Pos) & (3-Pos)

### Remote Pilot

- MS External Pilot Port
- P (2 mtg. holes)
- 1/8 Pipe* 2 Ports
- B (2 & 3-Pos.)

### B3 4-Way Inline

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Inches (mm)

---

**B3**

**Single & Double Operators – 3-Way Inline**

### Solenoid

- MS External Pilot Port (Optional)
- P (2 mtg. holes)
- 1/8 Pipe* Port
- A (2 Pos. Sing. Sol.)
- E1 (2 & 3-Pos. Dbl. Sol.)
- D (2 & 3-Pos.)
- G (2-Pos) & (3-Pos)

### Remote Pilot

- MS External Pilot Port
- P (2 mtg. holes)
- 1/8 Pipe* Port
- B (2 & 3-Pos.)

### B3 3-Way Inline

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Inches (mm)
## B3 4-Way Face Mount

### Solenoid

- **Dimensions:**
  - A: 4.67 (119)
  - A1: 6.44 (164)
  - A2: 3.12 (79)
  - A3: 3.33 (85)
  - B: 1.66 (42)
  - B2: 0.58 (15)
  - C: 1.13 (29)
  - C1: 0.81 (21)
  - D: 3.22 (82)
  - D1: 1.66 (42)
  - E: 1.74 (44)
  - E1: 0.87 (22)
  - E2: 0.39 (10)
  - E3: 0.95 (24)
  - G: 1.13 (29)
  - H: 1.50 (38)
  - H1: 0.71 (18)
  - L: 0.11 (3)
  - M: 1.12 (28)
  - M1: 0.56 (14)
  - N: 0.05 (1)
  - N1: 0.05 (1)
  - P: Ø 0.13 (Ø 3.3)

- **Description:**
  - B2: 0.58 (15)
  - C: 1.13 (29)
  - C1: 0.81 (21)
  - D: 3.22 (82)
  - D1: 1.66 (42)
  - E: 1.74 (44)
  - E1: 0.87 (22)
  - E2: 0.39 (10)
  - E3: 0.95 (24)
  - G: 1.13 (29)
  - H: 1.50 (38)
  - H1: 0.71 (18)
  - L: 0.11 (3)
  - M: 1.12 (28)
  - M1: 0.56 (14)
  - N: 0.05 (1)
  - N1: 0.05 (1)
  - P: Ø 0.13 (Ø 3.3)

### Remote Pilot

- **Dimensions:**
  - A1: 6.44 (164)
  - A2: 3.12 (79)
  - A3: 3.33 (85)
  - B: 1.66 (42)
  - B2: 0.58 (15)
  - C: 1.13 (29)
  - C1: 0.81 (21)
  - D: 3.22 (82)
  - D1: 1.66 (42)
  - E: 1.74 (44)
  - E1: 0.87 (22)
  - E2: 0.39 (10)
  - E3: 0.95 (24)
  - G: 1.13 (29)
  - H: 1.50 (38)
  - H1: 0.71 (18)
  - L: 0.11 (3)
  - M: 1.12 (28)
  - M1: 0.56 (14)
  - N: 0.05 (1)
  - N1: 0.05 (1)
  - P: Ø 0.13 (Ø 3.3)

- **Description:**
  - B2: 0.58 (15)
  - C: 1.13 (29)
  - C1: 0.81 (21)
  - D: 3.22 (82)
  - D1: 1.66 (42)
  - E: 1.74 (44)
  - E1: 0.87 (22)
  - E2: 0.39 (10)
  - E3: 0.95 (24)
  - G: 1.13 (29)
  - H: 1.50 (38)
  - H1: 0.71 (18)
  - L: 0.11 (3)
  - M: 1.12 (28)
  - M1: 0.56 (14)
  - N: 0.05 (1)
  - N1: 0.05 (1)
  - P: Ø 0.13 (Ø 3.3)

### Notes:

- **Remote Pilot Size:**
  - 1/8 Pipe 3 Ports

- **Dimensions:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot Size:**
  - 1/8 Pipe 3 Ports

### Additional Information:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

### Technical Specifications:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

### Technical Details:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

### Technical Notes:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

### Technical Specifications:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

### Technical Details:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

### Technical Notes:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

### Technical Specifications:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

### Technical Details:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

### Technical Notes:

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports

- **Remote Pilot:**
  - 1/8 Pipe 3 Ports
### B3 4-Way IEM Stackable

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<td>D</td>
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<td>E</td>
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<td>U</td>
<td>Ø .28</td>
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Inches (mm)

### Dimensions

- **Max. Hex Size (Across Flats):**
  - For Inlet / Exhaust Ports = 11/16" (17mm)

- **n = Number of Stations**

- **T + R x (n - 1)**

- **S + R x (n - 1)**
### B3 Single & Double Operators – 4-Way IEM Aluminum Bar

**B3 4-Way IEM Aluminum Bar Manifold**

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<td>(80.5)</td>
<td>(74.7)</td>
<td>(6.4)</td>
<td>(64.5)</td>
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</table>

**Dimensions:** Inches (mm)

- A: 3.33 (84.6)
- C: 3.17 (80.5)
- D: 2.94 (74.7)
- E: .25 (6.4)
- F: 2.54 (64.5)

### B3 Single & Double Operators – 3-Way IEM Aluminum Bar

**B3 4-Way IEM Aluminum Bar Manifold**

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<td>(45.7)</td>
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**Dimensions:** Inches (mm)

- A: 2.86 (72.6)
- C: 2.65 (67.3)
- D: 2.33 (59.2)
- E: .25 (6.4)
- F: 1.80 (45.7)

---

**Notes:**
- Max. Hex Size (Across Flats) For Inlet / Exhaust Ports = 5/8” (16mm)
- Max. Hex Size (Across Flats) For Inlet / Exhaust Ports = 5/8” (16mm)
**B3**

**Single & Double Operators – 4-Way Single Subbase**

**Solenoid**

**Remote Pilot**

**B3 4-Way Single Subbase**

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**B3**

**Single & Double Operators – 5-Port Subbase Bar Manifold**

**B3 5-Port Subbase Bar Manifold**

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**B5**

**Single & Double Operators – 4-Way Inline**

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**B5 4-Way Inline**

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<th>J₂</th>
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Dimensions

Inches (mm)

**B5**

**Single & Double Operators – 3-Way Inline**

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**B5 3-Way Inline**

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Inches (mm)
"B5" Series Valves
NAMUR Mount Valves

**B5 Single & Double Operators – 4-Way NAMUR Mount**

**Solenoid**

**Remote Pilot**

**B5 4-Way NAMUR Mount**

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**B5 Alternative Electrical Enclosure Option F**

**B5 4-Way NAMUR Mount with Option F Enclosure**

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Explosion Proof Solenoid Coil
**B5 Single & Double Operators – 4-Way IEM Stackable**

**B5 4-Way IEM Stackable**

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**Specifications:**
- **Inches (mm):**
  - A: 5.64 (143.3)
  - B: 4.70 (119.4)
  - C: 4.37 (110.0)
  - D: 4.29 (109.0)
  - E: .29 (7.4)

**Dimensions:**
- **Max. Hex Size (Across Flats):**
  - For Inlet / Exhaust Ports = 1" (25mm)

**Remote Pilot**

**B5 Single & Double Operators – 4-Way Single Subbase**

**B5 4-Way Subbase**

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**Inches (mm):**
- A: 5.78 (147)
- A1: 7.52 (191)
- A2: 8.46 (215)
- A3: 4.37 (110)
- A4: 4.70 (119)
- B: 5.64 (143)
- B1: 3.56 (90.4)
- B2: 3.21 (82)
- B3: 3.03 (77)
- B4: .29 (7.4)
- C: 1.69 (43)
- D: 4.26 (108)
- D1: 4.73 (120)
- D2: 2.85 (72)
- D3: 3.23 (40)
- E: 2.51 (65)
- E1: 3.98 (76)
- E2: 2.60 (66)
- E3: 3.07 (80)
- F: 2.90 (74)
- G: .95 (24)
- H: .22 (5)
- J: .84 (21)
- J1: .99 (25)
- K: .71 (18)
- L: 1.50 (38)
- M: .50 (13)
- N: .46 (12)
- P: .27 (7)
- R: 1.00 (25)

**Dimensions:**
- 1/4 or 3/8 Pipe
- 2 Ports
- 1/8 Inch Pipe
- Pilot Supply Port
- 2 Ports
- A: (2-Pos Single)
- A1: (2-Pos Double)
- A2: (3-Pos Single)
- A3: (3-Pos Double)
- A4: (3-Pos Single)
- B: (2-Pos Single)
- B1: (2-Pos Double)
- B2: (2-Pos Single)
- B3: (2-Pos Double)
- B4: (3-Pos Single)
- C: (3-Pos Single)
- D: (3-Pos Single)
- E: (Ref.)

**Catalog:** 0600P-E

**Dimensions:**

- **Max. Hex Size (Across Flats):**
  - For Inlet / Exhaust Ports = 1" (25mm)

**Notes:**
- **Inches (mm):**
  - A: 5.78 (147)
  - A1: 7.52 (191)
  - A2: 8.46 (215)
  - A3: 4.37 (110)
  - A4: 4.70 (119)
  - B: 5.64 (143)
  - B1: 3.56 (90.4)
  - B2: 3.21 (82)
  - B3: 3.03 (77)
  - B4: .29 (7.4)
  - C: 1.69 (43)
  - D: 4.26 (108)
  - D1: 4.73 (120)
  - D2: 2.85 (72)
  - D3: 3.23 (40)
  - E: 2.51 (65)
  - E1: 3.98 (76)
  - E2: 2.60 (66)
  - E3: 3.07 (80)
  - F: 2.90 (74)
  - G: .95 (24)
  - H: .22 (5)
  - J: .84 (21)
  - J1: .99 (25)
  - K: .71 (18)
  - L: 1.50 (38)
  - M: .50 (13)
  - N: .46 (12)
  - P: .27 (7)
  - R: 1.00 (25)
### B5 4-Way IEM Aluminum Bar Manifold

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**Dimensions**

- **A** (Double Remote Pilot 3-Position)
- **B** (Double Remote Pilot 2-Position)
- **C** (Single Remote Pilot)
- **D** (Single Remote Pilot)
- **E** (Ref.)
- **F** (Ref.)
- **G** (Ref.)
- **H** (Double Solenoid)
- **J** (Single Solenoid)
- **K** (Double Solenoid 3-Position)
- **L** (Double Solenoid)
- **M** (Double Solenoid 3-Position)
- **N** (Double Solenoid 3-Position)
- **P** (Double Solenoid)
- **Q** (Single Solenoid)

**Inches (mm)**

- **T + R x (n - 1)**
- **S + R x (n - 1)**

**Max. Hex Size (Across Flats)**

- For Inlet / Exhaust Ports = 3/4" (19mm)
- For Inlet / Exhaust Ports = 13/16" (20mm)

**n = Number of Stations**

---

### B5 3-Way IEM Aluminum Bar Manifold

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**Dimensions**

- **B** (Double Remote Pilot 2-Position)
- **C** (Single Remote Pilot)
- **D** (Double Remote Pilot 2-Position)
- **E** (Ref.)
- **F** (Ref.)
- **G** (Ref.)
- **H** (Double Solenoid)
- **J** (Single Solenoid)
- **K** (Double Solenoid)
- **L** (Double Solenoid)
- **M** (Double Solenoid 3-Position)
- **N** (Double Solenoid 3-Position)
- **P** (Double Solenoid)
- **Q** (Single Solenoid)

**Inches (mm)**

- **T + R x (n - 1)**
- **S + R x (n - 1)**

**Max. Hex Size (Across Flats)**

- For Inlet / Exhaust Ports = 13/16" (20mm)

**n = Number of Stations**
“B5” Series Valves
Alternative Electrical Enclosures

### 4-Way Alternative Electrical Enclosures

![Diagram of 4-Way Alternative Electrical Enclosures]

### 3-Way Alternative Electrical Enclosures

![Diagram of 3-Way Alternative Electrical Enclosures]

### B5 Alternative – Electrical Enclosures

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**B6**

**Single & Double Operators – 4-Way Inline**

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Inches (mm)

**Single Operators – 3-Way Inline**

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"B6" Series Valves
NAMUR Mount Valves

B6 4-Way NAMUR Mount

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Inches (mm)

B6 4-Way NAMUR Mount with Option F Enclosure

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Inches (mm)
### B6 Single & Double Operators – 4-Way IEM Aluminum Bar

#### B6 4-Way IEM Aluminum Bar Manifold

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</tr>
<tr>
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<td>(57.0)</td>
<td>(6.5)</td>
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Inches (mm)

#### B6 Single Operators – 3-Way IEM Aluminum Bar

#### B6 3-Way IEM Aluminum Bar Manifold

<table>
<thead>
<tr>
<th>C</th>
<th>D</th>
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<td>(6.0)</td>
<td>(100.0)</td>
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<td>K</td>
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<td>P</td>
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<td>Q</td>
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<td>S</td>
<td>T</td>
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Inches (mm)
**B6 Alternative – Electrical Enclosures**

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<tr>
<td>0.76 (19.4)</td>
<td>2.79 (70.8)</td>
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<td>1.89 (48.0)</td>
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### B7 & B8 Series Valves

#### Single & Double Operators – 4-Way Inline

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<td>7.79</td>
</tr>
<tr>
<td>(232)</td>
<td>(287)</td>
<td>(198)</td>
</tr>
<tr>
<td>B</td>
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<td>C</td>
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<td>1.65</td>
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<tr>
<td>(75)</td>
<td>(66)</td>
<td>(42)</td>
</tr>
<tr>
<td>D</td>
<td>D1</td>
<td>E</td>
</tr>
<tr>
<td>4.29</td>
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</tr>
<tr>
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<td>(143)</td>
<td>(107)</td>
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<tr>
<td>F</td>
<td>G</td>
<td>G1</td>
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<td>J1</td>
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<tr>
<td>M</td>
<td>N</td>
<td>P</td>
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<tr>
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<td>U</td>
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#### Single Operators – 3-Way Inline

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<td>2.95</td>
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<td>(75)</td>
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<td>C</td>
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<tr>
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<tr>
<td>D</td>
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<td>G1</td>
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<td>2.13</td>
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<tr>
<td>(107)</td>
<td>(103)</td>
<td>(86)</td>
</tr>
<tr>
<td>H1</td>
<td>J</td>
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<td>Q</td>
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**Inches (mm)**
“B7” & “B8” Series Valves
IEM Aluminum Bar Manifolds

### B7

**Single & Double Operators – 4-Way IEM Aluminum Bar**

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</tr>
<tr>
<td>C</td>
<td>8.62 (219)</td>
</tr>
<tr>
<td>D</td>
<td>6.26 (159)</td>
</tr>
<tr>
<td>E</td>
<td>.24 (6)</td>
</tr>
<tr>
<td>F</td>
<td>3.94 (100)</td>
</tr>
<tr>
<td>G</td>
<td>.45 (11.5)</td>
</tr>
<tr>
<td>H</td>
<td>4.84 (123)</td>
</tr>
<tr>
<td>J</td>
<td>8.07 (205)</td>
</tr>
<tr>
<td>K</td>
<td>9.13 (232)</td>
</tr>
<tr>
<td>L</td>
<td>11.29 (287)</td>
</tr>
<tr>
<td>M</td>
<td>4.00 (101.5)</td>
</tr>
<tr>
<td>N</td>
<td>1.48 (37.5)</td>
</tr>
<tr>
<td>O</td>
<td>4.15 (105.5)</td>
</tr>
<tr>
<td>P</td>
<td>4.77 (121)</td>
</tr>
<tr>
<td>Q</td>
<td>2.24 (57)</td>
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<tr>
<td>R</td>
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**3-Way IEM Aluminum Bar**

<table>
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<tbody>
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<tr>
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<tr>
<td>E</td>
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<td>3.94 (100)</td>
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<tr>
<td>N</td>
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<tr>
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<td>4.15 (105.5)</td>
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<tr>
<td>R</td>
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<tr>
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**1/8” Pipe**

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<tr>
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<tr>
<td>H</td>
<td>4.00 (101.5)</td>
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<tr>
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<td>1.48 (37.5)</td>
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<td>4.15 (105.5)</td>
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<tr>
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<td>1.77 (45)</td>
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### B8

**Single Operators – 3-Way IEM Aluminum Bar**

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<tbody>
<tr>
<td>A</td>
<td>7.79 (198)</td>
</tr>
<tr>
<td>C</td>
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</tr>
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**3-Way IEM Aluminum Bar**

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**1/8” Pipe**

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4-Way Alternative Electrical Enclosures

3-Way Alternative Electrical Enclosures

B7 & B8 3 & 4-Way Alternative – Electrical Enclosures  Inches (mm)

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<th>G</th>
<th>G1</th>
<th>H</th>
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<th>Q</th>
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<td>(101)</td>
<td>(101)</td>
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Note: Dimensions are provided in inches (mm).
**Definitions**

**CSA C/US**
Canadian Standards Association and UL Applicable.

**IP65**
International classification system for sealing effectiveness for enclosures of electrical equipment. IP stands for “Ingress Protection” and the two digits XY stand for: X - protection from solid objects and Y - protection from moisture. IP 65 is protection from dust and water washdown.

**NEMA 4**
National standard for electrical enclosure protection. NEMA 4 provides protection against dirt, dust, water hosedown and rain. (Similar to IP 65)

**DIN 43650C**
International standard for the 15mm 3-Pin connector. The pin spacing is 8mm.

**3-WAY**
Valve has three ways for air to flow. Also designated as 3/2.

**4-WAY**
Valve has four ways for air to flow. Also designated as 5/2 for 2-Position and 3/3 for 3-Position.

**NC**
Normally Closed. Pressure is blocked when in neutral position. (Normally Non-Passing)

**NO**
Normally Open. Pressure passes thru when in neutral position. (Normally Passing)

**IEM**
Inlet / Exhaust manifold. The inlet and exhaust ports are located in the manifold. The cylinder ports are accessed in the valve.

**5-Port Subbase Bar Manifold**
Manifold that includes the inlet and outlet ports as well as the #2 & #4 cylinder ports. Utilizes a subbase valve less base.

**NLMOR**
Non-Locking Manual Override. A constant actuation must be maintained for the valve to remain shifted.

**LMOR**
Locking Manual Override. Valve remains shifted without constant end user override actuation.

**Surge Suppression**
Nullifies reverse EMF generated when a solenoid is de-energized.

**SCFM**
Measure of air flow. Standard Cubic Feet per Minute at 68°F and 36% humidity at sea level.

**PSIG**
Pounds per Square Inch measured with a gage. (Catalog pressure reflects PSIG)

**PSIA**
Pounds per Square Inch atmospheric.

**kPa**
Kilopascals. International measure of pressure. 145 PSIG = 1000 kPa

**PSIG = 0 → PSIA = 14.7 → In. of Hg = 0 → kPa = 0**

**Product Shipping Weights**

<table>
<thead>
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<th>Single Solenoid</th>
<th>3-Position Solenoid</th>
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<th>Subbase</th>
<th>End Plate</th>
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<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B7</td>
<td>2.5</td>
<td>2.9</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B8</td>
<td>2.5</td>
<td>2.9</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Weights are in pounds and are approximate.

---

**Air Control Valves**

**Table 1**

<table>
<thead>
<tr>
<th>Inlet Pressure (PSIG)</th>
<th>Compression Factor</th>
<th>“A” Constants for Various Pressure Drop*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2 PSI P</td>
</tr>
<tr>
<td>10</td>
<td>1.6</td>
<td>.192</td>
</tr>
<tr>
<td>20</td>
<td>2.3</td>
<td>.126</td>
</tr>
<tr>
<td>30</td>
<td>3.0</td>
<td>.111</td>
</tr>
<tr>
<td>40</td>
<td>3.7</td>
<td>.100</td>
</tr>
<tr>
<td>50</td>
<td>4.4</td>
<td>.091</td>
</tr>
<tr>
<td>60</td>
<td>5.1</td>
<td>.085</td>
</tr>
<tr>
<td>70</td>
<td>5.7</td>
<td>.079</td>
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<tr>
<td>80</td>
<td>6.4</td>
<td>.075</td>
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<td>90</td>
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<td>.071</td>
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<td>100</td>
<td>7.8</td>
<td>.068</td>
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<tr>
<td>110</td>
<td>8.5</td>
<td>.065</td>
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<tr>
<td>120</td>
<td>9.2</td>
<td>.063</td>
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<tr>
<td>130</td>
<td>9.9</td>
<td>.061</td>
</tr>
<tr>
<td>140</td>
<td>10.6</td>
<td>.058</td>
</tr>
<tr>
<td>150</td>
<td>11.2</td>
<td>.057</td>
</tr>
<tr>
<td>160</td>
<td>11.9</td>
<td>.055</td>
</tr>
<tr>
<td>170</td>
<td>12.6</td>
<td>.053</td>
</tr>
<tr>
<td>180</td>
<td>13.3</td>
<td>.052</td>
</tr>
<tr>
<td>190</td>
<td>14.0</td>
<td>.051</td>
</tr>
<tr>
<td>200</td>
<td>14.7</td>
<td>.050</td>
</tr>
</tbody>
</table>

**Note:** Use “A” constant at 5 PSI P for most applications. On very critical applications, use “A” at 2 PSI P. You will find in many cases, a 10 PSI P is not detrimental, and can save money and mounting space.

* Tabulated values are the solution of \( \frac{1}{22.48} \sqrt{\frac{GT}{(P_1 - P_2) P_2}} \) where T is for 68°F and G = 1 for Air.

**Table 2**

<table>
<thead>
<tr>
<th>Bore Size</th>
<th>Cylinder Area (Sq. In.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot;</td>
<td>.44</td>
</tr>
<tr>
<td>1&quot;</td>
<td>.79</td>
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<tr>
<td>1-1/8&quot;</td>
<td>.99</td>
</tr>
<tr>
<td>1-1/4&quot;</td>
<td>1.23</td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>1.77</td>
</tr>
<tr>
<td>1-3/4&quot;</td>
<td>2.41</td>
</tr>
<tr>
<td>2&quot;</td>
<td>3.14</td>
</tr>
<tr>
<td>2-1/2&quot;</td>
<td>4.91</td>
</tr>
<tr>
<td>3-1/4&quot;</td>
<td>8.30</td>
</tr>
<tr>
<td>3-5/8&quot;</td>
<td>10.32</td>
</tr>
<tr>
<td>4&quot;</td>
<td>12.57</td>
</tr>
<tr>
<td>4-1/2&quot;</td>
<td>15.90</td>
</tr>
<tr>
<td>5&quot;</td>
<td>19.64</td>
</tr>
<tr>
<td>6&quot;</td>
<td>28.27</td>
</tr>
<tr>
<td>7&quot;</td>
<td>38.48</td>
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<tr>
<td>8&quot;</td>
<td>50.27</td>
</tr>
<tr>
<td>10&quot;</td>
<td>78.54</td>
</tr>
<tr>
<td>12&quot;</td>
<td>113.10</td>
</tr>
<tr>
<td>14&quot;</td>
<td>153.94</td>
</tr>
</tbody>
</table>
“ADEX” Series
Air Control Valves
A00 – .01 Cv M3 Port
A05 – .18 Cv M5 Port
A12 – .47 Cv 1/8” Port

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www.parker.com/pneu/adex

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BOLD ITEMS ARE MOST POPULAR.
**Basic Valve Functions**

### Single Solenoid

**4-Way, 2-Position**

*De-energized position* – Solenoid operator 14 de-energized. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

*Energized position* – Solenoid operator 14 energized. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

### Double Solenoid

**4-Way, 2-Position**

Solenoid operator 14 energized last. Pressure at inlet port 1 connected to outlet port 4. Outlet port 2 connected to exhaust port 3.

Solenoid operator 12 energized last. Pressure at inlet port 1 connected to outlet port 2. Outlet port 4 connected to exhaust port 5.

### Double Solenoid

**4-Way, 3-Position**

With 12 operator energized – inlet port 1 connected to cylinder port 2, cylinder port 4 connected to exhaust port 5.

With 14 operator energized – inlet port 1 connected to cylinder port 4, cylinder port 2 connected to exhaust port 3.

**Function 1: All Ports Blocked (APB)**

All ports blocked in the center position.

**Function 2: Center Exhaust (CE)**

Cylinder ports 4 and 2 connected to exhaust ports 5 and 3 in center position. Port 1 is blocked.

**Function 3: Pressure Center (PC)**

Pressure port 1 connected to cylinder ports 4 and 2, and exhaust ports 5 and 3 blocked in center position.

**Dual Pressure (Subbase valves only):**

May be used for dual pressure service with pressure at ports 3 & 5. **Specify External Pilot option “X” on Valve AND Manifold.** In the 3-Position valve, the effect of dual pressure is extremely important when the valve is in the center position, as the CE and PC functions are reversed. Therefore, care should be used when selecting a 3-Position valve.

### Single Solenoid

**3-Way, 2-Position NC**

**Normally Closed:**

*De-energized position* – Solenoid 12 de-energized. Pressure at inlet port 1 blocked, outlet port 2 connected to exhaust port 3.

*Energized position* – Solenoid 12 energized. Pressure at inlet port 1 connected to outlet port 2, exhaust port 3 is blocked.

**Vacuum Applications (Device becomes NO):**

- ‘1’ port is connected to atmosphere or compressed air † when required.
- ‘2’ port is outlet
- ‘3’ port is connected to vacuum

† When both vacuum and compressed air are required, maximum pressure is 85 PSIG (586 kPa).

### Single Solenoid

**3-Way, 2-Position NO**

**Normally Open:**

*De-energized position* – Solenoid 12 de-energized. Pressure at inlet port 3 connected to outlet port 2, exhaust port 1 is blocked.

*Energized position* – Solenoid 12 energized. Pressure at inlet port 3 blocked, outlet port 2 connected to exhaust port 1.

*To obtain NO function, ports 1 & 3 are reversed (1 becomes exhaust and 3 becomes supply).*

**Vacuum Applications (Device becomes NC):**

- ‘1’ port is connected to vacuum
- ‘2’ port is outlet
- ‘3’ port is connected to atmosphere or compressed air † when required.

† When both vacuum and compressed air are required, maximum pressure is 58 PSIG (400 kPa).

**Caution:** Normally Open and Normally Closed 3-Way valve cannot be mixed on the same manifold.
**Basic Valve Features**

### “A00” Valve

- Flow Ratings:
  - A00: 0.02 Cv
  - A05: 0.18 Cv
  - A12: 0.47 Cv

- Operating Pressure:
  - Vacuum to 100 PSIG*
  - A00S (NO) vacuum to 70 PSIG

- Ports:
  - A00: M3
  - A05: M5
  - A12: 1/8 Inch

- Mounting:
  - Inline
  - Subbase Mount

- Solenoids:
  - 0.6 Watt
  - 5VDC, 12VDC, 24VDC and 110/120VAC
  - LED and Surge Suppression

---

* See catalog technical section for more information.

---

**“ADEX” Series Valves**

- Air Control Valves

---

**A00S Single Solenoid Normally Closed (NC)**

**A05P Double Solenoid 3-Position Subbase Mounted**

**A12R Single Solenoid Inline**

---

---

---

---
### ADEX” Series Valves
4-Way, 2 & 3-Position, P / R Types

#### Single Solenoid
4-Way, 2-Position

<table>
<thead>
<tr>
<th>Inline</th>
<th>Double Solenoid</th>
<th>4-Way, 2-Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>A05RS251PM5MF</td>
<td>M5 .17 Cv</td>
</tr>
<tr>
<td>A05RS252PM5MF</td>
<td>12VDC</td>
<td></td>
</tr>
<tr>
<td>A12</td>
<td>A12RS251PN1MF</td>
<td>1/8” .47 Cv</td>
</tr>
<tr>
<td>A12RS252PN1MF</td>
<td>12VDC</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Wired electrical connectors sold separately. See Accessory Section.

<table>
<thead>
<tr>
<th>Subbase</th>
<th>A05</th>
<th>A05PS251P</th>
<th>24VDC .18 Cv</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05PS252P</td>
<td>12VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A12</td>
<td>A12PS251P</td>
<td>24VDC</td>
<td>.44 Cv</td>
</tr>
<tr>
<td>A12PS252P</td>
<td>12VDC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ANSI Cv vs. JIS Cv**

For Pneumatic Valve flow, the measurement \( Cv \) – Coefficient of Flow – is used to convey to the user how much air can flow through a given valve. Most valve manufacturers publish this information in their catalogs to assist the user in choosing the proper valve for their application. In publishing this data however, there are discrepancies in how the \( Cv \) is calculated, resulting in some \( Cv \)'s being **OVERSTATED** by 20 to 40%. This can adversely affect the user’s application because the valve flows LESS than the published \( Cv \).

The reason for the large discrepancy is in the method of calculation - the ANSI (NFPA) or the JIS standard. Parker’s \( Cv \) valve is calculated using the ANSI (NFPA) T3.21.3-1990 standard. The ANSI (NFPA) method is a structured test using very specific tube sizes and lengths, inlet pressures and pressure drops, and volume chambers.

A subbase.

#### Double Solenoid
4-Way, 3-Position, APB

<table>
<thead>
<tr>
<th>Inline</th>
<th>A05</th>
<th>A05RD351PM5MF</th>
<th>24VDC M5 .16 Cv</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05RD352PM5MF</td>
<td>12VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A12</td>
<td>A12RD351PN1MF</td>
<td>24VDC</td>
<td>1/8” .43 Cv</td>
</tr>
<tr>
<td>A12RD352PN1MF</td>
<td>12VDC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Subbase**

<table>
<thead>
<tr>
<th>A05</th>
<th>A05PD351P</th>
<th>24VDC Less Base .16 Cv</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05PD352P</td>
<td>12VDC</td>
<td></td>
</tr>
<tr>
<td>A12</td>
<td>A12PD351P</td>
<td>24VDC Less Base .40 Cv</td>
</tr>
<tr>
<td>A12PD352P</td>
<td>12VDC</td>
<td></td>
</tr>
</tbody>
</table>

**Locking Flush Override. Mounting screws and gaskets included with valve.**
### "ADEX" Series

**BOLD OPTIONS ARE MOST POPULAR.**

<table>
<thead>
<tr>
<th><strong>Basic Series</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>A05</td>
</tr>
<tr>
<td>Series</td>
<td>A12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Body Type</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Subbase</td>
<td>P</td>
</tr>
<tr>
<td>Inline</td>
<td>R</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Operator / Function</strong></th>
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</tr>
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<tbody>
<tr>
<td>4-Way</td>
<td></td>
</tr>
<tr>
<td>Single Solenoid, 2-Position, Air Return</td>
<td>S25</td>
</tr>
<tr>
<td>Double Solenoid, 2-Position</td>
<td>D25</td>
</tr>
<tr>
<td>Double Solenoid, 3-Position, APB</td>
<td>D35</td>
</tr>
<tr>
<td>Double Solenoid, 3-Position, CE</td>
<td>E35</td>
</tr>
<tr>
<td>Double Solenoid, 3Position, PC</td>
<td>O35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Pilot Source / Exhaust</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>Blank</td>
</tr>
<tr>
<td>External</td>
<td>X*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Valve Type</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
<td>None (Subbase)</td>
</tr>
<tr>
<td>MF</td>
<td>Inline</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Port Size / Thread Type</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
</tr>
<tr>
<td>M5</td>
</tr>
<tr>
<td>N1</td>
</tr>
<tr>
<td>G1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Options</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Lights / Surge Suppression</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Voltage</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24VDC</td>
</tr>
<tr>
<td>2</td>
<td>12VDC</td>
</tr>
<tr>
<td>9</td>
<td>120/60 VAC</td>
</tr>
</tbody>
</table>

---

* Required for inline models only, port size code not used for subbase versions.
**“ADEX” Series Valves**

**A00 Subbase Valve – 3-Way, 2-Position**

### Valve Only – Single Solenoid

3-Way, 2-Position*

![A00SC231P Shown](image)

* Screwdriver-Operated, Locking Manual Override (LMOR).

### Subbase

![A00SBM3 Shown](image)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>All Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>A00</td>
<td>A00SBM3</td>
</tr>
<tr>
<td>M3</td>
<td></td>
</tr>
</tbody>
</table>

Mounting screws and gaskets included with valve.

### Manifold*

![MMFS6A00M3 Shown](image)

* Normally Closed valves (A00SC23•P) and Normally Open valves (A00S023•P) cannot be mounted on the same manifold simultaneously.

Mounting screws and gaskets included with valve.

### Common Part Numbers

**Catalog 0600P-E**

**“ADEX” Series Valves**

**A00 Subbase Valve – 3-Way, 2-Position**

- **A00S C23 — 1 P**
- **MMFS 2 A00 M5**

<table>
<thead>
<tr>
<th>Number of Stations</th>
<th>Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Stations</td>
<td>M3</td>
</tr>
<tr>
<td>3 Stations</td>
<td>M3</td>
</tr>
<tr>
<td>4 Stations</td>
<td>M3</td>
</tr>
<tr>
<td>20 Stations</td>
<td>M3</td>
</tr>
</tbody>
</table>

**BOLD OPTIONS ARE MOST POPULAR.**
“A05” Valve

MMFU10A05F Shown

4-Way, NPTF (Individual Wiring Type) MMFU##A05F
4-Way, NPTF (Collective Wiring Type) MMCU††A05F

# – stations 2 to 20
†† – stations 2 to 12
(Even numbers only)

- Utilizes Inline mount ADEX valves.
- Bolts and Gaskets are included with valve.
- A05 Collective Wiring Type Manifold Kits also include an Adapter Plate for use with the MCS Module.

“A12” Valve

MMFU10A12F Shown

4-Way, NPTF (Individual Wiring Type) MMFU##A12F
4-Way, NPTF (Collective Wiring Type) MMCU††A12F

# – stations 2 to 20
†† – stations 2 to 12
(Even numbers only)

Pilot Exhaust for IEM Manifold – is captured through the “3” and “5” galley.

Model Number

BOLD OPTIONS ARE MOST POPULAR.

<table>
<thead>
<tr>
<th>Type / Pilot</th>
<th>B</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEM Bar Manifold</td>
<td>M</td>
<td>MF 2 A05 F</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>MF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar Manifold</td>
<td>M</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wiring</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manifold, Individual</td>
<td>MF</td>
</tr>
<tr>
<td>Manifold Collective</td>
<td>MC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Port Type</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>NPTF</td>
</tr>
<tr>
<td>G</td>
<td>BSPP “G”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>10mm</td>
</tr>
<tr>
<td>A12</td>
<td>15mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Stations</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF (Individual)</td>
<td>MC (Collective)</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>*</td>
<td>8</td>
</tr>
<tr>
<td>*</td>
<td>10</td>
</tr>
<tr>
<td>20</td>
<td>12</td>
</tr>
</tbody>
</table>

† Maximum of 12 stations available for “MC” Type. (Even # stations only.)
**“ADEX” Series Valves**

**Subbase Bar Manifolds (5-Ported)**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>BOLD OPTIONS ARE MOST POPULAR.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M MF S 2 A05 F M5</td>
<td>Type/Pilot</td>
</tr>
<tr>
<td></td>
<td>Subbase, Internally Piloted S</td>
</tr>
<tr>
<td></td>
<td>Subbase, Externally Piloted X</td>
</tr>
<tr>
<td></td>
<td>Port Type</td>
</tr>
<tr>
<td></td>
<td>A05 Manifolds</td>
</tr>
<tr>
<td></td>
<td>M5</td>
</tr>
<tr>
<td></td>
<td>A12 Manifolds</td>
</tr>
<tr>
<td></td>
<td>F1 1/8&quot; NPTF</td>
</tr>
<tr>
<td></td>
<td>G1 1/8&quot; BSPP &quot;G&quot;</td>
</tr>
<tr>
<td></td>
<td>Number of Stations</td>
</tr>
<tr>
<td></td>
<td>MF (Individual)</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

1 Maximum of 12 stations available for “MC” Type. (Even # stations only.)

- Utilizes Subbase mount ADEX valves.
- Bolts and Gaskets are included with valve.

**Internally Piloted Manifolds**
- Pilot exhaust is captured through the “3” and “5” galley.

**Externally Pilot Manifold**
- Pilot exhaust is captured through the “Y” galley.
Ordering Information

"ADEX" Series Valves
Collective Wiring – A05, A12

Collective Wiring

MCS10A05PDL Shown

<table>
<thead>
<tr>
<th>Type</th>
<th>Options</th>
<th>Number of Stations</th>
<th>Valve Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manifold Collective Wiring System MCS</td>
<td>DL D-Sub 25</td>
<td></td>
<td>A05 10mm</td>
</tr>
<tr>
<td></td>
<td>ML 26-Pin Ribbon</td>
<td></td>
<td>A12 15mm</td>
</tr>
</tbody>
</table>

Notes:
1. The MCS Collective Wiring System is “Polarity Neutral”. Polarity is addressed with the Collective Wired Connectors (page D120). Example: When ‘positive’ common is used, an A05 single solenoid valve uses an A05PSCC. When ‘negative’ common is used, use A05PSCCM.
2. The MCS Collective Wiring System provides for both the “14” and “12” addresses at each valve location. When single solenoid valves are used, skip the “12” address for both wiring and controller programming.
3. Be sure that the leakage current of the controller outputs is less than 1.5 ma.

BOLD OPTIONS ARE MOST POPULAR.

Collective Wiring Pin Mapping
(Not Available for AC Voltages)

Pin Map for D-Sub 25 Connector

Valve and Solenoid Addresses

Pin Map for 26-Pin Ribbon Connector

Sequence of Valve Numbering

Solenoid 14

Solenoid 12

Connector

Valve Number
1 2 3 4

Solenoid 14

Solenoid 12

Common (+.-)

Valve Number
1 2 3 4

Solenoid 14

Solenoid 12

Common (+.-)
### Individual Wired Connectors
**P / R Type**

<table>
<thead>
<tr>
<th>Size</th>
<th>Voltage</th>
<th>Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A00</td>
<td>DC</td>
<td>.5 meter</td>
<td>A05PDCL5</td>
</tr>
<tr>
<td>A05</td>
<td>DC</td>
<td>1 meter</td>
<td>A05PDCC10</td>
</tr>
<tr>
<td>A12</td>
<td>AC</td>
<td>.5 meter</td>
<td>A05PACL5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 meter</td>
<td>A05PACL10</td>
</tr>
</tbody>
</table>

DC Voltage: Positive “+” (Red Wire)  
Negative “–” (Black Wire)  
AC Voltage: Both Wires are Blue (Polarity Neutral)

### Collective Wired Connectors
**P / R Type**

<table>
<thead>
<tr>
<th>Size</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>A05PSCCM</td>
</tr>
<tr>
<td>A12</td>
<td>A05PDCCM</td>
</tr>
</tbody>
</table>

PNP = SOURCING = “Negative Common” = Yellow Wires  
NPN = SINKING = “Positive Common” = Red Wires

### Wired Connectors with Protective Cover - P / R Type

<table>
<thead>
<tr>
<th>Size</th>
<th>Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A05</td>
<td>1 meter</td>
<td>A05PDCCB10</td>
</tr>
<tr>
<td>A12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The cover is made of chloroprene rubber for electrical use, assuring excellent weather and insulation resistance. However, be careful not to place it under splash of cutting oil.
Cable with Female D-Sub, 25-Pin Connector

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSS25FB1K</td>
<td>25-Pin, D-Sub Cable, 1 meter (3.3 ft.)</td>
</tr>
</tbody>
</table>

Note: For use with ADEX MCS system only. Connection to control system is through 25 colored wires AWG 24. Includes (2) M2.5 mm screws.

Blanking Plate

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A00</td>
<td>Subbase</td>
<td>A00SBP</td>
</tr>
<tr>
<td>A05</td>
<td>Body Ported</td>
<td>A05RGBP</td>
</tr>
<tr>
<td></td>
<td>Subbase</td>
<td>A05PGBP</td>
</tr>
<tr>
<td>A12</td>
<td>Body Ported</td>
<td>A12RGBP</td>
</tr>
<tr>
<td></td>
<td>Subbase</td>
<td>A12PGBP</td>
</tr>
</tbody>
</table>

*A Outlet Pin Cover used with Collective Wiring System only.

Extended Override Cover

<table>
<thead>
<tr>
<th>Size</th>
<th>Orange: For 14 Side Solenoid</th>
<th>Green: For 12 Side Solenoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>A00</td>
<td>A05PLA</td>
<td></td>
</tr>
<tr>
<td>A05</td>
<td></td>
<td>A05PLB</td>
</tr>
<tr>
<td>A12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Mounting Bracket**

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>Side</td>
<td>A05RBS</td>
</tr>
<tr>
<td></td>
<td>Foot</td>
<td>A05RBF</td>
</tr>
<tr>
<td>A12</td>
<td>Side</td>
<td>A12RBS</td>
</tr>
<tr>
<td></td>
<td>Foot</td>
<td>A12RBF</td>
</tr>
</tbody>
</table>

Kit Includes: (1) Bracket, (2) Screws

---

**Subbases**

<table>
<thead>
<tr>
<th>Size</th>
<th>Port Size</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>1/8&quot; NPT</td>
<td>A05PBN1</td>
</tr>
<tr>
<td></td>
<td>1/8&quot; BSPP “G”</td>
<td>A05PBG1</td>
</tr>
<tr>
<td>A12</td>
<td>1/4&quot; NPT</td>
<td>A12PBN2</td>
</tr>
<tr>
<td></td>
<td>1/4&quot; BSPP “G”</td>
<td>A12PBG2</td>
</tr>
</tbody>
</table>

Kit Includes: (1) Subbase (Holddown Bolts and Gasket are included with valve)

---

**Individual Air Supply Spacer**

Mounts between valve and manifold. Supply from the manifold is blocked and only the valve mounted on the spacer receives the individual supply.

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Port Size</th>
<th>Internal Pilot Part Number</th>
<th>External Pilot* Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>Inline</td>
<td>M5</td>
<td>A05RAISM5</td>
<td>A05RAXISM5</td>
</tr>
<tr>
<td></td>
<td>Subbase</td>
<td>M5</td>
<td>A05PAISM5</td>
<td>A05PAXISM5</td>
</tr>
<tr>
<td>A12</td>
<td>Inline</td>
<td>1/8&quot; NPT</td>
<td>A12RAISM1</td>
<td>A12RAXISM1</td>
</tr>
<tr>
<td></td>
<td>Subbase</td>
<td>1/8&quot; NPT</td>
<td>A12PAISM1</td>
<td>A12PAXISM1</td>
</tr>
</tbody>
</table>

* Can only be used on Collective wiring type manifolds.

Kit Includes: (1) Spacer, (2) Screws, and (1) Gasket

---

**Individual Air Exhaust Spacer**

Mounts between valve and manifold. Exhaust from the manifold is blocked and only the valve mounted on the spacer has the individual exhaust.

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Port Size</th>
<th>Internal Pilot Part Number</th>
<th>External Pilot* Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>Inline</td>
<td>M5</td>
<td>A05RAIEM5</td>
<td>A05RAXIEM5</td>
</tr>
<tr>
<td></td>
<td>Subbase</td>
<td>M5</td>
<td>A05PAIEM5</td>
<td>A05PAXIEM5</td>
</tr>
<tr>
<td>A12</td>
<td>Inline</td>
<td>1/8&quot; NPT</td>
<td>A12RAIEN1</td>
<td>A12RAXIEN1</td>
</tr>
<tr>
<td></td>
<td>Subbase</td>
<td>1/8&quot; NPT</td>
<td>A12PAIEN1</td>
<td>A12PAXIEN1</td>
</tr>
</tbody>
</table>

* Can only be used on Collective wiring type manifolds.

Kit Includes: (1) Spacer, (2) Screws, and (1) Gasket
### Labeling Tag

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>White Label Tag</td>
<td>A05PN</td>
</tr>
<tr>
<td>A12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Exhaust Mufflers

<table>
<thead>
<tr>
<th>Male Thread</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>P6M-PAC5</td>
</tr>
<tr>
<td>1/8&quot; NPT</td>
<td>EM12</td>
</tr>
<tr>
<td>1/4&quot; NPT</td>
<td>EM25</td>
</tr>
</tbody>
</table>

P6M - Plastic; EM - Sintered Bronze

### Plastic Silencers

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Part Number</th>
<th>A (mm)</th>
<th>B (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPT</td>
<td>AS-5</td>
<td>.43 (11)</td>
<td>.32 (8)</td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>ASN-6</td>
<td>1.57 (40)</td>
<td>.63 (16)</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>ASN-8</td>
<td>2.56 (65)</td>
<td>.83 (21)</td>
</tr>
</tbody>
</table>

### M3 & M5 Fittings

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5 Plug Fitting</td>
<td>N220-1900J</td>
</tr>
<tr>
<td>M3 to 3mm Barb</td>
<td>BC03M3</td>
</tr>
<tr>
<td>M3 to 4mm Barb</td>
<td>BC04M3</td>
</tr>
<tr>
<td>M5 to 3mm Barb</td>
<td>BC03M5</td>
</tr>
</tbody>
</table>

M3 Barb | M5 Plug | M5 Barb
**DIN Rail**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM1DE200</td>
<td>6 Foot Rail Length</td>
</tr>
</tbody>
</table>

**DIN Rail Hardware Kit**

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Part Number</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>IEM</td>
<td>MFUA05DB</td>
<td>A 2.24 B 1.00 C 0.31</td>
</tr>
<tr>
<td></td>
<td>Subbase</td>
<td>MFSA05DB</td>
<td>A (57) B (25) C (8)</td>
</tr>
<tr>
<td>A12</td>
<td>IEM</td>
<td>MFUA12DB</td>
<td>A 2.91 B 1.00 C 0.39</td>
</tr>
<tr>
<td></td>
<td>Subbase</td>
<td>MFSA12DB</td>
<td>A (74) B (25) C (10)</td>
</tr>
</tbody>
</table>

Kit includes: (2) Screws, (2) Clamps

**Replacement Kits**

**Cylinder Port Plate Kits**

<table>
<thead>
<tr>
<th>Size</th>
<th>Fitting</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A05</td>
<td>M5</td>
<td>A05RABM5</td>
</tr>
<tr>
<td>A12</td>
<td>1/8&quot; NPT</td>
<td>A12RABN1</td>
</tr>
<tr>
<td></td>
<td>1/8&quot; BSPP &quot;G&quot;</td>
<td>A12RABG1</td>
</tr>
</tbody>
</table>

**Base Gasket Kits**

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Gasket Only</th>
<th>Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>A00</td>
<td>Subbase</td>
<td>A00SG</td>
<td>A00SS</td>
</tr>
<tr>
<td>A05</td>
<td>Body Ported</td>
<td>A05RG</td>
<td>A05RS</td>
</tr>
<tr>
<td></td>
<td>Subbase Int.</td>
<td>A05PG</td>
<td>A05PS</td>
</tr>
<tr>
<td></td>
<td>Subbase Ext.</td>
<td>A05PXG</td>
<td>A05PS</td>
</tr>
<tr>
<td>A12</td>
<td>Body Ported</td>
<td>A12RG</td>
<td>A12RS</td>
</tr>
<tr>
<td></td>
<td>Subbase Int.</td>
<td>A12PG</td>
<td>A12PS</td>
</tr>
<tr>
<td></td>
<td>Subbase Ext.</td>
<td>A12PXG</td>
<td>A12PS</td>
</tr>
</tbody>
</table>

These are spare parts, mounting screws and gaskets included with valves.
Flow Rating (Cv)

<table>
<thead>
<tr>
<th>Size</th>
<th>Port Size</th>
<th>Mounting Style</th>
<th>ANSI / (NFPA) 2-Position</th>
<th>ANSI / (NFPA) 3-Position</th>
<th>JIS Method 2-Position</th>
<th>JIS Method 3-Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>A00</td>
<td>M3</td>
<td>Subbase</td>
<td>.010</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>A00</td>
<td>M5</td>
<td>Subbase</td>
<td>.017</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>A05</td>
<td>M5</td>
<td>Subbase</td>
<td>.020</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>A05</td>
<td>M5</td>
<td>Inline</td>
<td>.18</td>
<td>.16</td>
<td>.22</td>
<td>.20</td>
</tr>
<tr>
<td>A12</td>
<td>1/8&quot; Ports</td>
<td>Subbase</td>
<td>.47</td>
<td>.43</td>
<td>.48</td>
<td>.46</td>
</tr>
<tr>
<td>A12</td>
<td>1/8&quot; Ports</td>
<td>Inline</td>
<td>.44</td>
<td>.40</td>
<td>.61</td>
<td>.42</td>
</tr>
</tbody>
</table>

Response Time

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Port Size</th>
<th>0 Cu. In. Test Chamber</th>
<th>Fill</th>
<th>Exhaust</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Position Single Solenoid / Air Return</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A00</td>
<td>M3</td>
<td>.004</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td>A05</td>
<td>M5</td>
<td>.014</td>
<td>.025</td>
<td></td>
</tr>
<tr>
<td>A12</td>
<td>1/8&quot;</td>
<td>.016</td>
<td>.030</td>
<td></td>
</tr>
<tr>
<td>2-Position Double Solenoid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A00</td>
<td>M3</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>A05</td>
<td>M5</td>
<td>.011</td>
<td>.015</td>
<td></td>
</tr>
<tr>
<td>A12</td>
<td>1/8&quot;</td>
<td>.010</td>
<td>.012</td>
<td></td>
</tr>
<tr>
<td>3-Position Double Solenoid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A00</td>
<td>M3</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>A05</td>
<td>M5</td>
<td>.013</td>
<td>.017</td>
<td></td>
</tr>
<tr>
<td>A12</td>
<td>1/8&quot;</td>
<td>.013</td>
<td>.014</td>
<td></td>
</tr>
</tbody>
</table>

Operating Pressure

Maximum: 4-Way: 100 PSIG (690 kPa) 3-Way: 100 PSIG (690 kPa) NC* 70 PSIG (483 kPa) NO*

Minimum:

<table>
<thead>
<tr>
<th>Description</th>
<th>Internal Pilot</th>
<th>External Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PSIG</td>
<td>kPa</td>
</tr>
<tr>
<td>4-Way</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Solenoid</td>
<td>22</td>
<td>152</td>
</tr>
<tr>
<td>Double Solenoid – 2-Position</td>
<td>15</td>
<td>104</td>
</tr>
<tr>
<td>Double Solenoid – 3-Position</td>
<td>30</td>
<td>207</td>
</tr>
<tr>
<td>3-Way</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A00 Series Vacuum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* When using vacuum and pressure on ports 1 & 3 – 85 PSIG (586 kPa) NC; 58 PSIG (400 kPa) NO (see page D112).

Temperature Rating

Intermittent Duty (AC & DC Voltage): 32°F to 122°F (0°C to 50°C)
Voltage Rated +10 / −10%

Continuous Duty (DC Voltage Only): 32°F to 104°F (0°C to 40°C)
Voltage Rated +0 / −10%

Solenoid Information

<table>
<thead>
<tr>
<th>Power Consumption</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With Indicator Light &amp; Surge Suppressor</td>
</tr>
<tr>
<td>DC</td>
<td>W</td>
</tr>
<tr>
<td>AC 100V</td>
<td>VA</td>
</tr>
<tr>
<td>AC 110V</td>
<td>VA</td>
</tr>
<tr>
<td>High Flow</td>
<td>With Indicator Light &amp; Surge Suppressor</td>
</tr>
<tr>
<td>DC</td>
<td>W</td>
</tr>
<tr>
<td>AC 100V</td>
<td>VA</td>
</tr>
<tr>
<td>AC 110V</td>
<td>VA</td>
</tr>
</tbody>
</table>
### A00 - Subbase

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1.00</td>
<td></td>
<td>A1</td>
<td>1.18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(25)</td>
<td></td>
<td></td>
<td>(30)</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>.79</td>
<td></td>
<td>F</td>
<td>.12</td>
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<td></td>
<td>(20)</td>
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<td>(3)</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>.28</td>
<td></td>
<td></td>
<td>.28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(7)</td>
<td></td>
<td></td>
<td>(7)</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>1.54</td>
<td></td>
<td></td>
<td>1.54</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(39)</td>
<td></td>
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<td>(39)</td>
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**Dimensions:**
- A00 - Subbase
- A00 - Manifold

**Notes:**
- P & S Option
- Q & B Option
- M3 or M5 Threaded Ports
- M5 Threaded 2 Ports
- Both Ends

**Manual Override:**
- [Diagram]

**Inches (mm):**
- n = Number of stations.
“ADEX” Series Valves
A05R & A12R – Inline

A05
Single & Double Operators – Inline

A12
Single & Double Operators – Inline

A05R – Inline

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A12R – Inline

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Inches (mm)
### A05

**Single & Double Operators – Subbase**

![Diagram of A05 valve]

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<th>B</th>
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<td>3.94 (100)</td>
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<td>.65 (17)</td>
<td>.30 (8)</td>
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<tr>
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<td>.57 (15)</td>
</tr>
<tr>
<td>C</td>
<td>.89 (23)</td>
<td>1.38 (35)</td>
<td>E1</td>
<td>.20 (5)</td>
<td>.57 (15)</td>
</tr>
<tr>
<td>D</td>
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<td>.45 (11.5)</td>
<td>J1</td>
<td>.51 (13)</td>
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<td>E</td>
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Inches (mm)

### A12

**Single & Double Operators – Subbase**

![Diagram of A12 valve]

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<td>2.41 (61)</td>
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<td>C</td>
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<td>Ø .17 (4.3)</td>
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Inches (mm)
**ADEX” Series Valves**

**A05R & A12R – Manifold, Valve Inline**

### Dimensions

#### A05

**Manifold – Valve Inline**

**A05R - Manifold, Valve Inline**

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<td>(10)</td>
<td>(16)</td>
<td>Ø (4.5)</td>
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**Manifold without optional Collective Wiring System**

\( n = \text{Number of stations.} \)

#### A12

**Manifold – Valve Inline**

**A12R - Manifold, Valve Inline**

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<td>(11)</td>
<td>(20)</td>
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**Manifold without optional Collective Wiring System**

\( n = \text{Number of stations.} \)

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Inches (mm)
"ADEX" Series Valves
A05P & A12P – Manifold, Side Ports

**Manifold – Side Ports**

**A05**

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<td>D</td>
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<td>E</td>
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Inches (mm)

**A12**

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Inches (mm)

n = Number of stations.
“N” Series
High Speed
Inline Poppet Valves
2 & 3-Way

Section D
www.parker.com/pneu/n

Basic Valve Functions ...........................................D108
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   Single Solenoid ............................................D122-D125
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BOLD ITEMS ARE MOST POPULAR.
Basic Valve Functions

“N” Series Valves
Inline Poppet Valve

Single Solenoid
3-Way, 2-Position
NC (NNP)

*Normal position* – Pressure at inlet port marked “IN” blocked. Cylinder port connected to exhaust port (3-Way).

*Energized position* – Solenoid operator energized, pressurized “IN” port connects to cylinder port. Exhaust port is blocked (3-Way).

⚠️ CAUTION:
These are poppet valves, *Do Not* restrict the inlet.

Note: For 2-Way, Normally Closed, Exhaust Port is Plugged.

Single Solenoid
3-Way, 2-Position
NO (NP)

*Normal position* – Pressure at inlet port marked “IN” open to cylinder. Exhaust port is blocked (3-Way).

*Energized position* – Solenoid operator energized. Pressure at inlet port marked “IN” is blocked. Cylinder open to exhaust (3-Way).

⚠️ CAUTION:
These are poppet valves, *Do Not* restrict the inlet.

Note: For 2-Way, Normally Open, Exhaust Port is Plugged.

Single Remote Pilot
3-Way, 2-Position,
NC (NNP)

*Normal position* – Pressure at inlet port marked “IN” blocked. Cylinder port connected to exhaust port (3-Way).

*Operated position* – With maintained air signal at pilot port, pressurized “IN” port connects to cylinder port. Exhaust port is blocked (3-Way).

⚠️ CAUTION:
These are poppet valves, *Do Not* restrict the inlet.

Note: For 2-Way, Normally Closed, Exhaust Port is Plugged.

Single Remote Pilot
3-Way, 2-Position,
NO (NP)

*Normal position* – Pressure at inlet port marked “IN” open to cylinder. Exhaust port is blocked (3-Way).

*Operated position* – With maintained air signal at pilot port, pressure at inlet port marked “IN” is blocked. Cylinder open to exhaust (3-Way).

⚠️ CAUTION:
These are poppet valves, *Do Not* restrict the inlet.

Note: For 2-Way, Normally Open, Exhaust Port is Plugged.

For Information on Options that are no longer available and the Suggested Cross Reference or Kit Info, refer to www.parker.com/pneumatic/classicvalves & Catalog N Series-E/USA
“N” Series Valves
Inline Poppet Valve

Specifications
- 2-Way NC
- 3-Way NO & NC
- Selector Function

Flow
- 3/8” Body – 3.0 to 4.4 Cv
- 3/4” Body – 9.0 to 11.0 Cv
- 1-1/4” Body – 20.0 to 30.0 Cv

Port Sizes
- 3/8” Body – 3/8”, 1/2” NPT
- 3/4” Body – 1/2”, 3/4”, 1” NPT
- 1-1/4” Body – 1”, 1-1/4”, 1-1/2” NPT
- BSPP “G” Threads Available

Operating Pressure
- 30 to 250 PSI (0 to 1000 kPa)
- Vacuum with External Pilot

Features
- Continuous Duty Rated Option
- Non-Lube Service
- Hi-Flow, Short Stroke Poppet
- Indicator Lights Available

Certification / Approval
- Approved to be CE Marked (Standard L-Pilot & P-Pilot)
- NEMA 4 Option
- Hazardous Duty Option
### “N” Series Valves
#### Inline Poppet Valve – Solenoid Operated

**Single Solenoid**  
** Normally Closed**  
2-Way, 2-Position  
3-Way, 2-Position  

**Single Solenoid**  
** Normally Open**  
3-Way, 2-Position

---

#### 3/8" & 3/4" Body Size

<table>
<thead>
<tr>
<th></th>
<th>2-Way Normally Closed</th>
<th>3-Way Normally Closed</th>
<th>In/Cyl Ports</th>
<th>Exh. Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>N3153904553</td>
<td>N3553904553</td>
<td>3/8&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>N3154904553</td>
<td>N3554904553</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>N3155904553</td>
<td>N3555904553</td>
<td>1/2&quot;</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td></td>
<td>N3156904553</td>
<td>N3556904553</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td></td>
<td>N3157904553</td>
<td>N3557904553</td>
<td>1&quot;</td>
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</tr>
</tbody>
</table>

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#### 3/8" & 3/4" Body Size

<table>
<thead>
<tr>
<th></th>
<th>3-Way Normally Open</th>
<th>In/Cyl Ports</th>
<th>Exh. Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>N3753904553</td>
<td>3/8&quot;</td>
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</tr>
<tr>
<td></td>
<td>N3754904553</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>N3755904553</td>
<td>1/2&quot;</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td></td>
<td>N3756904553</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td></td>
<td>N3757904553</td>
<td>1&quot;</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

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#### 1-1/4" Body Size

<table>
<thead>
<tr>
<th></th>
<th>2-Way Normally Closed</th>
<th>3-Way Normally Closed</th>
<th>In/Cyl Ports</th>
<th>Exh. Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/4&quot;</td>
<td>N3257904753</td>
<td>N3657904753</td>
<td>1&quot;</td>
<td>1-1/4&quot;</td>
</tr>
<tr>
<td></td>
<td>N3258904753</td>
<td>N3658904753</td>
<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>N3259904753</td>
<td>N3659904753</td>
<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
</tr>
</tbody>
</table>

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#### 1-1/4" Body Size

<table>
<thead>
<tr>
<th></th>
<th>3-Way Normally Open</th>
<th>In/Cyl Ports</th>
<th>Exh. Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/4&quot;</td>
<td>N3857904753</td>
<td>1&quot;</td>
<td>1-1/4&quot;</td>
</tr>
<tr>
<td></td>
<td>N3858904753</td>
<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>N3859904753</td>
<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
</tr>
</tbody>
</table>

---

Locking Manual Override, Internal "P" Pilot 140 PSI, Standard Service, Junction Box w/ Light, 120VAC.
Common Part Numbers

Single Remote Pilot
Normally Closed
2-Way, 2-Position
3-Way, 2-Position

3/8" & 3/4" Body Size

<table>
<thead>
<tr>
<th></th>
<th>2-Way Normally Closed</th>
<th>3-Way Normally Closed</th>
<th>In/Cyl Ports</th>
<th>Exh. Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>N31431091</td>
<td>N35431091</td>
<td>3/8&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>N31441091</td>
<td>N35441091</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>N31451091</td>
<td>N35451091</td>
<td>1/2&quot;</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td></td>
<td>N31461091</td>
<td>N35461091</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td></td>
<td>N31471091</td>
<td>N35471091</td>
<td>1&quot;</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

1/4" NPT Remote Pilot Port with Internal Pilot Return.

3/8" & 3/4" Body Size

<table>
<thead>
<tr>
<th></th>
<th>3-Way Normally Open</th>
<th>In/Cyl Ports</th>
<th>Exh. Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>N37431091</td>
<td>3/8&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
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<td>N37441091</td>
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<td>1/2&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>N37451091</td>
<td>1/2&quot;</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td></td>
<td>N37461091</td>
<td>3/4&quot;</td>
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</tr>
<tr>
<td></td>
<td>N37471091</td>
<td>1&quot;</td>
<td>1&quot;</td>
</tr>
</tbody>
</table>

1/4" NPT Remote Pilot Port with Internal Pilot Return.

“N” Series Valves
Inline Poppet Valve – Remote Pilot Operated

Single Remote Pilot
Normally Open
3-Way, 2-Position

1-1/4" Body Size

<table>
<thead>
<tr>
<th></th>
<th>2-Way Normally Closed</th>
<th>3-Way Normally Closed</th>
<th>In/Cyl Ports</th>
<th>Exh. Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/4&quot;</td>
<td>N32471091</td>
<td>N36471091</td>
<td>1&quot;</td>
<td>1-1/4&quot;</td>
</tr>
<tr>
<td></td>
<td>N32481091</td>
<td>N36481091</td>
<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>N32491091</td>
<td>N36491091</td>
<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
</tr>
</tbody>
</table>

1/4" NPT Remote Pilot Port with Internal Pilot Return.

1-1/4" Body Size

<table>
<thead>
<tr>
<th></th>
<th>3-Way Normally Open</th>
<th>In/Cyl Ports</th>
<th>Exh. Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/4&quot;</td>
<td>N38471091</td>
<td>1&quot;</td>
<td>1-1/4&quot;</td>
</tr>
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<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>N38491091</td>
<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
</tr>
</tbody>
</table>

1/4" NPT Remote Pilot Port with Internal Pilot Return.
### "N" Series Valves
#### Inline Poppet Valve – Solenoid Operated


<table>
<thead>
<tr>
<th>Valve Function - Solenoid</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot; &amp; 3/4&quot; Body</td>
<td>Blank None</td>
</tr>
<tr>
<td>2-Way, Normally Closed</td>
<td>L 72&quot; Leads - '51' Voltage Code Only</td>
</tr>
<tr>
<td>3-Way, Normally Closed</td>
<td>C Chrysler Wiring - Enclosure 'J' &amp; 'N'</td>
</tr>
<tr>
<td>3-Way, Normally Open</td>
<td>F Ford Wiring - Enclosure 'E', 'J', &amp; 'N'</td>
</tr>
<tr>
<td>1-1/4&quot; Body</td>
<td>G GM wiring - Enclosure 'J' &amp; 'N'</td>
</tr>
</tbody>
</table>

### Port Size / Thread Type

#### 3/8" Body Size
- 3/8" Inlet & Cyl - 1/2" Exhaust - NPT 3
- 1/2" Inlet & Cyl - 1/2" Exhaust - NPT 4
- 1/2" Inlet & Cyl - 1/2" Exhaust - BSPP N

#### 3/4" Body Size
- 1/2" Inlet & Cyl - 3/4" Exhaust - NPT 5
- 3/4" Inlet & Cyl - 1" Exhaust - NPT 6
- 3/4" Inlet & Cyl - 1" Exhaust - BSPP Q
- 1" Inlet & Cyl - 1" Exhaust - NPT 7

#### 1-1/4" Body Size
- 1" Inlet & Cyl - 1 1/4" Exhaust - NPT 7
- 1-1/4" Inlet & Cyl - 1-1/2" Exhaust - NPT 8
- 1-1/4" Inlet & Cyl - 1-1/2" Exhaust - BSPP S*
- 1-1/2" Inlet & Cyl - 1-1/2" Exhaust - NPT 9
- 1-1/2" Inlet & Cyl - 1-1/2" Exhaust - BSPP T*

* Not available with Valve Function 325.

**Note:** BSPP is to the ISO 228 Standard, and requires an R-BSPT male fitting.

### Solenoid Enclosure

<table>
<thead>
<tr>
<th>Solenoid Enclosure</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Pilot</td>
<td>0</td>
</tr>
<tr>
<td>Basic Pilot NLMO</td>
<td>1</td>
</tr>
<tr>
<td>Basic Pilot LMO</td>
<td>2</td>
</tr>
<tr>
<td>Junction Box NLMO</td>
<td>3</td>
</tr>
<tr>
<td>Junction Box LMO</td>
<td>4</td>
</tr>
<tr>
<td>Junction Box NLMO w/ Light</td>
<td>5</td>
</tr>
<tr>
<td>Junction Box LMO w/ Light</td>
<td>6</td>
</tr>
<tr>
<td>Basic Pilot Ext. LMO</td>
<td>7</td>
</tr>
<tr>
<td>JIC NLMO w/ Light - 3-Pin Automotive</td>
<td>8</td>
</tr>
<tr>
<td>JIC NLMO w/ Light - 4-Pin M12</td>
<td>9</td>
</tr>
</tbody>
</table>

### "L" Pilot Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Voltage</th>
<th>Solenoid Enclosure Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 60Hz</td>
<td>AC 50Hz</td>
<td>DC</td>
</tr>
<tr>
<td>42</td>
<td>24</td>
<td>24</td>
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<tr>
<td>45</td>
<td>12</td>
<td>24</td>
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<tr>
<td>49</td>
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<td>120</td>
<td>120</td>
</tr>
<tr>
<td>79</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

### "L" Pilot Configuration

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01*</td>
<td>External Pilot, Std Service, 140 PSI</td>
</tr>
<tr>
<td>04*</td>
<td>External Pilot, Cont Duty, 140 PSI</td>
</tr>
<tr>
<td>45</td>
<td>Internal Pilot, Std Service, 140 PSI</td>
</tr>
<tr>
<td>46</td>
<td>Internal Pilot, Std Service, 200 PSI</td>
</tr>
<tr>
<td>48</td>
<td>Internal Pilot, Cont Duty, 140 PSI</td>
</tr>
</tbody>
</table>

* Not available with Valve Function 325, 365, and 385 (1-1/4" Body).

### Solenoid Type

<table>
<thead>
<tr>
<th>Solenoid Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Standard</td>
</tr>
<tr>
<td>5*</td>
<td>Hazardous Duty</td>
</tr>
<tr>
<td>8*</td>
<td>NEMA 4 Solenoid</td>
</tr>
</tbody>
</table>

* Available with Solenoid Enclosure 2 & 3, 'L' Pilot Configuration 04 & 48, and Voltage 49 & 53 ONLY.

**Bold options are most popular.**
### "N" Series 1-1/4" Body Sizes - Solenoid Hi-Flow ‘P’ Pilot

**Valve Function - Solenoid**

| 1-1/4" Body | 2-Way, Normally Closed | 365 | 3-Way, Normally Closed | 385 | 3-Way, Normally Open | 47 |

**Port Size / Thread Type**

<table>
<thead>
<tr>
<th>1-1/4&quot; Size</th>
<th>1&quot; Inlet &amp; Cyl - 1 1/4&quot; Exhaust - NPT</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-1/4&quot; Inlet &amp; Cyl – 1-1/2&quot; Exhaust - BSPP</td>
<td>S</td>
</tr>
<tr>
<td></td>
<td>1-1/2&quot; Inlet &amp; Cyl – 1-1/2&quot; Exhaust - NPT</td>
<td>9</td>
</tr>
</tbody>
</table>

**Note:** BSPP is to the ISO 228 Standard, and requires an R-BSPT male fitting.


**Valve Function - Solenoid**


**Port Size / Thread Type**

<table>
<thead>
<tr>
<th>3/8&quot; Size</th>
<th>3/8&quot; Inlet &amp; Cyl – 1/2&quot; Exhaust - NPT</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/2&quot; Inlet &amp; Cyl – 1/2&quot; Exhaust - NPT</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1/2&quot; Inlet &amp; Cyl – 1/2&quot; Exhaust - BSPP</td>
<td>N</td>
</tr>
</tbody>
</table>

**3/4" Size**

<table>
<thead>
<tr>
<th>3/4&quot; Size</th>
<th>1/2&quot; Inlet &amp; Cyl – 3/4&quot; Exhaust - NPT</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/2&quot; Inlet &amp; Cyl – 3/4&quot; Exhaust - BSPP</td>
<td>P</td>
</tr>
</tbody>
</table>

**Note:** BSPP is to the ISO 228 Standard, and requires an R-BSPT male fitting.
Operating Pressure

Internal Pilot – Solenoid Valves

3/8" & 3/4" Body

• 20 to 140 PSIG (standard)

1-1/4" Body

• 25 to 140 PSIG (200 PSIG option available)

Internal Pilot – Remote Pilot Valve

<table>
<thead>
<tr>
<th>Operating Pressure Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thru Valve</td>
</tr>
<tr>
<td>3/8&quot; Basic</td>
</tr>
<tr>
<td>25 PSI</td>
</tr>
<tr>
<td>50 PSI</td>
</tr>
<tr>
<td>75 PSI</td>
</tr>
<tr>
<td>100 PSI</td>
</tr>
<tr>
<td>150 PSI</td>
</tr>
<tr>
<td>200 PSI</td>
</tr>
<tr>
<td>250 PSI</td>
</tr>
</tbody>
</table>

Solenoid Valves: External Supply

3/8" & 3/4" Basic

<table>
<thead>
<tr>
<th>Air Pressure Thru Valve (PSI)</th>
<th>External Pilot Pressure Required (PSI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3/8&quot; Basic</td>
</tr>
<tr>
<td>25 PSI</td>
<td>35-200</td>
</tr>
<tr>
<td>50 PSI</td>
<td>45-200</td>
</tr>
<tr>
<td>75 PSI</td>
<td>55-200</td>
</tr>
<tr>
<td>100 PSI</td>
<td>65-200</td>
</tr>
</tbody>
</table>

Vacuum up to 1" HG, less than a perfect vacuum.

* With 200 PSI option.

Do not exceed 140 PSI with standard pilots.

External Pilot supply should be used when the main valve needs to operate below the Minimum Operating Pressure or at Vacuum. A Selector function can also be achieved (pressurizing the IN and EXHAUST ports) with an External Pilot Supply. Refer to charts for required external pilot pressure.
“N” Series Valves
Technical Data

Selection
Although reasonable safety factors are designed into each speed poppet valve, it is important that application requirements do not exceed the rated limitation of the valve. This precaution insures a sufficient safety factor.

Life Expectancy
Normal multimillion cycle life expectancy of high speed poppet series valves is based on the use of properly filtered and lubricated air at room temperature. In actual laboratory tests, the high speed poppet valves provide maintenance-free service life in excess of 20,000,000 cycles.

Lubrication
The high speed poppet valves are pre-lubricated to permit use with non-lubricated air. However, air should be lubricated to assure maximum seal life.

F442 lubricating oil is recommended. This oil is specially formulated to provide peak performance and maximum service life from air-operated equipment. Other good air line lubricating oils may be used provided they atomize readily and are of the medium aniline type. Aniline point range must be between 180°F - 220°F. Viscosity SUS @ 100°F of 140-170. High aniline oils will shrink seals; low aniline oils will swell seals, reducing operating life and expectancy.

Installation
Valves should be installed with reasonable accessibility for service whenever possible. Care should be taken to hold piping length to a minimum and to protect valves from exposure to extreme heat, dirt and moisture. Piping should be clean and clear of dirt and chips. Threads should be the correct size and undamaged. Pipe joint compound should be used sparingly and only on pipe threads, never in the valve body. Care should be taken in installation to avoid undue strain on valve.

For the small port size options, it is recommended that an air reservoir is located close to the valve inlet as to not starve the valve of air pressure.

Materials of Construction
Valve Body .....................................................Cast Aluminum
Poppet Assembly .................. Aluminum and Stainless Steel
Pilot Valve .................. Zinc, Stainless Steel, Brass, Copper, Zinc Plated Steel
Seals ................................................................. Nitrile

CAUTION: DO NOT RESTRICT THE INLET TO POPPET VALVES
Restriction of the inlet can starve the air supply to the pilot section of internally piloted poppet valves and result in slow shifting or failure of the valve to shift properly. Always connect the supply line directly to the inlet of the valve using the full pipe size of the valve inlet. Never use a quick coupling to connect a poppet valve to the air supply. On valves with a small inlet port, use of an upstream surge tank may be required at lower operating pressures to insure an adequate air supply and proper operation.

Temperature Rating
Operating Temperature Range:

<table>
<thead>
<tr>
<th>Operator Type</th>
<th>Duty Cycle*</th>
<th>Minimum Ambient Temperature</th>
<th>Maximum Ambient Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Service</td>
<td>Intermittent</td>
<td>0°F (-18°C)</td>
<td>125°F (52°C)</td>
</tr>
<tr>
<td>Solenoid</td>
<td>Continuous</td>
<td>0°F (-18°C)</td>
<td>100°F (38°C)</td>
</tr>
<tr>
<td>Special Service</td>
<td>Intermittent</td>
<td>0°F (-18°C)</td>
<td>125°F (52°C)</td>
</tr>
<tr>
<td>Solenoid</td>
<td>Continuous</td>
<td>0°F (-18°C)</td>
<td>125°F (52°C)</td>
</tr>
<tr>
<td>Remote Pilot</td>
<td>Not Applicable</td>
<td>0°F (-18°C)</td>
<td>200°F (93°C)</td>
</tr>
</tbody>
</table>

* Applications with pilot valves energized for ten (10) minutes or longer with a duty cycle greater than 70% are considered to be continuously energized.

Duty cycle = \( \frac{\text{Time energized}}{\text{Time energized } + \text{time off}} \times 100\% = \% \text{ Duty Cycle} \)

Flow

<table>
<thead>
<tr>
<th>Basic Valve Size</th>
<th>Inlet Port Size</th>
<th>Exhaust Port Size</th>
<th>Cv Inlet to Cylinder</th>
<th>Cv Cylinder to Exhaust</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot; 3-Way</td>
<td>3/8&quot; Pipe</td>
<td>1/2&quot; Pipe</td>
<td>3.6</td>
<td>4.2</td>
</tr>
<tr>
<td>Normally Closed</td>
<td>1/2&quot; Pipe</td>
<td>1/2&quot; Pipe</td>
<td>3.8</td>
<td>4.3</td>
</tr>
<tr>
<td>3/8&quot; 3-Way</td>
<td>3/8&quot; Pipe</td>
<td>1/2&quot; Pipe</td>
<td>3.6</td>
<td>4.1</td>
</tr>
<tr>
<td>Normally Open</td>
<td>1/2&quot; Pipe</td>
<td>1/2&quot; Pipe</td>
<td>3.9</td>
<td>4.5</td>
</tr>
<tr>
<td>3/4&quot; 3-Way</td>
<td>1/2&quot; Pipe</td>
<td>3/4&quot; Pipe</td>
<td>8.2</td>
<td>9.2</td>
</tr>
<tr>
<td>Normally Closed</td>
<td>3/4&quot; Pipe</td>
<td>1&quot; Pipe</td>
<td>9.3</td>
<td>10.8</td>
</tr>
<tr>
<td>3/4&quot; 3-Way</td>
<td>1/2&quot; Pipe</td>
<td>3/4&quot; Pipe</td>
<td>7.7</td>
<td>6.6</td>
</tr>
<tr>
<td>Normally Open</td>
<td>3/4&quot; Pipe</td>
<td>1&quot; Pipe</td>
<td>9.6</td>
<td>11.4</td>
</tr>
<tr>
<td>1-1/4&quot; 3-Way</td>
<td>1&quot; Pipe</td>
<td>1-1/4&quot; Pipe</td>
<td>19.5</td>
<td>23.5</td>
</tr>
<tr>
<td>Normally Closed</td>
<td>1-1/4&quot; Pipe</td>
<td>1-1/2&quot; Pipe</td>
<td>23.3</td>
<td>26.9</td>
</tr>
<tr>
<td>1-1/4&quot; 3-Way</td>
<td>1&quot; Pipe</td>
<td>1-1/4&quot; Pipe</td>
<td>19.5</td>
<td>23.5</td>
</tr>
<tr>
<td>Normally Open</td>
<td>1-1/4&quot; Pipe</td>
<td>1-1/2&quot; Pipe</td>
<td>23.3</td>
<td>26.9</td>
</tr>
<tr>
<td>1-1/4&quot; 3-Way</td>
<td>1-1/4&quot; Pipe</td>
<td>1-1/2&quot; Pipe</td>
<td>20.4</td>
<td>24.8</td>
</tr>
<tr>
<td>Normally Open</td>
<td>1-1/4&quot; Pipe</td>
<td>1-1/2&quot; Pipe</td>
<td>25.0</td>
<td>29.1</td>
</tr>
<tr>
<td>1-1/2&quot; 3-Way</td>
<td>1-1/4&quot; Pipe</td>
<td>1-1/2&quot; Pipe</td>
<td>26.7</td>
<td>29.9</td>
</tr>
</tbody>
</table>

Flow

[Technical Data Table]
**Technical Information**

**Electrical Connections**

**Automotive Connections**
- 3-Pin & 5-Pin “Mini” (7/8 UNF Thread)
- 4-Pin “Micro” (M12 Thread)

**Solenoid Configurations**
“E”, “J”, “N”

**Wiring Connections**

**Chrysler Connection**

4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option C)

5-Pin Male/Single Solenoid
(Encl. Option N, Wiring Option C)

**Ford Connection**

3-Pin Male/Single Solenoid
(Encl. Option E, Wiring Option F)

4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option F)

5-Pin Male/Single Solenoid
(Encl. Option N, Wiring Option F)

**GM Connection**

4-Pin Male/Single Solenoid
(Encl. Option J, Wiring Option G)

5-Pin Male/Single Solenoid
(Encl. Option N, Wiring Option G)
Continuous Duty Pilots

Continuous duty pilots are designed for applications where cycling is infrequent and the pilot is to be energized for indefinite periods of time—hours, days, or weeks. Typical uses include fail-safe or emergency shutdown circuits where the pilot is to be energized and the valve open as long as the main control is “live” in order to shut off air to equipment in the event of power failure.

The Continuous duty pilot operates satisfactorily in ambient temperatures up to 125°F, even when continuously energized and without the benefit of the cooling air which normally flows through the pilot during frequent cycling. Under certain conditions, satisfactory operation may be obtained at ambient temperatures above 125°F. CONSULT FACTORY.

Incorporating the performance-proven design features of the standard L-Pilot, the continuous duty pilot utilizes a bullet-shaped stem on the upper end of the plunger. This bullet-shaped stem, seating in a high-temperature rubber o-ring, provides both a bubble-tight seal and positive release.

Hazardous Duty Solenoid Listing

Valves with solenoid operators designed for hazardous locations are UL & CSA Approved as follows:

<table>
<thead>
<tr>
<th>National Electric Code</th>
<th>Ambient Conditions</th>
<th>NEMA Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I Div. 1 Group C</td>
<td>Ethyl, Ether, Etc. Gases &amp; Vapors</td>
<td>VII (7)</td>
</tr>
<tr>
<td>Class I Div. 1 Group D</td>
<td>Gasoline, Etc. Gases &amp; Vapors</td>
<td>VII (7)</td>
</tr>
<tr>
<td>Class I Div. 2 Group B</td>
<td>Butadiene, Etc., Liquid, Fluid or Vapor Normally Contained, or Atmosphere Ventilated</td>
<td>VII (7)</td>
</tr>
<tr>
<td>Class II Div. 1 Group E</td>
<td>Metal Dust</td>
<td>IX (9)</td>
</tr>
<tr>
<td>Class II Div. 1 Group F</td>
<td>Coal, Coke, Carbon Black Dust</td>
<td>IX (9)</td>
</tr>
<tr>
<td>Class II Div. 1 Group G</td>
<td>Flour, Starch, Grain Dust</td>
<td>IX (9)</td>
</tr>
</tbody>
</table>

See Article 500 – Hazardous (Classified) Locations, National Electric Code.
“N” Series Valves
Solenoid Pilot & Parts List - NEMA 1 & 12

Replacement Pilots

<table>
<thead>
<tr>
<th>Description</th>
<th>Standard L-Pilot</th>
<th>Continuous Duty L-Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Override Type</td>
<td>Locking</td>
<td>Non-Locking</td>
</tr>
<tr>
<td>Basic with Override</td>
<td>K0653035**</td>
<td>K0652035**</td>
</tr>
<tr>
<td>JIC with Junction Box &amp; Override</td>
<td>K0656035**</td>
<td>K0655035**</td>
</tr>
<tr>
<td>JIC Pilot with Junction Box &amp; Override &amp; Indicator Lights (120VAC Only)</td>
<td>K0659035**</td>
<td>K0658035**</td>
</tr>
</tbody>
</table>

** Voltage Code - (Reference Model Index for Availability)

Parts List

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>K593025</td>
<td>Coil 120V 60Hz / 110V 50Hz</td>
</tr>
<tr>
<td></td>
<td>K593035</td>
<td>Coil 240V 60Hz / 220V 50Hz</td>
</tr>
<tr>
<td></td>
<td>K593003</td>
<td>Coil 6VDC / 24V 60Hz</td>
</tr>
<tr>
<td></td>
<td>K593010</td>
<td>Coil 12VDC</td>
</tr>
<tr>
<td></td>
<td>K593014</td>
<td>Coil 24VDC</td>
</tr>
<tr>
<td></td>
<td>K593041</td>
<td>Coil 120VDC</td>
</tr>
<tr>
<td>5</td>
<td>H14213</td>
<td>Seal</td>
</tr>
<tr>
<td>6</td>
<td>K423006</td>
<td>Top Seat</td>
</tr>
<tr>
<td></td>
<td>K423010</td>
<td>Top Seat (Continuous Duty)</td>
</tr>
<tr>
<td>8</td>
<td>K343002</td>
<td>Plunger (STD. Service)</td>
</tr>
<tr>
<td></td>
<td>K343001</td>
<td>Plunger (Continuous Duty)</td>
</tr>
<tr>
<td>10*</td>
<td>H14201</td>
<td>Seal</td>
</tr>
<tr>
<td>11*</td>
<td>K41RB72011</td>
<td>O-Ring (STD. Service)</td>
</tr>
<tr>
<td></td>
<td>H24969</td>
<td>O-Ring (Continuous Duty)</td>
</tr>
</tbody>
</table>

Item No. | Part Number | Description |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>K272004</td>
<td>Plunger Guide</td>
</tr>
<tr>
<td>13</td>
<td>K152003</td>
<td>Override Assembly</td>
</tr>
<tr>
<td>14</td>
<td>K183047</td>
<td>Cover Gasket</td>
</tr>
<tr>
<td>16*</td>
<td>K183001</td>
<td>Gasket</td>
</tr>
<tr>
<td>18*</td>
<td>H13473</td>
<td>O-Ring</td>
</tr>
<tr>
<td>20*</td>
<td>H13413</td>
<td>O-Ring</td>
</tr>
<tr>
<td>22</td>
<td>H19102</td>
<td>120 AC Only – Indicator Light</td>
</tr>
<tr>
<td>24</td>
<td>K183108</td>
<td>Gasket</td>
</tr>
</tbody>
</table>

Coil leads are 19” long.
* Parts included in Service Kit.
Continuous Duty Kit ...... K352 366
Standard Service Kit ...... K352 166
Replacement Pilots

<table>
<thead>
<tr>
<th>Description</th>
<th>Continuous Duty L-Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Duty L-Pilot - UL &amp; CSA</td>
<td>K0451025**</td>
</tr>
<tr>
<td>Override Type</td>
<td>Locking</td>
</tr>
<tr>
<td>Hazardous Duty with Override</td>
<td>K0453025**</td>
</tr>
<tr>
<td>NEMA 4 with Override</td>
<td>K2553025**</td>
</tr>
</tbody>
</table>

** Voltage Code - 49 & 53

Parts List

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4*</td>
<td>K343002</td>
<td>Plunger (STD. Service)</td>
</tr>
<tr>
<td></td>
<td>K343001</td>
<td>Plunger (Continuous Duty)</td>
</tr>
<tr>
<td>5*</td>
<td>K14213</td>
<td>Seal</td>
</tr>
<tr>
<td>6*</td>
<td>K41RB72009</td>
<td>O-Ring</td>
</tr>
<tr>
<td></td>
<td>K41RB72008</td>
<td>O-Ring (STD. Service)</td>
</tr>
<tr>
<td>7*</td>
<td>K41RB72011</td>
<td>O-Ring (STD. Service)</td>
</tr>
<tr>
<td></td>
<td>H24969</td>
<td>O-Ring (Continuous Duty)</td>
</tr>
<tr>
<td>10</td>
<td>K423001</td>
<td>Top Seat</td>
</tr>
<tr>
<td></td>
<td>K423002</td>
<td>Top Seat (Continuous Duty)</td>
</tr>
<tr>
<td>11</td>
<td>K593025</td>
<td>Coil 120V 60Hz / 110V 50Hz</td>
</tr>
<tr>
<td></td>
<td>K593035</td>
<td>Coil 240V 60Hz / 220V 50Hz</td>
</tr>
<tr>
<td></td>
<td>K593003</td>
<td>Coil 6VDC / 24V 60Hz</td>
</tr>
<tr>
<td></td>
<td>K593010</td>
<td>Coil 12VDC</td>
</tr>
<tr>
<td></td>
<td>K593014</td>
<td>Coil 24VDC</td>
</tr>
<tr>
<td></td>
<td>K593041</td>
<td>Coil 120VDC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>K152003</td>
<td>Override Assembly</td>
</tr>
<tr>
<td>13*</td>
<td>H13473</td>
<td>O-Ring</td>
</tr>
<tr>
<td>17*</td>
<td>H13716</td>
<td>Gasket (NEMA 4 Rated Pilot Only)</td>
</tr>
<tr>
<td>18*</td>
<td>K183001</td>
<td>Gasket</td>
</tr>
</tbody>
</table>

Coil leads are 19" long.

* Parts included in Service Kit.

Continuous Duty Kit ...... K352 366
Standard Service Kit ..... K352 166
Catalog 0600P-E

Technical Information

Heavy Duty P-Pilot Valve

**N** Series Valves

### Replacement Pilots

<table>
<thead>
<tr>
<th>Description</th>
<th>No Override</th>
<th>Non-Locking</th>
<th>Locking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic with Override</td>
<td>K1351045**</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>JIC with Junction Box &amp; Override</td>
<td>N/A</td>
<td>K1355045**</td>
<td>K1356045**</td>
</tr>
<tr>
<td>JIC Pilot with Junction Box &amp; Override &amp; Indicator Lights (120VAC Only)</td>
<td>N/A</td>
<td>K135804553</td>
<td>K135904553</td>
</tr>
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</table>

** Voltage Code - 49 & 53

### Parts List

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>K062005</td>
<td>Cover Assy</td>
</tr>
<tr>
<td>2</td>
<td>K112045</td>
<td>Body, Man. Mtd. (1/8&quot; Bottom Seal)</td>
</tr>
<tr>
<td>3</td>
<td>K112046</td>
<td>Body, Man. Mtd. (3/16&quot; Bottom Seal)</td>
</tr>
<tr>
<td>4</td>
<td>K013001</td>
<td>Magnet Bar</td>
</tr>
<tr>
<td>5*</td>
<td>K272002</td>
<td>Sleeve Sub Assy</td>
</tr>
<tr>
<td></td>
<td>K593108</td>
<td>Coil (115V 60Hz)</td>
</tr>
<tr>
<td></td>
<td>K593112</td>
<td>Coil (230V 60Hz)</td>
</tr>
<tr>
<td></td>
<td>K593097</td>
<td>Coil 24VDC</td>
</tr>
<tr>
<td></td>
<td>K593107</td>
<td>Coil 115VDC</td>
</tr>
<tr>
<td>6</td>
<td>K473010</td>
<td>Spring N.O. Valve</td>
</tr>
<tr>
<td>7</td>
<td>K473011</td>
<td>Spring N.C. Valve</td>
</tr>
<tr>
<td>8</td>
<td>K343042</td>
<td>Plunger</td>
</tr>
<tr>
<td>9</td>
<td>K423020</td>
<td>Top Seat (1/8&quot; Orifice)</td>
</tr>
<tr>
<td>10</td>
<td>K423022</td>
<td>Top Seat (3/16&quot; Orifice)</td>
</tr>
<tr>
<td>11</td>
<td>H13436</td>
<td>Seal</td>
</tr>
<tr>
<td>12</td>
<td>H14202</td>
<td>Seal</td>
</tr>
<tr>
<td>13</td>
<td>H14215</td>
<td>Seal</td>
</tr>
<tr>
<td>14</td>
<td>K322004</td>
<td>Junction Box Kit</td>
</tr>
<tr>
<td>15*</td>
<td>K183012</td>
<td>Gasket</td>
</tr>
</tbody>
</table>

* Coil leads are 19" long.
* Parts included in Seal Kit K352 064.
### Coils for L-Pilot Operated Valves

<table>
<thead>
<tr>
<th>Voltage Code **</th>
<th>Voltage</th>
<th>Coil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60Hz</td>
<td>50Hz</td>
</tr>
<tr>
<td>40</td>
<td>12</td>
<td>—</td>
</tr>
<tr>
<td>41,42</td>
<td>24</td>
<td>—</td>
</tr>
<tr>
<td>45*</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>49*</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>79</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>51*</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>53*</td>
<td>120</td>
<td>110</td>
</tr>
<tr>
<td>57*</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>60</td>
<td>240</td>
<td>220</td>
</tr>
<tr>
<td>61</td>
<td>—</td>
<td>120</td>
</tr>
</tbody>
</table>

* Indicates voltages approved for solenoid operators designed for use in hazardous locations.

### Coils for P-Pilot Operated Valves

<table>
<thead>
<tr>
<th>Voltage Code **</th>
<th>Voltage</th>
<th>Coil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60Hz</td>
<td>50Hz</td>
</tr>
<tr>
<td>42</td>
<td>24</td>
<td>—</td>
</tr>
<tr>
<td>43</td>
<td>—</td>
<td>24</td>
</tr>
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<td>45</td>
<td>—</td>
<td>—</td>
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<tr>
<td>49</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>51</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>53</td>
<td>115</td>
<td>—</td>
</tr>
<tr>
<td>58</td>
<td>—</td>
<td>230</td>
</tr>
</tbody>
</table>

N □□□□□□□□□□□□□□** Voltage Code
**“N” Series Valves**

**Dimensions - Single Solenoid**

**Internal Pilot - 3/8” & 3/4” Basic Body**

---

### Exhaust Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

**NOTE:** For normal valve operation, override must be in “out” position.

---

**Dimensions**

<table>
<thead>
<tr>
<th>Key</th>
<th>3/8” Body</th>
<th>3/4” Body</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inch</td>
<td>mm</td>
</tr>
<tr>
<td>A</td>
<td>1.56</td>
<td>40</td>
</tr>
<tr>
<td>B</td>
<td>1.50</td>
<td>38</td>
</tr>
<tr>
<td>C</td>
<td>1.81</td>
<td>46</td>
</tr>
<tr>
<td>D</td>
<td>.56</td>
<td>14</td>
</tr>
<tr>
<td>E</td>
<td>3/8-16UNC</td>
<td>7/16” deep</td>
</tr>
<tr>
<td>F</td>
<td>1.75</td>
<td>44</td>
</tr>
<tr>
<td>G</td>
<td>1.50</td>
<td>38</td>
</tr>
<tr>
<td>H</td>
<td>5.92</td>
<td>150</td>
</tr>
<tr>
<td>J</td>
<td>3.19</td>
<td>81</td>
</tr>
<tr>
<td>K</td>
<td>1.88</td>
<td>47</td>
</tr>
<tr>
<td>N</td>
<td>1.44</td>
<td>37</td>
</tr>
<tr>
<td>P</td>
<td>7.36</td>
<td>196</td>
</tr>
<tr>
<td>Q</td>
<td>2.31</td>
<td>59</td>
</tr>
</tbody>
</table>

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**Service Kits**

Include all parts normally required for in-service maintenance:

- **3/8” Basic Valve with standard service L-Pilots**
- **3/8” Basic Valve with continuous duty L-Pilots**
- **3/4” Basic Valve with standard service L-Pilots**
- **3/4” Basic Valve with continuous duty L-Pilots**

---

**Key**

<table>
<thead>
<tr>
<th>Key</th>
<th>3/8” Valve</th>
<th>3/4” Valve</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>—</td>
<td>1/2” Tap</td>
<td>Body (N.C.)</td>
</tr>
<tr>
<td></td>
<td>K053022</td>
<td>K053076</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1/2” Tap</td>
<td>1” Tap</td>
<td></td>
</tr>
<tr>
<td></td>
<td>K053023</td>
<td>K053220</td>
<td></td>
</tr>
<tr>
<td>1A</td>
<td>—</td>
<td>3/4” Tap</td>
<td>Body (N.O.)</td>
</tr>
<tr>
<td></td>
<td>K053025</td>
<td>K053077</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1/2” Tap</td>
<td>1” Tap</td>
<td></td>
</tr>
<tr>
<td></td>
<td>K053026</td>
<td>K053218</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>K212001</td>
<td>K212002</td>
<td>Upper Piston Assy</td>
</tr>
<tr>
<td>3</td>
<td>H13648</td>
<td>H13728</td>
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<td>4</td>
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<td>U-Cup (3/8), O-Ring (3/4)</td>
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---

* Parts included in seal kit
### “N” Series Valves

#### External Pilot - 3/8" & 3/4" Basic Body

**Dimensions**

<table>
<thead>
<tr>
<th>Key</th>
<th>3/8&quot; Body</th>
<th>3/4&quot; Body</th>
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<tr>
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<td>inch</td>
<td>mm</td>
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<td>A</td>
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</tr>
<tr>
<td>R</td>
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</table>

**Service Kits**

Include all parts normally required for in-service maintenance:

- **3/8” Basic Valve with standard service L-Pilots**
  - K352076
- **3/8” Basic Valve with continuous duty L-Pilots**
  - K352276
- **3/4” Basic Valve with standard service L-Pilots**
  - K352077
- **3/4” Basic Valve with continuous duty L-Pilots**
  - K352277

**Exhaust Pressure**

Top view indicates flow through 3-Way valve with coil de-energized.

**NOTE:** For normal valve operation, override must be in “out” position.

---

**Key**

- **1**
  - Description: Body (N.C.)
  - 3/8" Tap K053019
  - 3/4" Tap K053069
  - 1/2" Tap K053157

- **1A**
  - Description: Body (N.O.)
  - 3/8" Tap K053018
  - 3/4" Tap K053070
  - 1/2" Tap K053064

**Part Numbers**

- **1**
  - K212001 K212002
  - 3" H13648 H13678
  - 4" K41RB72211 H13676
- **1A**
  - K212001 K212002
  - 3" H13648 H13678
  - 4" K41RB72211 H13676

*Parts included in seal kit*
“N” Series Valves

Internal Pilot - 1-1/4” Basic Body

Dimensions - Single Solenoid

Exhaust Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

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<thead>
<tr>
<th>Key</th>
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<td>2.31</td>
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<td>P</td>
<td>11.14</td>
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<td></td>
<td>283</td>
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<td></td>
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</tbody>
</table>

Service Kits

Include all parts normally required for in-service maintenance:

1-1/4” Basic Valve with standard service P-Pilot ...........K352078

Key | 1-1/4" Valve | Description
---|-------------|-------------
1  | 1" Tap       | Body (N.C.)
   | K053111      |             |
   | 1-1/4" Tap   |             |
   | K053112      |             |
   | 1-1/2" Tap   |             |
   | K053113      |             |

1A | 1" Tap       | Body (N.O.)
   | K053114      |             |
   | 1-1/4" Tap   |             |
   | K053115      |             |
   | 1-1/2" Tap   |             |
   | K053116      |             |

2  | K313029      | Upper Piston Assy
3" | H13752       | O-Ring
4" | H13728       | Seal

Key | 1-1/4" Valve | Description
---|-------------|-------------
5  | K493016      | Stem
6  | K313028      | Lower Piston
7" | H13728       | Seal
8  | H17817       | Washer
9  | H06338       | Stop Nut
10 | K092046      | Bottom Cap (N.C.)
10A| K103061      | Bottom Cap (N.O.)
11"| K183058      | Gasket
12 | K473016      | Spring
13 | K012003      | Adapter
14"| K41RB72143   | O-Ring

* Parts included in seal kit
"N" Series Valves  
Continuous Duty Pilot - 1-1/4" Basic Body

**Dimensions**

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<td>1</td>
<td>Body (N.C.)</td>
<td>1&quot; Tap K053111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-1/4&quot; Tap K053112</td>
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<td></td>
<td></td>
<td>1-1/2&quot; Tap K053113</td>
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<td>Body (N.O.)</td>
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<td>3</td>
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<td>H13752</td>
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<tr>
<td>4</td>
<td>Seal</td>
<td>H13728</td>
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**Service Kits**

Include all parts normally required for in-service maintenance:

1-1/4" Basic Valve with continuous duty L-Pilot.................K352080

**Exhaust Pressure**

Top view indicates flow through 3-Way valve with coil de-energized.

**NOTE:** For normal valve operation, override must be in "out" position.

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<td>Inch</td>
<td>mm</td>
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**Dimensions**

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<th>Key</th>
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<td>Stem</td>
</tr>
<tr>
<td>6</td>
<td>K313028</td>
<td>Lower Piston</td>
</tr>
<tr>
<td>7</td>
<td>H13728</td>
<td>Seal</td>
</tr>
<tr>
<td>8</td>
<td>H17817</td>
<td>Washer</td>
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<tr>
<td>9</td>
<td>H06338</td>
<td>Stop Nut</td>
</tr>
<tr>
<td>10</td>
<td>K092046</td>
<td>Bottom Cap (N.C.)</td>
</tr>
<tr>
<td>10A</td>
<td>K103061</td>
<td>Bottom Cap (N.O.)</td>
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<tr>
<td>11*</td>
<td>K183058</td>
<td>Gasket</td>
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<td>O-Ring</td>
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* Parts included in seal kit
“N” Series Valves

Dimensions - Remote Operated
Internal Return - 3/8", 3/4", 1-1/4" Basic Body

**Exhaust Pressure**

Top view indicates flow through 3-Way valve.

**NOTE:** For normal valve operation, override must be in "out" position.

### Dimensions

<table>
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<tr>
<th>Key</th>
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<td>59</td>
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</tbody>
</table>

**Key**

- 3/8" Valve
- 3/4" Valve
- 1-1/4" Valve

**Description**

- Body (N.O.)
- Body (N.C.)
- Upper Piston Assy
- Seal

**Service Kits**

Include all parts normally required for in-service maintenance:

- 3/8" Basic Valve .................. K352073
- 3/4" Basic Valve .................. K352074
- 1-1/4" Basic Valve .............. K352075

*Parts included in seal kit*
“N” Series Valves


**Exhaust Pressure**

Top view indicates flow through 3-Way valve.

**NOTE:** For normal valve operation, override must be in “out” position.

**Dimensions**

<table>
<thead>
<tr>
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<th>1-1/4&quot; Body</th>
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<td>14</td>
<td>.56</td>
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<td>3/8–16UNC</td>
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**Service Kits**

Include all parts normally required for in-service maintenance:

- 3/8" Basic Valve .................. K352031
- 3/4" Basic Valve .................. K352056
- 1-1/4" Basic Valve ............... K352083

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<td>H17813</td>
<td>H17817</td>
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* Parts included in seal kit
“N” Series Valves

Notes
1. GENERAL INSTRUCTIONS

1.1. Scop: This safety guide is designed to cover general guidelines on the installation, use, and maintenance of Pneumatic Division Valves, FRLs (Filters, Pressure Regulators, and Lubricators), Vacuum products and related accessory components.

1.2. Fail-Safe: Valves, FRLs, Vacuum products and their related components can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of associated valves, FRLs or Vacuum products will not endanger persons or property.


1.4. Distribution: Provide a copy of this safety guide to each person that is responsible for selection, installation, or use of Valves, FRLs or Vacuum products. Do not select, or use Parker valves, FRLs or vacuum products without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the products considered or selected.

1.5. User Responsibility: Due to the wide variety of operating conditions and applications for valves, FRLs, and vacuum products Parker and its distributors do not represent or warrant that any particular valve, FRL or vacuum product is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:
   - Making the final selection of the appropriate valve, FRL, Vacuum component, or accessory.
   - Assuring that all user’s performance, endurance, maintenance, safety, and warning requirements are met and that the application presents no health or safety hazards.
   - Complying with all existing warning labels and / or providing all appropriate health and safety warnings on the equipment on which the valves, FRLs or Vacuum products are used; and,
   - Assuring compliance with all applicable government and industry standards.

1.6. Safety Devices: Safety devices should not be removed, or defeated.

1.7. Warning Labels: Warning labels should not be removed, painted over or otherwise obscured.

1.8. Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the product being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2. PRODUCT SELECTION INSTRUCTIONS

2.1. Flow Rate: The flow rate requirements of a system are frequently the primary consideration when designing any pneumatic system. System components need to be able to provide adequate flow and pressure for the desired application.

2.2. Pressure Rating: Never exceed the rated pressure of a product. Consult product labeling, Pneumatic Division catalogs or the instruction sheets supplied for maximum pressure ratings.

2.3. Temperature Rating: Never exceed the temperature rating of a product. Excessive heat can shorten the life expectancy of a product and result in complete product failure.

2.4. Environment: Many environmental conditions can affect the integrity and suitability of a product for a given application. Pneumatic Division products are designed for use in general purpose industrial applications. If these products are to be used in unusual circumstances such as direct sunlight and/or corrosive or caustic environments, such use can shorten the useful life and lead to premature failure of a product.

2.5. Lubrication and Compressor Carryover: Some modern synthetic oils can and will attack nitrile seals. If there is any possibility of synthetic oils or greases migrating into the pneumatic components check for compatibility with the seal materials used. Consult the factory or product literature for materials of construction.

2.6. Polycarbonate Bowls and Sight Glasses: To avoid potential polycarbonate bowl failures:
   - Do not locate polycarbonate bowls or sight glasses in areas where they could be subject to direct sunlight, impact blow, or temperatures outside of the rated range.
   - Do not expose or clean polycarbonate bowls with detergents, chlorinated hydro-carbons, keytones, esters or certain alcohols.
   - Do not use polycarbonate bowls or sight glasses in air systems where compressors are lubricated with fire resistant fluids such as phosphate ester and di-ester lubricants.
2.7. Chemical Compatibility: For more information on plastic component chemical compatibility see Pneumatic Division technical bulletins Tec-3, Tec-4, and Tec-5

2.8. Product Rupture: Product rupture can cause death, serious personal injury, and property damage. 
   - Do not connect pressure regulators or other Pneumatic Division products to bottled gas cylinders.
   - Do not exceed the maximum primary pressure rating of any pressure regulator or any system component.
   - Consult product labeling or product literature for pressure rating limitations.

3. PRODUCT ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1. Component Inspection: Prior to assembly or installation a careful examination of the valves, FRLs or vacuum products must be performed. All components must be checked for correct style, size, and catalog number. DO NOT use any component that displays any signs of nonconformance.

3.2. Installation Instructions: Parker published Installation Instructions must be followed for installation of Parker valves, FRLs and vacuum components. These instructions are provided with every Parker valve or FRL sold, or by calling 1-800-CPARKER, or at www.parker.com.

3.3. Air Supply: The air supply or control medium supplied to Valves, FRLs and Vacuum components must be moisture-free if ambient temperature can drop below freezing.

4. VALVE AND FRL MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1. Maintenance: Even with proper selection and installation, valve, FRL and vacuum products service life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a component failure, and experience with any known failures in the application or in similar applications should determine the frequency of inspections and the servicing or replacement of Pneumatic Division products so that products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.10.

4.2. Installation and Service Instructions: Before attempting to service or replace any worn or damaged parts consult the appropriate Service Bulletin for the valve or FRL in question for the appropriate practices to service the unit in question. These Service and Installation Instructions are provided with every Parker valve and FRL sold, or are available by calling 1-800-CPARKER, or by accessing the Parker web site at www.parker.com.


4.4. Visual Inspection: Any of the following conditions requires immediate system shut down and replacement of worn or damaged components:
   - Air leakage: Look and listen to see if there are any signs of visual damage to any of the components in the system. Leakage is an indication of worn or damaged components.
   - Damaged or degraded components: Look to see if there are any visible signs of wear or component degradation.
   - Kinked, crushed, or damaged hoses. Kinked hoses can result in restricted air flow and lead to unpredictable system behavior.
   - Any observed improper system or component function: Immediately shut down the system and correct malfunction.
   - Excessive dirt build-up: Dirt and clutter can mask potentially hazardous situations.

Caution: Leak detection solutions should be rinsed off after use.

4.5. Routine Maintenance Issues:
   - Remove excessive dirt, grime and clutter from work areas.
   - Make sure all required guards and shields are in place.

4.6. Functional Test: Before initiating automatic operation, operate the system manually to make sure all required functions operate properly and safely.

4.7. Service or Replacement Intervals: It is the user’s responsibility to establish appropriate service intervals. Valves, FRLs and vacuum products contain components that age, harden, wear, and otherwise deteriorate over time. Environmental conditions can significantly accelerate this process. Valves, FRLs and vacuum components need to be serviced or replaced on routine intervals. Service intervals need to be established based on:
   - Previous performance experiences.
   - Government and / or industrial standards.
   - When failures could result in unacceptable down time, equipment damage or personal injury risk.

4.8. Servicing or Replacing of any Worn or Damaged Parts: To avoid unpredictable system behavior that can cause death, personal injury and property damage:
   - Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
   - Disconnect air supply and depressurize all air lines connected to system and Pneumatic Division products before installation, service, or conversion.
   - Installation, servicing, and / or conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
   - After installation, servicing, or conversions air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or if the product does not operate properly, do not put product or system into use.
   - Warnings and specifications on the product should not be covered or painted over. If masking is not possible, contact your local representative for replacement labels.

4.9. Putting Serviced System Back into Operation: Follow the guidelines above and all relevant Installation and Maintenance Instructions supplied with the valve FRL or vacuum component to insure proper function of the system.
1. Terms and Conditions. Seller’s willingness to offer Products for sale or as a substitute for any order for Products is subject to the terms and conditions contained in this Offer of Sale or any previous or contemporaneous version of the same, published by Seller electronically at www.parker.com/salesagreement or any other website or document issued by Seller. Seller reserves the right to change prices or terms of conditions of Buyer’s order or any other document or other communication issued by Buyer.

2. Price; Payment. Prices stated on Seller’s Quote are valid for thirty (30) days, except as flexibly stated therein, and do not include any sales, use, or other taxes or duties levied by any taxing authority. Buyer accepts and agrees to modify prices according to any raw material price fluctuations. Unless specifically stated by Seller, all prices are F.C.A. Seller’s facility (INCOTERMS 2010). Payment is subject to credit approval and payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in any applicable Sales Agreement). Unless otherwise specified, interest will accrue at the rate of 1.5% per month or the maximum allowable rate under applicable law.

3. Shipment; Title; and Risk of Loss. All delivery dates are approximate. Seller is not responsible for damages resulting from any delay. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the shipment carrier at Seller’s facility. Unless otherwise stated, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyer’s request, prior to the respective dates indicated will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and expense by reason thereof, and Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer’s acts or omissions.

4. Warranty. Seller warrants that the Products sold hereunder shall be free from defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of normal use of the Products, whichever occurs first. All sales are final, no returns or exchanges are permitted. This warranty will not apply if the Products are altered, modified, tampered with, or used in violation of Seller’s specifications. This warranty is exclusive and in lieu of all other warranties expressed or implied, including any warranty of merchantability or fitness for a particular purpose. Neither Seller nor any employee of Seller shall be liable for any personal injury, property damage, or any other loss or damage of any kind, whether direct, indirect, special, exemplary, incidental, or consequential, arising from the use of the Products, except to the extent that Seller is found legally responsible.

5. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon delivery. No claims for shortages will be allowed unless reported to the Seller within ten (10) days of delivery. No other claims against Seller will be allowed unless asserted in writing within thirty (30) days after delivery. Buyer shall notify Seller of any alleged breach within thirty (30) days after the alleged breach is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including fault, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

6. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS SOLD HEREUNDER, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER’S WRITTEN CONSENT, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER’S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.

7. User Responsibility. The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

8. Loss to Buyer’s Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer’s property, will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the items manufactured using such property. Seller shall not be responsible for any loss or damage to such property while in the possession of Seller. This provision will survive the termination or expiration of the agreement.

9. Special Tooling. Tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. Such special tooling shall be and remain Seller’s property notwithstanding payment of any tooling charge. The tool event will Buyer’s property, but the ownership of tools to Seller which is utilized in the manufacture of the Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

10. Buyer’s Obligations; Rights of Seller. To secure payment of all sums due or otherwise, Seller retains a security interest in all Products delivered to Buyer and this agreement is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer will make all payments to Seller in accordance with Seller’s handbook at all times. Seller deems necessary to perfect its security interest.

11. Improper Use and Indemnity. Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, by Buyer’s employees, or any other person, arising out of: (a) improper selection, application or misuse of Products or terms or conditions of Buyer’s order; or (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller’s use of patterns, drawings, or specifications furnished by Buyer to manufacture Products; or (d) Buyer’s failure to comply with these terms and conditions, Seller shall not indemnify Buyer due to Buyer’s failure to provide reasonable care and exercise reasonable skill under the circumstances.

12. Cancellations and Changes. Buyer may not cancel or modify or cancel any order for any reason, except with Seller’s written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller may change Product features, specifications, designs and availability at any time, without notice.

13. Limitation on Assignment. Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

14. Force Majeure. Seller does not assume the risk and is not liable for delay or failure to perform due to causes beyond its reasonable control (hereinafter “Events of Force Majeure”). Events of Force Majeure shall include without limitation; accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller’s reasonable control.

15. Waiver and Severability. Failure to enforce any provision of this agreement will not invalidate that provision; nor will any such failure prejudice Seller’s right to the full exercise of its rights in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

16. Termination. Seller may terminate this agreement for any reason and at any time, with thirty (30) days prior notice. Seller may also terminate this agreement, in writing, if Buyer: (a) breaches any provision of this agreement (b) appoints a trustee, receiver or custodian for all or any part of Buyer’s property (c) files a petition for relief in bankruptcy on its own behalf, or if filed by a third party (d) makes an assignment for the benefit of creditors; or (e) dissolves its business or liquidates all or a majority of its assets.

17. Governing Law. This agreement and the sale and delivery of all Products are governed by the laws of the State of Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement. This agreement shall be interpreted in accordance with the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio in respect to any dispute, controversy or claim arising out of or relating to this agreement.

18. Indemnity for Infringement of Intellectual Property Rights. Buyer is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Section by Buyer. Seller will defend and hold Buyer harmless against any allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (“Intellectual Property Rights”). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that a Product sold pursuant to this agreement infringes the Intellectual Property Rights of a third party. Seller’s obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such infringement or of any negotiations of infringement. Buyer shall have sole control over the defense of any such infringement allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller will not be liable for any expense and will not be required to provide Buyer with a replacement Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and refund the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller is not liable for claims of infringement based on information provided by Buyer, or directed to Products delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any Product sold hereunder.

19. Entire Agreement. This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged. The terms contained herein may not be modified unless in writing and signed by an authorized representative of Seller.

20. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations and industry and professional standards of care, knowledge and understanding of the laws of the United Kingdom, the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.K. Bribery Act, the U.S. Foreign Corrupt Practices Act (“FCPA”), the U.S. Anti-Kickback Act (“AKA”) and the U.S. Food and Drug and Cosmetic Act (“FDCA”), each as currently amended, and the rules and regulations promulgated by the U.S. Food and Drug Administration (“FDA”), and agrees to indemnify and hold harmless Seller from the consequences of any violation of such provisions by the Buyer, Buyer’s employees, or any other person, acting on behalf of Seller or Buyer, or any other person, arising out of the U.K. Bribery Act, the FCPA, the FDA, and the Anti-Kickback Act, and certifies that Buyer will adhere to the requirements thereof. In particular, Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly to any government official, any foreign public officer or official thereof, any representative of foreign political office, or any commercial entity or person, for the purpose of influencing such person to purchase Products or otherwise benefit the Seller.