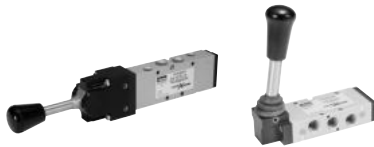


## Pneumatic Valve Products Manual / Mechanical Series



### Directair 2 / Directair 4 Series

|  |        |
|--|--------|
| Features                                   | E2     |
| Common Part Numbers / Ordering Information | E3-E6  |
| Technical Data                             | E7-E8  |
| Dimensional Data                           | E9-E13 |



### Viking Xtreme Lever Series

|  |          |
|--|----------|
| Features                                   | E14      |
| Common Part Numbers / Ordering Information | E15-E16  |
| Accessories                                | E17      |
| Dimensional Data                           | E17a-E20 |



### 42 Lever / Pedal Series

|  |     |
|--|-----|
| Features                                   | E21 |
| Common Part Numbers / Ordering Information | E22 |
| Dimensional Data                           | E23 |



### MO Series

|  |         |
|--|---------|
| Features                                   | E24     |
| Common Part Numbers / Ordering Information | E25-E27 |
| Accessories                                | E28     |
| Technical Data                             | E29-E35 |
| Dimensional Data                           | E36-E51 |



### Safety

|                  |         |
|------------------|---------|
| Lockout Valves   | E52-E59 |
| Two Hand Control | E60-E61 |



### Brass Poppet / Sliding Seal

|                            |         |
|----------------------------|---------|
| PL / VL Series             | E62-E63 |
| HV Series                  | E64     |
| Sliding Seal Valves        | E65     |
| Button Operated Valves     | E66     |
| Hand / Cam Operated Valves | E67     |
| Bleed Valves               | E68     |



### Control Panel Products

|                              |         |
|------------------------------|---------|
| Features                     | E69     |
| Accessories                  | E70-E73 |
| Technical / Dimensional Data | E74-E76 |



### Sensing Products, Limit Switches

|                              |         |
|------------------------------|---------|
| Features                     | E77     |
| Technical / Dimensional Data | E81-E85 |

Features

**Directair 2 & 4 Series**

**Directair 2, 1/8" valves**  
Poppet style – .17 Cv

- Economical
- 3-way normally closed function

**Directair 2, 1/8" valves**  
Packed bore style – .20 Cv

- Stainless steel spool
- Fluorocarbon o-rings
- 3-way & 4-way

**Directair 4, 1/4" valves**  
Packed bore style – .83 Cv

- Stainless steel spool
- Fluorocarbon o-rings
- 3-way & 4-way

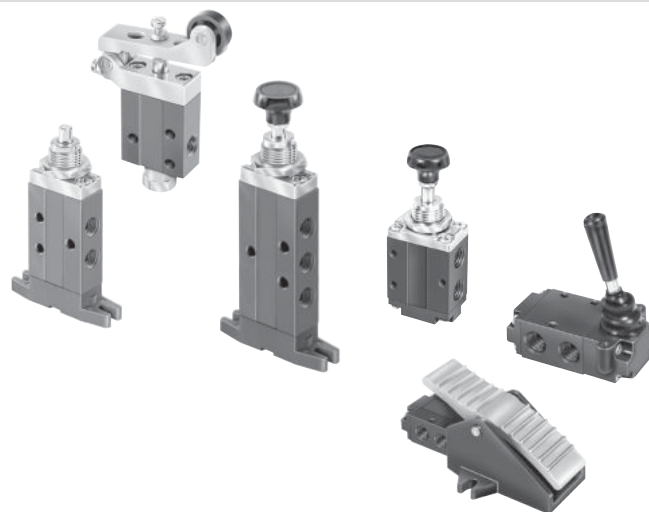
**Material specifications**

|                            |                    |
|----------------------------|--------------------|
| Body and operator housings | Aluminum extrusion |
| Bushings and pilot piston  | Brass              |
| Dynamic seals              | Fluorocarbon       |
| Operator o-rings, u-cups   | Buna (nitrile)     |
| Poppet ball                | Nylon              |
| Spacers - Directair 2      | Aluminum           |
| Spacers - Directair 4      | Zinc die cast      |
| Spool                      | Stainless steel    |

**Flow Rating (Cv)**

| Flow Path          | Direct Pipe Spool, 1/8" Ports | Direct Pipe Poppet, 1/8" Ports |
|--------------------|-------------------------------|--------------------------------|
| <b>Directair 2</b> |                               |                                |
| 1 → 2              | .199                          | .125                           |
| 1 → 4              | .191                          | —                              |
| 2 → 3              | .192                          | .215                           |
| 4 → 5              | .212                          | —                              |
| Avg.               | .199                          | N/A                            |
| <b>Directair 4</b> |                               |                                |
| 1 → 2              | .82                           | .64                            |
| 1 → 4              | .84                           | .66                            |
| 2 → 3              | .84                           | .63                            |
| 4 → 5              | .83                           | .63                            |
| Avg.               | .83                           | .64                            |

 Most popular.



**Operating information**

|                    |   |
|--------------------|---|
| Operating pressure | Vacuum to 150 PSI<br>(28 inHg to 1035 kPa)* |
| Temperature range  | 32°F to 175°F (0°C to 80°C)                 |

\* Poppet valves cannot be used for vacuum. Minimum operating pressure = 0 PSIG.

**CAUTION:**  
If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.

**Lubrication**

For maximum service life use clean, lubricated air. Valves are shipped pre-lubricated and can be operated without additional lubrication with reduced service life.

**Suggested Lubricant**

F442 Oil

**Mechanically operated actuating forces in lbs. 1/4" Directair 4 valves**

|                 | 2-Position Spring Return | 2-Position Manual Return | 3-Position Spring Return | 3-Position Manual Return |
|-----------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Button Actuator | 13.0                     | 2.0                      | 13.0                     | N/A                      |
| Roller Actuator | 13.0                     | N/A                      | N/A                      | N/A                      |
| Lever Actuator  | 4.0                      | 2.0                      | 4.0                      | 2.5                      |

Notes: N/A = Not Applicable  
All valves are at 100 PSIG inlet pressure to the valve.

Directair 2 & 4 Series

Viking Xtreme Lever Series

42 Lever / Pedal Series

MO Series

Safety



Manual / Mechanical Valves

Brass Poppet / Sliding Seal

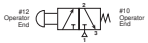
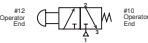
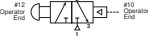

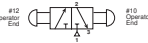
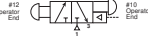
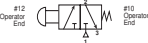


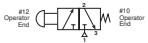
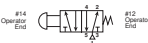
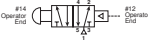


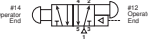

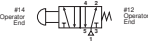
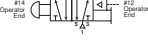

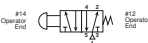
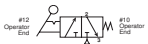
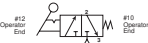



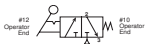
Control Panel Products

Sensing



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**3-way & 4-way Valves**

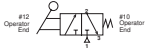
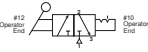
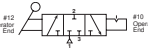
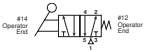
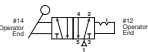




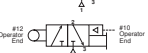

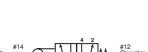
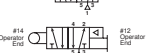



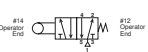
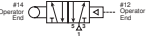

|   | Symbol  | Port size   | Cv   | Description          | Valve type                         | Part number                        |                  |                  |
|---|---|---|------|----------------------|------------------------------------|------------------------------------|------------------|------------------|
| <br><br><br><br><br><br><br><br> |    | 1/8"  | .17  | 3-way, spring return | Poppet                             | <b>404411000</b>                   |                  |                  |
|   |   |   | 1/8" | .20                  | 3-way, spring return               | Spool                              | <b>414411000</b> |                  |
|   |   |   | 1/8" | .20                  | 3-way, spring return, foot mounted | Spool                              | <b>414421000</b> |                  |
|   |   |   | 1/8" | .20                  | 3-way, pilot return                | Spool                              | <b>414451000</b> |                  |
|   |   |   | 1/8" | .20                  | 3-way, manual return               | Spool                              | <b>414931000</b> |                  |
|   |   |   | 1/8" | .20                  | 3-way, manual return, foot mounted | Spool                              | <b>414941000</b> |                  |
|   |   |   | 1/8" | .20                  | 3-way, manual or pilot return      | Spool                              | <b>414951000</b> |                  |
|   |   |   | 1/4" | .83                  | 3-way, spring return               | Spool                              | <b>524411000</b> |                  |
|   |   |   | 1/4" | .83                  | 3-way, pilot return                | Spool                              | <b>524451000</b> |                  |
|   |   |   | 1/4" | .83                  | 3-way, manual return               | Spool                              | <b>524431000</b> |                  |
|   | <br><br><br><br><br><br><br><br> |  | 1/8" | .20                  | 4-way, spring return               | Spool                              | <b>410411000</b> |                  |
|   |   |   |      | 1/8"                 | .20                                | 4-way, spring return, foot mounted | Spool            | <b>410421000</b> |
|   |   |   | 1/8" | .20                  | 4-way, pilot return                | Spool                              | <b>410451000</b> |                  |
|   |   |   | 1/8" | .20                  | 4-way, manual return               | Spool                              | <b>410931000</b> |                  |
|   |   |   | 1/8" | .20                  | 4-way, manual return, foot mounted | Spool                              | <b>410941000</b> |                  |
|   |   |   | 1/8" | .20                  | 4-way, manual or pilot return      | Spool                              | <b>410951000</b> |                  |
|   |   |   | 1/4" | .83                  | 4-way, spring return               | Spool                              | <b>520411000</b> |                  |
|   |   |   | 1/4" | .83                  | 4-way, pilot return                | Spool                              | <b>520451000</b> |                  |
|   |   |   | 1/4" | .83                  | 4-way, manual return               | Spool                              | <b>520431000</b> |                  |
| <br><br><br><br>   |   |  | 1/8" | .17                  | 3-way, spring return               | Poppet                             | <b>404811000</b> |                  |
|   |   |   |      | 1/8"                 | .20                                | 3-way, spring return               | Spool            | <b>414811000</b> |
|   |   |   |      | 1/8"                 | .20                                | 3-way, spring return, foot mounted | Spool            | <b>414821000</b> |
|   |   |   | 1/8" | .20                  | 4-way, spring return               | Spool                              | <b>410811000</b> |                  |
|   |   |   | 1/8" | .20                  | 4-way, spring return, foot mounted | Spool                              | <b>410821000</b> |                  |

|   |
|---|
| Directair 2 & 4 Series  |
| Viking Xtreme Lever Series  |
| 42 Lever / Pedal Series   |
| M0 Series   |
| Safety  |
|  |
| Manual / Mechanical Valves  |
| Brass Poppet / Sliding Seal   |
| Control Panel Products  |
| Sensing   |



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)



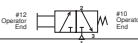

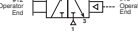

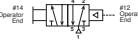


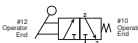
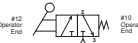
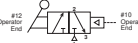

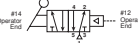


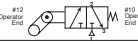
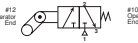
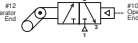
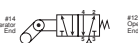


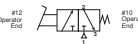


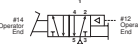

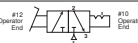
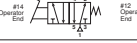
3-way & 4-way Valves

|  | Symbol  | Port size  | Cv                                 | Description                                   | Valve type           | Part number |
|--|---|--|------------------------------------|---|----------------------|-------------|
| Directair 2 & 4 Series<br>Viking Xtreme Lever Series<br>42 Lever / Pedal Series<br>MO Series<br>Safety<br>Manual / Mechanical Valves |    | 1/4"   | .83                                | 3-way, spring return                          | Spool                | 524811000   |
|  |    | 1/4"   | .83                                | 3-way, manual return                          | Spool                | 524831000   |
|  |    | 1/4"   | .83                                | 3-way, 3-Position detented, all ports blocked | Spool                | 523831000   |
|  |    | 1/4"   | .83                                | 4-way, spring return                          | Spool                | 520811000   |
|  |    | 1/4"   | .83                                | 4-way, manual return                          | Spool                | 520831000   |
|  |    | 1/4"   | .83                                | 4-way, spring centered, closed center         | Spool                | 521811000   |
|  |    | 1/4"   | .83                                | 4-way, spring centered, pressure center       | Spool                | 522811000   |
|  |    | 1/4"   | .83                                | 4-way, spring centered, exhaust center        | Spool                | 529811000   |
|  |    | 1/4"   | .83                                | 4-way, detented, closed center                | Spool                | 521831000   |
|  |    | 1/4"   | .83                                | 4-way, detented, pressure center              | Spool                | 522831000   |
|  |    | 1/4"   | .83                                | 4-way, detented, exhaust center               | Spool                | 529831000   |
|  | Roller operated<br>Brass Poppet / Sliding Seal<br>Control Panel Products<br>Sensing |  | 1/8"                               | .20   | 3-way, spring return | Poppet      |
|   |   | 1/8"   | .20                                | 3-way, spring return                          | Spool                | 414211000   |
|   |   | 1/8"   | .20                                | 3-way, spring return, foot mounted            | Spool                | 414221000   |
|   |   | 1/8"   | .20                                | 3-way, pilot return                           | Spool                | 414251000   |
|   |   | 1/8"   | .20                                | 4-way, spring return                          | Spool                | 410211000   |
|   |   | 1/8"   | .20                                | 4-way, spring return, foot mounted            | Spool                | 410221000   |
|   |   | 1/8"   | .20                                | 4-way, pilot return                           | Spool                | 410251000   |
|   |   | 1/4"   | .83                                | 3-way, spring return, delrin roller           | Spool                | 524211000   |
|   |   | 1/4"   | .83                                | 3-way, pilot return, delrin roller            | Spool                | 524251000   |
|   |   | 1/4"   | .83                                | 3-way, spring return, steel roller            | Spool                | 524A11000   |
|   |   | 1/4"   | .83                                | 3-way, pilot return, steel roller             | Spool                | 524A51000   |
|   |   | 1/4"   | .83                                | 4-way, spring return, delrin roller           | Spool                | 520211000   |
|   | 1/4"  | .83  | 4-way pilot return, delrin roller  | Spool   | 520251000            |             |
|   | 1/4"  | .83  | 4-way, spring return, steel roller | Spool   | 520A11000            |             |
|   | 1/4"  | .83  | 4-way, pilot return, steel roller  | Spool   | 520A51000            |             |



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**3-way & 4-way Valves**

|   | Symbol  | Port size   | Cv   | Description                        | Valve type                         | Part number      |                  |
|---|---|---|------|------------------------------------|------------------------------------|------------------|------------------|
| <b>Plunger operated</b><br><br><br><br>             |    | 1/8"  | .17  | 3-way, spring return               | Poppet                             | <b>404111000</b> |                  |
|   |   | 1/8"  | .20  | 3-way, spring return               | Spool                              | <b>414111000</b> |                  |
|   |    | 1/8"  | .20  | 3-way, spring return, foot mounted | Spool                              | <b>414121000</b> |                  |
|   |    | 1/8"  | .20  | 3-way, pilot return                | Spool                              | <b>414151000</b> |                  |
|   |   | 1/8"  | .17  | 4-way, spring return               | Spool                              | <b>410111000</b> |                  |
|   |    | 1/8"  | .20  | 4-way, spring return, foot mounted | Spool                              | <b>410121000</b> |                  |
|   |    | 1/8"  | .20  | 4-way, pilot return                | Spool                              | <b>410151000</b> |                  |
|   | <b>Hand lever operated</b><br><br><br><br> |    | 1/8" | .17                                | 3-way, spring return               | Poppet           | <b>404711000</b> |
|   |   |   | 1/8" | .20                                | 3-way, spring return               | Spool            | <b>414711000</b> |
|   |   |    | 1/8" | .20                                | 3-way, spring return, foot mounted | Spool            | <b>414721000</b> |
|    |   | 1/8"  | .20  | 3-way, pilot return                | Spool                              | <b>414751000</b> |                  |
|   |   | 1/8"  | .20  | 4-way, spring return               | Spool                              | <b>410711000</b> |                  |
|    |   | 1/8"  | .20  | 4-way, spring return, foot mounted | Spool                              | <b>410721000</b> |                  |
|    |   | 1/8"  | .20  | 4-way, pilot return                | Spool                              | <b>410751000</b> |                  |
| <b>One way tripper operated</b><br><br><br><br> |   |  | 1/8" | .17                                | 3-way, spring return               | Poppet           | <b>404311000</b> |
|   |   |   | 1/8" | .20                                | 3-way, spring return               | Spool            | <b>414311000</b> |
|   |   |  | 1/8" | .20                                | 3-way, spring return, foot mounted | Spool            | <b>414321000</b> |
|   |    | 1/8"  | .20  | 3-way, pilot return                | Spool                              | <b>414351000</b> |                  |
|   |   | 1/8"  | .20  | 4-way, spring return               | Spool                              | <b>414311000</b> |                  |
|   |    | 1/8"  | .20  | 4-way, spring return, foot mounted | Spool                              | <b>414321000</b> |                  |
|   |    | 1/8"  | .20  | 4-way, pilot return                | Spool                              | <b>414351000</b> |                  |
|   | <b>Pedal operated</b><br><br>  |  | 1/4" | .83                                | 3-way, spring return               | Spool            | <b>524711000</b> |
|   |   |  | 1/4" | .83                                | 3-way, pilot return                | Spool            | <b>524751000</b> |
|   |   |  | 1/4" | .83                                | 4-way, spring return               | Spool            | <b>520711000</b> |
|    |   | 1/4"  | .83  | 4-way, pilot return                | Spool                              | <b>520751000</b> |                  |
| <p><b>CAUTION:</b><br/> <i>This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.</i></p>  |   |   |      |                                    |                                    |                  |                  |
| <b>Treadle operated</b><br><br>  |    | 1/4"  | .83  | 3-way, treadle operated, detented  | Spool                              | <b>524931000</b> |                  |
|   |    | 1/4"  | .83  | 4-way, treadle operated, detented  | Spool                              | <b>520931000</b> |                  |
| <p><b>CAUTION:</b><br/> <i>This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.</i></p>  |   |   |      |                                    |                                    |                  |                  |

|                             |
|-----------------------------|
| Directair 2 & 4 Series      |
| Viking Xtreme Lever Series  |
| 42 Lever / Pedal Series     |
| M0 Series                   |
| Safety                      |
| <b>E</b>                    |
| Manual / Mechanical Valves  |
| Brass Poppet / Sliding Seal |
| Control Panel Products      |
| Sensing                     |



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Ordering Information

Directair 2

41 0 1 1 1 000

| Basic Series           |     |
|------------------------|-----|
| 1/8" Port Poppet Valve | 40* |
| 1/8" Port Spool Valve  | 41  |

\* Only available in Spring Return.

| Manual / Mechanical |          |
|---------------------|----------|
| 000                 | Standard |

| Type                    |    |
|-------------------------|----|
| 4-Way, 2-Position Valve | 0* |
| 3-Way, 2-Position       | 4  |

\* N/A with Basic Series 40.

| Mounting |                          |
|----------|--------------------------|
| 1        | Direct Pipe Ported, NPT  |
| K        | Direct Pipe Ported, BSPP |

| Actuation              |    |
|------------------------|----|
| Plunger                | 1  |
| Roller - Delrin        | 2  |
| One-Way Tripper        | 3  |
| Button - Spring Return | 4  |
| Hand Lever             | 7  |
| Toggle                 | 8  |
| Button - Push-Pull     | 9* |

\* N/A with Basic Series 40.

| Return |                                    |
|--------|------------------------------------|
| 1†     | Spring                             |
| 2†     | Spring w/ Foot Mount               |
| 3†     | None (Manual Return)               |
| 4†     | None (Manual Return w/ Foot Mount) |
| 5†     | Remote Pilot Return                |

\* Available only with Actuation 9.

† N/A with Actuation 8.

Directair 4

52 0 8 1 1 000

| Basic Series          |    |
|-----------------------|----|
| 1/4" Port Spool Valve | 52 |

| Manual / Mechanical |          |
|---------------------|----------|
| 000                 | Standard |

| Type                               |    |
|------------------------------------|----|
| 4-Way, 2-Position Valve            | 0  |
| 4-Way, 3-Position, Closed Center   | 1* |
| 4-Way, 3-Position, Pressure Center | 2* |
| 3-Way, 3-Position, Closed Center   | 3* |
| 3-Way, 2-Position, Normally Closed | 4  |
| 3-Way, 2-Position, Normally Open   | 6  |
| 4-Way, 3-Position, Exhaust Center  | 9* |

\* Only Available with Actuation 8 Lever.

| Mounting |                          |
|----------|--------------------------|
| 1        | Direct Pipe Ported, NPT  |
| L        | Direct Pipe Ported, BSPP |

| Return |                      |
|--------|----------------------|
| 1††    | Spring               |
| 3†     | None (Manual Return) |
| 5†     | Remote Pilot Return  |

\* N/A with Actuation 8 & 9.

† N/A with Actuation 2, 7 or A.

†† N/A with Actuation 9.

| Actuation       |   |
|-----------------|---|
| Roller - Delrin | 2 |
| Button          | 4 |
| Pedal           | 7 |
| Lever           | 8 |
| Treadle         | 9 |
| Roller - Metal  | A |

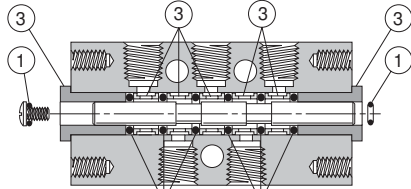


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

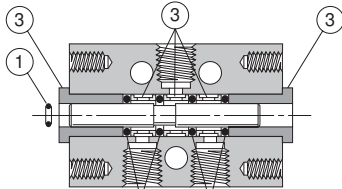


**Service kits – 1/8 port size valves (DA2)**

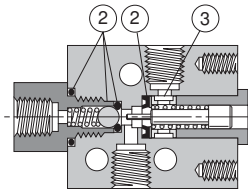
|   |   |                  |
|---|---|------------------|
| ① | Spool valve seal kit<br>(3 & 4-way, direct pipe ported) | <b>410008000</b> |
| ② | Poppet valve seal kit                                   | <b>404118000</b> |
| ③ | Body service kit  | <b>410008005</b> |



4-Way Spool



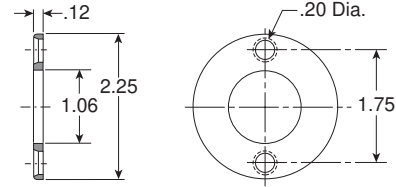
3-Way Spool



3-Way Poppet

**Panel Mounting Kit – No. 520838004**

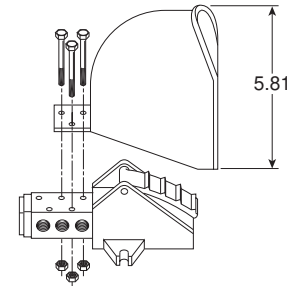
Available for panel mounting direct pipe ported, lever operated 1/4" Directair 4 Series valves only. Kit includes a flange and two screws.



**Pedal Guard Kit – No. 520718001**

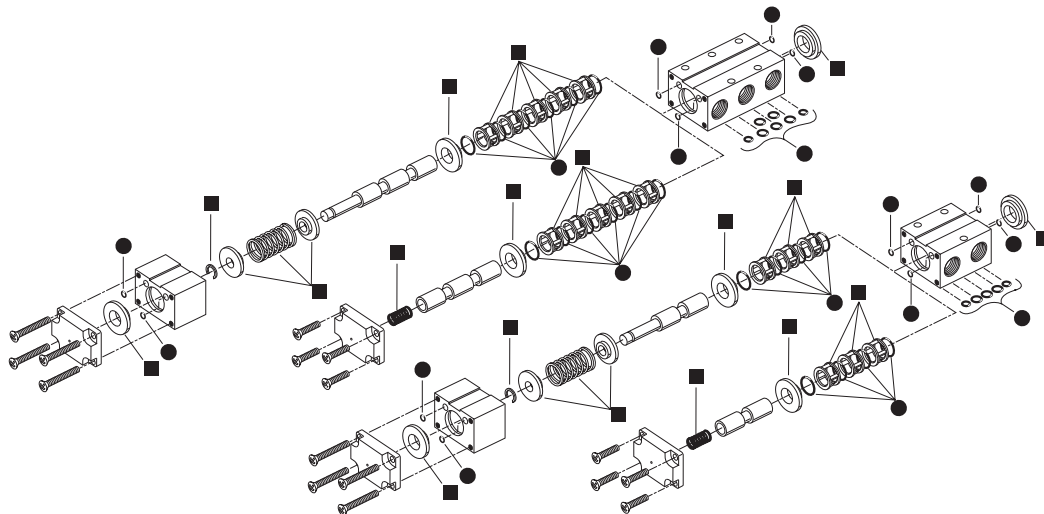
Pedal guard meets safety requirements for foot operated valves by protecting pedal from accidental tripping from all angles. Guard is constructed of lightweight aluminum casting for strength and durability. Bolts quickly into place with only three screws without special valve mounting. One model fits any pedal (not treadle) operated 1/4" Directair 4 Series valve.

**CAUTION:**  
 This valve shall not be used to actuate a punch press.  
 Do not use this valve on punch presses or press brakes.  
 See OSHA 1910.217.



**Service kits – 1/4 port size valves (DA4)**

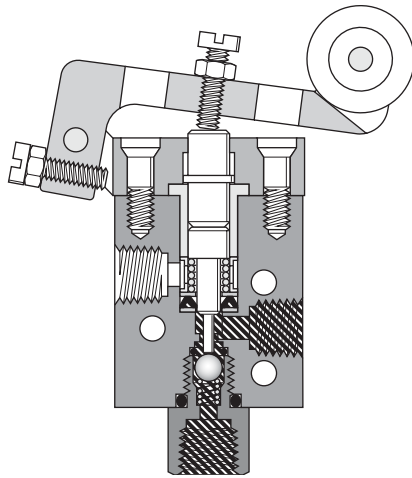
|   |  |                  |
|---|--|------------------|
| ● | <b>Valve seal kit</b><br>(Contains all soft seals found in 3 & 4-way bodies and all actuator styles.)              | <b>520008050</b> |
|   | All fluorocarbon   | <b>520008500</b> |
| ■ | <b>Body service kit</b><br>(Contains bushing, springs, retainers and shell from 2 & 3-position, 3 & 4-way bodies.) | <b>520018005</b> |



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

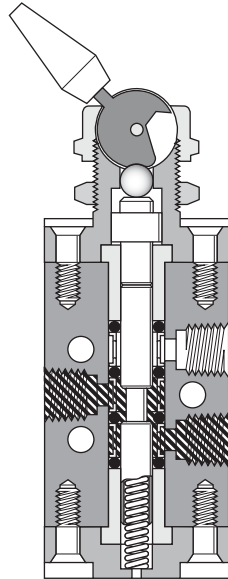
|                        |                            |                         |           |        |  |                            |                             |                        |         |
|------------------------|----------------------------|-------------------------|-----------|--------|--|----------------------------|-----------------------------|------------------------|---------|
| Directair 2 & 4 Series | Viking Xtreme Lever Series | 42 Lever / Pedal Series | MO Series | Safety |  | Manual / Mechanical Valves | Brass Poppet / Sliding Seal | Control Panel Products | Sensing |
|------------------------|----------------------------|-------------------------|-----------|--------|--|----------------------------|-----------------------------|------------------------|---------|



**Roller Operated Poppet**



**Button Operated**



**Toggle Operated Spool**



**Lever Operated**



**Treadle Operated**

 Pressure     Exhaust

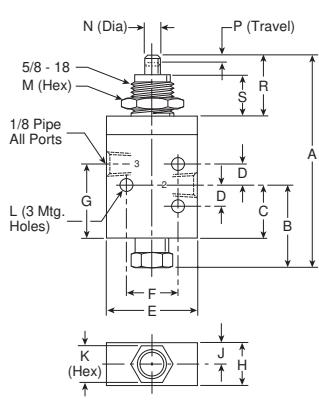


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

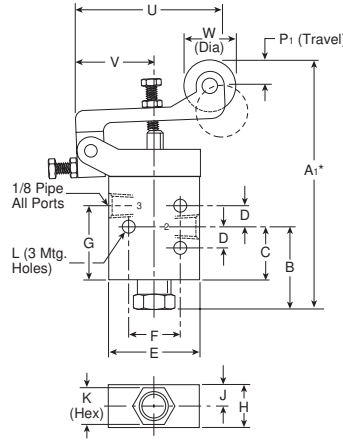


**Plunger, Roller, One-way Tripper & Toggle Operated — 3-Way, 3-Port, 2-Position – 1/8" Ports**

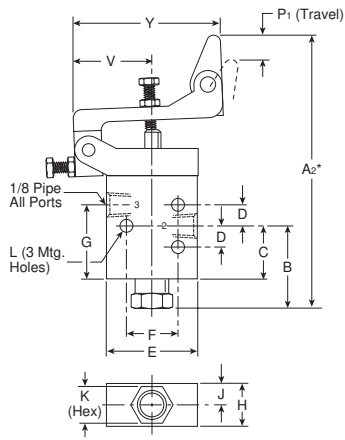
**Plunger Operated**



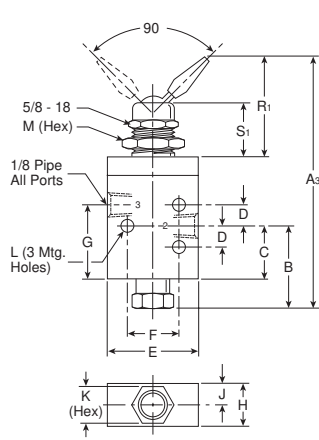
**Roller Operated**



**One-Way Tripper Operated**



**Toggle Operated**



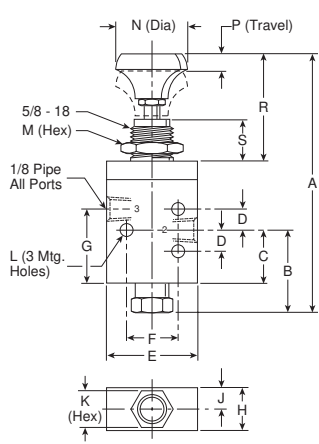
**3-Way, 3-Port, 2-Position**

|              |               |               |               |              |
|--------------|---------------|---------------|---------------|--------------|
| <b>A</b>     | <b>A1*</b>    | <b>A2*</b>    | <b>A3</b>     | <b>B</b>     |
| 3.37<br>(86) | 4.21<br>(107) | 4.46<br>(113) | 3.99<br>(101) | 1.03<br>(26) |
| <b>C</b>     | <b>D</b>      | <b>E</b>      | <b>F</b>      | <b>G</b>     |
| .55<br>(14)  | .31<br>(8)    | 1.31<br>(33)  | .75<br>(19)   | .90<br>(23)  |
| <b>H</b>     | <b>J</b>      | <b>K</b>      | <b>L</b>      | <b>M</b>     |
| .62<br>(16)  | .31<br>(8)    | .56<br>(14)   | .19<br>(5)    | .88<br>(22)  |
| <b>N</b>     | <b>P</b>      | <b>P1</b>     | <b>R</b>      | <b>R1</b>    |
| .25<br>(6)   | .17<br>(4)    | .38<br>(10)   | .91<br>(23)   | 1.53<br>(39) |
| <b>S</b>     | <b>S1</b>     | <b>U</b>      | <b>V</b>      | <b>W</b>     |
| .62<br>(16)  | .78<br>(20)   | 2.28<br>(58)  | 1.19<br>(30)  | .75<br>(19)  |
| <b>X</b>     | <b>Y</b>      |               |               |              |
| .19<br>(5)   | 2.19<br>(56)  |               |               |              |

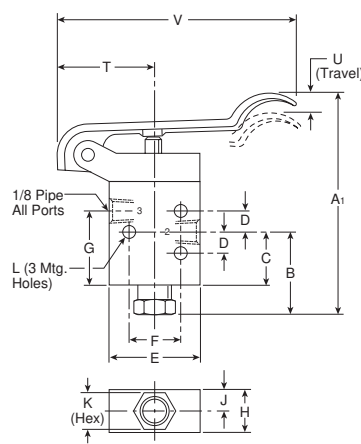
\* Dimensions may be reduced .44" using adjusting screw.  
 Inches (mm)

**Button & Hand Lever Operated — 3-Way, 3-Port, 2-Position – 1/8" Ports**

**Button Operated**



**Hand Lever Operated**



**3-Way, 3-Port, 2-Position**

|               |              |              |              |              |
|---------------|--------------|--------------|--------------|--------------|
| <b>A</b>      | <b>A1</b>    | <b>B</b>     | <b>C</b>     | <b>D</b>     |
| 4.13<br>(105) | 3.34<br>(85) | 1.03<br>(26) | .55<br>(14)  | .31<br>(8)   |
| <b>E</b>      | <b>F</b>     | <b>G</b>     | <b>H</b>     | <b>J</b>     |
| 1.31<br>(33)  | .75<br>(19)  | .90<br>(23)  | .62<br>(16)  | .31<br>(8)   |
| <b>K</b>      | <b>L</b>     | <b>M</b>     | <b>N</b>     | <b>P</b>     |
| .56<br>(14)   | .19<br>(5)   | .88<br>(22)  | 1.06<br>(27) | .17<br>(4)   |
| <b>R</b>      | <b>S</b>     | <b>T</b>     | <b>U</b>     | <b>V</b>     |
| 1.67<br>(42)  | .63<br>(16)  | 1.19<br>(30) | .53<br>(13)  | 3.38<br>(86) |

Inches (mm)

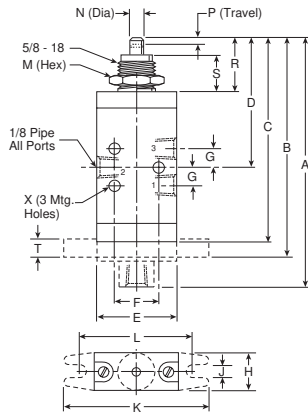


For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

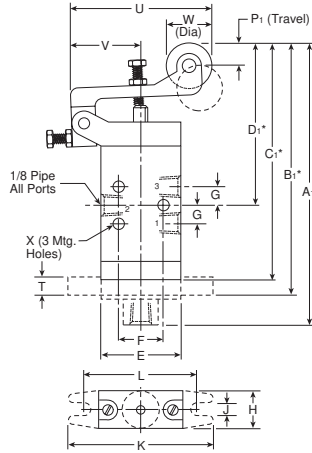
Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

Plunger, Roller, One-way Tripper & Toggle Operated — 3-Way, 3-Port, 2-Position – 1/8" Ports

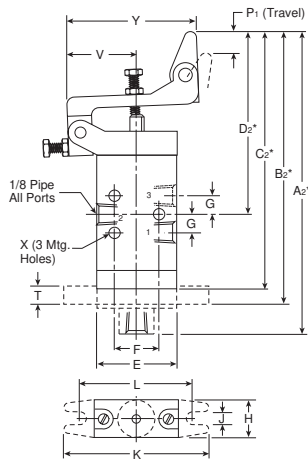
Plunger Operated



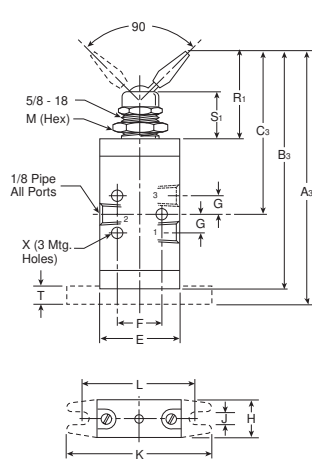
Roller Operated



One-Way Tripper Operated



Toggle Operated



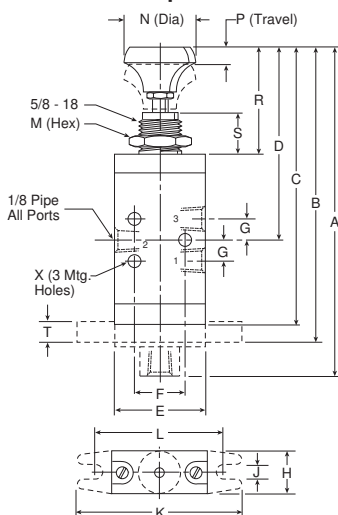
3-Way, 3-Port, 2-Position

|                            |                             |                             |                            |                            |
|----------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|
| <b>A</b><br>4.14<br>(105)  | <b>A1*</b><br>4.98<br>(126) | <b>A2*</b><br>5.23<br>(133) | <b>A3</b><br>4.23<br>(107) | <b>B</b><br>3.61<br>(92)   |
| <b>B1</b><br>4.45<br>(113) | <b>B2</b><br>4.70<br>(119)  | <b>B3</b><br>4.00<br>(102)  | <b>C</b><br>3.38<br>(86)   | <b>C1</b><br>4.22<br>(107) |
| <b>C2</b><br>4.47<br>(113) | <b>C3</b><br>2.75<br>(70)   | <b>D</b><br>2.05<br>(52)    | <b>D1</b><br>2.98<br>(76)  | <b>D2</b><br>3.22<br>(82)  |
| <b>E</b><br>1.31<br>(33)   | <b>F</b><br>.75<br>(19)     | <b>G</b><br>.31<br>(8)      | <b>H</b><br>.62<br>(16)    | <b>J</b><br>.20<br>(5)     |
| <b>K</b><br>2.38<br>(60)   | <b>L</b><br>1.88<br>(48)    | <b>M</b><br>.88<br>(22)     | <b>N</b><br>.25<br>(6)     | <b>P</b><br>.17<br>(4)     |
| <b>P1</b><br>.38<br>(10)   | <b>R</b><br>.91<br>(23)     | <b>R1</b><br>1.53<br>(39)   | <b>S</b><br>.62<br>(16)    | <b>S1</b><br>.78<br>(20)   |
| <b>T</b><br>.25<br>(6)     | <b>U</b><br>2.28<br>(58)    | <b>V</b><br>1.19<br>(30)    | <b>W</b><br>.75<br>(19)    | <b>X</b><br>.19<br>(5)     |
| <b>Y</b><br>2.19<br>(56)   |                             |                             |                            |                            |

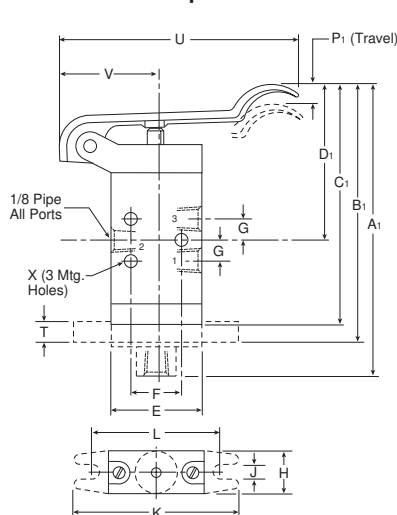
\* Dimensions may be reduced .44" using adjusting screw.  
Inches (mm)

Button, Hand Lever Operated — 3-Way, 3-Port, 2-Position – 1/8" Ports

Button Operated



Hand Lever Operated



3-Way, 3-Port, 2-Position

|                           |                            |                           |                           |                           |
|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|
| <b>A</b><br>5.08<br>(129) | <b>A1</b><br>4.29<br>(109) | <b>B</b><br>4.55<br>(115) | <b>B1</b><br>3.77<br>(96) | <b>C</b><br>4.31<br>(109) |
| <b>C1</b><br>3.53<br>(90) | <b>D</b><br>3.08<br>(78)   | <b>D1</b><br>2.29<br>(58) | <b>E</b><br>1.31<br>(33)  | <b>F</b><br>.75<br>(19)   |
| <b>G</b><br>.31<br>(8)    | <b>H</b><br>.62<br>(16)    | <b>J</b><br>.20<br>(5)    | <b>K</b><br>2.38<br>(60)  | <b>L</b><br>1.88<br>(48)  |
| <b>M</b><br>.88<br>(22)   | <b>N</b><br>1.06<br>(27)   | <b>P</b><br>.17<br>(4)    | <b>P1</b><br>.53<br>(13)  | <b>R</b><br>1.67<br>(42)  |
| <b>S</b><br>.63<br>(16)   | <b>T</b><br>.25<br>(6)     | <b>U</b><br>3.38<br>(86)  | <b>V</b><br>1.19<br>(30)  | <b>X</b><br>.19<br>(5)    |
| <b>Y</b><br>.59<br>(15)   |                            |                           |                           |                           |

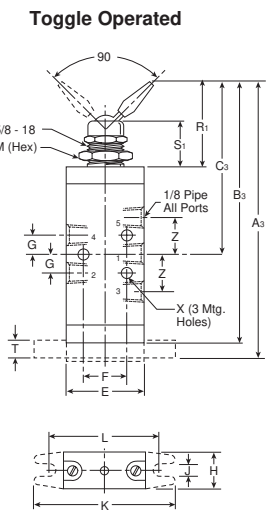
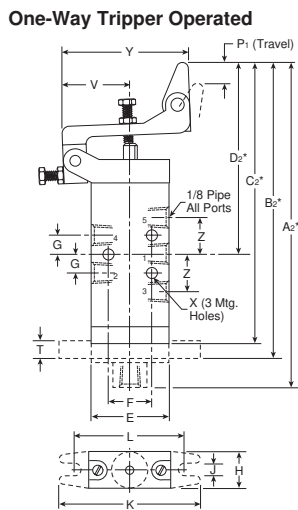
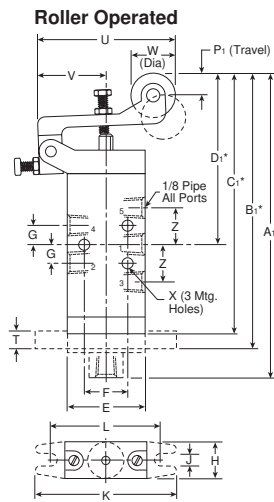
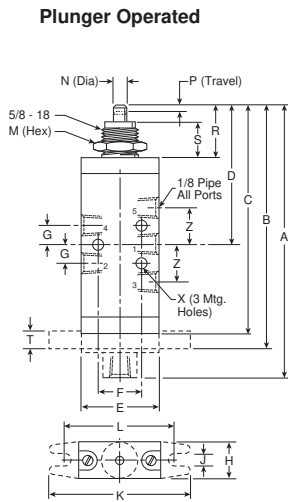
Inches (mm)



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
Viking Xtreme Lever Series  
42 Lever / Pedal Series  
M0 Series  
Safety  
Manual / Mechanical Valves  
Brass Poppet / Sliding Seal  
Control Panel Products  
Sensing

**Plunger, Roller, One-way Tripper & Toggle Operated — 4-Way, 5-Port, 2-Position – 1/8" Ports**

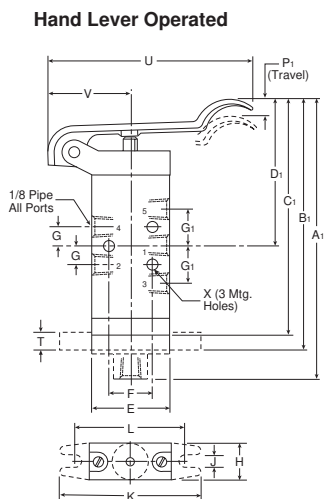
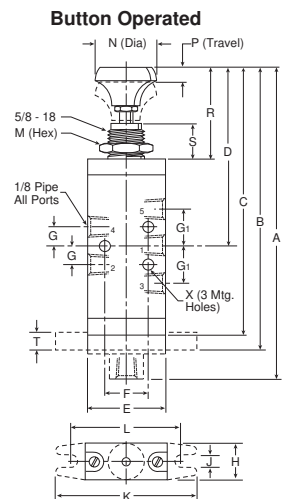


**4-Way, 5-Port, 2-Position**

|                             |                             |                             |                            |                             |
|-----------------------------|-----------------------------|-----------------------------|----------------------------|-----------------------------|
| <b>A</b><br>4.75<br>(121)   | <b>A1*</b><br>5.59<br>(142) | <b>A2*</b><br>5.84<br>(148) | <b>A3</b><br>4.84<br>(123) | <b>B</b><br>4.22<br>(107)   |
| <b>B1*</b><br>5.06<br>(128) | <b>B2*</b><br>5.31<br>(135) | <b>B3</b><br>4.61<br>(117)  | <b>C</b><br>3.99<br>(102)  | <b>C1*</b><br>4.83<br>(123) |
| <b>C2*</b><br>5.08<br>(129) | <b>C3</b><br>3.06<br>(78)   | <b>D</b><br>2.44<br>(62)    | <b>D1*</b><br>3.28<br>(83) | <b>D2*</b><br>3.53<br>(90)  |
| <b>E</b><br>1.31<br>(33)    | <b>F</b><br>.75<br>(19)     | <b>G</b><br>.31<br>(8)      | <b>H</b><br>.62<br>(16)    | <b>J</b><br>.20<br>(5)      |
| <b>K</b><br>2.38<br>(60)    | <b>L</b><br>1.88<br>(48)    | <b>M</b><br>.88<br>(22)     | <b>N</b><br>.25<br>(6)     | <b>P</b><br>.17<br>(4)      |
| <b>P1</b><br>.38<br>(10)    | <b>R</b><br>.91<br>(23)     | <b>R1</b><br>1.53<br>(39)   | <b>S</b><br>.62<br>(16)    | <b>S1</b><br>.78<br>(20)    |
| <b>T</b><br>.25<br>(6)      | <b>U</b><br>2.28<br>(58)    | <b>V</b><br>1.19<br>(30)    | <b>W</b><br>.75<br>(19)    | <b>X</b><br>.19<br>(5)      |
| <b>Y</b><br>2.19<br>(56)    | <b>Z</b><br>.62<br>(16)     |                             |                            |                             |

\* Dimensions may be reduced .44" using adjusting screw.  
 Inches (mm)

**Button & Hand Lever Operated — 4-Way, 5-Port, 2-Position – 1/8" Ports**



**4-Way, 5-Port, 2-Position**

|                            |                            |                           |                            |                           |
|----------------------------|----------------------------|---------------------------|----------------------------|---------------------------|
| <b>A</b><br>5.69<br>(144)  | <b>A1</b><br>4.90<br>(124) | <b>B</b><br>5.16<br>(131) | <b>B1</b><br>4.38<br>(111) | <b>C</b><br>4.92<br>(125) |
| <b>C1</b><br>4.14<br>(105) | <b>D</b><br>3.67<br>(93)   | <b>D1</b><br>2.90<br>(74) | <b>E</b><br>1.31<br>(33)   | <b>F</b><br>.75<br>(19)   |
| <b>G</b><br>.31<br>(8)     | <b>G1</b><br>.63<br>(16)   | <b>H</b><br>.62<br>(16)   | <b>J</b><br>.20<br>(5)     | <b>K</b><br>2.38<br>(60)  |
| <b>L</b><br>1.88<br>(48)   | <b>M</b><br>.88<br>(22)    | <b>N</b><br>1.06<br>(27)  | <b>P</b><br>.17<br>(4)     | <b>P1</b><br>.53<br>(13)  |
| <b>R</b><br>1.67<br>(42)   | <b>S</b><br>.63<br>(16)    | <b>T</b><br>.25<br>(6)    | <b>U</b><br>3.38<br>(86)   | <b>V</b><br>1.19<br>(30)  |
| <b>X</b><br>.19<br>(5)     | <b>Y</b><br>.59<br>(15)    |                           |                            |                           |

Inches (mm)

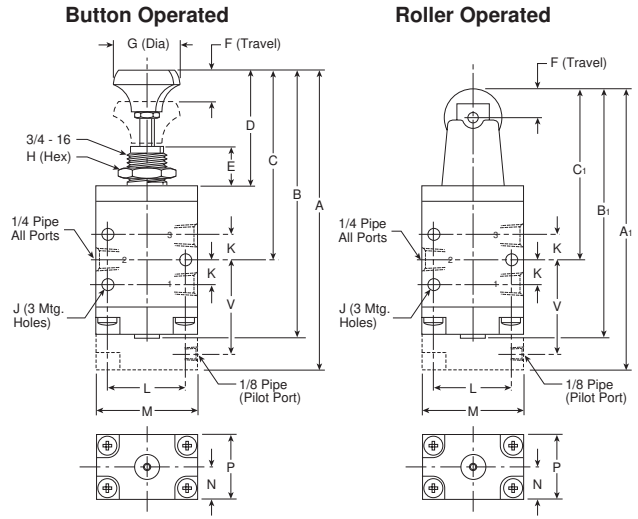


For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)



**Dimensional Data**

**Button & Roller Operated — 3-Way, 3-Port, 2-Position**

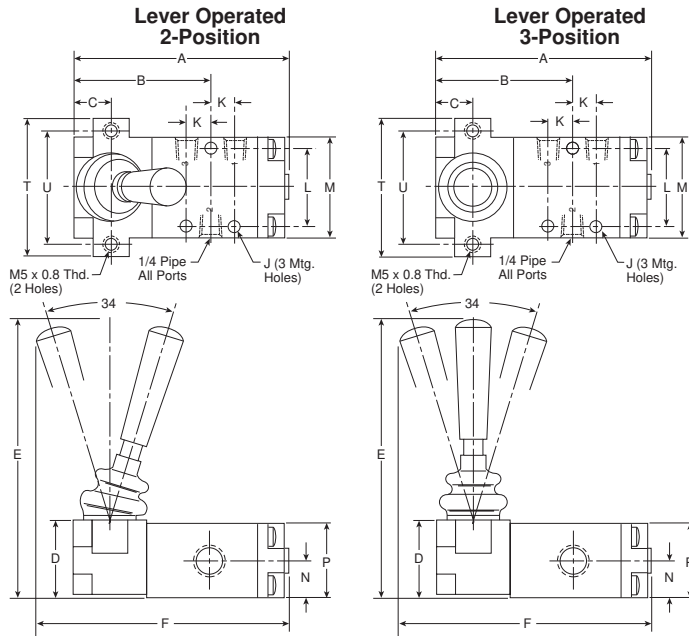


**3-Way, 3-Port, 2-Position**

| A              | A <sub>1</sub> | B             | B <sub>1</sub> | C            |
|----------------|----------------|---------------|----------------|--------------|
| 4.91<br>(125)  | 4.25<br>(108)  | 4.44<br>(113) | 3.78<br>(96)   | 3.10<br>(79) |
| C <sub>1</sub> | D              | E             | F              | G            |
| 2.44<br>(62)   | 2.00<br>(51)   | .63<br>(16)   | .32<br>(8)     | 1.05<br>(27) |
| H              | J              | K             | L              | M            |
| 1.00<br>(25)   | .19<br>(5)     | .41<br>(10)   | 1.25<br>(32)   | 1.63<br>(42) |
| N              | P              | V             |                |              |
| .53<br>(14)    | 1.06<br>(27)   | 1.52<br>(39)  |                |              |

Inches (mm)

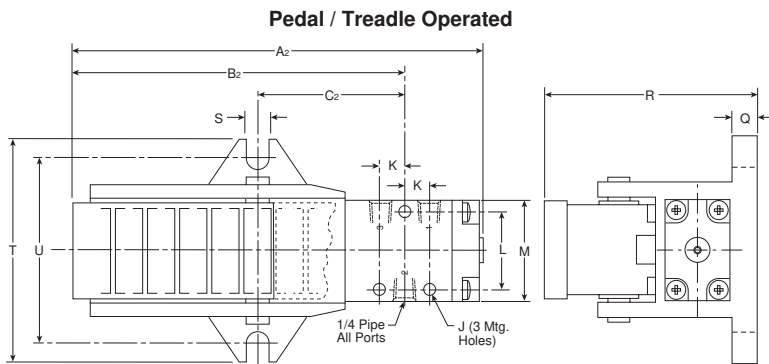
**Lever & Pedal Operated — 3-Way, 3-Port, 2 & 3-Position**



**3-Way, 3-Port, 2 & 3-Position**

| A              | A <sub>1</sub> | B             | B <sub>1</sub> | C              |
|----------------|----------------|---------------|----------------|----------------|
| 3.31<br>(84)   | 6.55<br>(166)  | 1.97<br>(50)  | 5.20<br>(132)  | .53<br>(14)    |
| C <sub>1</sub> | D              | E             | F              | J              |
| 2.19<br>(56)   | 1.12<br>(28)   | 4.06<br>(103) | 3.90<br>(99)   | .19<br>(5)     |
| K              | L              | M             | N              | P              |
| .41<br>(10)    | 1.25<br>(32)   | 1.63<br>(42)  | .53<br>(14)    | 1.06<br>(27)   |
| Q              | R              | S             | T              | T <sub>1</sub> |
| .37<br>(10)    | 2.40<br>(61)   | .34<br>(9)    | 2.13<br>(54)   | 3.50<br>(89)   |
| U              | U <sub>1</sub> |               |                |                |
| 1.75<br>(44)   | 3.00<br>(76)   |               |                |                |

Inches (mm)



**CAUTION:**

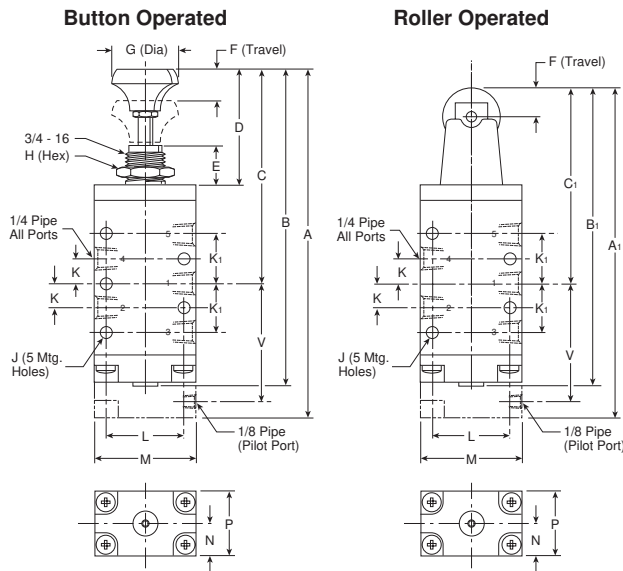
*This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.*



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Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
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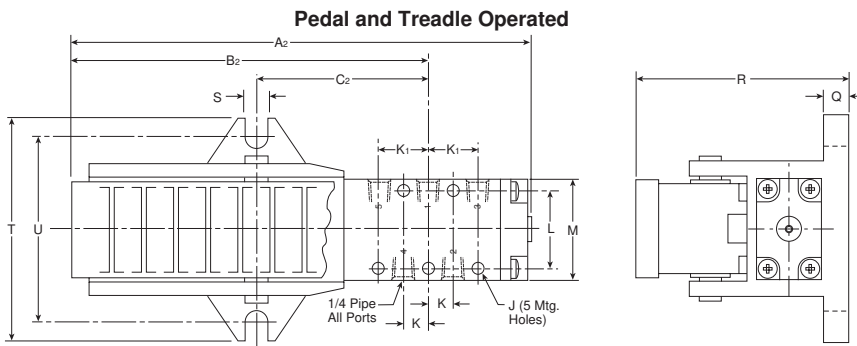
**Button, Roller, Pedal & Treadle, Lever Operated — 4-Way, 5-Port, 2-Position**



**4-Way, 5-Port, 2-Position**

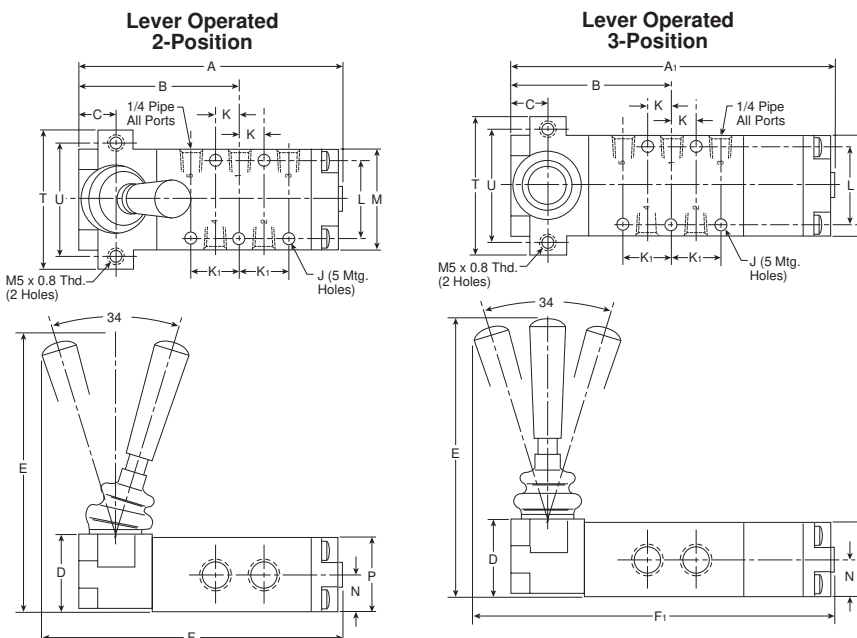
|                      |                      |                      |                      |                      |
|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>A</b>             | <b>A<sub>1</sub></b> | <b>A<sub>2</sub></b> | <b>B</b>             | <b>B<sub>1</sub></b> |
| 5.75<br>(146)        | 5.13<br>(130)        | 7.41<br>(189)        | 5.28<br>(134)        | 4.66<br>(118)        |
| <b>B<sub>2</sub></b> | <b>C</b>             | <b>C<sub>1</sub></b> | <b>C<sub>2</sub></b> | <b>D</b>             |
| 5.63<br>(143)        | 3.50<br>(89)         | 2.88<br>(73)         | 2.64<br>(67)         | 2.00<br>(51)         |
| <b>E</b>             | <b>F</b>             | <b>G</b>             | <b>H</b>             | <b>J</b>             |
| .63<br>(16)          | .32<br>(8)           | 1.05<br>(27)         | 1.00<br>(25)         | .19<br>(5)           |
| <b>K</b>             | <b>K<sub>1</sub></b> | <b>L</b>             | <b>M</b>             | <b>N</b>             |
| .44<br>(11)          | .84<br>(21)          | 1.25<br>(32)         | 1.63<br>(41)         | .53<br>(14)          |
| <b>P</b>             | <b>Q</b>             | <b>R</b>             | <b>S</b>             | <b>T</b>             |
| 1.06<br>(27)         | .37<br>(10)          | 2.40<br>(61)         | .34<br>(9)           | 3.50<br>(89)         |
| <b>U</b>             | <b>V</b>             |                      |                      |                      |
| 3.00<br>(76)         | 1.96<br>(50)         |                      |                      |                      |

Inches (mm)



**CAUTION:**  
 This valve shall not be used to actuate a punch press.  
 Do not use this valve on punch presses or press brakes.  
 See OSHA 1910.217.

**Lever Operated — 4-Way, 5-Port, 2 & 3-Position**



**4-Way, 5-Port, 2 & 3-Position**

|                      |                      |                      |             |              |
|----------------------|----------------------|----------------------|-------------|--------------|
| <b>A</b>             | <b>A<sub>1</sub></b> | <b>B</b>             | <b>C</b>    | <b>D</b>     |
| 4.19<br>(106)        | 5.09<br>(129)        | 2.41<br>(61)         | .53<br>(14) | 1.12<br>(28) |
| <b>E</b>             | <b>F</b>             | <b>F<sub>1</sub></b> | <b>J</b>    | <b>K</b>     |
| 4.06<br>(103)        | 4.78<br>(121)        | 5.78<br>(147)        | .19<br>(5)  | .44<br>(11)  |
| <b>K<sub>1</sub></b> | <b>L</b>             | <b>M</b>             | <b>N</b>    | <b>P</b>     |
| .84<br>(21)          | 1.25<br>(32)         | 1.63<br>(42)         | .53<br>(14) | 1.06<br>(27) |
| <b>T</b>             | <b>U</b>             |                      |             |              |
| 2.13<br>(54)         | 1.75<br>(44)         |                      |             |              |

Inches (mm)



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

M0 Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing

**Features**

**Viking Xtreme Manual Series**

The Viking Xtreme Manual valve range is robust, versatile and combines high performance with compact installation dimensions. The valves rugged lever actuator has been specifically designed for gloved hands to suit mobile applications in the most arduous of environments. Available in 3/2, 5/2 and 5/3 functions with either spring return or detented lever. The lever actuated versions are available across the entire range from 1/8 to 1/2 port sizes.

- **Heavy duty lever**
- **Inline valve**
  - 1/8", 1/4", 3/8", 1/2" NPT & BSPP
- **2-position models**
  - 4-way & 3-way
- **3-position models**
  - all ports blocked
  - pressure center
  - center exhaust
- **Approval**
  - Canada Registration Number available (CRN)
- **Over-moulded single piece aluminium spool**
  - Reduced product complexity
  - Increased flow
  - Wide operating temperature range
  - Stable seal performance even with high flow / pressure drop across spool.



**Operating information**

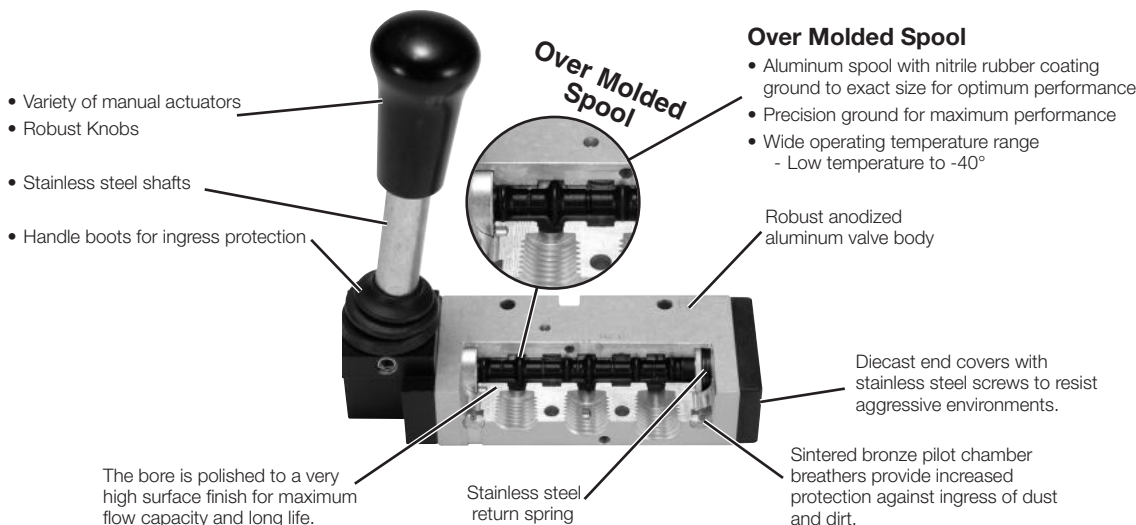
Operating pressure: Type A & B: Vacuum to 232 PSIG (Vacuum to 16 bar Max.)  
 Type C & D: Vacuum to 174 PSIG (Vacuum to 12 bar Max.)  
 Temperature range: Xtreme: -40°F to 140°F (-40°C to 60°C)

**Material specifications**

|               |                                    |
|---------------|------------------------------------|
| End covers    | Anodized aluminum                  |
| Lever         | Reinforced polyamide plastic       |
| Lever housing | Acetal plastic                     |
| Piston        | Acetal plastic / anodized aluminum |
| Seals         | Nitrile rubber                     |
| Screws        | Stainless steel                    |
| Spool         | Aluminum & nitrile rubber          |
| Springs       | Stainless steel                    |
| Valve body    | Anodized aluminum                  |

| Lever Handle – 1/8" valve size, 5/2 & 5/3 only | Twist Handle – 1/4" valve sizes | Lever Handle – All other valve sizes |
|--|---------------------------------|--------------------------------------|
|  |                                 |                                      |


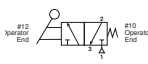

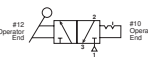

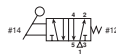



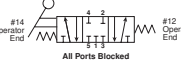

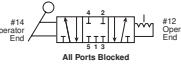

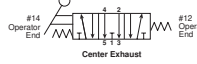

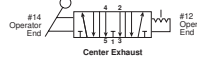
**Features**




For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 4/2 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing



| 3/2 - 2-position *  | Symbol  | Valve type          | Port size | Cv  | Weight lb (kg) | Part number NPT   | Part number BSPP  |
|---|---|---------------------|-----------|-----|----------------|-------------------|-------------------|
|    |    | Lever spring return | 1/8       | 0.6 | 0.73 (0.33)    | <b>P2LAX391VS</b> | <b>P2LAX311VS</b> |
|   |   |                     | 1/4       | 1.5 | 0.73 (0.33)    | <b>P2LBX392VS</b> | <b>P2LBX312VS</b> |
|   |   |                     | 3/8       | 2.5 | 0.88 (0.40)    | <b>P2LCX393VS</b> | <b>P2LCX313VS</b> |
|   |   |                     | 1/2       | 2.7 | 1.32 (0.60)    | <b>P2LDX394VS</b> | <b>P2LDX314VS</b> |
|    |    | Lever detent        | 1/8       | 0.7 | 0.73 (0.33)    | <b>P2LAX391VV</b> | <b>P2LAX311VV</b> |
|   |   |                     | 1/4       | 1.3 | 0.73 (0.33)    | <b>P2LBX392VV</b> | <b>P2LBX312VV</b> |
|   |   |                     | 3/8       | 2.5 | 0.88 (0.40)    | <b>P2LCX393VV</b> | <b>P2LCX313VV</b> |
|   |   |                     | 1/2       | 2.7 | 1.32 (0.60)    | <b>P2LDX394VV</b> | <b>P2LDX314VV</b> |
| <hr/>   |   |                     |           |     |                |                   |                   |
| 5/2 - 2-position *  | Symbol  | Valve type          | Port size | Cv  | Weight lb (kg) | Part number NPT   | Part number BSPP  |
|    |    | Lever spring return | 1/8       | 0.6 | 0.40 (0.18)    | <b>P2LAX591VS</b> | <b>P2LAX511VS</b> |
|   |   |                     | 1/4       | 1.5 | 0.73 (0.33)    | <b>P2LBX592VS</b> | <b>P2LBX512VS</b> |
|   |   |                     | 3/8       | 2.5 | 0.88 (0.40)    | <b>P2LCX593VS</b> | <b>P2LCX513VS</b> |
|   |   |                     | 1/2       | 2.7 | 1.32 (0.60)    | <b>P2LDX594VS</b> | <b>P2LDX514VS</b> |
|    |    | Lever detent        | 1/8       | 0.7 | 0.40 (0.18)    | <b>P2LAX591VV</b> | <b>P2LAX511VV</b> |
|   |   |                     | 1/4       | 1.3 | 0.73 (0.33)    | <b>P2LBX592VV</b> | <b>P2LBX512VV</b> |
|   |   |                     | 3/8       | 2.5 | 0.88 (0.40)    | <b>P2LCX593VV</b> | <b>P2LCX513VV</b> |
|   |   |                     | 1/2       | 2.7 | 1.32 (0.60)    | <b>P2LDX594VV</b> | <b>P2LDX514VV</b> |
| Size P2LAX Shown  |   |                     |           |     |                |                   |                   |
| <hr/>   |   |                     |           |     |                |                   |                   |
| 5/3 - 3-position,*<br>all ports blocked   | Symbol  | Valve type          | Port size | Cv  | Weight lb (kg) | Part number NPT   | Part number BSPP  |
|  |  | Lever spring center | 1/8       | 0.6 | 0.40 (0.18)    | <b>P2LAX69111</b> | <b>P2LAX61111</b> |
|   |   |                     | 1/4       | 1.5 | 0.73 (0.33)    | <b>P2LBX69211</b> | <b>P2LBX61211</b> |
|   |   |                     | 3/8       | 2.5 | 1.56 (0.71)    | <b>P2LCX69311</b> | <b>P2LCX61311</b> |
|   |   |                     | 1/2       | 2.7 | 1.61 (0.73)    | <b>P2LDX69411</b> | <b>P2LDX61411</b> |
|  |  | Lever detent        | 1/8       | 0.7 | 0.40 (0.18)    | <b>P2LAX69122</b> | <b>P2LAX61122</b> |
|   |   |                     | 1/4       | 1.3 | 0.73 (0.33)    | <b>P2LBX69222</b> | <b>P2LBX61222</b> |
|   |   |                     | 3/8       | 2.5 | 1.56 (0.71)    | <b>P2LCX69322</b> | <b>P2LCX61322</b> |
|   |   |                     | 1/2       | 2.7 | 1.61 (0.73)    | <b>P2LDX69422</b> | <b>P2LDX61422</b> |
| Size P2LAX Shown  |   |                     |           |     |                |                   |                   |
| <hr/>   |   |                     |           |     |                |                   |                   |
| 5/3 - 3-position,*<br>center exhaust  | Symbol  | Valve type          | Port size | Cv  | Weight lb (kg) | Part number NPT   | Part number BSPP  |
|  |  | Lever spring center | 1/8       | 0.6 | 0.40 (0.18)    | <b>P2LAX89111</b> | <b>P2LAX81111</b> |
|   |   |                     | 1/4       | 1.5 | 0.73 (0.33)    | <b>P2LBX89211</b> | <b>P2LBX81211</b> |
|   |   |                     | 3/8       | 2.5 | 1.56 (0.71)    | <b>P2LCX89311</b> | <b>P2LCX81311</b> |
|   |   |                     | 1/2       | 2.7 | 1.61 (0.73)    | <b>P2LDX89411</b> | <b>P2LDX81411</b> |
|  |  | Lever detent        | 1/8       | 0.7 | 0.40 (0.18)    | <b>P2LAX89122</b> | <b>P2LAX81122</b> |
|   |   |                     | 1/4       | 1.3 | 0.73 (0.33)    | <b>P2LBX89222</b> | <b>P2LBX81222</b> |
|   |   |                     | 3/8       | 2.5 | 1.56 (0.71)    | <b>P2LCX89322</b> | <b>P2LCX81322</b> |
|   |   |                     | 1/2       | 2.7 | 1.61 (0.73)    | <b>P2LDX89422</b> | <b>P2LDX81422</b> |

\* Valve lever movement 90° to ports.

 Most popular.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

M0 Series

Safety




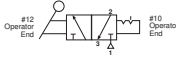

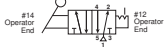

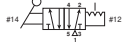

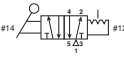
Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing

**Common Part Numbers**

| 3/2 - 2-position  | Symbol  | Valve type          | Port size | Cv              | Part number NPT   | Part number BSPP  |
|---|---|---------------------|-----------|-----------------|-------------------|-------------------|
|  |  | Twist handle detent | 1/4       | 1.3 0.73 (0.33) | <b>P2LBX392JJ</b> | <b>P2LBX312JJ</b> |
| 5/2 - 2-position  | Symbol  | Valve type          | Port size | Cv              | Part number NPT   | Part number BSPP  |
|  |  | Twist handle detent | 1/4       | 1.3 0.73 (0.33) | <b>P2LBX592JJ</b> | <b>P2LBX512JJ</b> |
| 5/2 - 2-position *  | Symbol  | Valve type          | Port size | Cv              | Part number NPT   | Part number BSPP  |
|  |  | Lever spring return | 1/4       | 1.3 0.73 (0.33) | <b>P2LBX592ZS</b> | <b>P2LBX512ZS</b> |
|  |  | Lever detent        | 1/4       | 1.3 0.73 (0.33) | <b>P2LBX592ZZ</b> | <b>P2LBX512ZZ</b> |

\* Valve lever movement inline to ports.

**Viking Xtreme Manual Operated Valves**

Vacuum to 232 PSIG (Vacuum to 16 bar) -40°F to 140°F (-40°C to 60°C)

**P2L A X 5 91 VS**

| Valve size |   |
|------------|---|
| 1/8"       | A |
| 1/4"       | B |
| 3/8"       | C |
| 1/2"       | D |

| Valve type / function |   |
|-----------------------|---|
| 3/2 NC - 2-position   | 3 |
| 5/2 2-position        | 5 |
| 5/3 3-position, APB   | 6 |
| 5/3 3-position, PC    | 7 |
| 5/3 3-position, CE    | 8 |

| Actuator / position / lever |  |
|-----------------------------|--|
| JJ*                         | Twist handle detent, 2-position                  |
| VS                          | Spring return lever, 2-position, 90° to ports    |
| VV                          | Lever, detent, 2-position, 90° to ports          |
| ZS**                        | Spring return lever, 2-position, inline to ports |
| ZZ**                        | Lever detent, 2-position, inline to ports        |
| 11                          | Spring centered lever, 3-position, 90° to ports  |
| 22                          | Lever, detent, 3-position, 90° to ports          |
| 55**                        | Spring return lever, 3-position, inline to ports |
| 66**                        | Lever detent, 3-position, inline to ports        |

\* Not available with 3-position valves. Available Size B only.  
 \*\* Size B valve only.

| Main port thread |                            |
|------------------|----------------------------|
| 11               | G1/8 (P2LA)                |
| 12               | G1/4 (P2LB)                |
| 1N*              | G1/4 (P2LB) NAMUR mount    |
| 13               | G3/8 (P2LC)                |
| 14               | G1/2 (P2LD)                |
| 91               | 1/8" NPT (P2LA)            |
| 92               | 1/4" NPT (P2LB)            |
| 9N*              | 1/4 NPT (P2LB) NAMUR mount |
| 93               | 3/8" NPT (P2LC)            |
| 94               | 1/2" NPT (P2LD)            |

 Most popular.

\* 5/2, 2-position valve only.



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
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 Control Panel Products  
 Sensing

**Exhaust Mufflers**

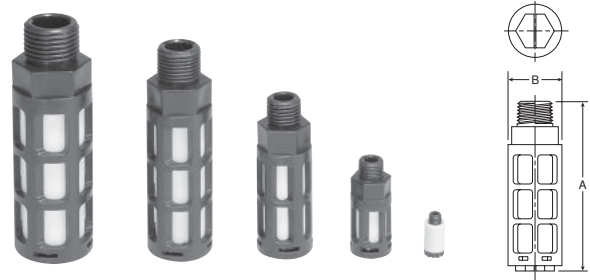
| Pipe thread | Part number     |
|-------------|-----------------|
| M5          | <b>P6M-PAC5</b> |
| 1/8" NPT    | <b>EM12</b>     |
| 1/4" NPT    | <b>EM25</b>     |
| 3/8" NPT    | <b>EM37</b>     |
| 1/2" NPT    | <b>EM50</b>     |

P6M - Plastic; EM - Sintered bronze

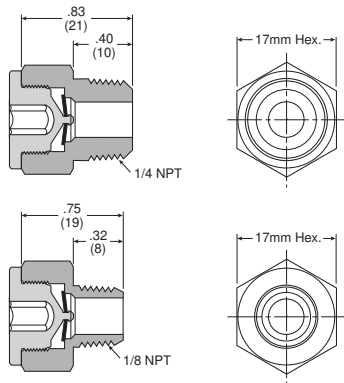


**Plastic Silencers**

| Thread size | Part number   |              |             | A (mm)    | B (mm)    |
|-------------|---------------|--------------|-------------|-----------|-----------|
|             | NPT           | BSPT         | Metric      |           |           |
| M5          |               |              | <b>AS-5</b> | .43 (11)  | .32 (8)   |
| 1/8"        | <b>ASN-6</b>  | <b>AS-6</b>  |             | 1.57 (40) | .63 (16)  |
| 1/4"        | <b>ASN-8</b>  | <b>AS-8</b>  |             | 2.56 (65) | .83 (21)  |
| 3/8"        | <b>ASN-10</b> | <b>AS-10</b> |             | 3.35 (85) | .98 (25)  |
| 1/2"        | <b>ASN-15</b> | <b>AS-15</b> |             | 3.74 (95) | 1.18 (30) |



**Exhaust Protector**



**Specifications**

**Operating pressure** ..... 0 – 150 PSIG  
(0 to 10 bar, 0 to 1034 kPa)

**Operating temperature** ..... -40°F to 158°F (-40°C to 70°C)

**Material:**

Body and pipe adapter ..... Brass  
Membrane ..... Fluorocarbon

**Flow Data (SCFM)**

| Part number   | Size | 60 PSIG inlet | 90 PSIG inlet | 125 PSIG inlet |
|---------------|------|---------------|---------------|----------------|
| <b>E90016</b> | 1/8" | 40.1          | 56.5          | 75.5           |
| <b>E90017</b> | 1/4" | 44.6          | 62.7          | 83.5           |

**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.

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

M0 Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

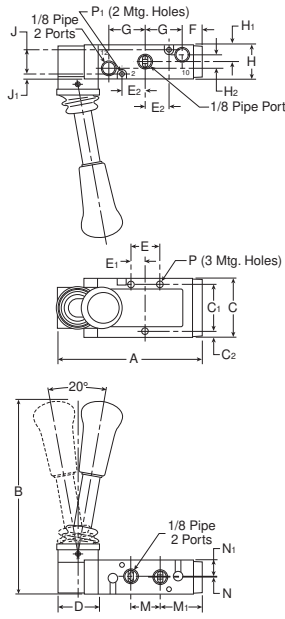
Sensing



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Dimensional Data**

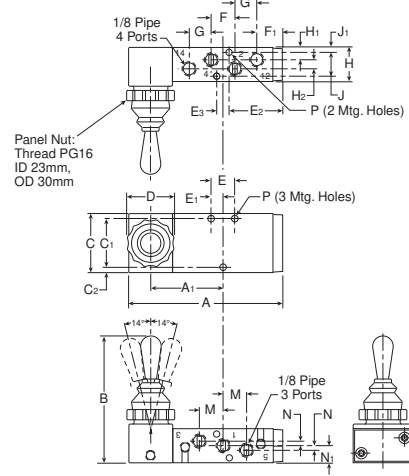
**P2LAX 3/2 Hand Lever Operated**  
 Lever operation 90° to ports movement



| P2LAX 3/2            |                      |                      |
|----------------------|----------------------|----------------------|
| <b>A</b>             | <b>B</b>             | <b>C</b>             |
| 3.88<br>(99)         | 5.23<br>(133)        | 1.57<br>(40)         |
| <b>C<sub>1</sub></b> | <b>C<sub>2</sub></b> | <b>D</b>             |
| 1.26<br>(32)         | .16<br>(4)           | 1.06<br>(27)         |
| <b>E</b>             | <b>E<sub>1</sub></b> | <b>E<sub>2</sub></b> |
| .79<br>(20)          | .39<br>(10)          | .63<br>(16)          |
| <b>F</b>             | <b>G</b>             | <b>H</b>             |
| .55<br>(14)          | .98<br>(25)          | .87<br>(22)          |
| <b>H<sub>1</sub></b> | <b>H<sub>2</sub></b> | <b>J</b>             |
| .42<br>(10.6)        | .02<br>(0.5)         | .65<br>(16.5)        |
| <b>J<sub>1</sub></b> | <b>M</b>             | <b>M<sub>1</sub></b> |
| .11<br>(2.9)         | .79<br>(20)          | 1.14<br>(29)         |
| <b>N</b>             | <b>N<sub>1</sub></b> | <b>P</b>             |
| .18<br>(4.5)         | .26<br>(6.6)         | ∅ .17<br>(∅ 4.3)     |
| <b>P<sub>1</sub></b> | ∅ .12<br>(∅ 3.1)     |                      |

Inches (mm)

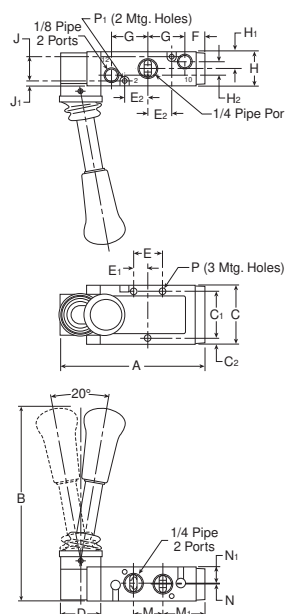
**P2LAX 5/2 & 5/3 Hand Lever Operated**  
 Lever operation 90° to ports movement



| P2LAX 5/2 & 5/3 |                      |                      |
|-----------------|----------------------|----------------------|
| <b>A</b>        | <b>A<sub>1</sub></b> | <b>B</b>             |
| 4.02<br>(102)   | 1.89<br>(48)         | 3.23<br>(82)         |
| <b>C</b>        | <b>C<sub>1</sub></b> | <b>C<sub>2</sub></b> |
| 1.57<br>(40)    | 1.30<br>(33)         | .14<br>(3.5)         |
| <b>D</b>        | <b>E<sub>2</sub></b> | <b>E<sub>3</sub></b> |
| 1.18<br>(30)    | 1.42<br>(36)         | .33<br>(8.5)         |
| <b>F</b>        | <b>F<sub>1</sub></b> | <b>G</b>             |
| .63<br>(16)     | .67<br>(17)          | .59<br>(15)          |
| <b>H</b>        | <b>H<sub>1</sub></b> | <b>H<sub>2</sub></b> |
| .87<br>(22)     | .31<br>(8)           | .24<br>(6)           |
| <b>J</b>        | <b>J<sub>1</sub></b> | <b>M</b>             |
| .63<br>(16)     | .12<br>(3)           | .63<br>(16)          |
| <b>N</b>        | <b>N<sub>1</sub></b> | <b>P</b>             |
| .12<br>(3)      | .43<br>(11)          | ∅ .16<br>(∅ 4.1)     |

Inches (mm)

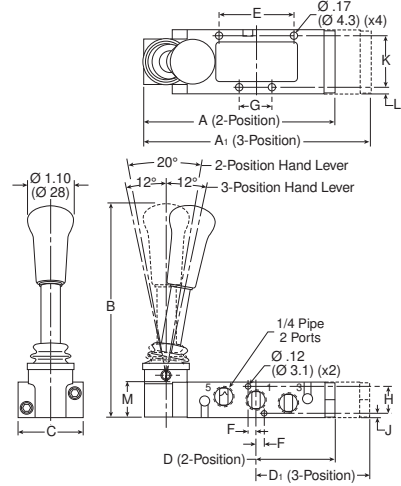
**P2LBX 3/2 Hand Lever Operated**  
 Lever operation 90° to ports movement



| P2LBX 3/2            |                      |                      |
|----------------------|----------------------|----------------------|
| <b>A</b>             | <b>B</b>             | <b>C</b>             |
| 3.88<br>(99)         | 5.23<br>(133)        | 1.57<br>(40)         |
| <b>C<sub>1</sub></b> | <b>C<sub>2</sub></b> | <b>D</b>             |
| 1.26<br>(32)         | .16<br>(4)           | 1.06<br>(27)         |
| <b>E</b>             | <b>E<sub>1</sub></b> | <b>E<sub>2</sub></b> |
| .79<br>(20)          | .39<br>(10)          | .63<br>(16)          |
| <b>F</b>             | <b>G</b>             | <b>H</b>             |
| .55<br>(14)          | .98<br>(25)          | .87<br>(22)          |
| <b>H<sub>1</sub></b> | <b>H<sub>2</sub></b> | <b>J</b>             |
| .42<br>(10.6)        | .02<br>(0.5)         | .65<br>(16.5)        |
| <b>J<sub>1</sub></b> | <b>M</b>             | <b>M<sub>1</sub></b> |
| .11<br>(2.9)         | .79<br>(20)          | 1.14<br>(29)         |
| <b>N</b>             | <b>N<sub>1</sub></b> | <b>P</b>             |
| .18<br>(4.5)         | .26<br>(6.6)         | ∅ .17<br>(∅ 4.3)     |
| <b>P<sub>1</sub></b> | ∅ .12<br>(∅ 3.1)     |                      |

Inches (mm)

**P2LBX 5/2 & 5/3 Hand Lever Operated**  
 Lever operation 90° to ports movement



| P2LBX 5/2 & 5/3 |                      |                      |
|-----------------|----------------------|----------------------|
| <b>A</b>        | <b>A<sub>1</sub></b> | <b>B</b>             |
| 4.67<br>(118.5) | 5.51<br>(140)        | 5.19<br>(131.8)      |
| <b>C</b>        | <b>D</b>             | <b>D<sub>1</sub></b> |
| 1.57<br>(40)    | 1.93<br>(49)         | 2.35<br>(59.8)       |
| <b>E</b>        | <b>F</b>             | <b>G</b>             |
| 1.81<br>(46)    | .20<br>(5)           | .79<br>(20)          |
| <b>H</b>        | <b>J</b>             | <b>K</b>             |
| .65<br>(16.5)   | .11<br>(2.85)        | 1.26<br>(32)         |
| <b>L</b>        | <b>M</b>             |                      |
| .16<br>(4)      | .87<br>(22.2)        |                      |

Inches (mm)



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

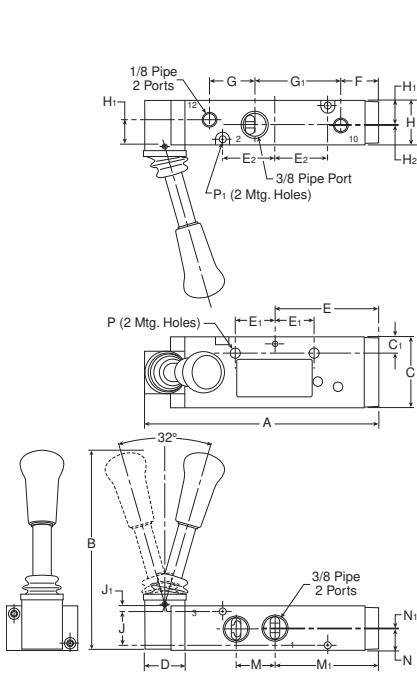
E17-a

**Parker Hannifin Corporation**  
 Pneumatic Division  
 Richland, Michigan  
[www.parker.com/pneumatics](http://www.parker.com/pneumatics)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 M0 Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

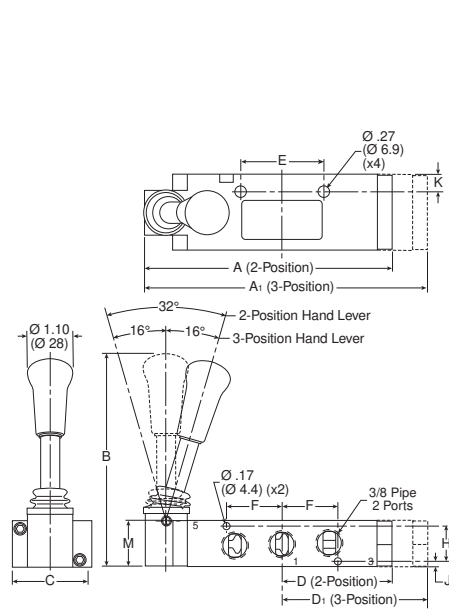
**Dimensional Data**

**P2LCX 3/2 Hand Lever Operated**  
 Lever operation 90° to ports movement



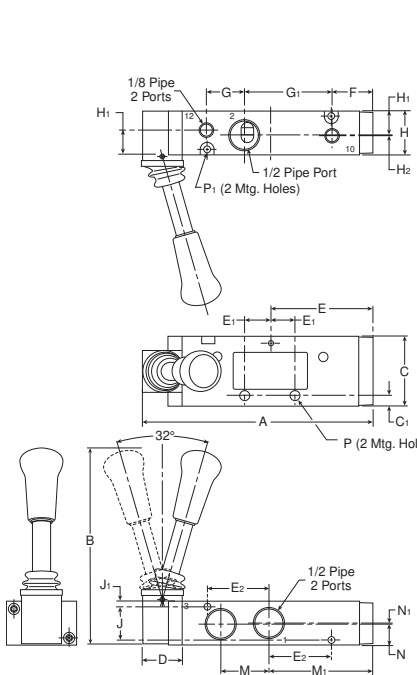
| P2LCX 3/2            |                      |                      |
|----------------------|----------------------|----------------------|
| <b>A</b>             | <b>B</b>             | <b>C</b>             |
| 6.20<br>(158)        | 5.36<br>(136)        | 1.89<br>(48)         |
| <b>C<sub>1</sub></b> | <b>D</b>             | <b>E</b>             |
| .43<br>(11)          | 1.06<br>(27)         | 2.76<br>(70)         |
| <b>E<sub>1</sub></b> | <b>E<sub>2</sub></b> | <b>F</b>             |
| 1.04<br>(27)         | 1.40<br>(36)         | 1.02<br>(26)         |
| <b>G</b>             | <b>G<sub>1</sub></b> | <b>H</b>             |
| 1.22<br>(31)         | 2.24<br>(57)         | 1.18<br>(30)         |
| <b>H<sub>1</sub></b> | <b>H<sub>2</sub></b> | <b>J</b>             |
| .67<br>(17)          | .02<br>(0.5)         | .91<br>(23)          |
| <b>J<sub>1</sub></b> | <b>M</b>             | <b>M<sub>1</sub></b> |
| .14<br>(3.5)         | 1.18<br>(30)         | 2.76<br>(70)         |
| <b>N</b>             | <b>N<sub>1</sub></b> | <b>P</b>             |
| .59<br>(15)          | .04<br>(1)           | Ø .27<br>Ø (6.9)     |
| <b>P<sub>1</sub></b> | Ø .17<br>Ø (4.4)     |                      |
| Inches (mm)          |                      |                      |

**P2LCX 5/2 & 5/3 Hand Lever Operated**  
 Lever operation 90° to ports movement



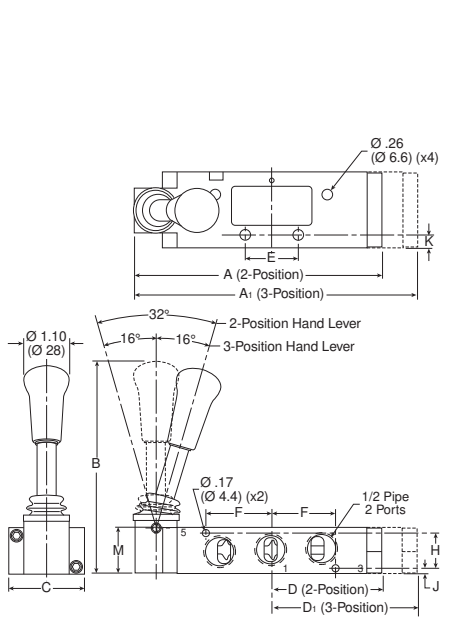
| P2LCX 5/2 & 5/3 |                      |                      |
|-----------------|----------------------|----------------------|
| <b>A</b>        | <b>A<sub>1</sub></b> | <b>B</b>             |
| 6.20<br>(157.5) | 7.07<br>(179.5)      | 5.36<br>(136.3)      |
| <b>C</b>        | <b>D</b>             | <b>D<sub>1</sub></b> |
| 1.89<br>(48)    | 2.76<br>(70)         | 3.19<br>(81)         |
| <b>E</b>        | <b>F</b>             | <b>H</b>             |
| 2.09<br>(53)    | 1.40<br>(35.5)       | .91<br>(23)          |
| <b>J</b>        | <b>K</b>             | <b>M</b>             |
| .14<br>(3.5)    | .43<br>(11)          | 1.18<br>(30)         |
| Inches (mm)     |                      |                      |

**P2LDX 3/2 Hand Lever Operated**  
 Lever operation 90° to ports movement



| P2LDX 3/2            |                      |                      |
|----------------------|----------------------|----------------------|
| <b>A</b>             | <b>B</b>             | <b>C</b>             |
| 6.20<br>(158)        | 5.36<br>(136)        | 1.89<br>(48)         |
| <b>C<sub>1</sub></b> | <b>D</b>             | <b>E</b>             |
| .30<br>(7.5)         | 1.06<br>(27)         | 2.76<br>(70)         |
| <b>E<sub>1</sub></b> | <b>E<sub>2</sub></b> | <b>F</b>             |
| .67<br>(17)          | 1.65<br>(42)         | 1.08<br>(28)         |
| <b>G</b>             | <b>G<sub>1</sub></b> | <b>H</b>             |
| .98<br>(25)          | 2.36<br>(60)         | 1.18<br>(30)         |
| <b>H<sub>1</sub></b> | <b>H<sub>2</sub></b> | <b>J</b>             |
| .67<br>(17)          | .02<br>(0.5)         | .91<br>(23)          |
| <b>J<sub>1</sub></b> | <b>M</b>             | <b>M<sub>1</sub></b> |
| .14<br>(3.5)         | 1.30<br>(33)         | 2.76<br>(70)         |
| <b>N</b>             | <b>N<sub>1</sub></b> | <b>P</b>             |
| .59<br>(15)          | .04<br>(1)           | Ø .26<br>Ø (6.6)     |
| <b>P<sub>1</sub></b> | Ø .17<br>Ø (4.4)     |                      |
| Inches (mm)          |                      |                      |

**P2LDX 5/2 & 5/3 Hand Lever Operated**  
 Lever operation 90° to ports movement



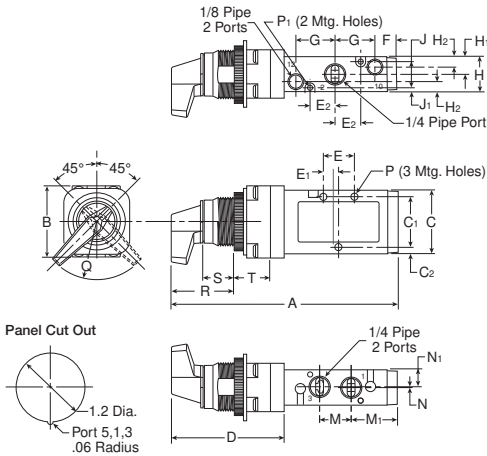
| P2LDX 5/2 & 5/3 |                      |                      |
|-----------------|----------------------|----------------------|
| <b>A</b>        | <b>A<sub>1</sub></b> | <b>B</b>             |
| 6.20<br>(157.5) | 7.07<br>(179.5)      | 5.36<br>(136.3)      |
| <b>C</b>        | <b>D</b>             | <b>D<sub>1</sub></b> |
| 1.89<br>(48)    | 3.19<br>(81)         | 2.76<br>(70)         |
| <b>E</b>        | <b>F</b>             | <b>H</b>             |
| 1.34<br>(34)    | 1.65<br>(42)         | .91<br>(23)          |
| <b>J</b>        | <b>K</b>             | <b>M</b>             |
| .14<br>(3.5)    | .30<br>(7.5)         | 1.18<br>(30)         |
| Inches (mm)     |                      |                      |



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

**P2LBX 3/2 Twist Lever Operated**

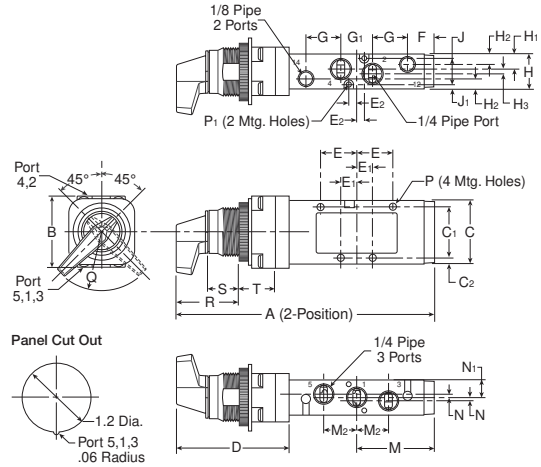


**P2LBX 3/2**

| A             | B              | C              | C <sub>1</sub> | C <sub>2</sub>  | D             | E              | E <sub>1</sub> | E <sub>2</sub> |
|---------------|----------------|----------------|----------------|-----------------|---------------|----------------|----------------|----------------|
| 5.67<br>(144) | 1.79<br>(45.5) | 1.57<br>(40)   | 1.26<br>(32)   | .16<br>(4)      | 2.87<br>(73)  | .79<br>(20)    | .39<br>(10)    | .63<br>(16)    |
| F             | G              | H              | H <sub>1</sub> | H <sub>2</sub>  | J             | J <sub>1</sub> | M              | M <sub>1</sub> |
| .55<br>(14)   | .98<br>(25)    | .87<br>(22.2)  | .44<br>(11.1)  | .26<br>(6.6)    | .65<br>(16.5) | .11<br>(2.9)   | .79<br>(20)    | 1.14<br>(29)   |
| N             | N <sub>1</sub> | P              | P <sub>1</sub> | Q               | R             | S              | T              |                |
| .02<br>(0.5)  | .42<br>(10.6)  | ∅ .17<br>(4.3) | ∅ .12<br>(3.1) | 1.5R<br>(38.1)R | 1.85<br>(47)  | 1.10<br>(28)   | .67<br>(17)    |                |

Inches (mm)

**P2LBX 5/2 Twist Lever Operated**

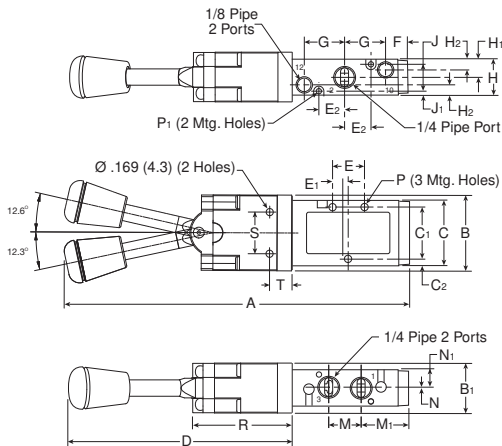


**P2LBX 5/2**

| A             | B              | C              | C <sub>1</sub> | C <sub>2</sub>  | D              | E             | E <sub>1</sub> | E <sub>2</sub> | F              |
|---------------|----------------|----------------|----------------|-----------------|----------------|---------------|----------------|----------------|----------------|
| 6.46<br>(164) | 1.79<br>(45.5) | 1.57<br>(40)   | 1.26<br>(32)   | .15<br>(4)      | 2.87<br>(73)   | .91<br>(23)   | .39<br>(10)    | .20<br>(5)     | .67<br>(17)    |
| G             | G <sub>1</sub> | H              | H <sub>1</sub> | H <sub>2</sub>  | H <sub>3</sub> | J             | J <sub>1</sub> | M              | M <sub>2</sub> |
| .87<br>(22)   | .79<br>(20)    | .87<br>(22.2)  | .44<br>(11.1)  | .26<br>(6.6)    | .12<br>(3)     | .65<br>(16.5) | .11<br>(2.9)   | 1.93<br>(49)   | .79<br>(20)    |
| N             | N <sub>1</sub> | P              | P <sub>1</sub> | Q               | R              | S             | T              |                |                |
| .08<br>(0.2)  | .44<br>(11.1)  | ∅ .17<br>(4.3) | ∅ .12<br>(3.1) | 1.5R<br>(38.1)R | 1.85<br>(47)   | 1.10<br>(28)  | .67<br>(17)    |                |                |

Inches (mm)

**P2LBX 3/2 Knob Lever Operated**  
 Lever operation inline with ports

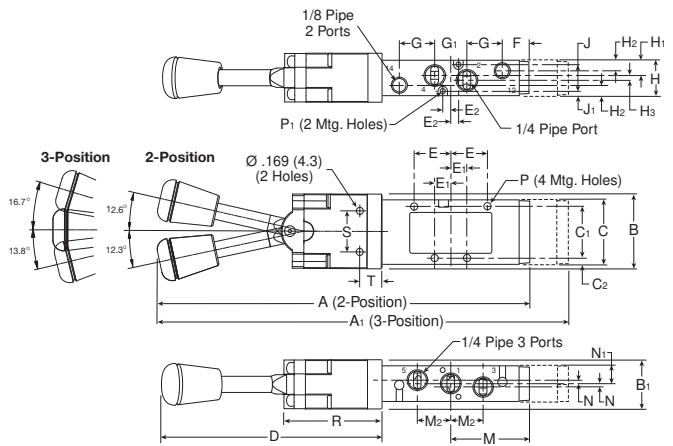


**P2LBX 3/2**

| A              | B              | B <sub>1</sub> | C              | C <sub>1</sub> | C <sub>2</sub> | D             | E              | E <sub>1</sub> |
|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|
| 8.19<br>(208)  | 1.79<br>(45.5) | 1.2<br>(30.5)  | 1.57<br>(40)   | 1.26<br>(32)   | .16<br>(4)     | 5.39<br>(137) | .79<br>(20)    | .39<br>(10)    |
| E <sub>2</sub> | F              | G              | H              | H <sub>1</sub> | H <sub>2</sub> | J             | J <sub>1</sub> | M              |
| .63<br>(16)    | .55<br>(14)    | .98<br>(25)    | .87<br>(22.2)  | .44<br>(11.1)  | .26<br>(6.6)   | .65<br>(16.5) | .11<br>(2.9)   | .79<br>(20)    |
| M <sub>1</sub> | N              | N <sub>1</sub> | P              | P <sub>1</sub> | R              | S             | T              |                |
| 1.14<br>(29)   | .02<br>(0.5)   | .42<br>(10.6)  | ∅ .17<br>(4.3) | ∅ .12<br>(3.1) | 2.38<br>(60.5) | .98<br>(25.0) | .52<br>(13.2)  |                |

Inches (mm)

**P2LBX 5/2 & 5/3 Knob Lever Operated**  
 Lever operation inline with ports



**P2LBX 5/2 & 5/3**

| A              | A <sub>1</sub> | B              | B <sub>1</sub> | C              | C <sub>1</sub> | C <sub>2</sub> | D              | E             | E <sub>1</sub> |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|
| 8.97<br>(228)  | 9.84<br>(250)  | 1.79<br>(45.5) | 1.2<br>(30.5)  | 1.57<br>(40)   | 1.26<br>(32)   | .15<br>(4)     | 5.39<br>(137)  | .91<br>(23)   | .39<br>(10)    |
| E <sub>2</sub> | F              | G              | G <sub>1</sub> | H              | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | J             | J <sub>1</sub> |
| .20<br>(5)     | .67<br>(17)    | .87<br>(22)    | .79<br>(20)    | .87<br>(22.2)  | .44<br>(11.1)  | .26<br>(6.6)   | .12<br>(3)     | .65<br>(16.5) | .11<br>(2.9)   |
| M              | M <sub>2</sub> | N              | N <sub>1</sub> | P              | P <sub>1</sub> | R              | S              | T             |                |
| 1.93<br>(49)   | .79<br>(20)    | .08<br>(0.2)   | .44<br>(11.1)  | ∅ .17<br>(4.3) | ∅ .12<br>(3.1) | 2.38<br>(60.5) | .98<br>(25.0)  | .52<br>(13.2) |                |

Inches (mm)

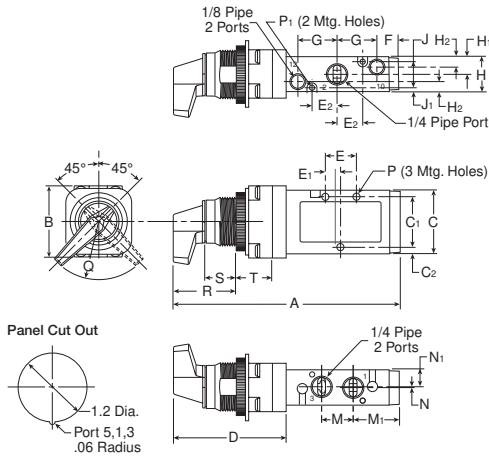
Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 4:2 Lever / Pedal Series  
 M0 Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)



**P2LBX 3/2 Twist Lever Operated**

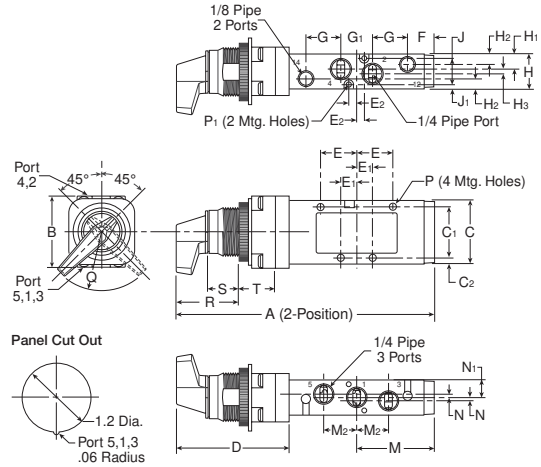


**P2LBX 3/2**

| A             | B              | C              | C <sub>1</sub> | C <sub>2</sub>  | D             | E              | E <sub>1</sub> | E <sub>2</sub> |
|---------------|----------------|----------------|----------------|-----------------|---------------|----------------|----------------|----------------|
| 5.67<br>(144) | 1.79<br>(45.5) | 1.57<br>(40)   | 1.26<br>(32)   | .16<br>(4)      | 2.87<br>(73)  | .79<br>(20)    | .39<br>(10)    | .63<br>(16)    |
| F             | G              | H              | H <sub>1</sub> | H <sub>2</sub>  | J             | J <sub>1</sub> | M              | M <sub>1</sub> |
| .55<br>(14)   | .98<br>(25)    | .87<br>(22.2)  | .44<br>(11.1)  | .26<br>(6.6)    | .65<br>(16.5) | .11<br>(2.9)   | .79<br>(20)    | 1.14<br>(29)   |
| N             | N <sub>1</sub> | P              | P <sub>1</sub> | Q               | R             | S              | T              |                |
| .02<br>(0.5)  | .42<br>(10.6)  | ∅ .17<br>(4.3) | ∅ .12<br>(3.1) | 1.5R<br>(38.1)R | 1.85<br>(47)  | 1.10<br>(28)   | .67<br>(17)    |                |

Inches (mm)

**P2LBX 5/2 Twist Lever Operated**

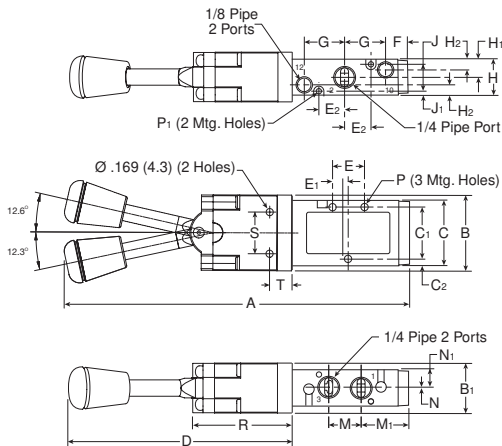


**P2LBX 5/2**

| A             | B              | C              | C <sub>1</sub> | C <sub>2</sub>  | D              | E             | E <sub>1</sub> | E <sub>2</sub> | F              |
|---------------|----------------|----------------|----------------|-----------------|----------------|---------------|----------------|----------------|----------------|
| 6.46<br>(164) | 1.79<br>(45.5) | 1.57<br>(40)   | 1.26<br>(32)   | .15<br>(4)      | 2.87<br>(73)   | .91<br>(23)   | .39<br>(10)    | .20<br>(5)     | .67<br>(17)    |
| G             | G <sub>1</sub> | H              | H <sub>1</sub> | H <sub>2</sub>  | H <sub>3</sub> | J             | J <sub>1</sub> | M              | M <sub>2</sub> |
| .87<br>(22)   | .79<br>(20)    | .87<br>(22.2)  | .44<br>(11.1)  | .26<br>(6.6)    | .12<br>(3)     | .65<br>(16.5) | .11<br>(2.9)   | 1.93<br>(49)   | .79<br>(20)    |
| N             | N <sub>1</sub> | P              | P <sub>1</sub> | Q               | R              | S             | T              |                |                |
| .08<br>(0.2)  | .44<br>(11.1)  | ∅ .17<br>(4.3) | ∅ .12<br>(3.1) | 1.5R<br>(38.1)R | 1.85<br>(47)   | 1.10<br>(28)  | .67<br>(17)    |                |                |

Inches (mm)

**P2LBX 3/2 Knob Lever Operated**  
 Lever operation inline with ports

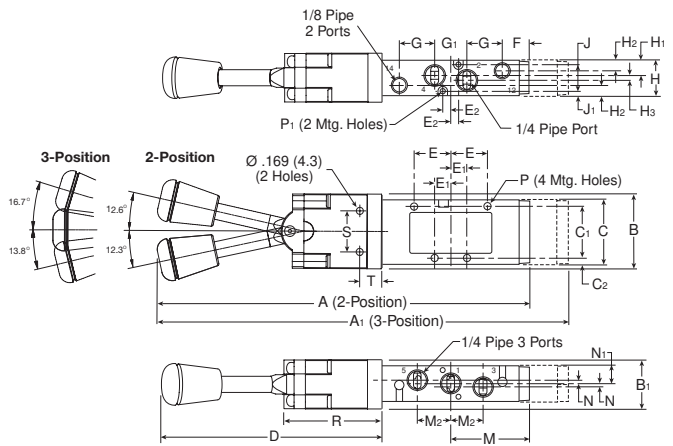


**P2LBX 3/2**

| A              | B              | B <sub>1</sub> | C              | C <sub>1</sub> | C <sub>2</sub> | D             | E              | E <sub>1</sub> |
|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|
| 8.19<br>(208)  | 1.79<br>(45.5) | 1.2<br>(30.5)  | 1.57<br>(40)   | 1.26<br>(32)   | .16<br>(4)     | 5.39<br>(137) | .79<br>(20)    | .39<br>(10)    |
| E <sub>2</sub> | F              | G              | H              | H <sub>1</sub> | H <sub>2</sub> | J             | J <sub>1</sub> | M              |
| .63<br>(16)    | .55<br>(14)    | .98<br>(25)    | .87<br>(22.2)  | .44<br>(11.1)  | .26<br>(6.6)   | .65<br>(16.5) | .11<br>(2.9)   | .79<br>(20)    |
| M <sub>1</sub> | N              | N <sub>1</sub> | P              | P <sub>1</sub> | R              | S             | T              |                |
| 1.14<br>(29)   | .02<br>(0.5)   | .42<br>(10.6)  | ∅ .17<br>(4.3) | ∅ .12<br>(3.1) | 2.38<br>(60.5) | .98<br>(25.0) | .52<br>(13.2)  |                |

Inches (mm)

**P2LBX 5/2 & 5/3 Knob Lever Operated**  
 Lever operation inline with ports



**P2LBX 5/2 & 5/3**

| A              | A <sub>1</sub> | B              | B <sub>1</sub> | C              | C <sub>1</sub> | C <sub>2</sub> | D              | E             | E <sub>1</sub> |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|
| 8.97<br>(228)  | 9.84<br>(250)  | 1.79<br>(45.5) | 1.2<br>(30.5)  | 1.57<br>(40)   | 1.26<br>(32)   | .15<br>(4)     | 5.39<br>(137)  | .91<br>(23)   | .39<br>(10)    |
| E <sub>2</sub> | F              | G              | G <sub>1</sub> | H              | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | J             | J <sub>1</sub> |
| .20<br>(5)     | .67<br>(17)    | .87<br>(22)    | .79<br>(20)    | .87<br>(22.2)  | .44<br>(11.1)  | .26<br>(6.6)   | .12<br>(3)     | .65<br>(16.5) | .11<br>(2.9)   |
| M              | M <sub>2</sub> | N              | N <sub>1</sub> | P              | P <sub>1</sub> | R              | S              | T             |                |
| 1.93<br>(49)   | .79<br>(20)    | .08<br>(0.2)   | .44<br>(11.1)  | ∅ .17<br>(4.3) | ∅ .12<br>(3.1) | 2.38<br>(60.5) | .98<br>(25.0)  | .52<br>(13.2) |                |

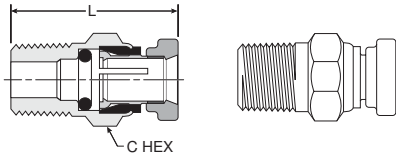
Inches (mm)



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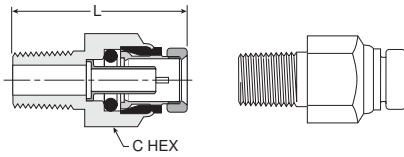
Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 4:2 Lever / Pedal Series  
 M0 Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

**68PM Male Connector**



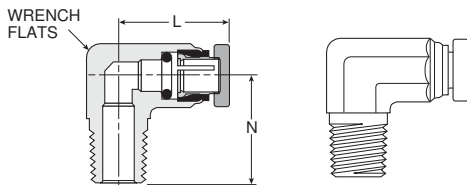
| Part number | Tube size | Pipe thread (NPTF) | C hex | L    |
|-------------|-----------|--------------------|-------|------|
| 68PM-2-1    | 1/8       | 1/16               | 3/82  | 0.93 |
| 68PM-2-2    | 1/8       | 1/8                | 7/16  | 0.88 |
| 68PM-5/32-1 | 5/32      | 1/16               | 3/8   | 0.95 |
| 68PM-5/32-2 | 5/32      | 1/8                | 7/16  | 0.74 |
| 68PM-5/32-4 | 5/32      | 1/4                | 9/16  | 0.99 |
| 68PM-3-1    | 3/16      | 1/16               | 7/16  | 0.95 |
| 68PM-3-2    | 3/16      | 1/8                | 7/16  | 0.92 |
| 68PM-3-4    | 3/16      | 1/4                | 9/16  | 1.10 |

**68PMT Male Connector**



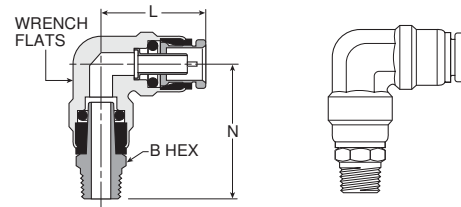
| Part number | Tube size | Pipe thread (NPTF) | C hex  | L    |
|-------------|-----------|--------------------|--------|------|
| 68PMT-4-2   | 1/4       | 1/8                | 1/2    | 1.06 |
| 68PMT-4-4   | 1/4       | 1/4                | 9/16   | 1.19 |
| 68PMT-4-6   | 1/4       | 3/8         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

**169PMNS Male Elbow Non-Swivel 90°**



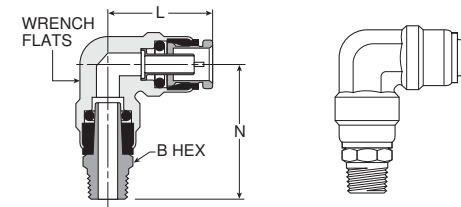
| Part number    | Tube size | Pipe thread (NPTF) | Wrench flats | L    | N    |
|----------------|-----------|--------------------|--------------|------|------|
| 169PMNS-2-2    | 1/8       | 1/8                | 3/8          | 0.86 | 0.68 |
| 169PMNS-5/32-2 | 5/32      | 1/8                | 3/8          | 0.88 | 0.68 |
| 169PMNS-3-2    | 3/16      | 1/8                | 3/8          | 0.75 | 0.67 |
| 169PMNS-3-4    | 3/16      | 1/4                | 1/2          | 0.74 | 0.93 |

**169PMT Male Elbow Swivel 90°**



| Part number | Tube size | Pipe Thread (NPTF) | Wrench flats | B hex | L    | N    |
|-------------|-----------|--------------------|--------------|-------|------|------|
| 169PMT-4-2  | 1/4       | 1/8                | 13/32        | 7/16  | 0.84 | 1.21 |
| 169PMT-4-4  | 1/4       | 1/4                | 13/32        | 9/16  | 0.84 | 1.43 |
| 169PMT-4-6  | 1/4       | 3/8                | 13/32        | 11/16 | 0.84 | 1.43 |
| 169PMT-6-2  | 3/8       | 1/8                | 9/16         | 9/16  | 1.11 | 1.41 |
| 169PMT-6-4  | 3/8       | 1/4                | 9/16         | 9/16  | 1.11 | 1.58 |
| 169PMT-6-6  | 3/8       | 3/8                | 9/16         | 11/16 | 1.11 | 1.58 |
| 169PMT-6-8  | 3/8       | 1/2                | 9/16         | 7/8   | 1.11 | 1.79 |
| 169PMT-8-4  | 1/2       | 1/4                | 11/16        | 5/8   | 1.27 | 1.73 |
| 169PMT-8-6  | 1/2       | 3/8                | 11/16        | 3/4   | 1.27 | 1.81 |
| 169PMT-8-8  | 1/2       | 1/2                | 11/16        | 7/8   | 1.27 | 1.96 |
| 169PMT-10-6 | 5/8       | 3/8                | 7/8          | 3/4   | 1.53 | 2.03 |
| 169PMT-10-8 | 5/8       | 1/2                | 7/8          | 7/8   | 1.53 | 2.18 |

**169PMTL Male Elbow Long Non-Swivel 90°**



| Part number  | Tube size | Pipe Thread (NPTF) | Wrench flats | B hex | L    | N    |
|--------------|-----------|--------------------|--------------|-------|------|------|
| 169PMTL-6-4  | 3/8       | 1/4                | 9/16         | 9/16  | 1.06 | 1.63 |
| 169PMTL-6-6  | 3/8       | 3/8                | 9/16         | 7/8   | 1.19 | 2.50 |
| 169PMTL-6-8  | 3/8       | 1/2                | 9/16         | 7/8   | 1.19 | 2.50 |
| 169PMTL-8-8  | 1/2       | 1/2                | 11/16        | 7/8   | 1.22 | 2.50 |
| 169PMTL-10-8 | 5/8       | 1/2                | 7/8          | 7/8   | 1.46 | 2.50 |

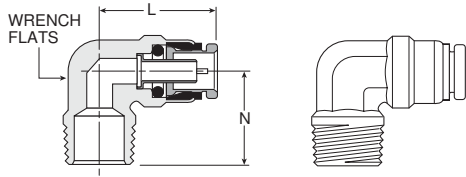


For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)



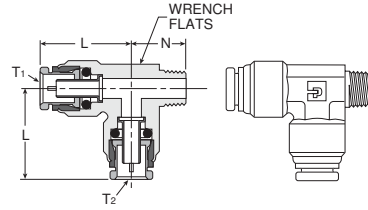
**Dimensional Data**

**169PMTNS Male Elbow Non-Swivel 90°**



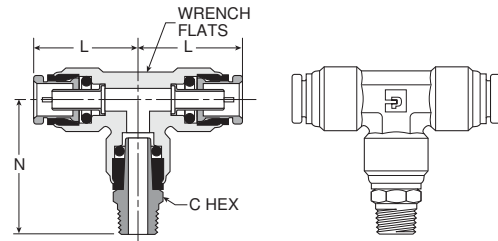
| Part number   | Tube size | Pipe thread (NPTF) | Wrench flats | L    | N    |
|---------------|-----------|--------------------|--------------|------|------|
| 169PMTNS-4-2  | 1/4       | 1/8                | 1/2          | 0.84 | 0.72 |
| 169PMTNS-4-4  | 1/4       | 1/4                | 1/2          | 0.84 | 0.90 |
| 169PMTNS-4-6  | 1/4       | 3/8                | 1/2          | 0.84 | 1.06 |
| 169PMTNS-6-2  | 3/8       | 1/8                | 9/16         | 1.05 | 0.75 |
| 169PMTNS-6-4  | 3/8       | 1/4                | 9/16         | 1.05 | 0.94 |
| 169PMTNS-6-6  | 3/8       | 3/8                | 3/4          | 1.05 | 0.94 |
| 169PMTNS-6-8  | 3/8       | 1/2                | 11/16        | 1.12 | 1.26 |
| 169PMTNS-8-4  | 1/2       | 1/4                | 11/16        | 1.17 | 1.06 |
| 169PMTNS-8-6  | 1/2       | 3/8                | 11/16        | 1.22 | 1.06 |
| 169PMTNS-8-8  | 1/2       | 1/2                | 11/16        | 1.22 | 1.26 |
| 169PMTNS-10-6 | 5/8       | 3/8                | 7/8          | 1.46 | 1.11 |
| 169PMTNS-10-8 | 5/8       | 1/2                | 7/8          | 1.46 | 1.32 |
| 169PMTNS-12-8 | 3/4       | 1/2                | 1            | 1.81 | 1.44 |

**171PMTNS Male Run Tee Non-Swivel**



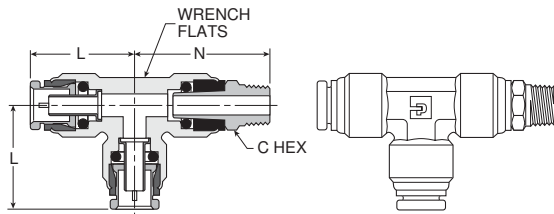
| Part number    | Tube 1 size | Tube 2 size | Pipe thread (NPTF) | Wrench flats | L1   | L2   | N    |
|----------------|-------------|-------------|--------------------|--------------|------|------|------|
| 171PMTNS-4-4   | 1/4         | 1/4         | 1/4                | 15-32        | 0.91 | 0.91 | 0.94 |
| 171PMTNS-4-6-4 | 1/4         | 3/8         | 1/4                | 5/8          | 0.93 | 1.21 | 0.97 |
| 171PMTNS-6-4   | 3/8         | 3/8         | 1/4                | 5/8          | 1.21 | 1.21 | 0.97 |
| 171PMTNS-6-4-4 | 3/8         | 1/4         | 1/4                | 5/8          | 1.21 | 0.93 | 0.97 |
| 171PMTNS-6-4-6 | 3/8         | 1/4         | 3/8                | 5/8          | 1.22 | 0.97 | 0.93 |
| 171PMTNS-6-6   | 1/2         | 3/8         | 3/8                | 5/8          | 1.21 | 1.27 | 0.97 |
| 171PMTNS-6-8   | 1/2         | 3/8         | 1/2                | 5/8          | 1.17 | 1.27 | 1.26 |
| 171PMTNS-8-4   | 1/2         | 1/2         | 1/4                | 7/8          | 1.28 | 1.27 | 1.06 |

**172PMT Male Branch Tee Swivel**



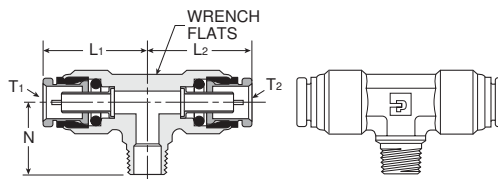
| Part number | Tube size | Pipe thread (NPTF) | Wrench flats | C hex | L    | N    |
|-------------|-----------|--------------------|--------------|-------|------|------|
| 172PMT-4-2  | 1/4       | 1/8                | 1/2          | 7/16  | 0.85 | 1.25 |
| 172PMT-4-4  | 1/4       | 1/4                | 1/2          | 9/16  | 0.85 | 1.43 |
| 172PMT-6-2  | 3/8       | 1/8                | 5/8          | 9/16  | 1.22 | 1.66 |
| 172PMT-6-4  | 3/8       | 1/4                | 5/8          | 5/8   | 1.22 | 1.83 |
| 172PMT-6-6  | 3/8       | 3/8                | 5/8          | 3/4   | 1.22 | 1.83 |
| 172PMT-8-4  | 1/2       | 1/4                | 7/8          | 5/8   | 1.27 | 1.73 |
| 172PMT-8-6  | 1/2       | 3/8                | 7/8          | 3/4   | 1.27 | 1.79 |
| 172PMT-8-8  | 1/2       | 1/2                | 7/8          | 7/8   | 1.27 | 1.97 |

**171PMT Male Run Tee Swivel**



| Part number | Tube size | Pipe thread (NPTF) | Wrench flats | L     | N    | N    |
|-------------|-----------|--------------------|--------------|-------|------|------|
| 171PMT-4-2  | 1/4       | 1/8                | 1/2          | 7/16  | .85  | 1.25 |
| 171PMT-4-4  | 1/4       | 1/4                | 1/2          | 9/16  | .85  | 1.48 |
| 171PMT-4-6  | 1/4       | 3/8                | 1/2          | 11/16 | .85  | 1.43 |
| 171PMT-6-4  | 3/8       | 1/4                | 5/8          | 9/16  | 1.21 | 1.83 |
| 171PMT-6-6  | 3/8       | 3/8                | 5/8          | 11/16 | 1.21 | 1.83 |
| 171PMT-8-4  | 1/2       | 1/4                | 7/8          | 5/8   | 1.27 | 1.74 |
| 171PMT-8-6  | 1/2       | 3/8                | 7/8          | 3/4   | 1.27 | 1.83 |
| 171PMT-8-8  | 1/2       | 1/2                | 7/8          | 7/8   | 1.27 | 1.99 |

**172PMTNS Male Branch Tee Non-Swivel**



| Part number    | Tube 1 size | Tube 2 size | Pipe thread (NPTF) | Wrench flats | L1   | L2   | N    |
|----------------|-------------|-------------|--------------------|--------------|------|------|------|
| 172PMTNS-4-2   | 1/4         | 1/4         | 1/8                | 1/2          | 0.91 | 0.91 | 0.78 |
| 172PMTNS-6-4   | 3/8         | 3/8         | 1/4                | 5/8          | 1.21 | 1.21 | 0.97 |
| 172PMTNS-6-4-4 | 3/8         | 1/4         | 1/4                | 5/8          | 1.21 | .93  | 0.97 |
| 172PMTNS-6-6   | 3/8         | 3/8         | 3/8                | 5/8          | 1.21 | 1.21 | 0.97 |
| 172PMTNS-6-8   | 3/8         | 3/8         | 1/2                | 7/8          | 1.17 | 1.17 | 1.26 |
| 172PMTNS-8-6   | 1/2         | 1/2         | 3/8                | 7/8          | 1.28 | 1.28 | 1.06 |
| 172PMTNS-8-6-8 | 1/2         | 3/8         | 1/2                | 7/8          | 1.25 | 1.25 | 1.25 |
| 172PMTNS-8-8   | 1/2         | 1/2         | 1/2                | 7/8          | 1.34 | 1.25 | 1.25 |

Directair 2 & 4 Series

Viking Xtreme Lever Series

42 Lever / Pedal Series

MO Series

Safety



Manual / Mechanical Valves

Brass Poppet / Sliding Seal

Control Panel Products

Sensing



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

## 42 Lever / Pedal Series

### Heavy duty lever

- Parallel mount handle
- Perpendicular mount handle

### Heavy duty foot pedal

#### 2 port sizes

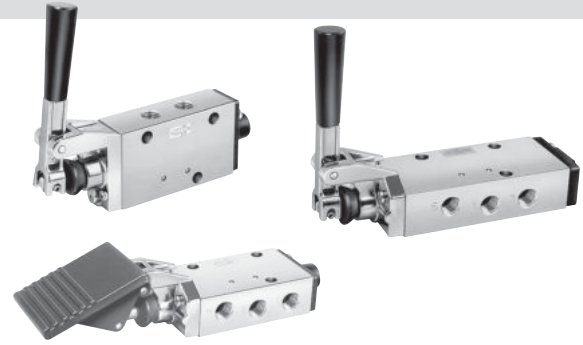
- 1/4" port – 1.3 to 2.2 Cv
- 3/8" port – 1.3 to 2.9 Cv

#### 2-position

- 4-way

#### 3-position valves

- All ports blocked
- Center exhaust



### Operating information

Operating pressure: Vacuum to 150 PSI (710 mmHg to 1035 kPa)  
Temperature range: 0°F to 140°F (-18°C to 60°C)

### Lever Valve - 2-Position

|  | Symbol | Port size | Cv  | Description           | Valve type                | Part number      |
|--|--------|-----------|-----|-----------------------|---------------------------|------------------|
|  |        | 1/4"      | 2.2 | Inline, parallel      | 2-position, spring return | <b>422CS011K</b> |
|  |        | 3/8"      | 2.9 | Inline, parallel      | 2-position, spring return | <b>422CS021K</b> |
|  |        | 1/4"      | 2.2 | Inline, parallel      | 2-position, detent        | <b>422CS011W</b> |
|  |        | 3/8"      | 2.9 | Inline, parallel      | 2-position, detent        | <b>422CS021W</b> |
|  |        | 1/4"      | 2.2 | Inline, perpendicular | 2-position, spring return | <b>422CR011K</b> |
|  |        | 3/8"      | 2.9 | Inline, perpendicular | 2-position, spring return | <b>422CR021K</b> |
|  |        | 1/4"      | 2.2 | Inline, perpendicular | 2-position, detent        | <b>422CR011W</b> |
|  |        | 3/8"      | 2.9 | Inline, perpendicular | 2-position, detent        | <b>422CR021W</b> |

### Lever Valve - 3-Position

|  | Symbol | Port size | Cv  | Description           | Valve type      | Part number      |
|--|--------|-----------|-----|-----------------------|-----------------|------------------|
|  |        | 1/4"      | 1.3 | Inline, parallel      | 3-position, APB | <b>422CS013W</b> |
|  |        | 3/8"      | 1.3 | Inline, parallel      | 3-position, APB | <b>422CS023W</b> |
|  |        | 1/4"      | 1.3 | Inline, parallel      | 3-position, CE  | <b>422CS014W</b> |
|  |        | 3/8"      | 1.3 | Inline, parallel      | 3-position, CE  | <b>422CS024W</b> |
|  |        | 1/4"      | 1.3 | Inline, perpendicular | 3-position, APB | <b>422CR013W</b> |
|  |        | 3/8"      | 1.3 | Inline, perpendicular | 3-position, APB | <b>422CR023W</b> |
|  |        | 1/4"      | 1.3 | Inline, perpendicular | 3-position, CE  | <b>422CR014W</b> |
|  |        | 3/8"      | 1.3 | Inline, perpendicular | 3-position, CE  | <b>422CR024W</b> |

### Foot Pedal Valve - 2-Position

|  | Symbol | Port size | Cv  | Description       | Valve type                | Part number      |
|--|--------|-----------|-----|-------------------|---------------------------|------------------|
|  |        | 1/4"      | 2.2 | Foot pedal        | 2-position, spring return | <b>422CT011K</b> |
|  |        | 3/8"      | 2.9 | Foot pedal        | 2-position, spring return | <b>422CT021K</b> |
|  |        |           |     | Foot pedal guard* |                           | <b>PS2043P</b>   |

\* This kit contains the valve mounting hardware.

### CAUTION:

*This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.*

Most popular.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

42 Lever / Pedal Series

**422 C R 0 1 1 K**

| Operator #14 End                                    |   |
|---|---|
| Lever Perpendicular (Inline Only)                   | R |
| Lever Parallel                                      | S |
| Foot Pedal (2-Position, Spring Return, Inline Only) | T |

| Operator #12 End |                                 |
|------------------|---------------------------------|
| K                | Spring Return (2-Position Only) |
| W                | Detented                        |

| Style |   |
|-------|---|
| NPT   | 0 |

| Function (4-Way) |   |
|------------------|---|
| 2-Position       |   |
| 1                | Single Pressure                         |
| 3-Position*      |   |
| 3                | Single Pressure - All Ports Blocked     |
| 4                | Single Pressure - Cyl. Ports to Exhaust |


\* Available Detented Only.

| Port Size |      |
|-----------|------|
| 1         | 1/4" |
| 2         | 3/8" |

Valve body service kits

|                  |                 |                |
|------------------|-----------------|----------------|
| 2-position valve | Single pressure | <b>PS2038P</b> |
|                  | Dual pressure   | <b>PS2039P</b> |
| 3-position valve | Single pressure | <b>PS2041P</b> |

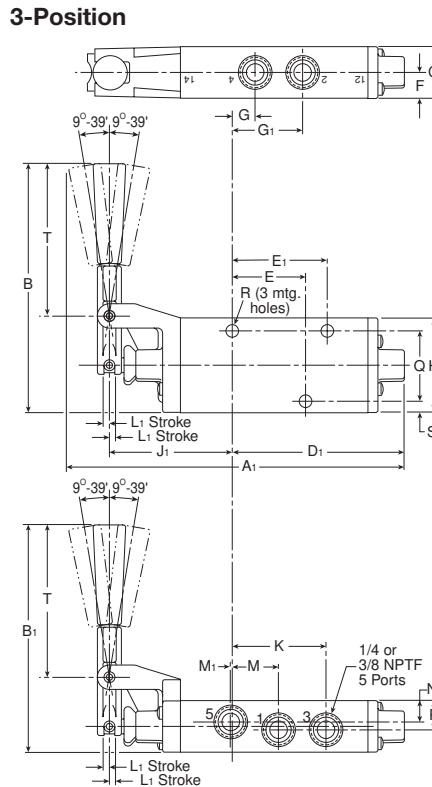
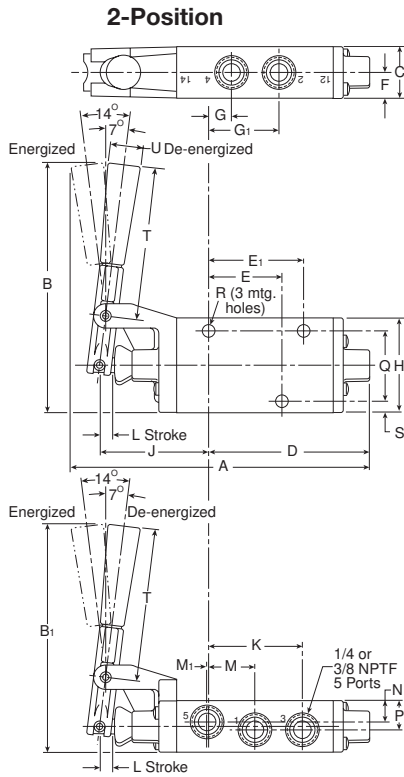
Kit includes: all soft seals and spool.

 Most popular.



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing



**Lever Valve**

| A             | A <sub>1</sub> | B             | B <sub>1</sub> | C            |
|---------------|----------------|---------------|----------------|--------------|
| 6.70<br>(170) | 7.58<br>(193)  | 5.55<br>(141) | 5.05<br>(128)  | 1.15<br>(29) |

| D            | D <sub>1</sub> | E            | E <sub>1</sub> | F           |
|--------------|----------------|--------------|----------------|-------------|
| 3.59<br>(91) | 3.83<br>(97)   | 1.58<br>(40) | 2.06<br>(52)   | .57<br>(14) |

| G NPT                          | G <sub>1</sub> NPT               | H            |
|--------------------------------|----------------------------------|--------------|
| 1/4" .51 (13)<br>3/8" .55 (14) | 1/4" 1.56 (40)<br>3/8" 1.51 (38) | 2.13<br>(54) |

| J            | J <sub>1</sub> | K NPT                            | L          |
|--------------|----------------|----------------------------------|------------|
| 2.44<br>(62) | 2.80<br>(71)   | 1/4" 2.08 (53)<br>3/8" 2.13 (54) | .25<br>(6) |

| L <sub>1</sub> | M            | M <sub>1</sub> NPT            | N           |
|----------------|--------------|-------------------------------|-------------|
| .18<br>(5)     | 1.03<br>(36) | 1/4" .02 (.5)<br>3/8" .06 (2) | .50<br>(13) |

| P           | Q            | R          | S          | T            |
|-------------|--------------|------------|------------|--------------|
| .65<br>(17) | 1.58<br>(40) | .33<br>(8) | .27<br>(7) | 3.42<br>(87) |

**U Dia**

.75  
(19)

Inches (mm)

**Foot Pedal Valve**

| A             | B            | B <sub>1</sub> | C            | D            |
|---------------|--------------|----------------|--------------|--------------|
| 8.64<br>(220) | 2.18<br>(55) | 1.03<br>(26)   | 1.15<br>(29) | 3.59<br>(91) |

| E            | E <sub>1</sub> | F           | G NPT                          |
|--------------|----------------|-------------|--------------------------------|
| 1.58<br>(40) | 2.06<br>(52)   | .57<br>(14) | 1/4" .51 (13)<br>3/8" .55 (14) |

| G <sub>1</sub> NPT               | H            | H <sub>1</sub> | J            |
|----------------------------------|--------------|----------------|--------------|
| 1/4" 1.56 (40)<br>3/8" 1.51 (38) | 2.13<br>(54) | 2.50<br>(64)   | 2.32<br>(59) |

| K NPT                            | L           | M            |
|----------------------------------|-------------|--------------|
| 1/4" 2.08 (53)<br>3/8" 2.13 (54) | .60<br>(15) | 1.03<br>(26) |

| M <sub>1</sub> NPT            | N           | P           | Q            |
|-------------------------------|-------------|-------------|--------------|
| 1/4" .02 (.5)<br>3/8" .06 (2) | .50<br>(13) | .65<br>(17) | 1.58<br>(40) |

| R          | S          | T            | U           |
|------------|------------|--------------|-------------|
| .33<br>(8) | .27<br>(7) | 3.00<br>(76) | .48<br>(11) |

Inches (mm)

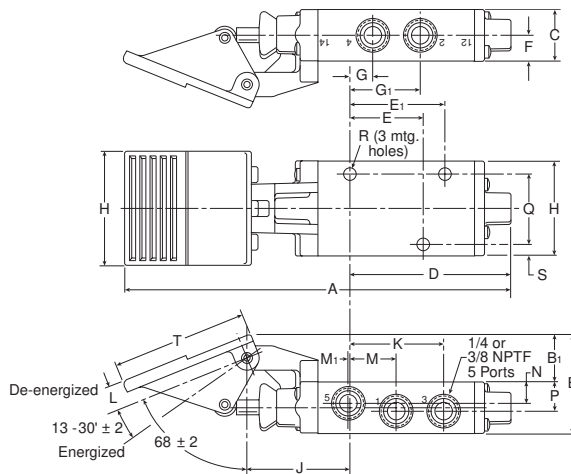
**Foot Valve Guard: PS2043P\***

| A             | A <sub>1</sub> | B              | B <sub>1</sub> | C           |
|---------------|----------------|----------------|----------------|-------------|
| 4.50<br>(114) | .75<br>(19)    | 10.50<br>(267) | 1.25<br>(32)   | .48<br>(11) |

| D             | E             | E <sub>1</sub> | F              | F <sub>1</sub> |
|---------------|---------------|----------------|----------------|----------------|
| 6.00<br>(152) | 7.13<br>(181) | .50<br>(13)    | 13.00<br>(330) | 8.38<br>(213)  |

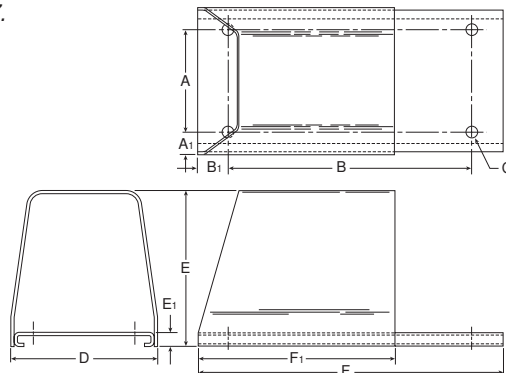
Inches (mm)

\* This kit contains the valve mounting hardware.



**CAUTION:**

*This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.*



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing

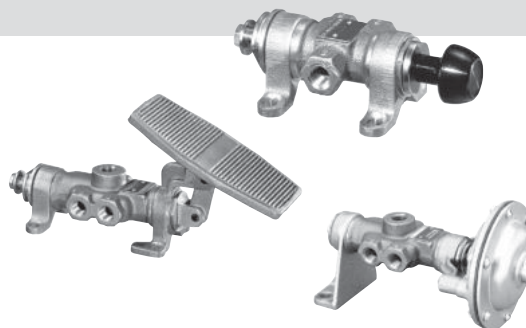


Features

MO Series

MO Series

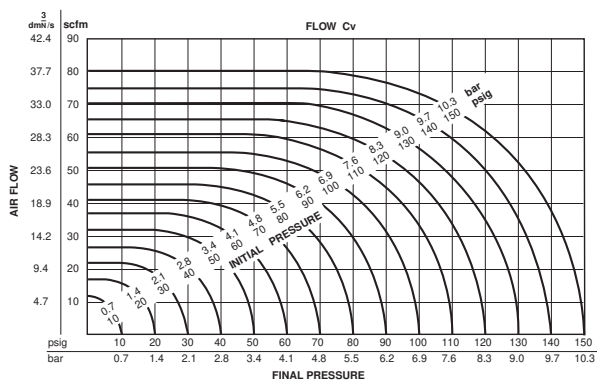
- 1/4" to 3/4" NPTF ports
- Standard operators listed. Consult factor for variations in orientation
- Standard 2 position 3-way and 4-way valves listed. Consult factory for 2-way and 3 position valves
- Corrosion resistant bronze body
- High flow brass spacers position o-ring, permit reverse piping and vacuum service
- Specially compounded o-rings suitable for non-lube air service and low pressure oil service
- Floating stem of hard chrome plated stainless steel; no metal to metal contact
- Closed at crossover design for air savings
- Piped exhaust convenient for muffling
- Interchangeable operators
- Interchangeable end sections
- Service without disturbing plumbing
- Dual mounting brackets on most models



Flow Cv ratings

| Valve type       | Port size | Port 1 to 2 | Port 1 to 3 | Port 2 to 3 | Port 2 to 4 | Port 3 to 4 |
|------------------|-----------|-------------|-------------|-------------|-------------|-------------|
| 3-way 2-position | 1/4       | 2.4         | —           | 2.4         | —           | —           |
|                  | 3/8       | 3.2         | —           | 3.4         | —           | —           |
|                  | 1/2       | 5.0         | —           | 5.1         | —           | —           |
| 4-way 2-position | 1/4       | 2.4         | 2.4         | —           | 2.0         | 2.2         |
|                  | 3/8       | 3.4         | 3.2         | —           | 3.0         | 3.1         |
|                  | 1/2       | 5.2         | 5.3         | —           | 4.7         | 4.7         |
|                  | 3/4       | 8.7         | 9.2         | —           | 7.9         | 8.0         |

Flow Cv



Flow capacities

The capacity curves shown in the chart are for a theoretical valve having a Cv = 1.0 for air at standard conditions.

Flow rating determined in accordance with NFPA recommended standard NFPA/T3.21.3 - 1974.

Operating information

Pressure limitations  
Knob (manual and spring return) and palm operators (manual and spring return)

| Media             | Port size       | PSI (kPa)               |            |
|-------------------|-----------------|-------------------------|------------|
|                   |                 | 3-way                   | 4-way      |
| Air and Hydraulic | 1/4             | 200 (1380)              | 180 (1240) |
|                   | 3/8             | 175 (1210)              | 170 (1170) |
|                   | 1/2             | 160 (1100)              | 150 (1030) |
|                   | 3/4             | 150 (1030)              | 150 (1030) |
| Vacuum            | All             | Within 1" Hg of perfect |            |
| Other             | Consult factory |                         |            |

Pressure limitations  
Knob (detent), lever, pedal, treadle, clevis, cam air operated diaphragm and cylinder

| Media             | Port size       | PSI (kPa)               |            |
|-------------------|-----------------|-------------------------|------------|
|                   |                 | 3-way                   | 4-way      |
| Air and Hydraulic | 1/4             | 225 (1550)              | 225 (1550) |
|                   | 3/8             | 225 (1550)              | 225 (1550) |
|                   | 1/2             | 215 (1480)              | 215 (1480) |
|                   | 3/4             | 200 (1380)              | 200 (1380) |
| Vacuum            | All             | Within 1" Hg of perfect |            |
| Other             | Consult factory |                         |            |

Temperature range: -15°F to 200°F (-26° to 93°C)

Lubrication: For best results and service life use clean, moisture free lubricated air.

Material specifications

|                          |   |
|--------------------------|---|
| Body                     | High pressure valve bronze  |
| Knobs and palm buttons   | Anodized aluminum   |
| Operators                | Iron castings; steel rod, bar and tube, and plated for corrosion resistance |
| O-rings                  | Buna-N and impregnated with Molybdenum Disulfide                            |
| Spacers and end bearings | Brass bar stock   |
| Springs                  | high quality steel and plated for corrosion resistance                      |
| Stem                     | Stainless steel and hard chrome plated                                      |

Warnings

- ⚠ Install guards on all hand operated valves if accidental operation can cause personal injury.
- ⚠ Foot operated valves must be protected against inadvertent operation that can cause serious bodily injury. Use of a guard is strongly recommended as it will reduce the likelihood of inadvertent operation.



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series

Viking Xtreme Lever Series

422 Lever / Pedal Series

MO Series

Safety








































Manual / Mechanical Valves

Brass Poppet / Sliding Seal

Control Panel Products

Sensing

MO Series Air Pilot, Manual & Mechanically Actuated Valves

| 3-way and 4-way knob operated   | Description   | Part number 1/4 NPT | Part number 3/8 NPT | Part number 1/2 NPT | Part number 3/4 NPT |
|---|---|---------------------|---------------------|---------------------|---------------------|
|    |  3-way, detent ball, foot bracket  | M05422448           | M05432448           | M05442448           | M05462448           |
|   |  3-way, detent ball, panel mount with nut  | M05822451           | M05832451           | M05842451           | M05862451           |
|    |  3-way, N.C., manual, foot bracket   | M08521848           | M08531848           | M08541848           | M08561848           |
|   |  3-way, N.C., manual, panel nut  | M08521851           | M08531851           | M08541851           | M08561851           |
|   |  3-way, N.C., pull to operate, spring return, foot bracket                       | M09721848           | M09731848           | M09741848           | M09761848           |
|   |  3-way, N.C., pull to operate, spring return, panel mount with nut               | M06421851           | M06431851           | M06441851           | M06461851           |
|    |  3-way, N.C., push to operate, spring return, foot bracket                       | M09821848           | M09831848           | M09841848           | M09861848           |
|   |  3-way, N.C., push to operate, spring return, panel mount with nut               | M06521851           | M06531851           | M06541851           | M06561851           |
|   |  4-way, detent ball, foot bracket  | M05425448           | M05435448           | M05445448           | M05465448           |
|    |  4-way, detent ball, panel mount with nut  | M05825451           | M05835451           | M05845451           | M05865451           |
|   |  4-way, manual, foot bracket   | M08524648           | M08534648           | M08544648           | M08564648           |
|    |  4-way, manual, panel nut  | M08524651           | M08534651           | M08544651           | M08564651           |
|   |  4-way, pull to operate, spring return, foot bracket                             | M09724648           | M09734648           | M09744648           | M09764648           |
|    |  4-way, pull to operate, spring return, panel mount with nut                     | M06424651           | M06434651           | M06444651           | M06464651           |
|   |  4-way, push to operate, spring return, foot bracket                             | M09824648           | M09834648           | M09844648           | M09864648           |
|    |  4-way, push to operate, spring return, panel mount with nut                     | M06524651           | M06534651           | M06544651           | M06564651           |
|   | <b>3-way and 4-way palm button operated</b>   |                     |                     |                     |                     |
|  |  3-way, N.C., pull palm button to operate, spring return, panel mount with nut | M06421859           | M06431859           | M06441859           | M06461859           |
|   |  3-way, N.C., push palm button to operate, spring return, panel mount with nut | M06521859           | M06531859           | M06541859           | M06561859           |
|   |  4-way, pull palm button to operate, spring return panel mount with nut        | M06424659           | M06434659           | M06444659           | M06464659           |
|   |  4-way, push palm button to operate, spring return, panel mount with nut       | M06524659           | M06534659           | M06544659           | M06564659           |
| <b>3-way and 4-way lever operated</b>   |   |                     |                     |                     |                     |
|  |  3-way, detent ball, foot bracket  | M05422443           | M05432443           | M05442443           | M05462443           |
|   |  3-way, manual, foot bracket   | M08521843           | M08531843           | M08541843           | M08561843           |
|   |  3-way, N.C., pull lever to operate, spring return, foot bracket               | M09621843           | M09631843           | M09641843           | M09661843           |
|   |  3-way, N.C., push lever to operate, spring return, foot bracket               | M09521843           | M09531843           | M09541843           | M09561843           |
|   |  4-way, detent ball, foot bracket  | M05425443           | M05435443           | M05445443           | M05465443           |
|   |  4-way, manual, foot bracket   | M08524643           | M08534643           | M08544643           | M08564643           |
|   |  4-way, pull lever to operate, spring return, foot bracket                     | M09624643           | M09634643           | M09644643           | M09664643           |
|   |  4-way, push lever to operate, spring return, foot bracket                     | M09524643           | M09534643           | M09544643           | M09564643           |

 Most popular.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal









Control Panel  
Products

Sensing

**Common Part Numbers**













**MO Series**

**MO Series Air Pilot, Manual & Mechanically Actuated Valves**

| 3-way and 4-way, foot operated: treadle / pedal type                              | Description  | Part number 1/4 NPT | Part number 3/8 NPT | Part number 1/2 NPT | Part number 3/4 NPT |
|---|--|---------------------|---------------------|---------------------|---------------------|
|  |  3-way, treadle operated, detent ball, foot bracket       | M05422488           | M05432488           | M05442488           | —                   |
|   |  3-way, treadle operated, manual return, foot bracket     | M08521888           | M08531888           | M08541888           | —                   |
|   |  3-way, N.C., spring return, pedal operated, foot bracket | M06221840           | M06231840           | M06241840           | —                   |
|  |  4-way, treadle operated, detent ball, foot bracket       | M05425488           | M05435488           | M05445488           | —                   |
|   |  4-way, treadle operated, manual return, foot bracket     | M08524688           | M08534688           | M08544688           | —                   |
|   |  4-way, spring return, pedal operated, foot bracket       | M06224640           | M06234640           | M06244640           | —                   |









**CAUTION:** This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.

**3-way and 4-way air operated : diaphragm or cylinder**




|   |  |           |           |           |           |
|---|--|-----------|-----------|-----------|-----------|
|    |  3-way, N.C., single air diaphragm, air signal to actuate, spring return foot bracket | M08421830 | M08431830 | M08441830 | —         |
|   |  3-way, single air cylinder signal to actuate, spring return foot bracket             | M08521826 | M08531826 | M08541826 | M08561826 |
|    |  3-way, double air diaphragm  | M03321833 | M03331833 | M03341833 | —         |
|   |  3-way, double air cylinder foot bracket   | M01921819 | M01931819 | M01941819 | M01961819 |
|   |  4-way, single air diaphragm, air signal to actuate, spring return foot bracket      | M08424630 | M08434630 | M08444630 | —         |
|   |  4-way, single air cylinder signal to actuate, spring return foot bracket           | M08524626 | M08534626 | M08544626 | M08564626 |
|  |  4-way, double air diaphragm  | M03324633 | M03334633 | M03344633 | —         |
|   |  4-way, double air cylinder foot bracket  | M01924619 | M01934619 | M01944619 | M01964619 |

**Note:** diaphragm operators : pilot signal pressures from 20 to 60 psi. Cylinder operators : pilot signal pressures from 20 to 250 psi.

**3-way and 4-way clevis operated**

|   |  |           |           |           |           |
|---|--|-----------|-----------|-----------|-----------|
|  |  3-way, manual, foot bracket                                | M08521805 | M08531805 | M08541805 | M08561805 |
|   |  3-way, N.C., pull to operate, spring return foot bracket   | M09621805 | M09631805 | M09641805 | M09661805 |
|   |  3-way, N.C., push to operate, spring return, foot bracket  | M09521805 | M09531805 | M09541805 | M09561805 |
|   |  4-way, manual, foot bracket                                | M08524605 | M08534605 | M08544605 | M08564605 |
|  |  4-way, pull clevis to operate, spring return, foot bracket | M09624605 | M09634605 | M09644605 | M09664605 |
|   |  4-way, push clevis to operate, spring return, foot bracket | M09524605 | M09534605 | M09544605 | M09564605 |

**3-way and 4-way cam operated**

|   |  |           |           |           |           |
|---|--|-----------|-----------|-----------|-----------|
|  |  3-way, N.C., spring return, cam operated, foot bracket | M09521803 | M09531803 | M09541803 | M09561803 |
|   |  4-way, spring return, cam operated, foot bracket       | M09524603 | M09534603 | M09544603 | M09564603 |

 Most popular.



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Ordering Information

MO Series

MO Valve: 1/4", 3/8", 1/2" Port Size

**MO 85 3 18 48**

| Valve Series |    |
|--------------|----|
| Basic Series | MO |

| Left End Section  |    |
|---|----|
| Double Cylinder   | 19 |
| Double Air Diaphragm  | 33 |
| Ball Detent, Small Bracket                                    | 54 |
| Ball Detent, Panel Mounted                                    | 58 |
| Direct Acting Spring Return, Less Bracket (Push Lever)        | 62 |
| Reverse Acting Spring Return, Less Bracket (Pull Lever)       | 63 |
| Light Spring Return Direct Acting, Less Bracket (Pull Knob)   | 64 |
| Light Spring Return Reverse Acting, Less Bracket (Push Knob)  | 65 |
| Stem Stop, Large Bracket                                      | 84 |
| Stem Stop, Small Bracket                                      | 85 |
| Direct Acting Spring Return, Small Bracket (Push Lever)       | 95 |
| Reverse Acting Spring Return, Small Bracket (Pull Lever)      | 96 |
| Light Spring Return Direct Acting, Small Bracket (Pull Knob)  | 97 |
| Light Spring Return Reverse Acting, Small Bracket (Push Knob) | 98 |

| Pipe Size |           |
|-----------|-----------|
| NPT       | Port Size |
| 1/4       | 2         |
| 3/8       | 3         |
| 1/2       | 4         |

| Operating End Section: Right End |                               |
|----------------------------------|-------------------------------|
| 03                               | Cam Follower                  |
| 05                               | Clevis, Small Bracket         |
| 19                               | Double Cylinder               |
| 26                               | Single Cylinder               |
| 30                               | Single Diaphragm, Std. Spring |
| 33                               | Double Diaphragm              |
| 40                               | Pedal                         |
| 43                               | Lever, Mounting Feet          |
| 48                               | Knob, Small Bracket           |
| 51                               | Knob, Panel Mounted           |
| 59                               | Palm Button, Panel Mounted    |
| 88                               | Treadle                       |
| 99                               | Palm Button                   |

| Body / Function |                          |
|-----------------|--------------------------|
| 18              | 3-Way                    |
| 24*             | 3-Way, 2-Position Detent |
| 46              | 4-Way                    |
| 54*             | 4-Way, 2-Position Detent |

\* At least one end section must be coded 54.

MO Valve: 3/4" Port Size

**MO 85 6 18 48**

| Valve Series |    |
|--------------|----|
| Basic Series | MO |

| Left End Section  |    |
|---|----|
| Double Cylinder   | 19 |
| Ball Detent, Small Bracket                                    | 54 |
| Ball Detent, Panel Mounted                                    | 58 |
| Direct Acting Spring Return, Less Bracket (Push Lever)        | 62 |
| Reverse Acting Spring Return, Less Bracket (Pull Lever)       | 63 |
| Light Spring Return Direct Acting, Less Bracket (Pull Knob)   | 64 |
| Light Spring Return Reverse Acting, Less Bracket (Push Knob)  | 65 |
| Stem Stop, Small Bracket                                      | 85 |
| Direct Acting Spring Return, Small Bracket (Push Lever)       | 95 |
| Reverse Acting Spring Return, Small Bracket (Pull Lever)      | 96 |
| Light Spring Return Direct Acting, Small Bracket (Pull Knob)  | 97 |
| Light Spring Return Reverse Acting, Small Bracket (Push Knob) | 98 |

| Pipe Size |           |
|-----------|-----------|
| NPT       | Port Size |
| 3/4       | 6         |

| Operating End Section: Right End |                            |
|----------------------------------|----------------------------|
| 03                               | Cam Follower               |
| 05                               | Clevis, Small Bracket      |
| 19                               | Double Cylinder            |
| 26                               | Single Cylinder            |
| 43                               | Lever, Mounting Feet       |
| 48                               | Knob, Small Bracket        |
| 51                               | Knob, Panel Mounted        |
| 59                               | Palm Button, Panel Mounted |
| 99                               | Palm Button                |

| Body / Function |                          |
|-----------------|--------------------------|
| 18              | 3-Way                    |
| 24*             | 3-Way, 2-Position Detent |
| 46              | 4-Way                    |
| 54*             | 4-Way, 2-Position Detent |

\* At least one end section must be coded 54.



**CAUTION:**

Be sure to order end sections that are functionally effective with each other and with the body section selected. Model number combinations are possible which may not operate.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series

Viking Xtreme Lever Series

42 Lever / Pedal Series

MO Series

Safety



Manual / Mechanical Valves

Brass Poppet / Sliding Seal

Control Panel Products

Sensing

**Accessories**

**MO Series**

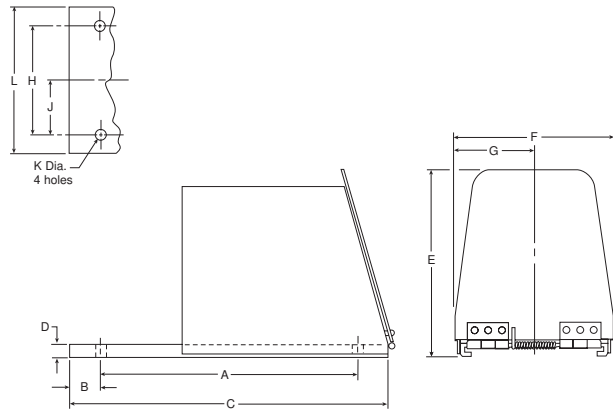
**Pedal Guard  
(Fits all pedal operated valves)**

| Description                              | Model number    |
|--|-----------------|
| Guard with door                          | <b>M232001</b>  |
| Guard without door                       | <b>M232002</b>  |
| Guard with door for 1/4 and 3/8 valve    | <b>M232003*</b> |
| Guard without door for 1/4 and 3/8 valve | <b>M232004*</b> |
| Guard with door for 1/2 and 3/4          | <b>M232005*</b> |
| Guard without door for 1/2 and 3/4       | <b>M232006*</b> |

\* Includes mounting hardware.

**CAUTION:**

Foot valves utilizing this guard shall not be used to actuate a punch press.  
Do not use this valve on punch presses or press brakes.  
See OSHA 1910.217.



**Dimensions**

| A     | B    | C     | D     | E     | F     | G    |
|-------|------|-------|-------|-------|-------|------|
| 10.50 | 1.25 | 13.00 | .50   | 7.38  | 6.36  | 3.18 |
| 266.7 | 31.8 | 330.2 | 12.7  | 187.4 | 161.5 | 80.8 |
| H     | J    | K     | L     |       |       |      |
| 4.50  | 2.25 | .44   | 6.00  |       |       |      |
| 114.3 | 57.2 | 11.2  | 152.4 |       |       |      |

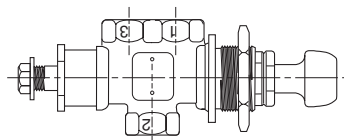
**MO valve 9 digit part number dissection**

The MO Valve Series has with wide variety of operating and return ends which can be ordered either on the left or right hand side of the valve body. Common part numbers on the previous pages can be ordered with the left and right hand ends swapped. Swapping operator and return end sections does not change the spool function, but can reverse the

expected function of the valve. For example, a 3-way, normally closed, "NC", spring return valve will become a 3-way normally open, "NO", valve when the operator and return section is swapped. There are other non-cataloged options available and this part number dissection will enable you to discuss your valve part number with the factory for options.

**3-way**

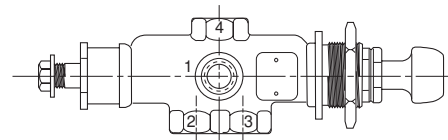
| Series name | Left end  | Port size | Body function | Right end |
|-------------|-----------|-----------|---------------|-----------|
| <b>MO</b>   | <b>XX</b> | <b>X</b>  | <b>XX</b>     | <b>XX</b> |



Left End Section in relation to port #2 ← → Right End Section in relation to port #2

**4-way**

| Series name | Left end  | Port size | Body function | Right end |
|-------------|-----------|-----------|---------------|-----------|
| <b>MO</b>   | <b>XX</b> | <b>X</b>  | <b>XX</b>     | <b>XX</b> |



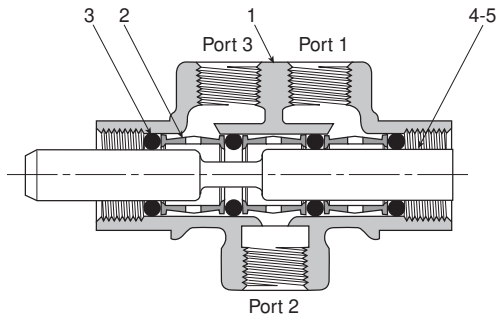
Left End Section in relation to port #2 ← → Right End Section in relation to port #3

Most popular.

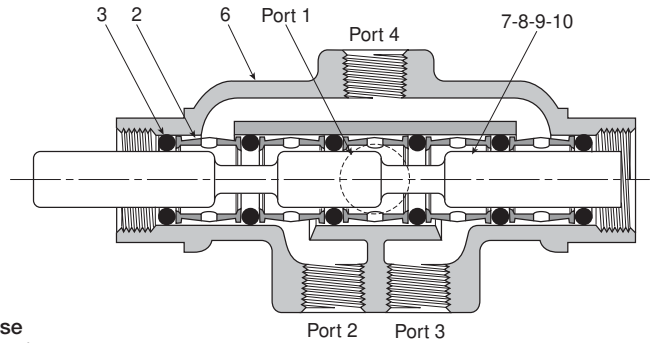


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Body Sections**



**M032\*18**  
**Standard 3-Way**  
**M032\*24**  
**2-Position Detent 3-Way**



**M032\*46**  
**Standard 4-Way**  
**M032\*54**  
**2-Position Detent 4-Way**

| Port Size | Use No. * |
|-----------|-----------|
| 1/4       | 2         |
| 3/8       | 3         |
| 1/2       | 4         |
| 3/4       | 6         |

| Item No. | Part number |         |         |         | Description                |
|----------|-------------|---------|---------|---------|----------------------------|
|          | 1/4"        | 3/8"    | 1/2"    | 3/4"    |                            |
| 1        | M053007     | M053019 | M053030 | M053038 | Body – 3-Way               |
| 2        | M313004     | M313011 | M313013 | M313017 | Spacer (2-3-5)             |
| 3        | H13466      | H13588  | H13580  | H13584  | O-Ring (3-4-6)             |
| 4        | M373014     | M373060 | M373102 | M373142 | Stem – 3-Way               |
| 5        | M373020     | M373064 | M373103 | M373146 | Stem – 3-Way 2-Pos. Detent |
| 6        | M053003     | M053020 | M053033 | M053039 | Body – 4-Way               |
| 7        | M373033     | M373074 | M373116 | M373156 | Stem – 4-Way               |
| 8        | M373039     | M373076 | M373118 | —       | Stem – 4-Way 2-Pos. Detent |

NOTE: ( ) denotes quantity required when more than one.

**Service Kits**

(Field service instructions)

| Description<br>(For all 3 & 4-way valves) | 1/4     | 3/8     | 1/2     | 3/4     |
|---|---------|---------|---------|---------|
| Manual & mechanical operators             | M242001 | M242002 | M242003 | M242004 |
| Cylinder (single, double & double-acting) | M242006 | M242007 | M242008 | M242009 |
| Diaphragm (single & double)               | M242011 | M242012 | M242013 | M242014 |

**Replacement Knobs & Palm Buttons**



Knob & Adapter Kit      Palm Button & Adapter Kit

| Description               | 1/4" & 3/8" | 1/2"    | 3/4"    |
|---------------------------|-------------|---------|---------|
| Knob & Adapter Kit        | M122001     | M122002 | M122003 |
| Palm Button & Adapter Kit | M122004     | M122005 | M122006 |

**Hex Drive Pipe Plugs**

| Port size   | 1/4"       | 3/8"       | 1/2"       | 3/4"       |
|-------------|------------|------------|------------|------------|
| Part number | K21R02025L | K21R02037L | K21R02050L | K21R02075L |



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing



Technical Data

Manual & Mechanical Operators

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever /  
Pedal Series

MO Series

Safety

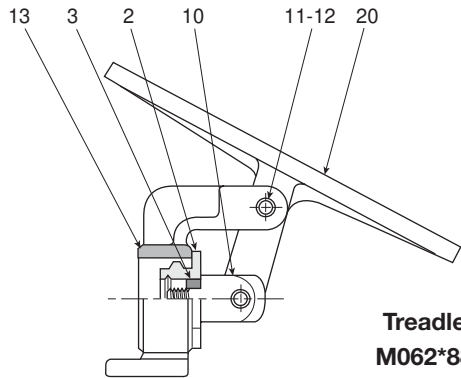


Manual / Mechanical  
Valves

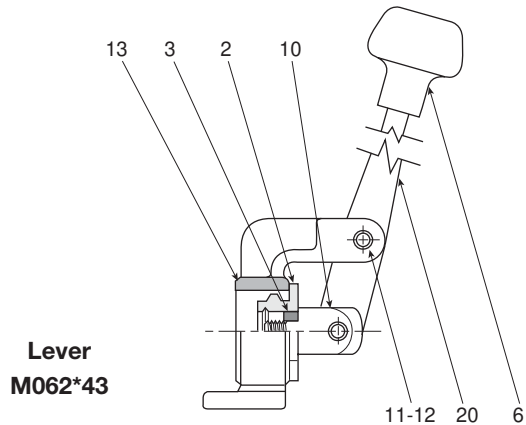
Brass Poppet /  
Sliding Seal

Control Panel  
Products

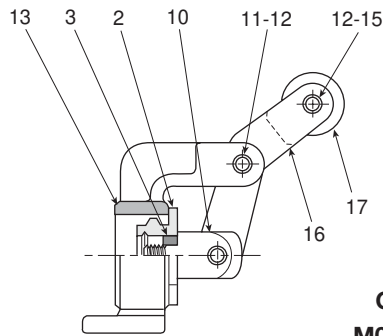
Sensing



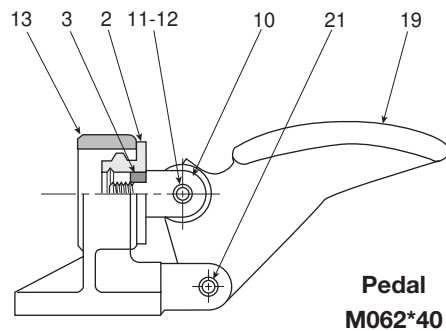
Treadle  
M062\*88



Lever  
M062\*43



Cam  
M062\*03



Pedal  
M062\*40

| Port Size | Use No. * |
|-----------|-----------|
| 1/4       | 2         |
| 3/8       | 3         |
| 1/2       | 4         |
| 3/4       | 6         |

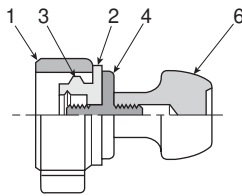
| Item No. | Part number |         |         |         | Description        |
|----------|-------------|---------|---------|---------|--------------------|
|          | 1/4"        | 3/8"    | 1/2"    | 3/4"    |                    |
| 2        | M103012     | M103047 | M103066 | M103108 | End Bearing        |
| 3        | H17705      | H17705  | H17706  | H17408  | Lockwasher         |
| 6        | H05028      | H05028  | H05028  | H05028  | Knob               |
| 10       | M133003     | M133003 | M133012 | M133018 | Clevis             |
| 11       | H07229      | H07229  | M333013 | M333013 | Pivot Pin (2)      |
| 12       | —           | —       | H08903  | H08903  | Retaining Ring (4) |
| 13       | M073009     | M073022 | M073033 | M073042 | Bracket            |
| 14       | M273022     | M273022 | M273023 | M273024 | Lever              |
| 15       | —           | H07230  | M333016 | M333016 | Roller Trunnion    |
| 16       | M273002     | M273002 | M273006 | M273007 | Cam Arm            |
| 17       | M443003     | M443003 | M443002 | M443002 | Roller             |
| 19       | M323005     | M323005 | M323006 | M323007 | Pedal              |
| 20       | M553004     | M553004 | M553005 | —       | Treadle            |
| 21       | H07229      | H07229  | M333013 | M333014 | Pivot Pin          |

NOTE: ( ) denotes quantity required when more than one.

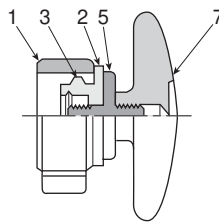


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

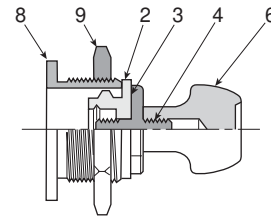
**Manual & Mechanical Operators**



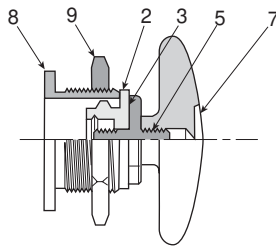
**Knob**  
**M062\*48**



**Palm Button**  
**M062\*99**

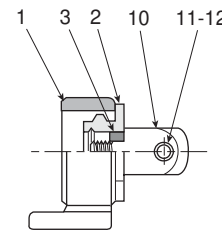


**Panel Mounted Knob**  
**M062\*51**



**Panel Mounted Palm Button**  
**M062\*59**

| Port Size | Use No. * |
|-----------|-----------|
| 1/4       | 2         |
| 3/8       | 3         |
| 1/2       | 4         |
| 3/4       | 6         |



**Clevis**  
**M062\*05**

| Item No. | Part number    |                |                |                | Description        |
|----------|----------------|----------------|----------------|----------------|--------------------|
|          | 1/4"           | 3/8"           | 1/2"           | 3/4"           |                    |
| 1        | <b>M073016</b> | <b>M073026</b> | <b>M073037</b> | <b>M073046</b> | Bracket            |
| 2        | <b>M103012</b> | <b>M103047</b> | <b>M103066</b> | <b>M103108</b> | End Bearing        |
| 3        | <b>H17705</b>  | <b>H17705</b>  | <b>H17706</b>  | <b>H17408</b>  | Lockwasher         |
| 4        | <b>M013011</b> | <b>M013011</b> | <b>M013012</b> | <b>M013013</b> | Knob Adapter       |
| 5        | <b>M013011</b> | <b>M013011</b> | <b>M013012</b> | <b>M013013</b> | Palm Knob Adapter  |
| 6        | <b>H05028</b>  | <b>H05028</b>  | <b>H05028</b>  | <b>H05028</b>  | Knob               |
| 7        | <b>H05029</b>  | <b>H05029</b>  | <b>H05029</b>  | <b>H05029</b>  | Palm Button        |
| 8        | <b>M013014</b> | <b>M013015</b> | <b>M013016</b> | <b>M013017</b> | Panel Adapter      |
| 9        | <b>M303005</b> | <b>M303006</b> | <b>M303007</b> | <b>M303008</b> | Jam Nut            |
| 10       | <b>M133003</b> | <b>M133003</b> | <b>M133012</b> | <b>M133018</b> | Clevis             |
| 11       | <b>H07229</b>  | <b>H07229</b>  | <b>M333013</b> | <b>M333013</b> | Pivot Pin (2)      |
| 12       | —              | —              | <b>H08903</b>  | <b>H08903</b>  | Retaining Ring (4) |

NOTE: ( ) denotes quantity required when more than one.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

**Technical Data**

**MO Series**

**Pneumatic Operators**

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever /  
Pedal Series

MO Series

Safety

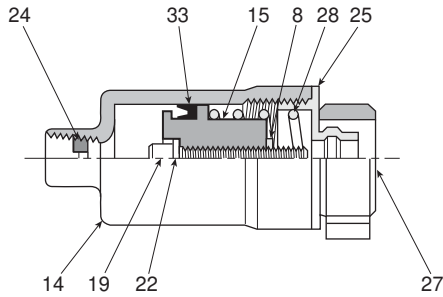


Manual / Mechanical  
Valves

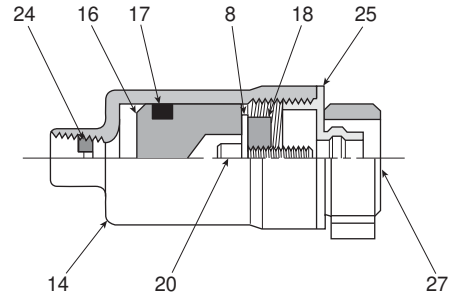
Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing



**Single Cylinder  
M062\*26**



**Double Cylinder  
M062\*19**

| Port Size | Use No. * |
|-----------|-----------|
| 1/4       | 2         |
| 3/8       | 3         |
| 1/2       | 4         |
| 3/4       | 6         |

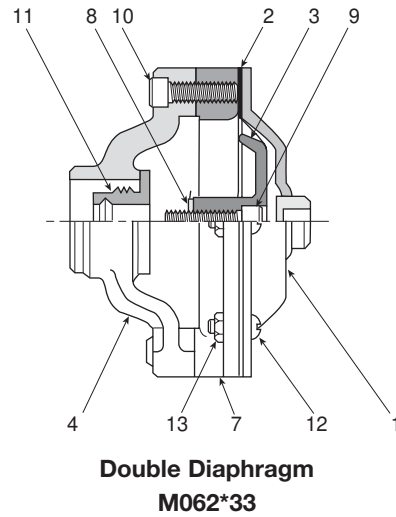
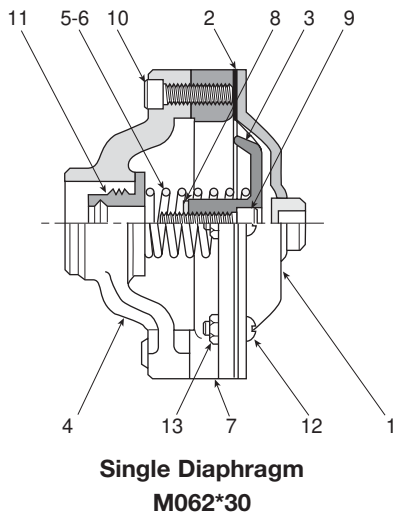
| Item No. | Part number |         |         |         | Description          |
|----------|-------------|---------|---------|---------|----------------------|
|          | 1/4"        | 3/8"    | 1/2"    | 3/4"    |                      |
| 8        | H17705      | H17705  | H17706  | H17408  | Lockwasher           |
| 14       | M243028     | M243028 | M243028 | M243036 | Housing              |
| 15       | M343019     | M343019 | M343018 | M343027 | Piston – Single Act. |
| 16       | M343022     | M343022 | M343022 | M343028 | Piston – Double Cyl. |
| 17       | H14515      | H14515  | H14515  | H14520  | Packer               |
| 18       | M013005     | M013005 | M013007 | M013009 | Adapter              |
| 19       | H10121      | H10121  | H10147  | H10219  | Screw – Single Act.  |
| 20       | H10117      | H10117  | H10145  | H10215  | Screw – Double Act.  |
| 22       | H17514      | H17514  | H17519  | H17524  | Lockwasher           |
| 24       | M363002     | M363002 | M363002 | M363002 | Restrictor           |
| 25       | M383007     | M383011 | M383018 | M383029 | Retainer             |
| 27       | M073016     | M073026 | M073037 | M073046 | Bracket              |
| 28       | M493015     | M493015 | M493015 | M493020 | Spring               |
| 33       | H22232      | H22232  | H22232  | H14520  | Packer               |

NOTE: ( ) denotes quantity required when more than one.



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Pneumatic Operators**



| Port Size | Use No. * |
|-----------|-----------|
| 1/4       | 2         |
| 3/8       | 3         |
| 1/2       | 4         |
| 3/4       | 6         |

| Item No. | Part number |         |         |         | Description        |
|----------|-------------|---------|---------|---------|--------------------|
|          | 1/4"        | 3/8"    | 1/2"    | 3/4"    |                    |
| 1        | M163005     | M163005 | M163005 | M163012 | Cover              |
| 2        | M193002     | M193002 | M193002 | M193005 | Diaphragm          |
| 3        | M343038     | M343038 | M343032 | M343039 | Piston             |
| 4        | M573004     | M573003 | M573001 | M573011 | Yoke               |
| 5        | M493024     | M493024 | M493010 | M493023 | Spring             |
| 6        | M493022     | M493022 | M493009 | —       | Spring (Inst. Air) |
| 7        | M423002     | M423002 | M423002 | M423004 | Ring               |
| 8        | H17705      | H17705  | H17706  | H17408  | Lockwasher         |
| 9        | H10119      | H10119  | H10145  | H10217  | Screw              |
| 10       | H10115      | H10115  | H10115  | H10115  | Screw (2)          |
| 11       | M103012     | M103047 | M103066 | M103108 | End Bearing        |
| 12       | H11333      | H11333  | H11333  | H11333  | Screw (6)          |
| 13       | H06416      | H06416  | H06416  | H06416  | Nut (6)            |

NOTE: ( ) denotes quantity required when more than one.



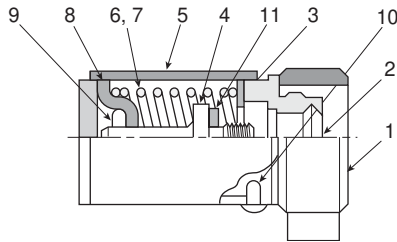
For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

|                             |
|-----------------------------|
| Directair 2 & 4 Series      |
| Viking Xtreme Lever Series  |
| 42 Lever / Pedal Series     |
| MO Series                   |
| Safety                      |
| <b>M</b>                    |
| Manual / Mechanical Valves  |
| Brass Poppet / Sliding Seal |
| Control Panel Products      |
| Sensing                     |

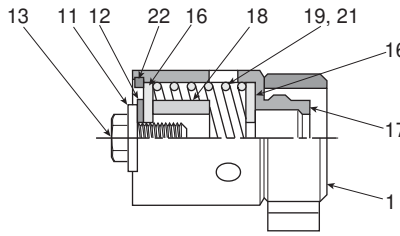
**Technical Data**

**MO Series**

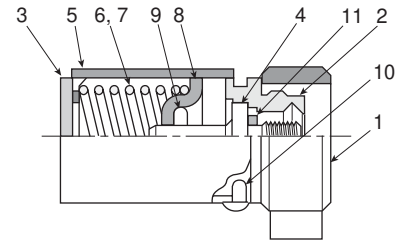
**End Sections**



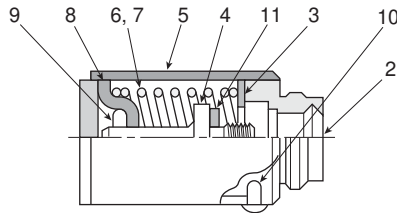
**Direct Acting Spring Return with Bracket**  
**M062\*95 Push Lever**  
**M062\*97 Pull Knob**



**Spring Centered Neutral Standard Spring**  
**M062\*74 Standard Spring**  
**M062\*78 Heavy Spring**

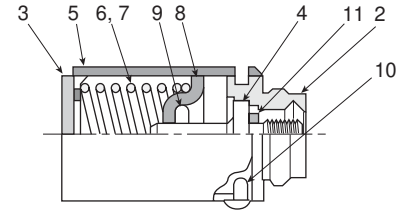


**Reverse Acting Spring Return with Bracket**  
**M062\*96 Pull Lever**  
**M062\*98 Push Knob**



**Direct Acting Spring Return Less Bracket**  
**M062\*62 Push Lever**  
**M062\*64 Pull Knob**

| Port Size | Use No. * |
|-----------|-----------|
| 1/4       | 2         |
| 3/8       | 3         |
| 1/2       | 4         |
| 3/4       | 6         |



**Reverse Acting Spring Return Less Bracket**  
**M062\*63 Pull Lever**  
**M062\*65 Push Knob**

| Item No. | Part number |         |         |         | Description             |
|----------|-------------|---------|---------|---------|-------------------------|
|          | 1/4"        | 3/8"    | 1/2"    | 3/4"    |                         |
| 1        | M073016     | M073026 | M073037 | M073046 | Bracket                 |
| 2        | M103111     | M103112 | M103113 | M103114 | End Bearing             |
| 3        | M413015     | M413015 | M413016 | M413017 | Spring Retainer Washer  |
| 4        | M523009     | M523009 | M523010 | M523011 | Stem Stop – Guide       |
| 5        | M243043     | M243043 | M243044 | M243045 | Spring Housing          |
| 6        | M493037     | M493037 | M493027 | M493026 | Spring – Knob Oper.     |
| 7        | M493038     | M493038 | M493011 | M493012 | Spring – Other Oper.    |
| 8        | M383032     | M383032 | M383033 | M383034 | Spring Retainer         |
| 9        | H07254      | H07254  | H07270  | H07271  | Roll Pin                |
| 10       | H11215      | H11215  | H11216  | H11217  | Screw                   |
| 11       | H17705      | H17705  | H17706  | H17408  | Lockwasher              |
| 12       | M563002     | M563002 | M563006 | M563014 | Stem Stop               |
| 13       | H09626      | H09626  | H09645  | H09706  | Stem Stop Screw         |
| 16       | M563007     | M563009 | M563008 | M563016 | Washer                  |
| 17       | M243008     | M243019 | M243027 | M243032 | Spring Housing          |
| 18       | M083003     | M083004 | M083005 | M083008 | Spacer                  |
| 19       | M493008     | M493008 | M493008 | M493014 | Spring                  |
| 21       | M493006     | M493006 | M493006 | M493007 | Spring – Dbl. Act. Cyl. |
| 22       | H09025      | H09025  | H09025  | H09012  | Retainer Ring           |

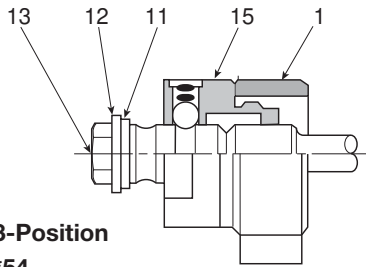
NOTE: ( ) denotes quantity required when more than one.



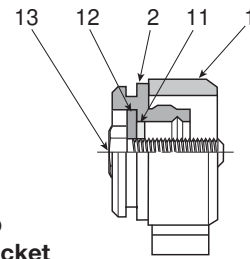
For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

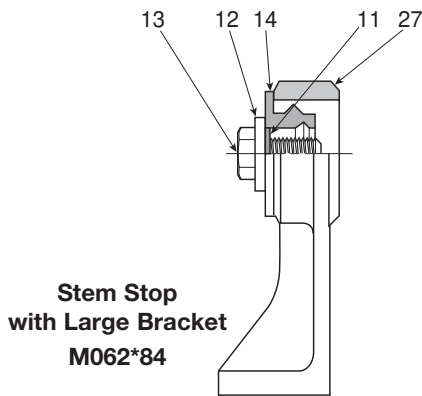
**End Sections**



**Ball Detent, 3-Position  
M062\*54**



**Stem Stop  
with Small Bracket  
M062\*85**



**Stem Stop  
with Large Bracket  
M062\*84**

| Port Size | Use No. * |
|-----------|-----------|
| 1/4       | 2         |
| 3/8       | 3         |
| 1/2       | 4         |
| 3/4       | 6         |

| Item No. | Part number |         |         |         | Description          |
|----------|-------------|---------|---------|---------|----------------------|
|          | 1/4"        | 3/8"    | 1/2"    | 3/4"    |                      |
| 1        | M073016     | M073026 | M073037 | M073046 | Bracket              |
| 2        | M103111     | M103112 | M103113 | M103114 | End Bearing          |
| 11       | H17705      | H17705  | H17706  | H17408  | Lockwasher           |
| 12       | M563002     | M563002 | M563006 | M563014 | Stem Stop            |
| 13       | H09626      | H09626  | H09645  | H09706  | Stem Stop Screw      |
| 14       | M103012     | M103047 | M103066 | M103108 | End Bearing – Plain  |
| 15       | M012001     | M012002 | M012003 | M012005 | Ball Detent Assembly |
| 27       | M073006     | M073017 | M073028 | —       | Large Bracket        |

NOTE: ( ) denotes quantity required when more than one.

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)



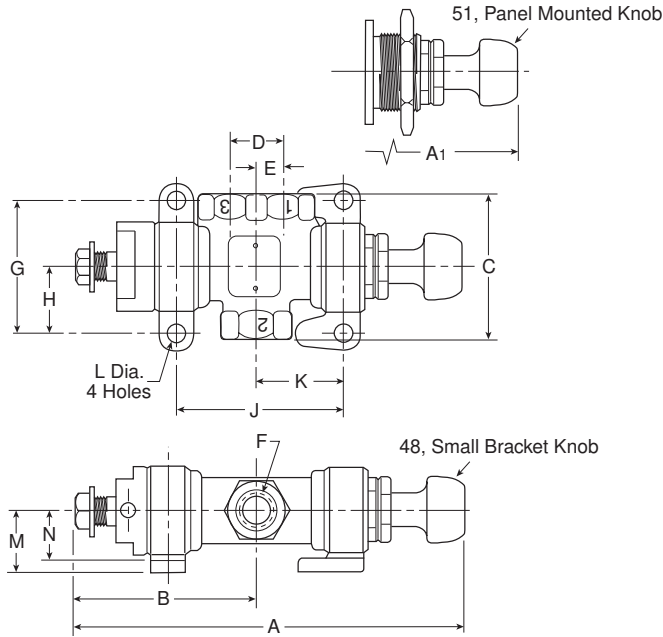
**Dimensional Data**

**MO Series**

**Knob Operated, 2-Position Detent, Ball Detent**

**M054 Ball Detent, Small Bracket & M058 Ball Detent, Panel Mounted**

**3-Way**

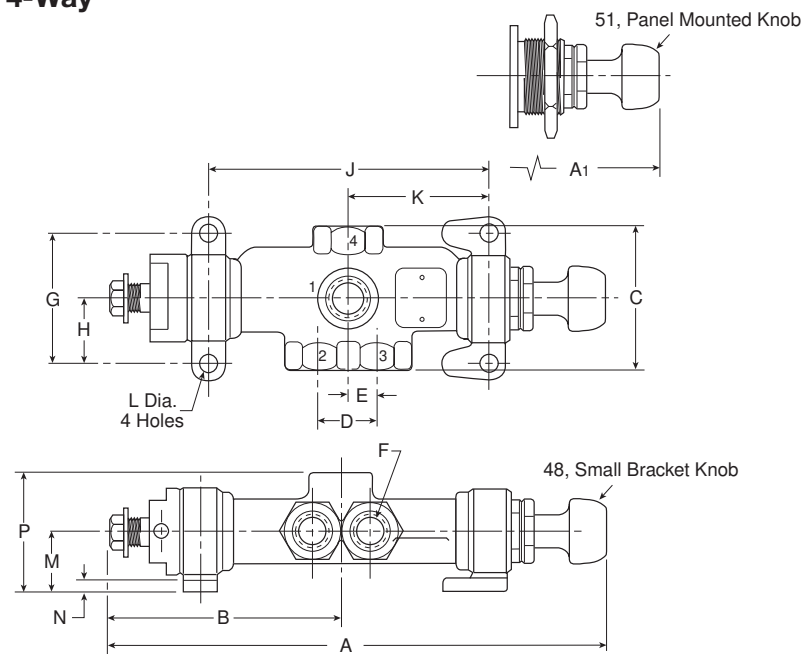


|    | 1/4             | 3/8             | 1/2             | 3/4              |
|----|-----------------|-----------------|-----------------|------------------|
| A  | 6.57<br>(166.9) | 7.30<br>(185.4) | 8.56<br>(217.4) | 10.40<br>(264.2) |
| A1 | 6.57<br>(166.9) | 7.30<br>(185.4) | 8.56<br>(217.4) | 10.40<br>(264.2) |
| B  | 3.25<br>(82.6)  | 3.66<br>(93.0)  | 4.39<br>(111.5) | 5.41<br>(137.4)  |
| C  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)  | 3.62<br>(92.0)   |
| D  | .94<br>(23.9)   | 1.06<br>(26.9)  | 1.25<br>(31.8)  | 1.62<br>(41.2)   |
| E  | .47<br>(11.9)   | .53<br>(13.5)   | .62<br>(15.8)   | .81<br>(20.6)    |
| F  | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe    | 3/4"<br>Pipe     |
| G  | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.25<br>(82.6)   |
| H  | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)  | 1.62<br>(41.2)   |
| J  | 2.63<br>(66.8)  | 3.13<br>(79.5)  | 3.72<br>(94.5)  | 4.56<br>(115.8)  |
| K  | 1.31<br>(33.3)  | 1.56<br>(39.6)  | 1.86<br>(47.2)  | 2.28<br>(57.9)   |
| L  | .34<br>(8.6)    | .34<br>(8.6)    | .41<br>(10.4)   | .41<br>(10.4)    |
| M  | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)  | 1.56<br>(39.6)   |
| N  | .25<br>(6.4)    | .25<br>(6.4)    | .31<br>(7.9)    | .31<br>(7.9)     |

Inches (mm)

**M054 Ball Detent, Small Bracket & M058 Ball Detent, Panel Mounted**

**4-Way**



|    | 1/4             | 3/8             | 1/2              | 3/4              |
|----|-----------------|-----------------|------------------|------------------|
| A  | 8.02<br>(203.7) | 9.13<br>(231.9) | 11.17<br>(283.7) | 13.10<br>(332.7) |
| A1 | 8.02<br>(203.7) | 9.13<br>(231.9) | 11.17<br>(283.7) | 13.10<br>(332.7) |
| B  | 4.00<br>(101.6) | 4.57<br>(116.1) | 5.44<br>(138.2)  | 6.76<br>(171.7)  |
| C  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)   | 3.62<br>(92.0)   |
| D  | .94<br>(23.9)   | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E  | .47<br>(11.9)   | .53<br>(13.5)   | .62<br>(15.8)    | .81<br>(20.6)    |
| F  | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G  | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H  | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J  | 4.14<br>(105.2) | 4.98<br>(126.5) | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| K  | 2.07<br>(52.6)  | 2.49<br>(63.2)  | 2.92<br>(74.2)   | 3.69<br>(93.7)   |
| L  | .34<br>(8.6)    | .34<br>(8.6)    | .41<br>(10.4)    | .41<br>(10.4)    |
| M  | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N  | .25<br>(6.4)    | .25<br>(6.4)    | .31<br>(7.9)     | .31<br>(7.9)     |
| P  | 2.12<br>(53.8)  | 2.18<br>(55.4)  | 2.63<br>(66.8)   | 3.06<br>(77.7)   |

Inches (mm)

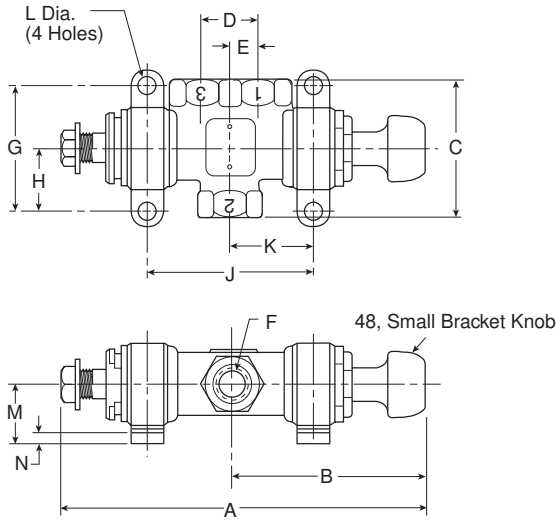


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Knob Operated, Manual Return, Stem Stop**

**M085 Stem Stop, Small Bracket**

**3-Way**

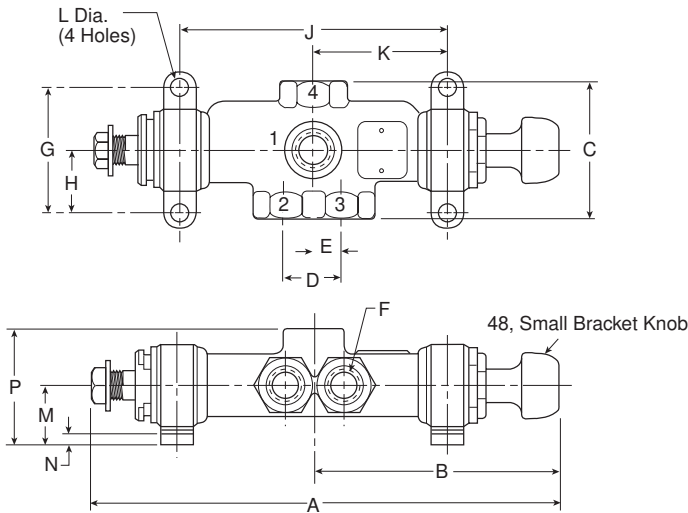


|               | 1/4             | 3/8             | 1/2             | 3/4             |
|---------------|-----------------|-----------------|-----------------|-----------------|
| <b>A</b>      | 5.99<br>(152.2) | 6.69<br>(169.9) | 7.90<br>(200.7) | 9.60<br>(243.8) |
| <b>B</b>      | 3.32<br>(84.3)  | 3.64<br>(92.5)  | 4.17<br>(105.9) | 4.99<br>(126.8) |
| <b>C</b>      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)  | 3.62<br>(92.0)  |
| <b>D</b>      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)  | 1.62<br>(41.2)  |
| <b>E</b>      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)  | 0.81<br>(20.6)  |
| <b>F</b>      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe    | 3/4"<br>Pipe    |
| <b>G</b>      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.25<br>(82.6)  |
| <b>H</b>      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)  | 1.62<br>(41.2)  |
| <b>J</b>      | 2.64<br>(67.1)  | 3.14<br>(79.8)  | 3.73<br>(94.7)  | 4.67<br>(118.6) |
| <b>K</b>      | 1.32<br>(33.5)  | 1.57<br>(39.9)  | 1.87<br>(47.5)  | 2.33<br>(59.2)  |
| <b>L</b>      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)  | 0.41<br>(10.4)  |
| <b>M</b>      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)  | 1.56<br>(39.6)  |
| <b>N</b>      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)   | 0.31<br>(7.9)   |
| <b>Travel</b> | 0.62<br>(15.7)  | 0.69<br>(17.5)  | 0.88<br>(22.4)  | 1.12<br>(28.4)  |

Inches (mm)

**M085 Stem Stop, Small Bracket**

**4-Way**



|               | 1/4             | 3/8             | 1/2              | 3/4              |
|---------------|-----------------|-----------------|------------------|------------------|
| <b>A</b>      | 7.49<br>(190.2) | 8.53<br>(216.7) | 10.01<br>(254.2) | 12.31<br>(312.7) |
| <b>B</b>      | 4.02<br>(102.1) | 4.56<br>(115.8) | 5.73<br>(145.5)  | 6.34<br>(161.0)  |
| <b>C</b>      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.12<br>(79.2)   | 3.62<br>(92.0)   |
| <b>D</b>      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| <b>E</b>      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)   | 0.81<br>(20.6)   |
| <b>F</b>      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| <b>G</b>      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| <b>H</b>      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| <b>J</b>      | 4.14<br>(105.2) | 4.98<br>(126.5) | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| <b>K</b>      | 2.07<br>(52.6)  | 2.49<br>(63.2)  | 2.93<br>(74.4)   | 3.69<br>(93.7)   |
| <b>L</b>      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)   | 0.41<br>(10.4)   |
| <b>M</b>      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| <b>N</b>      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)    | 0.31<br>(7.9)    |
| <b>P</b>      | 2.12<br>(53.8)  | 2.18<br>(55.4)  | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| <b>Travel</b> | 0.62<br>(15.7)  | 0.69<br>(17.5)  | 0.88<br>(22.4)   | 1.12<br>(28.4)   |

Inches (mm)



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing

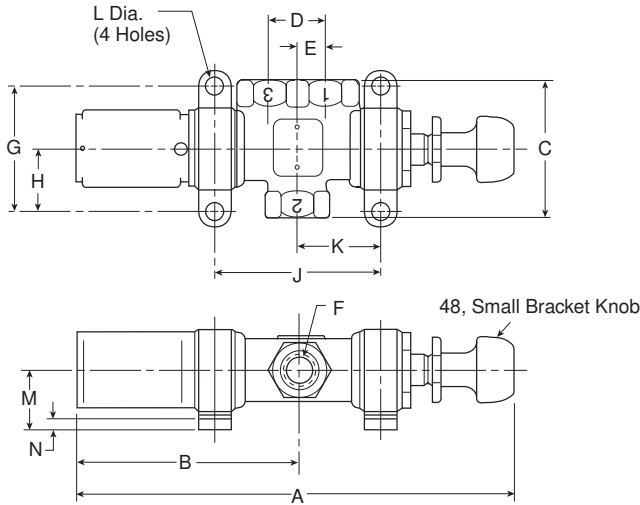
**Dimensional Data**

**MO Series**

**Knob & Palm Button Operated, Light Spring Return**

**M097 Light Spring Return Direct Acting, Small Bracket (Pull Knob)**

**3-Way**

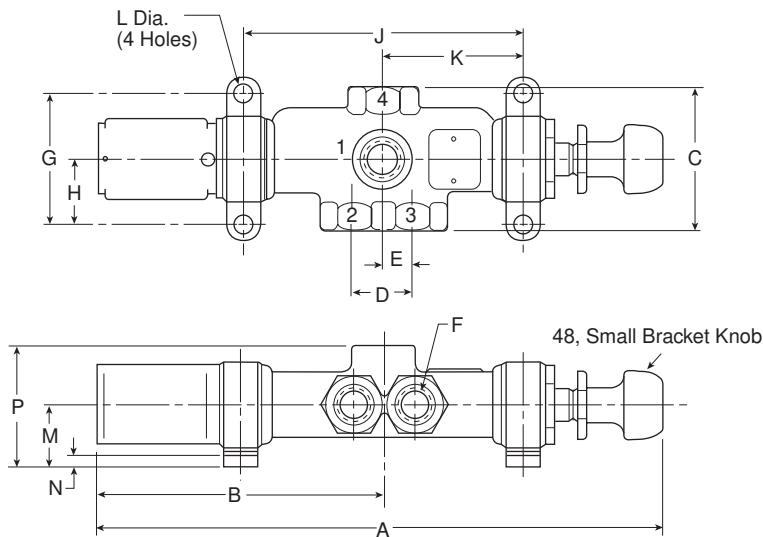


|        | 1/4             | 3/8             | 1/2              | 3/4              |
|--------|-----------------|-----------------|------------------|------------------|
| A      | 7.86<br>(199.8) | 8.55<br>(217.2) | 10.36<br>(263.1) | 13.01<br>(330.4) |
| B      | 3.92<br>(99.6)  | 4.24<br>(107.7) | 5.32<br>(135.2)  | 6.92<br>(175.8)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)   | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)   | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J      | 2.64<br>(67.1)  | 3.14<br>(79.8)  | 3.73<br>(94.7)   | 4.67<br>(118.6)  |
| K      | 1.32<br>(33.5)  | 1.57<br>(39.9)  | 1.87<br>(47.5)   | 2.33<br>(59.2)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)   | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)    | 0.31<br>(7.9)    |
| Travel | 0.62<br>(15.7)  | 0.69<br>(17.5)  | 0.88<br>(22.4)   | 1.12<br>(28.4)   |

Inches (mm)

**M097 Light Spring Return Direct Acting, Small Bracket (Pull Knob)**

**4-Way**



|        | 1/4             | 3/8              | 1/2              | 3/4              |
|--------|-----------------|------------------|------------------|------------------|
| A      | 9.36<br>(237.9) | 10.39<br>(263.9) | 12.48<br>(317.0) | 15.73<br>(399.5) |
| B      | 4.67<br>(118.5) | 5.15<br>(130.8)  | 6.37<br>(161.8)  | 8.27<br>(210.1)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.12<br>(79.2)   | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)   | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)   | 0.62<br>(15.8)   | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe     | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)   | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J      | 4.14<br>(105.2) | 4.98<br>(126.5)  | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| K      | 2.07<br>(52.6)  | 2.49<br>(63.2)   | 2.93<br>(74.4)   | 3.69<br>(93.7)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)    | 0.41<br>(10.4)   | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)   | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)    | 0.31<br>(7.9)    | 0.31<br>(7.9)    |
| P      | 2.12<br>(53.8)  | 2.18<br>(55.4)   | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| Travel | 0.62<br>(15.7)  | 0.69<br>(17.5)   | 0.88<br>(22.4)   | 1.12<br>(28.4)   |

Inches (mm)

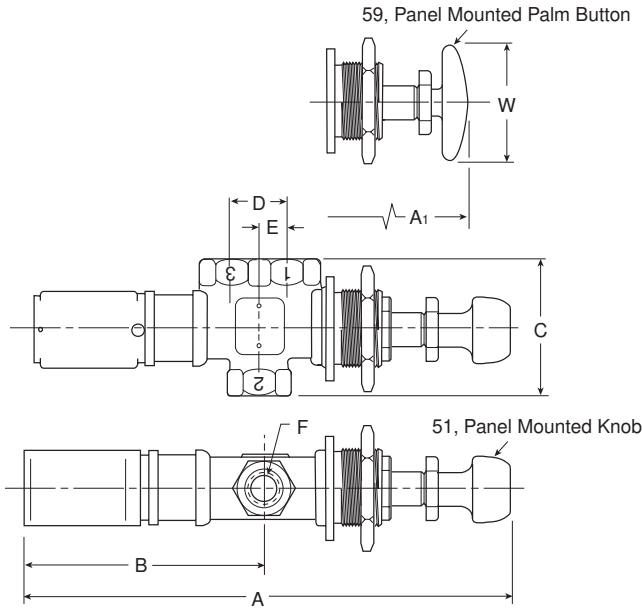


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Panel Mounted, Knob & Button Operated,  
 Light Spring Return**

**M064 Direct Acting, Less Bracket (Pull Knob) &  
 M065 Reverse Acting, Less Bracket (Push Knob)**

**3-Way**

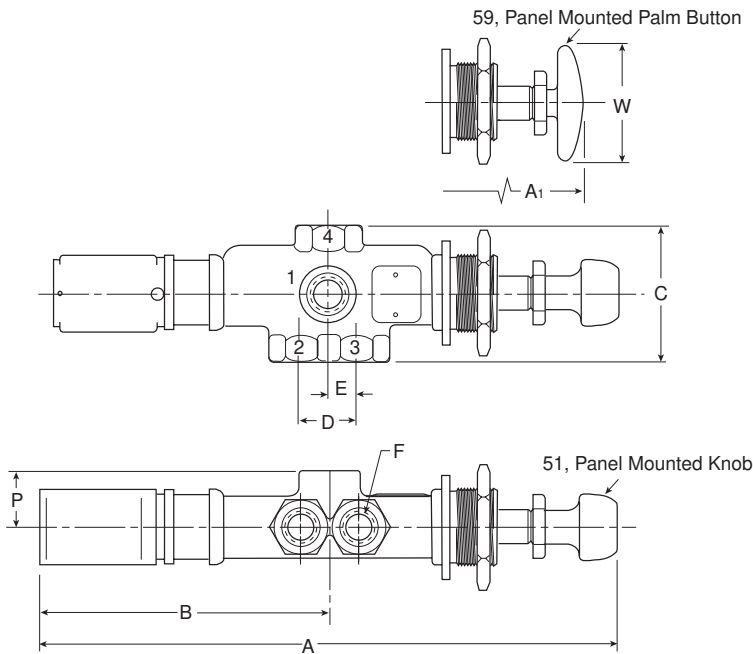


|        | 1/4             | 3/8             | 1/2              | 3/4              |
|--------|-----------------|-----------------|------------------|------------------|
| A      | 7.86<br>(199.6) | 8.55<br>(217.1) | 10.36<br>(263.1) | 13.01<br>(330.4) |
| A1     | 7.55<br>(191.8) | 8.24<br>(209.3) | 10.05<br>(255.3) | 12.70<br>(322.6) |
| B      | 3.96<br>(99.5)  | 4.23<br>(107.4) | 5.31<br>(134.9)  | 6.91<br>(175.5)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)   | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)   | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| W      | 2.25<br>(57.2)  | 2.25<br>(57.2)  | 2.25<br>(57.2)   | 2.25<br>(57.2)   |
| Travel | 0.62<br>(15.7)  | 0.69<br>(17.5)  | 0.88<br>(22.4)   | 1.12<br>(28.4)   |

Inches (mm)

**M064 Direct Acting, Less Bracket (Pull Knob) &  
 M065 Reverse Acting, Less Bracket (Push Knob)**

**4-Way**



|        | 1/4             | 3/8              | 1/2              | 3/4              |
|--------|-----------------|------------------|------------------|------------------|
| A      | 9.36<br>(237.7) | 10.39<br>(263.9) | 12.48<br>(317.0) | 15.73<br>(399.5) |
| A1     | 9.05<br>(229.9) | 10.08<br>(256.0) | 12.17<br>(309.1) | 15.42<br>(391.7) |
| B      | 4.67<br>(118.5) | 5.15<br>(130.8)  | 6.37<br>(161.8)  | 8.27<br>(210.1)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.12<br>(79.2)   | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)   | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)   | 0.62<br>(15.8)   | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe     | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| P      | 2.12<br>(53.8)  | 2.18<br>(55.4)   | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| W      | 2.25<br>(57.2)  | 2.25<br>(57.2)   | 2.25<br>(57.2)   | 2.25<br>(57.2)   |
| Travel | 0.62<br>(15.7)  | 0.69<br>(17.5)   | 0.88<br>(22.4)   | 1.12<br>(28.4)   |

Inches (mm)



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

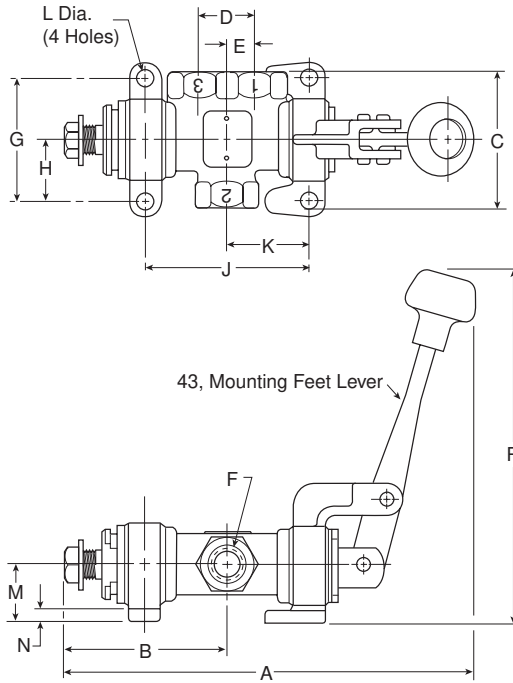


Dimensional Data

Lever Operated, Manual Return, Stem Stop

M085 Stem Stop, Small Bracket

3-Way

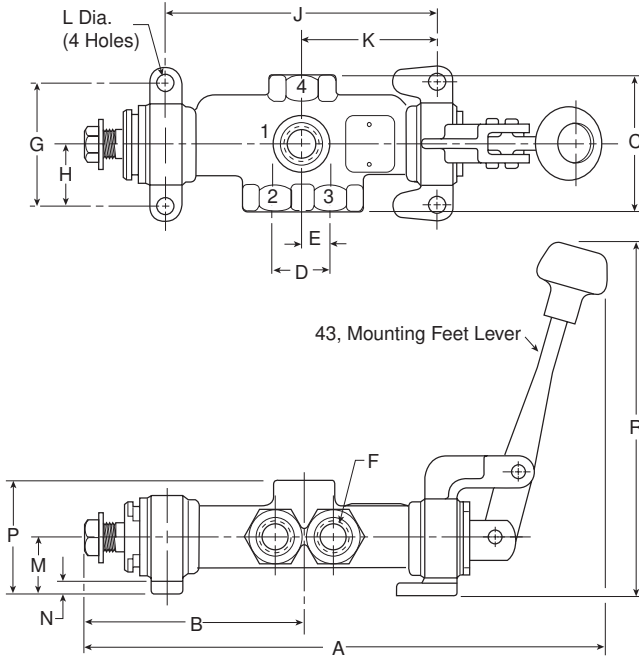


|        | 1/4             | 3/8             | 1/2             | 3/4              |
|--------|-----------------|-----------------|-----------------|------------------|
| A      | 6.77<br>(172.0) | 7.76<br>(197.1) | 9.29<br>(236.0) | 11.46<br>(291.1) |
| B      | 2.67<br>(67.8)  | 3.05<br>(77.5)  | 3.72<br>(94.5)  | 4.61<br>(117.1)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)  | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)  | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)  | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe    | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)  | 1.62<br>(41.2)   |
| J      | 2.63<br>(66.8)  | 3.13<br>(79.5)  | 3.72<br>(94.5)  | 4.56<br>(115.8)  |
| K      | 1.31<br>(33.3)  | 1.56<br>(39.6)  | 1.86<br>(47.2)  | 2.28<br>(57.9)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)  | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)  | 1.56<br>(39.6)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)   | 0.31<br>(7.9)    |
| R      | 6.78<br>(172.2) | 6.78<br>(172.2) | 8.10<br>(205.7) | 10.73<br>(272.5) |
| Travel | 0.62<br>(15.7)  | 0.69<br>(17.5)  | 0.88<br>(22.4)  | 1.12<br>(28.4)   |

Inches (mm)

M085 Stem Stop, Small Bracket

4-Way



|        | 1/4             | 3/8             | 1/2              | 3/4              |
|--------|-----------------|-----------------|------------------|------------------|
| A      | 8.28<br>(210.3) | 9.60<br>(243.8) | 11.08<br>(281.4) | 14.17<br>(359.9) |
| B      | 3.42<br>(86.9)  | 3.97<br>(100.8) | 4.78<br>(121.4)  | 5.97<br>(151.6)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.12<br>(79.2)   | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)   | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J      | 4.14<br>(105.2) | 4.98<br>(126.5) | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| K      | 2.07<br>(52.6)  | 2.49<br>(63.2)  | 2.92<br>(74.2)   | 3.69<br>(93.7)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)   | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)    | 0.31<br>(7.9)    |
| P      | 2.12<br>(53.8)  | 2.18<br>(55.4)  | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| R      | 6.78<br>(172.2) | 6.78<br>(172.2) | 8.10<br>(205.7)  | 10.73<br>(272.5) |
| Travel | 0.62<br>(15.7)  | 0.69<br>(17.5)  | 0.88<br>(22.4)   | 1.12<br>(28.4)   |

Inches (mm)



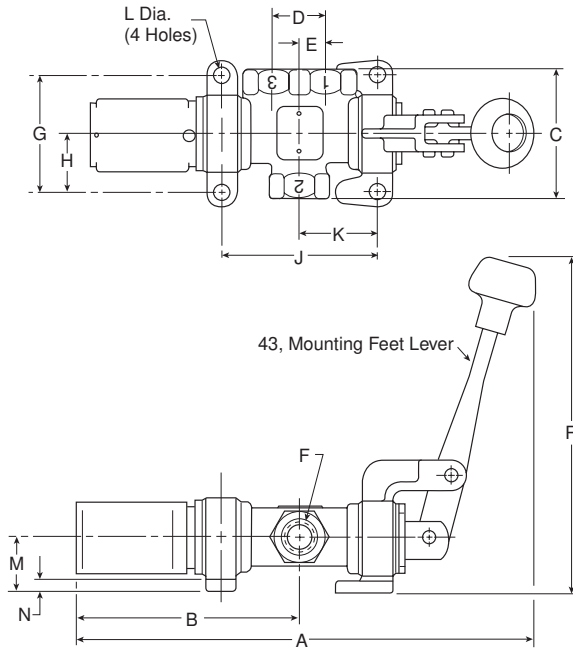
For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
Viking Xtreme Lever Series  
42 Lever / Pedal Series  
MO Series  
Safety  
Manual / Mechanical Valves  
Brass Poppet / Sliding Seal  
Control Panel Products  
Sensing

**Lever Operated, Spring Return**

**M095 Direct Acting, Small Bracket (Push Lever) & M096 Reverse Acting, Small Bracket (Pull Lever)**

**3-Way**

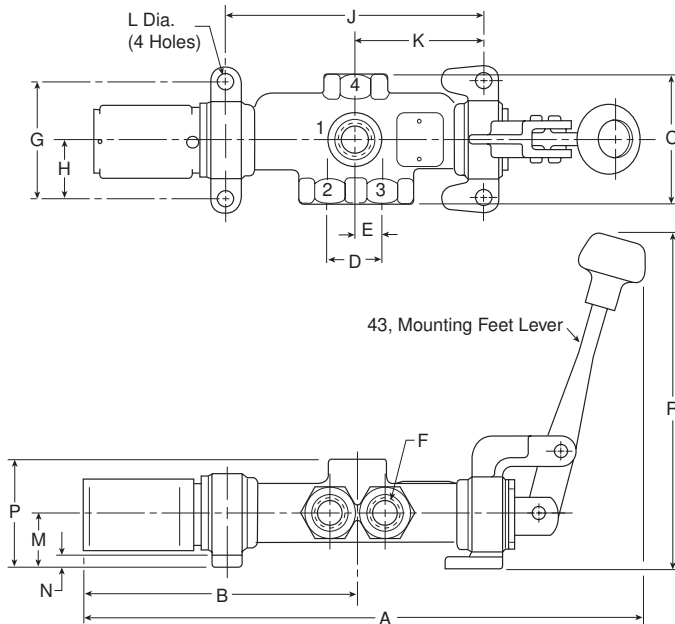


|        | 1/4             | 3/8             | 1/2              | 3/4              |
|--------|-----------------|-----------------|------------------|------------------|
| A      | 7.99<br>(202.8) | 8.94<br>(227.0) | 10.88<br>(276.4) | 13.76<br>(349.5) |
| B      | 3.92<br>(99.5)  | 4.24<br>(107.6) | 5.31<br>(134.9)  | 6.92<br>(175.8)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00 (76.2)      | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)   | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J      | 2.63<br>(66.8)  | 3.13<br>(79.5)  | 3.72<br>(94.5)   | 4.56<br>(115.8)  |
| K      | 1.31<br>(33.3)  | 1.56<br>(39.6)  | 1.86<br>(47.2)   | 2.28<br>(57.9)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)   | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)    | 0.31<br>(7.9)    |
| R      | 6.78<br>(172.2) | 6.78<br>(172.2) | 8.10<br>(205.7)  | 10.73<br>(272.5) |
| Travel | 0.62<br>(15.7)  | 0.69<br>(17.5)  | 0.88<br>(22.4)   | 1.12<br>(28.4)   |

Inches (mm)

**M095 Direct Acting, Small Bracket (Push Lever) & M096 Reverse Acting, Small Bracket (Pull Lever)**

**3-Way**



|        | 1/4             | 3/8              | 1/2              | 3/4              |
|--------|-----------------|------------------|------------------|------------------|
| A      | 9.53<br>(242.1) | 10.78<br>(273.8) | 12.67<br>(321.8) | 16.47<br>(418.3) |
| B      | 4.67<br>(118.6) | 5.15<br>(130.8)  | 5.68<br>(144.3)  | 8.27<br>(210.1)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.12<br>(79.2)   | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)   | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)   | 0.62<br>(15.8)   | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe     | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)   | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J      | 4.14<br>(105.2) | 4.98<br>(126.5)  | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| K      | 2.07<br>(52.6)  | 2.49<br>(63.2)   | 2.92<br>(74.2)   | 3.69<br>(93.7)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)    | 0.41<br>(10.4)   | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)   | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)    | 0.31<br>(7.9)    | 0.31<br>(7.9)    |
| P      | 2.12<br>(53.8)  | 2.18<br>(55.4)   | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| R      | 6.78<br>(172.2) | 6.78<br>(172.2)  | 8.10<br>(205.7)  | 10.73<br>(272.5) |
| Travel | 0.62<br>(15.7)  | 0.69<br>(17.5)   | 0.88<br>(22.4)   | 1.12<br>(28.4)   |

Inches (mm)



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing

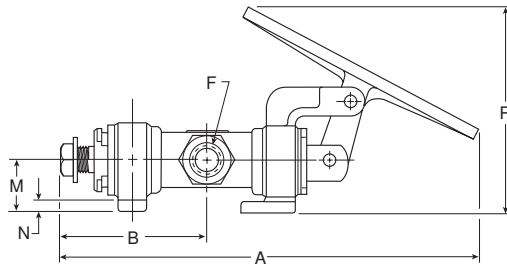
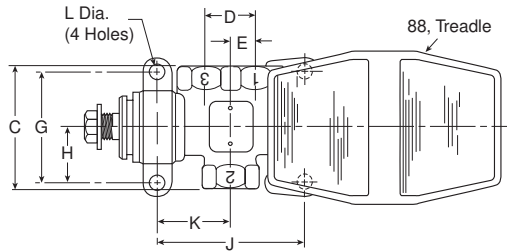


**Dimensional Data**

**Treadle Operated, Manual Return, Stem Stop**

**M085 Stem Stop, Small Bracket**

**3-Way**

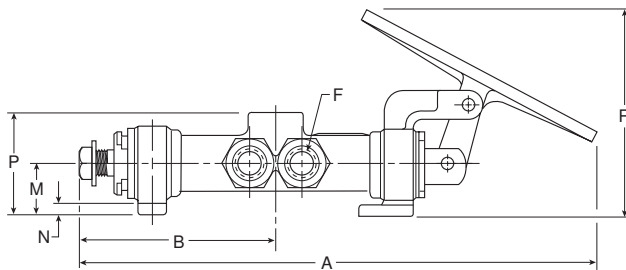
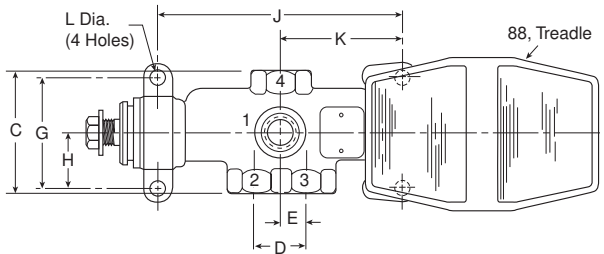


|        | 1/4             | 3/8             | 1/2              |
|--------|-----------------|-----------------|------------------|
| A      | 8.01<br>(203.4) | 8.73<br>(221.7) | 10.32<br>(262.1) |
| B      | 2.67<br>(68.8)  | 3.06<br>(77.7)  | 4.06<br>(103.1)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   |
| J      | 2.63<br>(66.8)  | 3.13<br>(79.5)  | 3.72<br>(94.5)   |
| K      | 1.31<br>(33.3)  | 1.56<br>(39.6)  | 1.86<br>(47.2)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)    |
| R      | 4.51<br>(114.6) | 4.65<br>(118.1) | 4.85<br>(123.2)  |
| Travel | 0.62<br>(15.8)  | 0.69<br>(17.5)  | 0.88<br>(22.4)   |

Inches (mm)

**M085 Stem Stop, Small Bracket**

**4-Way**



|        | 1/4             | 3/8              | 1/2              |
|--------|-----------------|------------------|------------------|
| A      | 9.52<br>(241.8) | 10.57<br>(268.5) | 12.11<br>(307.6) |
| B      | 3.42<br>(86.9)  | 3.97<br>(100.8)  | 4.78<br>(121.4)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.12<br>(79.2)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)   | 1.25<br>(31.8)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)   | 0.62<br>(15.8)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe     | 1/2"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)   | 2.62<br>(66.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)   | 1.31<br>(33.3)   |
| J      | 4.14<br>(105.2) | 4.98<br>(126.5)  | 5.85<br>(148.6)  |
| K      | 2.07<br>(52.6)  | 2.49<br>(63.2)   | 2.92<br>(74.2)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)    | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)   | 1.25<br>(31.8)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)    | 0.31<br>(7.9)    |
| P      | 2.12<br>(53.8)  | 2.18<br>(55.4)   | 2.63<br>(66.8)   |
| R      | 4.51<br>(114.6) | 4.65<br>(118.1)  | 4.85<br>(123.2)  |
| Travel | 0.62<br>(15.8)  | 0.69<br>(17.5)   | 0.88<br>(22.4)   |

Inches (mm)

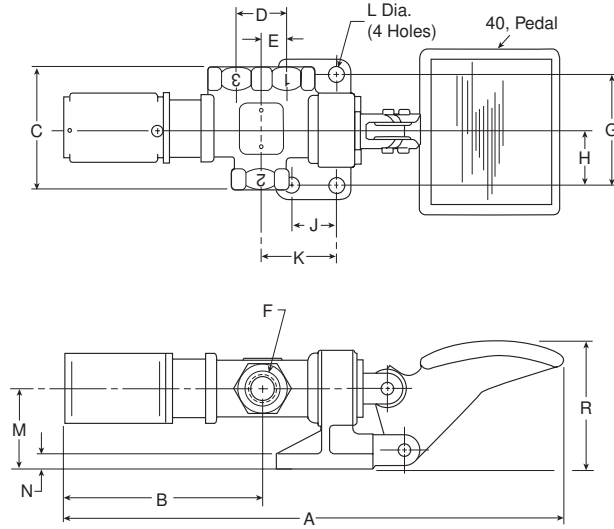


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
Viking Xtreme Lever Series  
42 Lever / Pedal Series  
MO Series  
Safety  
Manual / Mechanical Valves  
Brass Poppet / Sliding Seal  
Control Panel Products  
Sensing

**Pedal Operated, Spring Return**

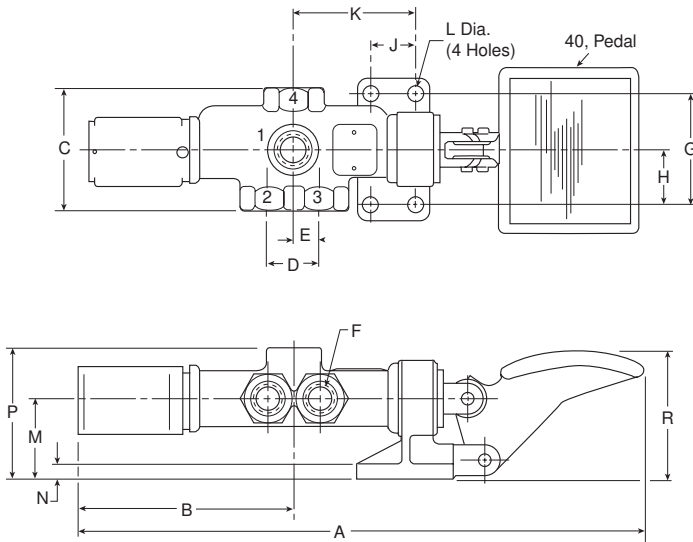
**M062 Direct Acting Spring Return, Less Bracket (Push Lever)**  
**3-Way**



|               | 1/4             | 3/8              | 1/2              |
|---------------|-----------------|------------------|------------------|
| <b>A</b>      | 9.99<br>(253.8) | 10.50<br>(269.2) | 12.66<br>(321.6) |
| <b>B</b>      | 3.92<br>(99.5)  | 4.23<br>(107.4)  | 5.31<br>(134.9)  |
| <b>C</b>      | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.00<br>(76.2)   |
| <b>D</b>      | 0.94<br>(23.9)  | 1.06<br>(26.9)   | 1.25<br>(31.8)   |
| <b>E</b>      | 0.47<br>(11.9)  | 0.53<br>(13.5)   | 0.62<br>(15.8)   |
| <b>F</b>      | 1/4"<br>Pipe    | 3/8"<br>Pipe     | 1/2"<br>Pipe     |
| <b>G</b>      | 2.25<br>(57.2)  | 2.38<br>(60.4)   | 2.62<br>(66.6)   |
| <b>H</b>      | 1.12<br>(28.4)  | 1.19<br>(30.2)   | 1.31<br>(33.3)   |
| <b>J</b>      | 0.97<br>(24.6)  | 0.97<br>(24.6)   | 1.12<br>(28.4)   |
| <b>K</b>      | 1.44<br>(36.6)  | 1.56<br>(39.6)   | 1.83<br>(46.5)   |
| <b>L</b>      | 0.34<br>(8.6)   | 0.34<br>(8.6)    | 0.41<br>(10.4)   |
| <b>M</b>      | 1.72<br>(43.7)  | 1.72<br>(43.7)   | 2.00<br>(50.8)   |
| <b>N</b>      | 0.31<br>(7.9)   | 0.31<br>(7.9)    | 0.38<br>(9.6)    |
| <b>R</b>      | 2.66<br>(67.6)  | 2.71<br>(68.8)   | 2.74<br>(69.6)   |
| <b>Travel</b> | 0.62<br>(15.8)  | 0.69<br>(17.5)   | 0.88<br>(22.4)   |

Inches (mm)

**M062 Direct Acting Spring Return, Less Bracket (Push Lever)**  
**4-Way**



|               | 1/4              | 3/8              | 1/2              |
|---------------|------------------|------------------|------------------|
| <b>A</b>      | 11.50<br>(292.1) | 12.44<br>(315.9) | 14.45<br>(367.0) |
| <b>B</b>      | 4.67<br>(118.5)  | 5.15<br>(130.8)  | 5.68<br>(144.3)  |
| <b>C</b>      | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.00<br>(76.2)   |
| <b>D</b>      | 0.94<br>(23.9)   | 1.06<br>(26.9)   | 1.25<br>(31.8)   |
| <b>E</b>      | 0.47<br>(11.9)   | 0.53<br>(13.5)   | 0.62<br>(15.8)   |
| <b>F</b>      | 1/4"<br>Pipe     | 3/8"<br>Pipe     | 1/2"<br>Pipe     |
| <b>G</b>      | 2.25<br>(57.2)   | 2.38<br>(60.4)   | 2.62<br>(66.6)   |
| <b>H</b>      | 1.12<br>(28.4)   | 1.19<br>(30.2)   | 1.31<br>(33.3)   |
| <b>J</b>      | 0.97<br>(24.6)   | 0.97<br>(24.6)   | 1.12<br>(28.4)   |
| <b>K</b>      | 2.19<br>(55.6)   | 2.48<br>(63.0)   | 2.89<br>(73.4)   |
| <b>L</b>      | 0.34<br>(8.6)    | 0.34<br>(8.6)    | 0.41<br>(10.4)   |
| <b>M</b>      | 1.72<br>(43.7)   | 1.72<br>(43.7)   | 2.00<br>(50.8)   |
| <b>N</b>      | 0.31<br>(7.9)    | 0.31<br>(7.9)    | 0.38<br>(9.6)    |
| <b>P</b>      | 2.72<br>(69.1)   | 2.78<br>(70.6)   | 3.38<br>(85.8)   |
| <b>R</b>      | 2.66<br>(67.6)   | 2.71<br>(68.8)   | 2.74<br>(69.6)   |
| <b>Travel</b> | 0.62<br>(15.8)   | 0.69<br>(17.5)   | 0.88<br>(22.4)   |

Inches (mm)



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)



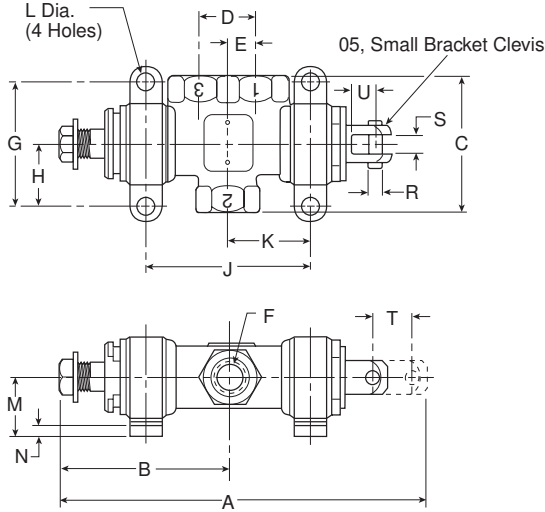
**Dimensional Data**

**MO Series**

**Clevis Operated, Mechanical Return, Stem Stop**

**M085 Stem Stop, Small Bracket**

**3-Way**

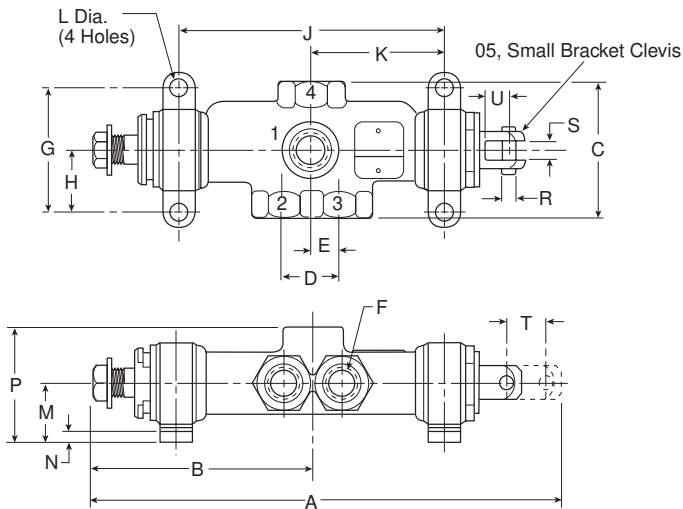


Inches (mm)

|               | 1/4             | 3/8             | 1/2             | 3/4             |
|---------------|-----------------|-----------------|-----------------|-----------------|
| <b>A</b>      | 5.31<br>(134.9) | 6.01<br>(152.6) | 7.36<br>(186.9) | 8.92<br>(226.6) |
| <b>B</b>      | 2.68<br>(68.1)  | 3.06<br>(77.7)  | 4.85<br>(123.2) | 4.62<br>(117.3) |
| <b>C</b>      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)  | 3.62<br>(92.0)  |
| <b>D</b>      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)  | 1.62<br>(41.2)  |
| <b>E</b>      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)  | 0.81<br>(20.6)  |
| <b>F</b>      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe    | 3/4"<br>Pipe    |
| <b>G</b>      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.25<br>(82.6)  |
| <b>H</b>      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)  | 1.62<br>(41.2)  |
| <b>J</b>      | 2.64<br>(67.1)  | 3.14<br>(79.8)  | 3.73<br>(94.7)  | 4.67<br>(118.6) |
| <b>K</b>      | 1.32<br>(33.5)  | 1.57<br>(39.9)  | 1.87<br>(47.5)  | 2.33<br>(59.2)  |
| <b>L</b>      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)  | 0.41<br>(10.4)  |
| <b>M</b>      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)  | 1.56<br>(39.6)  |
| <b>N</b>      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)   | 0.31<br>(7.9)   |
| <b>R</b>      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)   | 0.31<br>(7.9)   |
| <b>S</b>      | 0.38<br>(9.6)   | 0.38<br>(9.6)   | 0.44<br>(11.2)  | 0.44<br>(11.2)  |
| <b>U</b>      | 0.47<br>(11.9)  | 0.47<br>(11.9)  | 0.56<br>(14.2)  | 0.62<br>(15.8)  |
| <b>Travel</b> | 0.62<br>(15.8)  | 0.69<br>(17.5)  | 0.88<br>(22.4)  | 1.12<br>(28.4)  |

**M085 Stem Stop, Small Bracket**

**4-Way**



Inches (mm)

|               | 1/4             | 3/8             | 1/2             | 3/4              |
|---------------|-----------------|-----------------|-----------------|------------------|
| <b>A</b>      | 6.81<br>(173.0) | 7.85<br>(199.4) | 9.48<br>(240.8) | 11.64<br>(295.7) |
| <b>B</b>      | 3.42<br>(86.9)  | 3.97<br>(100.8) | 5.91<br>(150.1) | 5.97<br>(151.6)  |
| <b>C</b>      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.12<br>(79.2)  | 3.62<br>(92.0)   |
| <b>D</b>      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)  | 1.62<br>(41.2)   |
| <b>E</b>      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)  | 0.81<br>(20.6)   |
| <b>F</b>      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe    | 3/4"<br>Pipe     |
| <b>G</b>      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.25<br>(82.6)   |
| <b>H</b>      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)  | 1.62<br>(41.2)   |
| <b>J</b>      | 4.14<br>(105.2) | 4.98<br>(126.5) | 5.85<br>(148.6) | 7.39<br>(187.7)  |
| <b>K</b>      | 2.07<br>(52.6)  | 2.49<br>(63.2)  | 2.92<br>(74.2)  | 3.69<br>(93.7)   |
| <b>L</b>      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)  | 0.41<br>(10.4)   |
| <b>M</b>      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)  | 1.56<br>(39.6)   |
| <b>N</b>      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)   | 0.31<br>(7.9)    |
| <b>P</b>      | 2.12<br>(53.8)  | 2.18<br>(55.4)  | 2.63<br>(66.8)  | 3.06<br>(77.7)   |
| <b>R</b>      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)   | 0.31<br>(7.9)    |
| <b>S</b>      | 0.38<br>(9.6)   | 0.38<br>(9.6)   | 0.44<br>(11.2)  | 0.44<br>(11.2)   |
| <b>U</b>      | 0.47<br>(11.9)  | 0.47<br>(11.9)  | 0.56<br>(14.2)  | 0.62<br>(15.8)   |
| <b>Travel</b> | 0.62<br>(15.8)  | 0.69<br>(17.5)  | 0.88<br>(22.4)  | 1.12<br>(28.4)   |

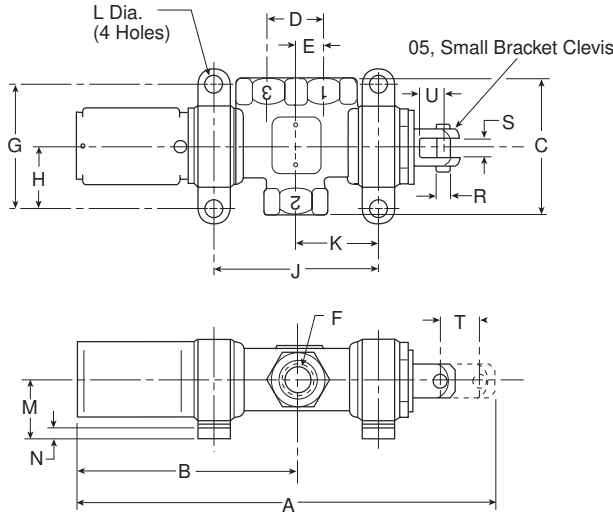


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Clevis Operated, Spring Return, Small Bracket**

**M095 Direct Acting (Push Lever) & M096 Reverse Acting (Pull Lever)**

**3-Way**

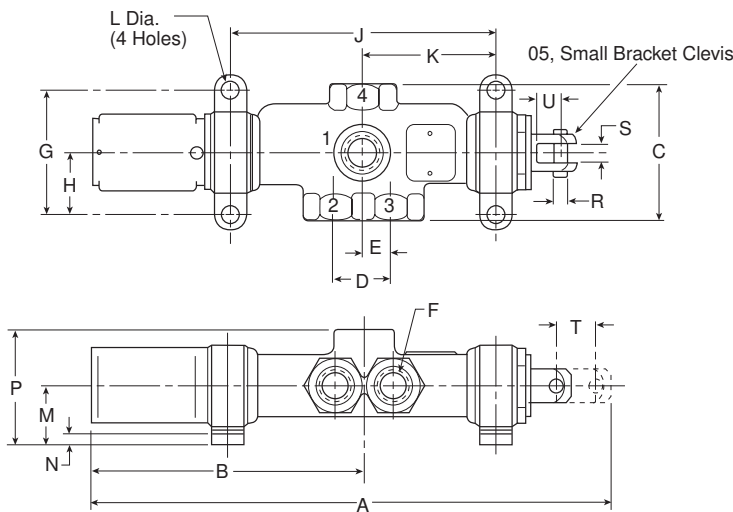


Inches (mm)

|        | 1/4             | 3/8             | 1/2             | 3/4              |
|--------|-----------------|-----------------|-----------------|------------------|
| A      | 6.56<br>(166.5) | 7.19<br>(182.6) | 8.95<br>(227.3) | 11.22<br>(285.0) |
| B      | 3.92<br>(99.5)  | 4.24<br>(107.6) | 5.31<br>(134.9) | 6.92<br>(175.8)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)  | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)  | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)  | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe    | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)  | 1.62<br>(41.2)   |
| J      | 2.63<br>(66.8)  | 3.13<br>(79.5)  | 3.72<br>(94.5)  | 4.56<br>(115.8)  |
| K      | 1.31<br>(33.3)  | 1.56<br>(39.6)  | 1.86<br>(47.2)  | 2.28<br>(57.9)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)  | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)  | 1.56<br>(39.6)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)   | 0.31<br>(7.9)    |
| R      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)   | 0.31<br>(7.9)    |
| S      | 0.38<br>(9.6)   | 0.38<br>(9.6)   | 0.44<br>(11.2)  | 0.44<br>(11.2)   |
| U      | 0.47<br>(11.9)  | 0.47<br>(11.9)  | 0.56<br>(14.2)  | 0.62<br>(15.8)   |
| Travel | 0.62<br>(15.8)  | 0.69<br>(17.5)  | 0.88<br>(22.4)  | 1.12<br>(28.4)   |

**M095 Direct Acting (Push Lever) & M096 Reverse Acting (Pull Lever)**

**4-Way**



Inches (mm)

|        | 1/4             | 3/8             | 1/2              | 3/4              |
|--------|-----------------|-----------------|------------------|------------------|
| A      | 8.06<br>(204.6) | 9.03<br>(229.3) | 11.07<br>(281.2) | 13.94<br>(354.1) |
| B      | 4.67<br>(118.6) | 5.15<br>(130.8) | 5.68<br>(144.3)  | 8.27<br>(210.1)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)   | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)   | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J      | 4.14<br>(105.2) | 4.98<br>(126.5) | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| K      | 2.07<br>(52.6)  | 2.49<br>(63.2)  | 2.9<br>(74.2)    | 3.69<br>(93.7)   |
| L      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)   | 0.41<br>(10.4)   |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)    | 0.31<br>(7.9)    |
| P      | 2.12<br>(53.8)  | 2.18<br>(55.4)  | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| R      | 0.25<br>(6.4)   | 0.25<br>(6.4)   | 0.31<br>(7.9)    | 0.31<br>(7.9)    |
| S      | 0.38<br>(9.6)   | 0.38<br>(9.6)   | 0.44<br>(11.2)   | 0.44<br>(11.2)   |
| U      | 0.47<br>(11.9)  | 0.47<br>(11.9)  | 0.56<br>(14.2)   | 0.62<br>(15.8)   |
| Travel | 0.62<br>(15.8)  | 0.69<br>(17.5)  | 0.88<br>(22.4)   | 1.12<br>(28.4)   |



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)



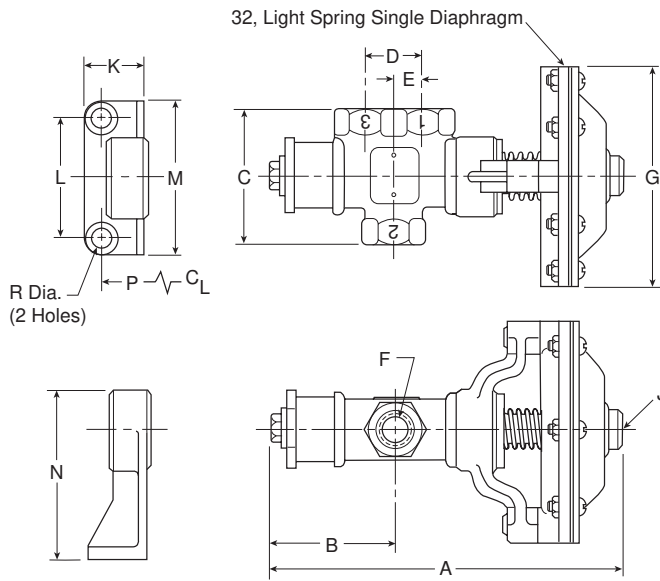
**Dimensional Data**

**MO Series**

**Single Diaphragm Operated, Spring Return Stem Stop**

**M084 Stem Stop, Large Bracket**

**3-Way**

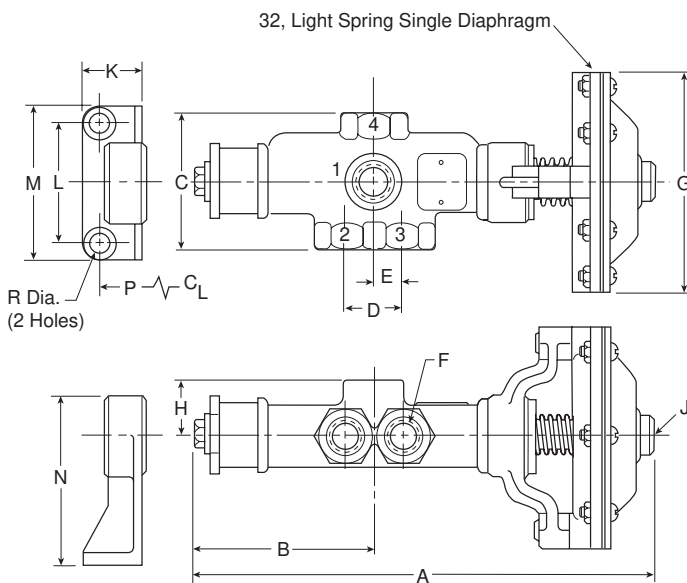


|        | 1/4             | 3/8             | 1/2             | 3/4             |
|--------|-----------------|-----------------|-----------------|-----------------|
| A      | 6.14<br>(156.0) | 6.85<br>(174.0) | 8.03<br>(204.0) | 9.89<br>(251.2) |
| B      | 2.03<br>(51.6)  | 2.36<br>(59.9)  | 2.83<br>(71.9)  | 3.48<br>(88.4)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)  | 3.62<br>(92.0)  |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)  | 1.62<br>(41.2)  |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)  | 0.81<br>(20.6)  |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe    | 3/4"<br>Pipe    |
| G      | 4.34<br>(110.2) | 4.34<br>(110.2) | 4.34<br>(110.2) | 5.27<br>(133.9) |
| J      | 1/8"<br>Pipe    | 1/8"<br>Pipe    | 1/8"<br>Pipe    | 1/8"<br>Pipe    |
| K      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.75<br>(44.4)  | 2.00<br>(50.8)  |
| L      | 2.00<br>(50.8)  | 2.38<br>(60.4)  | 2.00<br>(50.8)  | 3.25<br>(82.6)  |
| M      | 2.75<br>(69.8)  | 3.00<br>(76.2)  | 3.00<br>(76.2)  | 4.19<br>(106.4) |
| N      | 3.22<br>(81.8)  | 3.28<br>(83.3)  | 3.40<br>(86.4)  | 4.00<br>(101.6) |
| P      | 1.81<br>(46.0)  | 2.03<br>(51.6)  | 2.74<br>(69.6)  | 3.18<br>(80.8)  |
| R      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)  | 0.41<br>(10.4)  |
| Travel | 0.62<br>(15.8)  | 0.69<br>(17.5)  | 0.88<br>(22.4)  | 1.12<br>(28.4)  |

Inches (mm)

**M084 Stem Stop, Large Bracket**

**4-Way**



|        | 1/4             | 3/8             | 1/2             | 3/4              |
|--------|-----------------|-----------------|-----------------|------------------|
| A      | 7.65<br>(194.3) | 8.69<br>(220.7) | 9.82<br>(249.4) | 12.60<br>(320.0) |
| B      | 2.79<br>(70.9)  | 3.28<br>(83.3)  | 3.89<br>(98.8)  | 4.84<br>(122.9)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.12<br>(79.2)  | 3.62<br>(92.0)   |
| D      | 0.94<br>(23.9)  | 1.06<br>(26.9)  | 1.25<br>(31.8)  | 1.62<br>(41.2)   |
| E      | 0.47<br>(11.9)  | 0.53<br>(13.5)  | 0.62<br>(15.8)  | 0.81<br>(20.6)   |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe    | 3/4"<br>Pipe     |
| G      | 4.34<br>(110.2) | 4.34<br>(110.2) | 4.34<br>(110.2) | 5.27<br>(133.9)  |
| H      | 1.00<br>(25.4)  | 1.06<br>(26.9)  | 1.38<br>(30.0)  | 1.50<br>(38.1)   |
| J      | 1/8"<br>Pipe    | 1/8"<br>Pipe    | 1/8"<br>Pipe    | 1/8"<br>Pipe     |
| K      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.75<br>(44.4)  | 2.00<br>(50.8)   |
| L      | 2.00<br>(50.8)  | 2.38<br>(60.4)  | 2.00<br>(50.8)  | 3.25<br>(82.6)   |
| M      | 2.75<br>(69.8)  | 3.00<br>(76.2)  | 3.00<br>(76.2)  | 4.19<br>(106.4)  |
| N      | 3.22<br>(81.8)  | 3.28<br>(83.3)  | 3.40<br>(86.4)  | 4.00<br>(101.6)  |
| P      | 2.57<br>(65.3)  | 2.95<br>(74.9)  | 3.80<br>(96.5)  | 4.54<br>(115.3)  |
| R      | 0.34<br>(8.6)   | 0.34<br>(8.6)   | 0.41<br>(10.4)  | 0.41<br>(10.4)   |
| Travel | 0.62<br>(15.8)  | 0.69<br>(17.5)  | 0.88<br>(22.4)  | 1.12<br>(28.4)   |

Inches (mm)



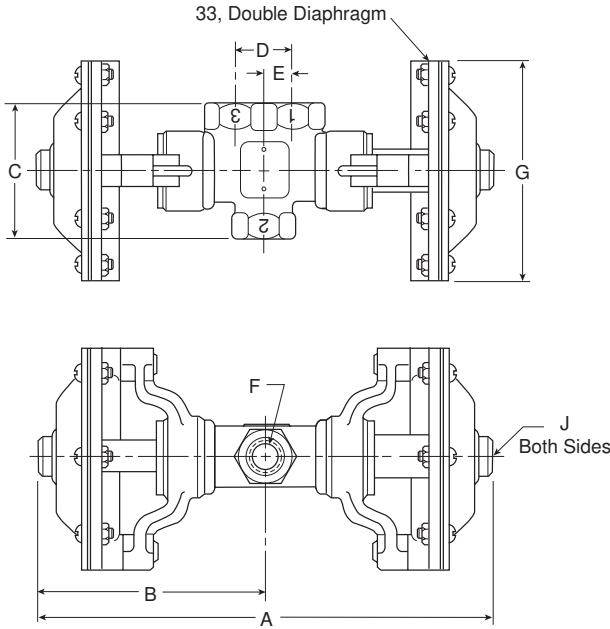
For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

**Double Diaphragm Operated**

**M033 Double Diaphragm**

**3-Way**

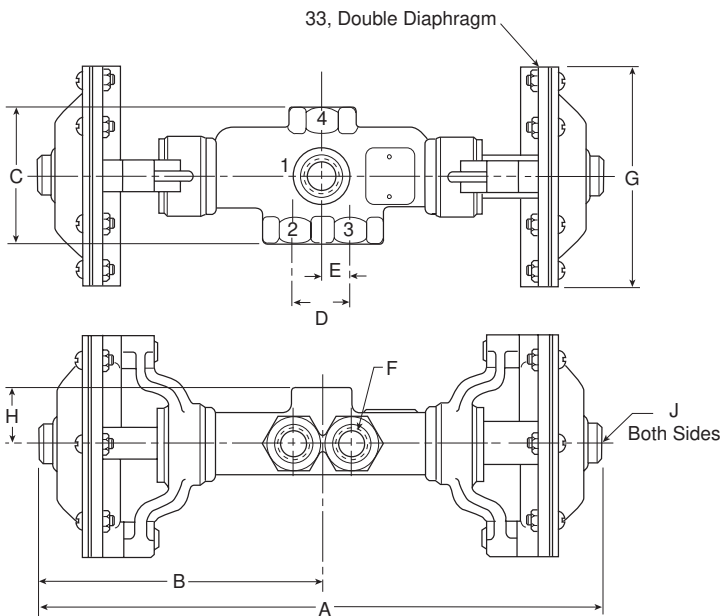


|          | 1/4             | 3/8             | 1/2              | 3/4              |
|----------|-----------------|-----------------|------------------|------------------|
| <b>A</b> | 8.22<br>(208.8) | 8.98<br>(228.1) | 10.40<br>(264.2) | 12.82<br>(325.6) |
| <b>B</b> | 4.11<br>(104.4) | 4.49<br>(114.0) | 5.20<br>(132.1)  | 6.41<br>(162.8)  |
| <b>C</b> | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)   | 3.62<br>(92.0)   |
| <b>D</b> | .94<br>(23.9)   | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| <b>E</b> | .47<br>(11.9)   | .53<br>(13.5)   | .62<br>(15.8)    | .81<br>(20.6)    |
| <b>F</b> | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| <b>G</b> | 4.34<br>(110.2) | 4.34<br>(110.2) | 4.34<br>(110.2)  | 5.27<br>(133.9)  |
| <b>J</b> | 1/8"<br>Pipe    | 1/8"<br>Pipe    | 1/8"<br>Pipe     | 1/8"<br>Pipe     |

Inches (mm)

**M033 Double Diaphragm**

**4-Way**



|          | 1/4             | 3/8              | 1/2              | 3/4              |
|----------|-----------------|------------------|------------------|------------------|
| <b>A</b> | 9.72<br>(246.9) | 10.82<br>(274.8) | 11.86<br>(301.2) | 15.52<br>(394.2) |
| <b>B</b> | 4.86<br>(123.4) | 5.41<br>(137.4)  | 5.93<br>(150.6)  | 7.76<br>(197.1)  |
| <b>C</b> | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.12<br>(79.2)   | 3.62<br>(92.0)   |
| <b>D</b> | .94<br>(23.9)   | 1.06<br>(26.9)   | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| <b>E</b> | .47<br>(11.9)   | .53<br>(13.5)    | .62<br>(15.8)    | .81<br>(20.6)    |
| <b>F</b> | 1/4"<br>Pipe    | 3/8"<br>Pipe     | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| <b>G</b> | 4.34<br>(110.2) | 4.34<br>(110.2)  | 4.34<br>(110.2)  | 5.27<br>(133.9)  |
| <b>H</b> | 1.00<br>(25.4)  | 1.06<br>(26.9)   | 1.38<br>(30.0)   | 1.50<br>(38.1)   |
| <b>J</b> | 1/8"<br>Pipe    | 1/8"<br>Pipe     | 1/8"<br>Pipe     | 1/8"<br>Pipe     |

Inches (mm)



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)





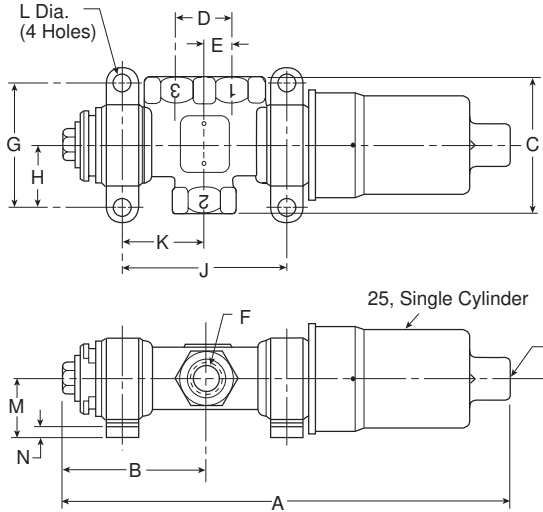
**Dimensional Data**

**MO Series**

**Single Cylinder Operated, Spring Return, Stem Stop**

**M085 Stem Stop, Small Bracket**

**3-Way**

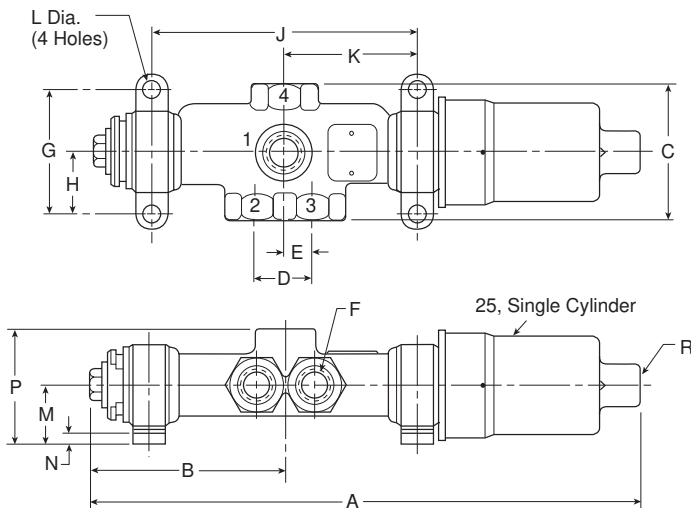


|        | 1/4             | 3/8             | 1/2             | 3/4              |
|--------|-----------------|-----------------|-----------------|------------------|
| A      | 7.50<br>(190.5) | 8.14<br>(206.8) | 9.03<br>(229.4) | 11.18<br>(284.0) |
| B      | 2.03<br>(51.6)  | 2.36<br>(59.9)  | 2.83<br>(71.9)  | 3.48<br>(88.4)   |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)  | 3.62<br>(92.0)   |
| D      | .94<br>(23.9)   | 1.06<br>(26.9)  | 1.25<br>(31.8)  | 1.62<br>(41.2)   |
| E      | .47<br>(11.9)   | .53<br>(13.5)   | .62<br>(15.8)   | .81<br>(20.6)    |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe    | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)  | 1.62<br>(41.2)   |
| J      | 2.64<br>(67.1)  | 3.14<br>(79.8)  | 3.73<br>(94.7)  | 4.67<br>(118.6)  |
| K      | 1.32<br>(33.5)  | 1.57<br>(39.9)  | 1.87<br>(47.5)  | 2.33<br>(59.2)   |
| L      | .34<br>(8.6)    | .34<br>(8.6)    | .41<br>(10.4)   | .41<br>(10.4)    |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)  | 1.56<br>(39.6)   |
| N      | .25<br>(6.4)    | .25<br>(6.4)    | .31<br>(7.9)    | .31<br>(7.9)     |
| R      | 1/4"<br>Pipe    | 1/4"<br>Pipe    | 1/4"<br>Pipe    | 1/4"<br>Pipe     |
| Travel | .62<br>(15.7)   | .69<br>(17.5)   | .88<br>(22.4)   | 1.12<br>(28.4)   |

Inches (mm)

**M085 Stem Stop, Small Bracket**

**4-Way**



|        | 1/4             | 3/8             | 1/2              | 3/4              |
|--------|-----------------|-----------------|------------------|------------------|
| A      | 9.00<br>(228.6) | 9.98<br>(253.5) | 11.15<br>(283.2) | 13.90<br>(353.1) |
| B      | 2.79<br>(70.9)  | 3.28<br>(83.3)  | 3.89<br>(98.8)   | 4.84<br>(122.9)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.12<br>(79.2)   | 3.62<br>(92.0)   |
| D      | .94<br>(23.9)   | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | .47<br>(11.9)   | .53<br>(13.5)   | .62<br>(15.8)    | .81<br>(20.6)    |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J      | 4.14<br>(105.2) | 4.98<br>(126.5) | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| K      | 2.07<br>(52.6)  | 2.49<br>(63.2)  | 2.92<br>(74.2)   | 3.69<br>(93.7)   |
| L      | .34<br>(8.6)    | .34<br>(8.6)    | .41<br>(10.4)    | .41<br>(10.4)    |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N      | .25<br>(6.4)    | .25<br>(6.4)    | .31<br>(7.9)     | .31<br>(7.9)     |
| P      | 2.12<br>(53.8)  | 2.18<br>(55.4)  | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| R      | 1/4"<br>Pipe    | 1/4"<br>Pipe    | 1/4"<br>Pipe     | 1/4"<br>Pipe     |
| Travel | .62<br>(15.8)   | .69<br>(17.5)   | .88<br>(22.4)    | 1.12<br>(28.4)   |

Inches (mm)

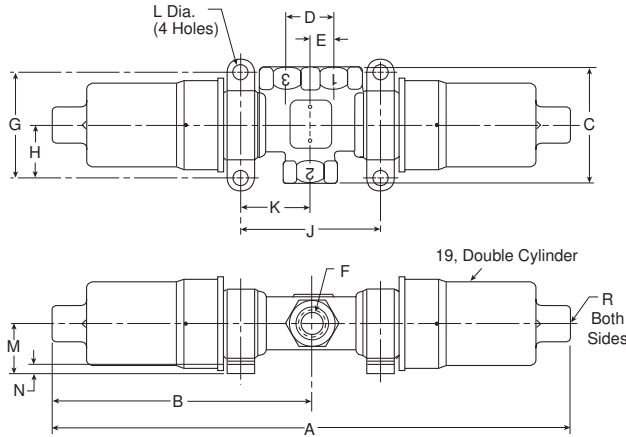


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Double Cylinder Operated**

**M019 Double Cylinder**

**3-Way**

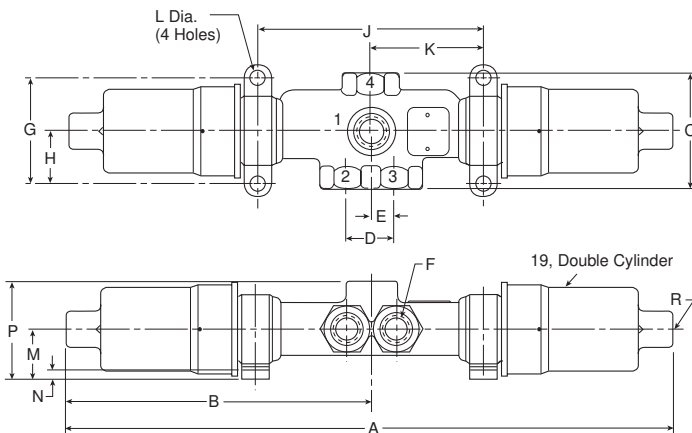


|   | 1/4              | 3/8              | 1/2              | 3/4              |
|---|------------------|------------------|------------------|------------------|
| A | 10.94<br>(277.9) | 11.56<br>(293.6) | 12.40<br>(315.0) | 15.40<br>(391.2) |
| B | 5.47<br>(138.9)  | 5.78<br>(146.8)  | 6.20<br>(157.5)  | 7.70<br>(195.6)  |
| C | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.00<br>(76.2)   | 3.62<br>(92.0)   |
| D | .94<br>(23.9)    | 1.06<br>(26.9)   | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E | .47<br>(11.9)    | .53<br>(13.5)    | .62<br>(15.8)    | .81<br>(20.6)    |
| F | 1/4"<br>Pipe     | 3/8"<br>Pipe     | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G | 2.25<br>(57.2)   | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H | 1.12<br>(28.4)   | 1.19<br>(30.2)   | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J | 2.64<br>(67.1)   | 3.14<br>(79.8)   | 3.73<br>(94.7)   | 4.67<br>(118.6)  |
| K | 1.32<br>(33.5)   | 1.57<br>(39.9)   | 1.87<br>(47.5)   | 2.33<br>(59.2)   |
| L | .34<br>(8.6)     | .34<br>(8.6)     | .41<br>(10.4)    | .41<br>(10.4)    |
| M | 1.12<br>(28.4)   | 1.12<br>(28.4)   | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N | .25<br>(6.4)     | .25<br>(6.4)     | .31<br>(7.9)     | .31<br>(7.9)     |
| R | 1/4"<br>Pipe     | 1/4"<br>Pipe     | 1/4"<br>Pipe     | 1/4"<br>Pipe     |

Inches (mm)

**M019 Double Cylinder**

**4-Way**



|   | 1/4              | 3/8              | 1/2              | 3/4              |
|---|------------------|------------------|------------------|------------------|
| A | 12.42<br>(315.5) | 13.40<br>(340.4) | 14.52<br>(368.8) | 18.12<br>(460.2) |
| B | 6.21<br>(157.7)  | 6.70<br>(170.2)  | 7.26<br>(184.4)  | 9.06<br>(230.1)  |
| C | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.12<br>(79.2)   | 3.62<br>(92.0)   |
| D | .94<br>(23.9)    | 1.06<br>(26.9)   | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E | .47<br>(11.9)    | .53<br>(13.5)    | .62<br>(15.8)    | .81<br>(20.6)    |
| F | 1/4"<br>Pipe     | 3/8"<br>Pipe     | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G | 2.25<br>(57.2)   | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H | 1.12<br>(28.4)   | 1.19<br>(30.2)   | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J | 4.14<br>(105.2)  | 4.98<br>(126.5)  | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| K | 2.07<br>(52.6)   | 2.49<br>(63.2)   | 2.92<br>(74.2)   | 3.69<br>(93.7)   |
| L | .34<br>(8.6)     | .34<br>(8.6)     | .41<br>(10.4)    | .41<br>(10.4)    |
| M | 1.12<br>(28.4)   | 1.12<br>(28.4)   | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N | .25<br>(6.4)     | .25<br>(6.4)     | .31<br>(7.9)     | .31<br>(7.9)     |
| P | 2.12<br>(53.8)   | 2.18<br>(55.4)   | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| R | 1/4"<br>Pipe     | 1/4"<br>Pipe     | 1/4"<br>Pipe     | 1/4"<br>Pipe     |

Inches (mm)



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

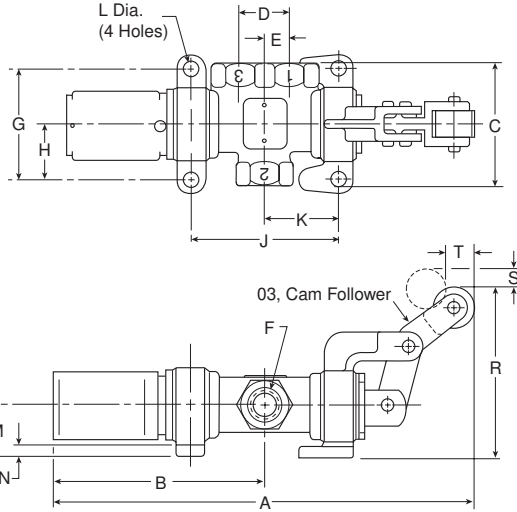


**Dimensional Data**

**Cam Operated, Spring Return**

**M095 Direct Acting, Small Bracket (Push Lever)**

**3-Way**

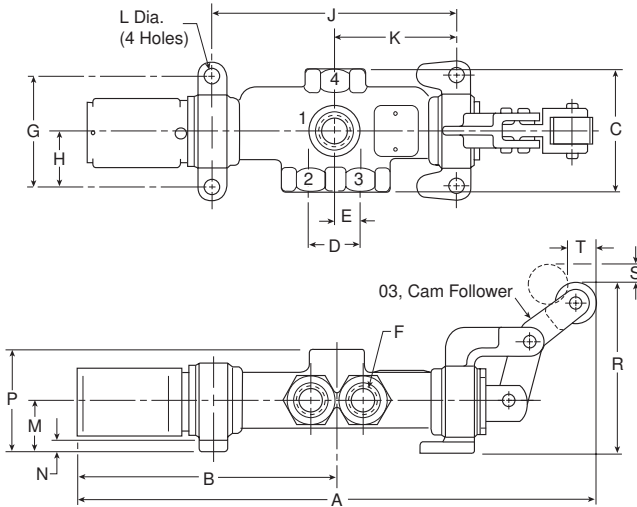


Inches (mm)

|        | 1/4             | 3/8             | 1/2              | 3/4              |
|--------|-----------------|-----------------|------------------|------------------|
| A      | 7.98<br>(202.6) | 8.72<br>(221.5) | 10.77<br>(273.6) | 13.54<br>(343.9) |
| B      | 3.92<br>(99.6)  | 4.24<br>(107.7) | 5.31<br>(134.9)  | 6.92<br>(175.8)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)   | 3.62<br>(92.0)   |
| D      | .94<br>(23.9)   | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | .47<br>(11.9)   | .53<br>(13.5)   | .62<br>(15.8)    | .81<br>(20.6)    |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J      | 2.63<br>(66.8)  | 3.13<br>(79.5)  | 3.72<br>(94.5)   | 4.56<br>(115.8)  |
| K      | 1.31<br>(33.3)  | 1.56<br>(39.6)  | 1.86<br>(47.2)   | 2.28<br>(57.9)   |
| L      | .34<br>(8.6)    | .34<br>(8.6)    | .41<br>(10.4)    | .41<br>(10.4)    |
| M      | 1.12<br>(38.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N      | .25<br>(6.4)    | .25<br>(6.4)    | .31<br>(7.9)     | .31<br>(7.9)     |
| R      | 3.88<br>(98.6)  | 3.88<br>(98.6)  | 4.23<br>(107.4)  | 4.88<br>(124.0)  |
| S      | .43<br>(10.9)   | .47<br>(11.9)   | .70<br>(17.8)    | .67<br>(17.0)    |
| Travel | .53<br>(13.5)   | .59<br>(15.0)   | .75<br>(19.0)    | .81<br>(20.6)    |

**M095 Direct Acting, Small Bracket (Push Lever)**

**4-Way**



Inches (mm)

|        | 1/4             | 3/8              | 1/2              | 3/4              |
|--------|-----------------|------------------|------------------|------------------|
| A      | 9.48<br>(204.7) | 10.56<br>(268.2) | 12.89<br>(327.4) | 16.26<br>(413.0) |
| B      | 4.67<br>(118.6) | 5.15<br>(130.8)  | 5.68<br>(144.3)  | 8.27<br>(210.1)  |
| C      | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.12<br>(79.2)   | 3.62<br>(92.0)   |
| D      | .94<br>(23.9)   | 1.06<br>(26.9)   | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E      | .47<br>(11.9)   | .53<br>(13.5)    | .62<br>(15.8)    | .81<br>(20.6)    |
| F      | 1/4"<br>Pipe    | 3/8"<br>Pipe     | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G      | 2.25<br>(57.2)  | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H      | 1.12<br>(28.4)  | 1.19<br>(30.2)   | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J      | 4.14<br>(105.2) | 4.98<br>(126.5)  | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| K      | 2.07<br>(52.6)  | 2.49<br>(63.2)   | 2.92<br>(74.2)   | 3.69<br>(93.7)   |
| L      | .34<br>(8.6)    | .34<br>(8.6)     | .41<br>(10.4)    | .41<br>(10.4)    |
| M      | 1.12<br>(28.4)  | 1.12<br>(28.4)   | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N      | .25<br>(6.4)    | .25<br>(6.4)     | .31<br>(7.9)     | .31<br>(7.9)     |
| P      | 2.12<br>(53.8)  | 2.18<br>(55.4)   | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| R      | 3.88<br>(98.6)  | 3.88<br>(98.6)   | 4.23<br>(107.4)  | 4.88<br>(124.0)  |
| S      | .43<br>(10.9)   | .47<br>(11.9)    | .70<br>(17.8)    | .67<br>(17.0)    |
| Travel | .53<br>(13.5)   | .59<br>(15.0)    | .75<br>(19.0)    | .81<br>(20.6)    |



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

E50

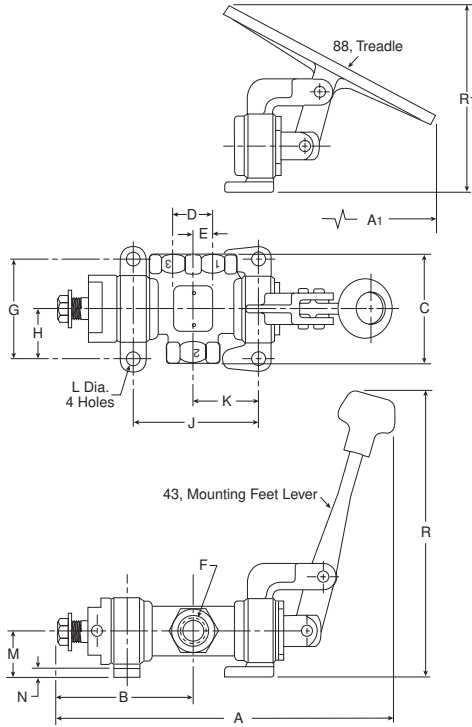
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**Lever & Treadle Operated, 2-Position Ball Detent**

**M054 Ball Detent, Small Bracket**

**3-Way**

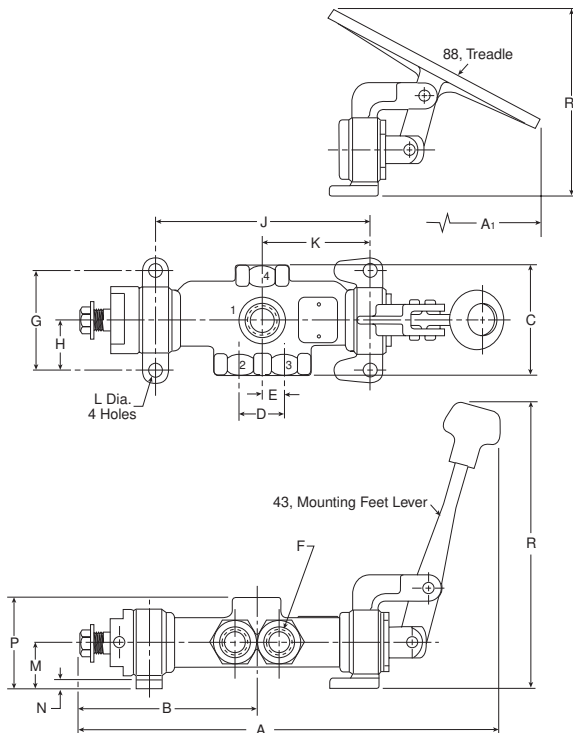


Inches (mm)

|    | 1/4             | 3/8             | 1/2              | 3/4              |
|----|-----------------|-----------------|------------------|------------------|
| A  | 7.35<br>(186.7) | 8.36<br>(212.3) | 9.95<br>(252.7)  | 12.25<br>(311.2) |
| A1 | 8.59<br>(218.2) | 9.33<br>(237.0) | 10.65<br>(270.5) | 12.90<br>(327.7) |
| B  | 3.25<br>(82.6)  | 3.66<br>(93.0)  | 4.39<br>(111.5)  | 5.41<br>(137.4)  |
| C  | 2.38<br>(60.4)  | 2.62<br>(66.6)  | 3.00<br>(76.2)   | 3.62<br>(92.0)   |
| D  | .94<br>(23.9)   | 1.06<br>(26.9)  | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E  | .47<br>(11.9)   | .53<br>(13.5)   | .62<br>(15.8)    | .81<br>(20.6)    |
| F  | 1/4"<br>Pipe    | 3/8"<br>Pipe    | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G  | 2.25<br>(57.2)  | 2.38<br>(60.4)  | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H  | 1.12<br>(28.4)  | 1.19<br>(30.2)  | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J  | 2.63<br>(66.8)  | 3.13<br>(79.5)  | 3.72<br>(94.5)   | 4.56<br>(115.8)  |
| K  | 1.31<br>(33.3)  | 1.56<br>(39.6)  | 1.86<br>(47.2)   | 2.28<br>(57.9)   |
| L  | .34<br>(8.6)    | .34<br>(8.6)    | .41<br>(10.4)    | .41<br>(10.4)    |
| M  | 1.12<br>(28.4)  | 1.12<br>(28.4)  | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N  | .25<br>(6.4)    | .25<br>(6.4)    | .31<br>(7.9)     | .31<br>(7.9)     |
| R1 | 6.78<br>(172.2) | 6.78<br>(172.2) | 8.10<br>(205.7)  | 10.73<br>(272.5) |
| R2 | 4.51<br>(114.6) | 4.65<br>(18.1)  | 4.85<br>(123.2)  | 6.03<br>(153.2)  |

**M054 Ball Detent, Small Bracket**

**4-Way**



Inches (mm)

|    | 1/4              | 3/8              | 1/2              | 3/4              |
|----|------------------|------------------|------------------|------------------|
| A  | 8.86<br>(225.0)  | 10.20<br>(259.1) | 11.74<br>(298.2) | 14.96<br>(380.0) |
| A1 | 10.01<br>(254.2) | 11.17<br>(283.7) | 12.77<br>(324.4) | 15.62<br>(396.8) |
| B  | 4.00<br>(101.6)  | 4.57<br>(116.1)  | 5.44<br>(138.2)  | 6.76<br>(171.7)  |
| C  | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.00<br>(76.2)   | 3.62<br>(92.0)   |
| D  | .94<br>(23.9)    | 1.06<br>(26.9)   | 1.25<br>(31.8)   | 1.62<br>(41.2)   |
| E  | .47<br>(11.9)    | .53<br>(13.5)    | .62<br>(15.8)    | .81<br>(20.6)    |
| F  | 1/4"<br>Pipe     | 3/8"<br>Pipe     | 1/2"<br>Pipe     | 3/4"<br>Pipe     |
| G  | 2.25<br>(57.2)   | 2.38<br>(60.4)   | 2.62<br>(66.6)   | 3.25<br>(82.6)   |
| H  | 1.12<br>(28.4)   | 1.19<br>(30.2)   | 1.31<br>(33.3)   | 1.62<br>(41.2)   |
| J  | 4.14<br>(105.2)  | 4.98<br>(126.5)  | 5.85<br>(148.6)  | 7.39<br>(187.7)  |
| K  | 2.07<br>(52.6)   | 2.49<br>(63.2)   | 2.92<br>(74.2)   | 3.69<br>(93.7)   |
| L  | .34<br>(8.6)     | .34<br>(8.6)     | .41<br>(10.4)    | .41<br>(10.4)    |
| M  | 1.12<br>(28.4)   | 1.12<br>(28.4)   | 1.25<br>(31.8)   | 1.56<br>(39.6)   |
| N  | .25<br>(6.4)     | .25<br>(6.4)     | .31<br>(7.9)     | .31<br>(7.9)     |
| P  | 2.12<br>(53.8)   | 2.18<br>(55.4)   | 2.63<br>(66.8)   | 3.06<br>(77.7)   |
| R1 | 6.78<br>(172.2)  | 6.78<br>(172.2)  | 8.10<br>(205.7)  | 10.73<br>(272.5) |
| R2 | 4.51<br>(114.6)  | 4.65<br>(18.1)   | 4.85<br>(123.2)  | 6.03<br>(153.2)  |



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E51

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Lever Series

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Pedal Series

MO Series

Safety



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**Features**

**Parker is protecting your most valuable assets...**



Standard 190.147

- This applies to the servicing and maintenance of a machine or equipment.
- Any new, replacement, repair, or renovation to a machine must include an energy isolation device that can accept a lock out device.
- Lock out devices should not be used for any other purposes
- Verification of energy isolation is required



Standard Z244

- This applies to all machines
- Lockout / tagout is the primary method of hazardous energy control
- Machines shall be designed, manufactured, supplied, and installed with energy isolating devices



B11.0

B11.TR6



B155.1

- B11.0 applies to a broad range of machines, B11.TR6 is specific to machine tools, and B155.1 is specific to packaging and converting machines
- Energy isolating device shall:
  - Be capable of being locked in the OFF position only
  - Be easy to operate
  - Have an exhaust port equal or greater than its supply port
  - Have a pressure indicator that is visible to an operator to verify line is relieved of pressure

**...By offering the best in pneumatic safety for machine maintenance:**



**Traditional Ball Valve**

- Not a dedicated energy isolation device** ✘
- Not a full exhaust port ✘
- No verification of line exhaust ✘
- Can be locked ON ✘
- Not easily identifiable ✘



**Parker Solution**

- ✓ Dedicated energy isolation device**
- ✓ Full exhaust port**
- ✓ Verification of line exhaust**
- ✓ Only lockable in OFF position**
- ✓ Easily identifiable**



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Features / Part Numbers

LV / LVSS Series

Lockout valves are installed in pneumatic drop legs, or individual pneumatic control lines. In accordance with OSHA procedures, lockout valves are used during maintenance and service procedures of pneumatically (air) operated equipment.

- Used for compliance with OSHA 29 CFR part 1910
- 1/4" to 2" pipe sizes. NPT or BSPP
- Yellow cast aluminum body with red handle or stainless steel (NACE MR0175 / ISO 15156)
- Inline or surface mountable
- Built in port for pressure verification to meet ANSI B11 and PMMI B155 requirements
- Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity



Material specifications

| Description    | LV                       | LVSS                     |
|----------------|--------------------------|--------------------------|
| Body:          | Cast aluminum alloy      | Stainless steel          |
| Handle:        | Plastic                  | Stainless steel          |
| Spool:         | Aluminum                 | Stainless steel          |
| Seals:         | Carboxylated nitrile     | Fluorocarbon             |
| Detent spring: | Stainless steel          | Stainless steel          |
| Grease:        | Magnalube G <sup>†</sup> | Magnalube G <sup>†</sup> |

<sup>†</sup> Trademark Magnalube

Operating information

| Operating pressure:    | LV                                    | LVSS           |
|------------------------|---------------------------------------|----------------|
| Compact                | 15 to 145 PSIG                        | -              |
| Standard               | 15 to 300 PSIG                        | 15 to 300 PSIG |
| High flow              | 15 to 300 PSIG                        | -              |
| Operating temperature: | 40°F to 175°F                         | 30°F to 175°F  |
| Operating media:       | Clean, dry, compressed air (5 micron) |                |

Compact



| Port in/out | Port exhaust | SCFM in/out | SCFM exhaust | Wt (lb) | Part number * |
|-------------|--------------|-------------|--------------|---------|---------------|
| 1/4         | 3/8          | 41.8        | 40.7         | 0.9     | LV2N3B        |
| 3/8         | 3/8          | 60.7        | 60.7         | 0.9     | LV3N3B        |

Standard



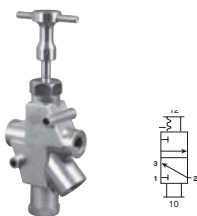
| Port in/out | Port exhaust | SCFM in/out | SCFM exhaust | Wt (lb) | Part number * |
|-------------|--------------|-------------|--------------|---------|---------------|
| 3/8         | 3/4          | 107.7       | 81.1         | 2.0     | LV3N6B        |
| 1/2         | 3/4          | 161.4       | 90.9         | 2.0     | LV4N6B        |
| 3/4         | 3/4          | 187.7       | 93.2         | 2.0     | LV6N6B        |
| 3/4         | 1-1/4        | 297.7       | 204          | 3.2     | LV6NAB        |
| 1           | 1-1/4        | 375         | 216          | 3.2     | LV8NAB        |
| 1-1/4       | 1-1/4        | 436.4       | 221          | 3.2     | LVANAB        |

High Flow



| Port in/out | Port exhaust | SCFM in/out | SCFM exhaust | Wt (lb) | Part number * |
|-------------|--------------|-------------|--------------|---------|---------------|
| 1-1/2       | 2            | 761.4       | 1156         | 8.2     | LVBNCB        |
| 2           | 2            | 918.2       | 1186         | 8.2     | LVCNCB        |

Stainless Steel



| Port in/out | Port exhaust | SCFM in/out | SCFM exhaust | Wt (lb) | Part number * |
|-------------|--------------|-------------|--------------|---------|---------------|
| 1/4         | 1/4          | 48.6        | 47.2         | 3.8     | LV2N2BSS      |
| 3/8         | 1/2          | 131.6       | 142          | 6.0     | LV3N4BSS      |
| 1/2         | 1/2          | 131.6       | 142          | 6.0     | LV4N4BSS      |
| 3/4         | 1            | 325         | 386          | 13      | LV6N8BSS      |
| 1           | 1            | 325         | 386          | 13      | LV8N8BSS      |
| 1-1/2       | 2            | 889         | 1023         | 35      | LVBNCBSS      |
| 2           | 2            | 889         | 1023         | 35      | LVCNCBSS      |

NOTE: Exhaust flow rates calculated using inlet pressure 100 psig (6.7 bar), pressure drop 5 psi (0.34 bar), air temp 68°F (20°C), and 36% relative humidity.

\* For BSPP ports, change 4th digit from "N" to "B"

Most popular.



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## EZ Series

The EZ series meets all the same standards as the LV series with the added feature of a soft start when opened. There are still 2 detented positions for the handle (push close, pull to open), but when pulled open, an adjustable needle valve controls the rate of pressure build-up. This can protect equipment during start up after maintenance. The EZ is distinguishable from the LV series by the blue dot on the label.

### Features

- Combines lockout and soft-start functions in a single unit
- Used in systems for compliance with OSHA standard 29 CFR part 1910
- 3/8 Inch to 1-1/4 inch pipe sizes
- Cv's from 3.7 to 13.7
- 3/4 and 1-1/4 inch: exhaust ports available
- Exhaust port threaded for installation of silencer or line for remote exhausting
- Inline or surface mountable
- Yellow cast aluminum body with red handle. Blue dot on body indicates EZ Series valve
- Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity



3/4" Exhaust Shown

### Operating information

|                        |          |                                       |
|------------------------|----------|---------------------------------------|
| Operating pressure:    | Standard | 15 to 300 PSIG                        |
| Operating temperature: |          | 40°F to 175°F                         |
| Operating media:       |          | Clean, dry, compressed air (5 micron) |

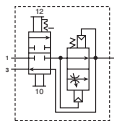
### Material specifications

#### Description

|                |                          |
|----------------|--------------------------|
| Body:          | Cast aluminum alloy      |
| Handle:        | Plastic                  |
| Spool:         | Aluminum                 |
| Seals:         | Carboxylated nitrile     |
| Detent spring: | Stainless steel          |
| Grease:        | Magnalube G <sup>†</sup> |

<sup>†</sup> Trademark Magnalube

### EZ Series



| Port in/out | Port exhaust | SCFM in/out | SCFM exhaust | Wt (lb) | Part number *  |
|-------------|--------------|-------------|--------------|---------|----------------|
| 3/8         | 3/4          | 136.4       | 181          | 2.1     | <b>EZ03NB6</b> |
| 1/2         | 3/4          | 161.4       | 189          | 2.1     | <b>EZ04NB6</b> |
| 3/4         | 3/4          | 181.9       | 216          | 2.1     | <b>EZ06NB6</b> |
| 3/4         | 1-1/4        | 272.7       | 248          | 3.2     | <b>EZ06NBA</b> |
| 1           | 1-1/4        | 311.4       | 273          | 3.2     | <b>EZ08NBA</b> |
| 1-1/4       | 1-1/4        | 368.2       | 291          | 3.2     | <b>EZ0ANBA</b> |

NOTE: Exhaust flow rates calculated using inlet pressure 100 psig (6.7 bar), pressure drop 5 psi (0.34 bar), air temp 68°F (20°C), and 36% relative humidity.

\* For BSPP ports, change 5th digit from "N" to "B"

Most popular.



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

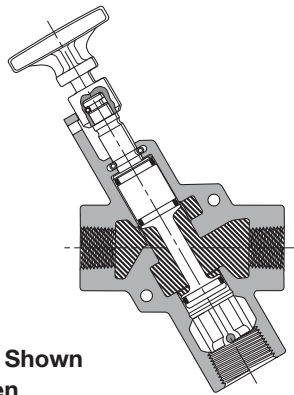
**Applications**

Lockout valves are installed in pneumatic drop legs, or individual pneumatic control lines (see Figure 1). In accordance with OSHA procedures, EZ valves are used during maintenance and service procedures of pneumatically (air) operated equipment. Prior to servicing, the red handle is pressed inward, blocking pressure and relieving all downstream air pressure. A padlock is installed through the locking hasp, preventing accidental actuation during the maintenance procedure. Following maintenance, the padlock is removed and the red handle is pulled outward, gradually returning air pressure to the system. (For complete Lockout / Tagout procedures, consult OSHA Standard 29 CFR Part 1910 in U.S. Federal Register/Vol. 54 No. 169, Friday, September 1, 1989 / Page 36644.)

**LV / LVSS Operation**

**Normal Machine Operation – Valve Open**

With the handle pulled outward. Inlet Port 1 is open to outlet Port 2. Exhaust Port 3 is blocked.

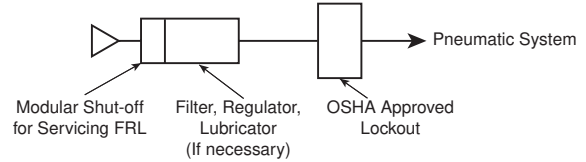


**LV Series Shown Open**

**Mounting**

Valves can be inline mounted or surface mounted using the two mounting holes provided in the valve body. Mount valves in plain view with the handle oriented for accessibility.

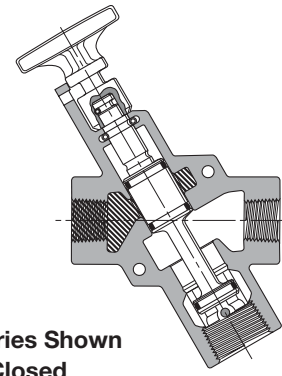
**Placement of Lockout Device**



**Figure 1.**

**Lockout Operation – Valve Closed**

With the handle pushed inward. Inlet Port 1 is blocked. Outlet Port 2 is open to Exhaust Port 3.

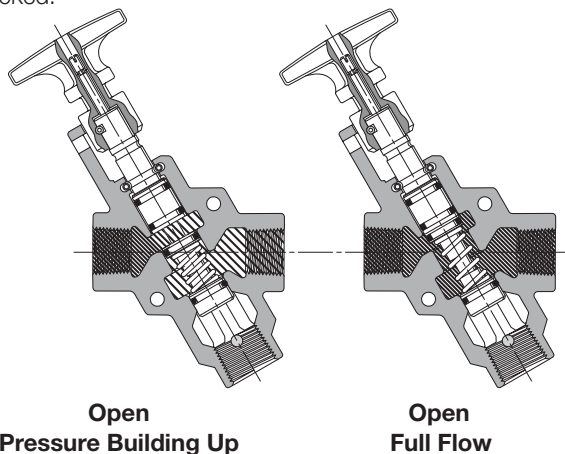


**LV Series Shown Closed**

**EZ Operation**

**Normal Machine Operation – Valve Open**

When the red handle is pulled outward, the adjustable needle valve (accessed through the top of the handle) setting determines the rate of pressure buildup. When downstream pressure reaches the full flow described in the specifications below, Inlet Port 1 is open to outlet Port 2. Exhaust Port 3 is blocked.

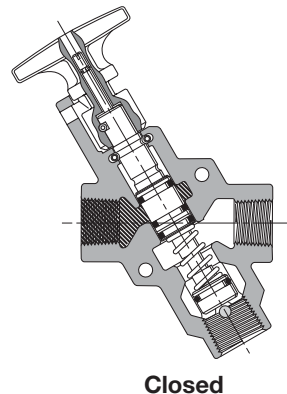


**Open Pressure Building Up**

**Open Full Flow**

**Lockout Operation – Valve Closed**

When the red handle is pushed inward, the Inlet Port 1 is blocked. Downstream air is exhausted through Exhaust Port 3.



**Closed**



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| Control Panel Products      |
| Sensing                     |

**Accessories**

**Corrosion resistant mufflers for harsh environments**



| Port size | Construction    | Threads   | Dimensions In. (mm) |              | Part number       |
|-----------|-----------------|-----------|---------------------|--------------|-------------------|
|           |                 |           | Width               | Length       |                   |
| 1/4       | Stainless steel | Male, NPT | 0.56 (14.2)         | 1.75 (44.5)  | <b>5500A2004</b>  |
| 1/2       | Stainless steel | Male, NPT | 0.87 (22.1)         | 2.75 (69.7)  | <b>5500A4004</b>  |
| 1         | Stainless steel | Male, NPT | 1.31 (33.3)         | 3.87 (98.3)  | <b>5500B6004</b>  |
| 2         | Nickel plated   | Male, NPT | 2.37 (60.2)         | 5.50 (139.7) | <b>5500A9004*</b> |

\* Nickel plated

**High Flow Silencers**



| Part number *   | ES25MC    | ES37MC    | ES50MC    | ES75MC     | ES100MC    | ES125MC    | ES150MC    | ES200MC    |
|-----------------|-----------|-----------|-----------|------------|------------|------------|------------|------------|
| Pipe size       | 1/4       | 3/8       | 1/2       | 3/4        | 1          | 1-1/4      | 1-1/2      | 2          |
| Flow (scfm)     | 129       | 219       | 549       | 893        | 1013       | 1486       | 1580       | 1580       |
| Hex In. (mm)    | 0.63 (16) | 1.00 (25) | 1.00 (25) | 1.62 (41)  | 1.62 (41)  | —          | —          | 2.99 (76)  |
| Length In. (mm) | 1.85 (47) | 3.31 (84) | 3.31 (84) | 4.56 (116) | 4.56 (116) | 5.69 (145) | 5.69 (145) | 7.68 (195) |

\* NPT ports standard, for BSPT ports, add a "B" after the "S"

**Pop-up Pressure Indicator**



**Brass** – Part # **988A30** – Can be used on all LV or EZ series to provide visual verification of line exhaust



**Stainless** – Part# **1155H30** – Can be used on SS LV series to provide visual verification of line exhaust

**Pressure Switch**



- Part # **PPS1-2C3-RHM** (DIN 9.4mm connector)
- Part # **PPS1-2C3-RWL** (18" leads)
- Signal verification of line exhaust
- Field adjustable set point

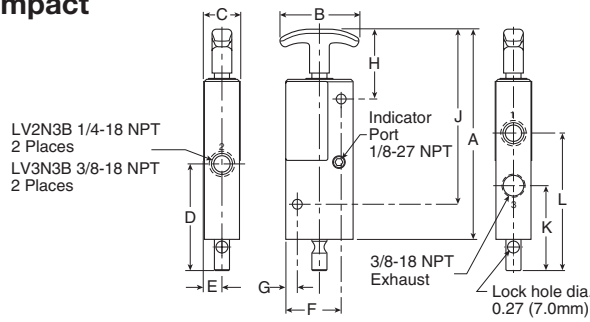
Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

**Dimensional Data**

**LV Lockout, Compact, Standard, High Flow**

**LZ Series, Exhaust Port - Compact, Standard, High Flow**

**Compact**

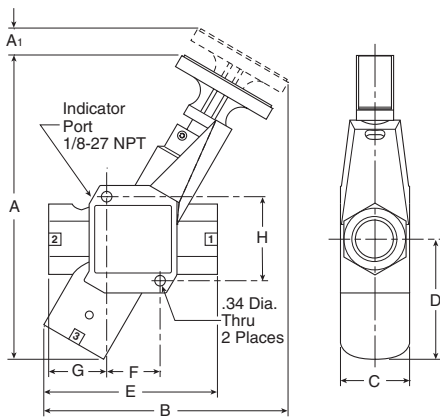


**Compact LV Series, 3/8" Exhaust Port Dimensions**

| A             | B            | C             | D            | E             | F            |
|---------------|--------------|---------------|--------------|---------------|--------------|
| 6.50<br>(165) | 2.25<br>(57) | 1.05<br>(27)  | 3.04<br>(77) | .51<br>(13)   | 1.58<br>(40) |
| G             | H            | J             | K            | L             |              |
| .33<br>(8)    | 1.99<br>(51) | 4.99<br>(127) | 2.42<br>(62) | 3.92<br>(100) |              |

Inches (mm)

**Standard**



**Compact LV Series, 3/4" Exhaust Port Dimensions**

| A             | A <sub>1</sub> | B             | C            | D            | E             |
|---------------|----------------|---------------|--------------|--------------|---------------|
| 8.32<br>(211) | 0.64<br>(16)   | 6.60<br>(168) | 2.00<br>(51) | 3.06<br>(78) | 4.24<br>(108) |
| F             | G              | H             |              |              |               |
| 1.32<br>(111) | 1.56<br>(40)   | 2.21<br>(56)  |              |              |               |

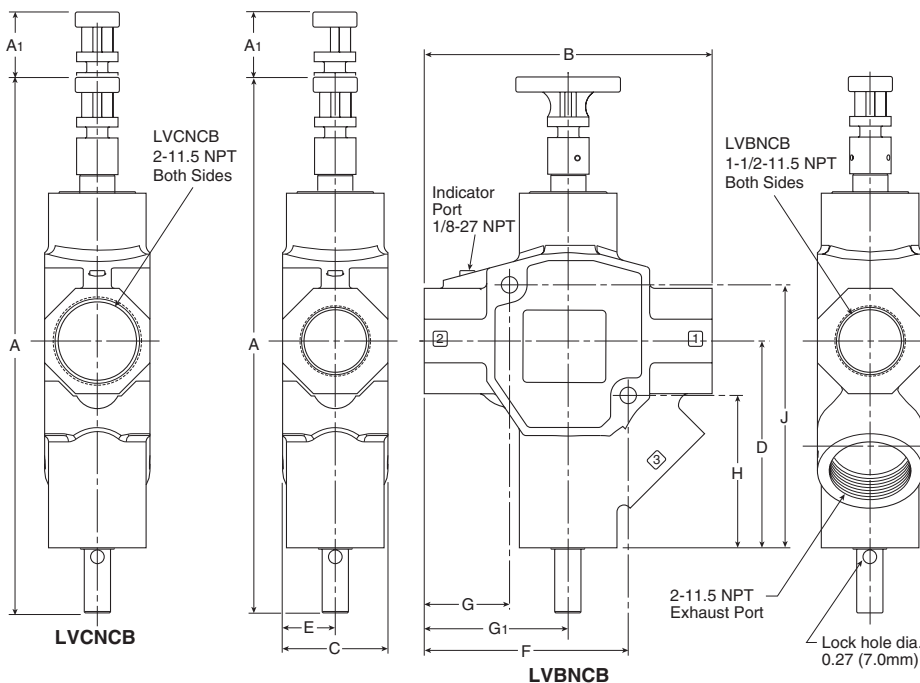
Inches (mm)

**Compact LV Series, 1-1/4" Exhaust Port Dimensions**

| A             | A <sub>1</sub> | B             | C            | D            | E             |
|---------------|----------------|---------------|--------------|--------------|---------------|
| 9.91<br>(252) | 0.85<br>(22)   | 7.95<br>(202) | 2.25<br>(57) | 3.91<br>(99) | 5.65<br>(144) |
| F             | G              | H             |              |              |               |
| 1.74<br>(44)  | 1.89<br>(48)   | 2.74<br>(70)  |              |              |               |

Inches (mm)

**High Flow**



**High Flow LV Series, 2" Exhaust Port Dimensions**

| A              | A <sub>1</sub> | B              |
|----------------|----------------|----------------|
| 14.82<br>(376) | 1.87<br>(47)   | 8.20<br>(208)  |
| C              | D              | E              |
| 3.00<br>(76)   | 5.89<br>(150)  | 1.50<br>(38)   |
| F              | G              | G <sub>1</sub> |
| 5.81<br>(148)  | 2.43<br>(62)   | 4.10<br>(104)  |
| H              | J              |                |
| 4.34<br>(110)  | 7.49<br>(190)  |                |

Inches (mm)



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

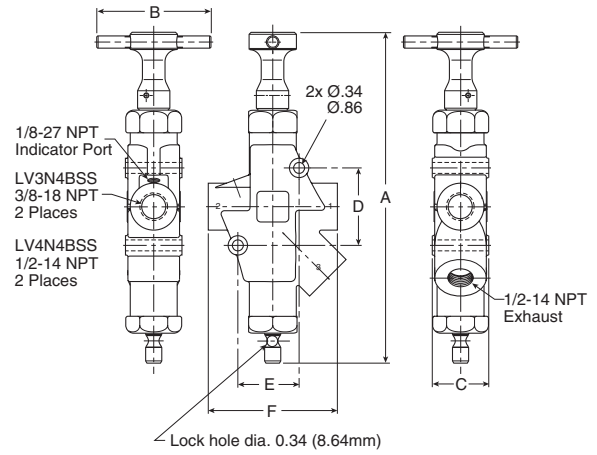
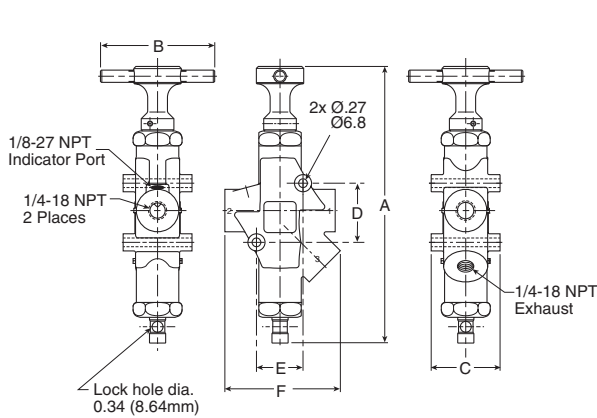
Sensing

**Dimensional Data**

**LV Lockout, Stainless Steel**

**LZ Series, Exhaust Port - Compact, Standard, High Flow**

**Stainless Steel**



**Stainless Steel LV Series, 1/4" Exhaust Port Dimensions**

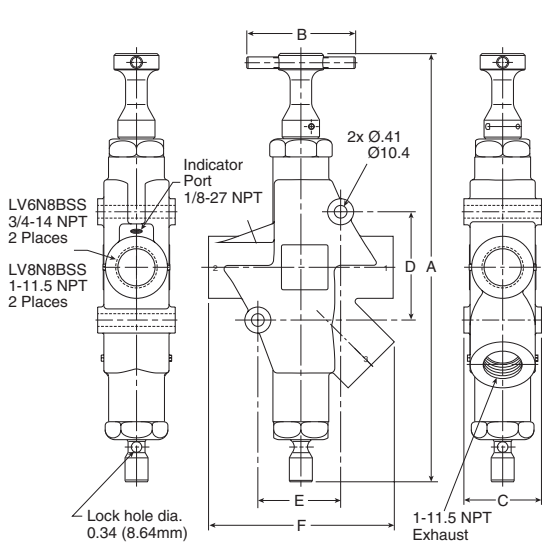
| A     | B    | C    | D    | E    | F    |
|-------|------|------|------|------|------|
| 8.47  | 3.50 | 2.11 | 1.81 | 1.43 | 3.54 |
| (215) | (89) | (54) | (46) | (36) | (90) |

Inches (mm)

**Stainless Steel LV Series, 1/2" Exhaust Port Dimensions**

| A     | B    | C    | D    | E    | F     |
|-------|------|------|------|------|-------|
| 10.24 | 3.50 | 1.75 | 2.40 | 1.90 | 4.00  |
| (260) | (89) | (45) | (61) | (48) | (102) |

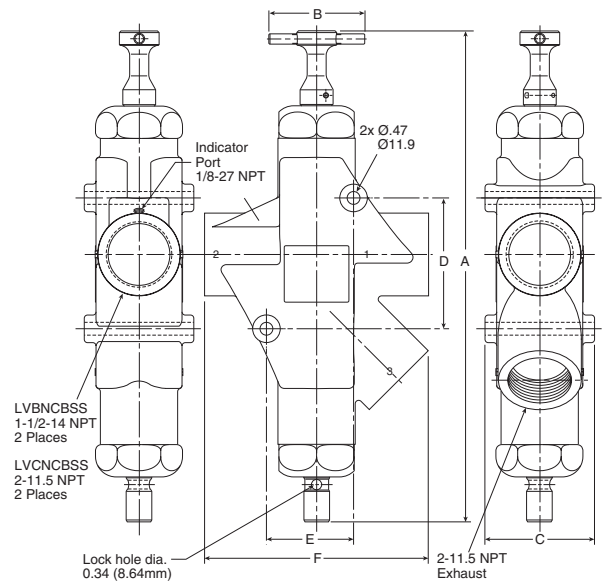
Inches (mm)



**Stainless Steel LV Series, 1" Exhaust Port Dimensions**

| A     | B    | C    | D    | E    | F     |
|-------|------|------|------|------|-------|
| 13.80 | 3.50 | 2.50 | 3.49 | 2.67 | 5.99  |
| (351) | (89) | (64) | (89) | (68) | (152) |

Inches (mm)



**Stainless Steel LV Series, 2" Exhaust Port Dimensions**

| A     | B    | C     | D     | E    | F     |
|-------|------|-------|-------|------|-------|
| 17.92 | 3.50 | 4.00  | 4.77  | 3.18 | 8.16  |
| (455) | (89) | (102) | (121) | (81) | (207) |

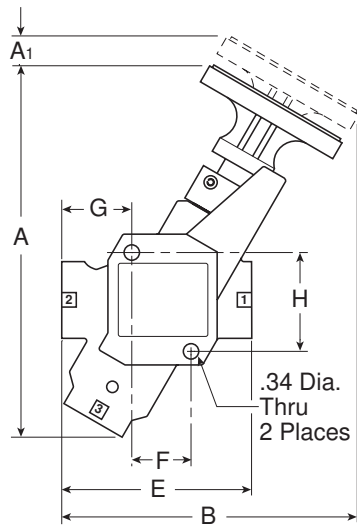
Inches (mm)



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing

**EZ Series, Exhaust Port - Standard Flow**



**EZ 3/4" Exhaust Port Dimensions**

| A             | A1           | B             | C            | D            |
|---------------|--------------|---------------|--------------|--------------|
| 8.32<br>(211) | 0.64<br>(16) | 6.60<br>(168) | 2.00<br>(51) | 3.06<br>(78) |

| E             | F             | G            | H            |
|---------------|---------------|--------------|--------------|
| 4.24<br>(108) | 1.32<br>(111) | 1.56<br>(40) | 2.21<br>(56) |

Inches (mm)

**EZ 1-1/4" Exhaust Port Dimensions**

| A             | A1           | B             | C            | D            |
|---------------|--------------|---------------|--------------|--------------|
| 9.91<br>(252) | 0.85<br>(22) | 7.95<br>(202) | 2.25<br>(57) | 3.91<br>(99) |

| E             | F            | G            | H            |
|---------------|--------------|--------------|--------------|
| 5.65<br>(144) | 1.74<br>(44) | 1.89<br>(48) | 2.74<br>(70) |

Inches (mm)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Features

Two-Hand Controls

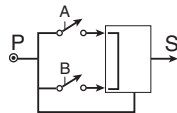
Two-Hand Controls

- The pre-assembled two-hand control enclosure occupies both hands of an operator by requiring nearly simultaneous operation of two pushbuttons
- Poppet – snap-acting (no spools)
- Same air as in cylinders – Filtration: 40 micron
- No lubrication required



| Part number | Connection    |
|-------------|---------------|
| PXP-C111-A  | 5/32" Instant |

Operation



- Output "S" will appear only if "A" and "B" are simultaneously operated (within .5 seconds or less of each other).
- If the operator actuates only one pushbutton, either "A" or "B", or if both "A" and "B" are actuated but at an interval greater than .5 seconds, output "S" will not appear.
- Output "S" is regenerated by supply "P". Output "S" will therefore disappear if supply "P" is cut off.
- Output "S" will disappear if either "A" or "B" is released.
- If output "S" disappears for any reason, "A" and "B" must be nearly simultaneously actuated to again provide output "S".
- Since output "S" is regenerated it appears sharply, at full force (snap-acting), and is quickly exhausted upon deactivation. In addition the module is not affected by the length or diameter of tubing used for output "S".

General Characteristics

|  |  |
|--|--|
| Operating Pressure   | 40 to 120 PSI (3 to 8 bar)   |
| Permissible Fluids –   | Air or neutral gas 40 micron filtration, lubricated or dry             |
| Flow at 90 PSI (6 bar)   | 7 SCFM (200 l/mn ANR)  |
| Operating Temperature  | -5°F to 140°F (-15°C to 60°C)  |
|  | Below 40°F (5°C), an air dryer is required                             |
| Storage Temperature  | -40°F to 160°F (-40°C to 70°C)   |
| Number of operations with dry air at 90 PSI (6 bar), 68°F (20°C), frequency 1 Hz | 1 Million Operations   |
| Vibration resistance –   | Conforms to section 19-2 of bureau Véritas regulations (November 1987) |
| Materials –  | Body Glass Filled Nylon  |
|  | Operating Head Zinc Alloy and Plastic                                  |
| Connections:   | 5/32" instant  |

Mounting

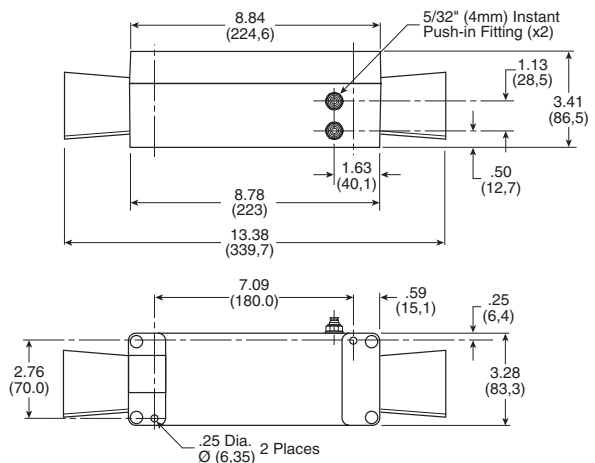
Approvals:

- In accordance with European Standard EN 574 - September 1996
- Conforms to the model that has obtained CE Type Test Certificate No. 02526 520 4631 0397

**! WARNING**

These devices should **NOT** be used in any application involving rotary clutch presses. Two hand control modules do not of themselves insure the safety of any machine. Users and original equipment manufacturers are responsible for making sure that installations meet all relevant safety regulations.

**Notes:** These two-hand control modules provide an output signal upon nearly concurrent operation of two pushbuttons.



Inches (mm)



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series

Viking Xtreme Lever Series

42 Lever / Pedal Series

M0 Series

Safety



Manual / Mechanical Valves

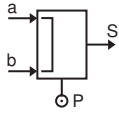
Brass Poppet / Sliding Seal

Control Panel Products

Sensing



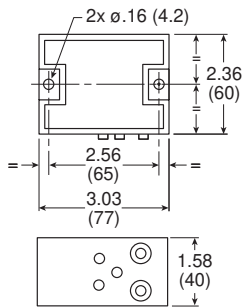
**Two-Hand Control Module**



**PXPA11**

S = Output  
 AdB = Momentary input  
 P = Pressure supply

| Part number   | Connection    |
|---------------|---------------|
| <b>PXPA11</b> | 5/32" Instant |



**Specifications**

|  |  |                                |
|--|--|--------------------------------|
| Air Quality –  | Standard Shop Air, Lubricated or Dry                                   | 40 µm Filtration               |
| Materials –  | Body   | Polyamide                      |
|  | Operating Head   | Zinc Alloy & Plastic           |
| Flow at 90 PSI (6 bar) in SCFM (l/mn ANR)  |  | 7 (200)                        |
| Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) - Frequency 1 Hz |  | 1 million Operations           |
| Operating Positions  |  | All Positions                  |
| Operating Pressure –   |  | 15 to 115 PSIG (1 to 8 bar)    |
| Ports  | 5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube                |                                |
| Operating Temperature –  | Operating  | 32°F to 122°F (0°C to 50°C)    |
|  | Storage  | -22°F to 140°F (-30°C to 60°C) |
| Vibration resistance:  | Conforms to section 19-2 of bureau Véritas regulations (November 1987) |                                |

**WARNING**

These devices should **NOT** be used in any application involving rotary clutch presses. Two hand control modules do not themselves insure the safety of any machine. Users and original equipment manufacturers are responsible for making sure that installations meet all relevant safety regulations.

**Notes:** These two-hand control modules provide an output signal upon nearly concurrent operation of two pushbuttons.

**Two-Hand Control Module Guard**



**PPRL15**

| Part number   | Base component |
|---------------|----------------|
| <b>PPRL15</b> | <b>PXPC111</b> |

**Two Hand Repair Parts**

| Part number     | Quantity required | Description                |
|-----------------|-------------------|----------------------------|
| <b>PXPA11</b>   | 1                 | Control Module             |
| <b>PXBB4931</b> | 2                 | Valve Body & Mounting Ring |
| <b>ZB4BR*</b>   | 2                 | Push Button                |
| <b>PPRL15</b>   | 2                 | Control Module Guard       |

\* 2 = Black, 3 = Green, 4 = Red



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)



Features / Part Numbers

PL-VL Series Valves

PL / VL Series

These are 4-Way, 3-Position, rotary disc, direct-operated air valves. Two different types of control are offered. The forged bronze disc and the cast iron surface upon which the disc works are ground and lapped to provide a leak-proof seal. Air pressure from the inlet port is confined beneath the disc, making the seal tighter as the pressure increases, yet friction between the lapped surfaces is so low that only 15 pounds of force is required to move the lever at 100 PSI line pressure. The need for packing to seal around the stem is eliminated.

Valve can be furnished for gasketing to a manifold on customer's machine or with an adaptor for tapped bottom porting.

Valves are detented.

Operating handles may be installed in any of four positions.



Operating information

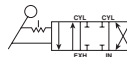
Operating pressure: 0 to 150 PSI (0 to 1035 kPa)

Temperature range: 18°F to 200°F (-8°C to 93°C)

Lubrication: Filtered and lubricated air recommended for maximum valve life and minimum maintenance.

PL Series Valves

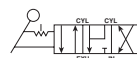
This type has a 90° lever movement. In neutral position, inlet is closed to pressure – outlets closed to exhaust. With clockwise (CW), inlet is connected to cylinder port directly opposite. Other cylinder port is connected to exhaust. With counterclockwise (CCW), inlet is connected to cylinder port diagonally opposite. Other cylinder port is connected to exhaust. Recommended for stationary air cylinders, arbor presses, and as a throttling valve for positioning air cylinders.



| Port Size | Description                              | Cv  | Part number | Optional Bottom Port Adapter | Optional Bottom Manifold |
|-----------|--|-----|-------------|------------------------------|--------------------------|
| 1/4" NPT  | 4-way, 3-position, detent, closed center | 2.5 | <b>PL25</b> | <b>PLD25</b>                 | <b>PLA25</b>             |
| 3/8" NPT  | 4-way, 3-position, detent, closed center | 3.0 | <b>PL37</b> | <b>PLD37</b>                 | <b>PLA37</b>             |
| 1/2" NPT  | 4-way, 3-position, detent, closed center | 6.2 | <b>PL50</b> | <b>PLD50</b>                 | <b>PLA50</b>             |

VL Series Valves

This type has a 90° lever movement. In neutral position, inlet is closed to pressure – outlets open to exhaust. With clockwise (CW), inlet is connected to cylinder port directly opposite. Other cylinder port is connected to exhaust. With counterclockwise (CCW), inlet is connected to cylinder port diagonally opposite. Other cylinder port is connected to exhaust. This valve is particularly suited for pneumatic chuck operation.



| Port Size | Description                               | Cv  | Part number | Optional Bottom Port Adapter | Optional Bottom Manifold |
|-----------|---|-----|-------------|------------------------------|--------------------------|
| 1/4" NPT  | 4-way, 3-position, detent, exhaust center | 2.5 | <b>VL25</b> | <b>VLD25</b>                 | <b>VLA25</b>             |
| 3/8" NPT  | 4-way, 3-position, detent, exhaust center | 3.0 | <b>VL37</b> | <b>VLD37</b>                 | <b>VLA37</b>             |
| 1/2" NPT  | 4-way, 3-position, detent, exhaust center | 6.2 | <b>VL50</b> | <b>VLD50</b>                 | <b>VLA50</b>             |

Optional Items and Accessories

Bottom Porting for gasket mounting to customer's manifold. Four holes are drilled (see following page for dimensions) through the base into the four port chambers. Side ports are plugged. Customer provides suitable means of gasketing. Specify Series PLA or VLA.

Bottom Ported Adaptor Plate, o-ring gasketed to base (four o-rings furnished). Adaptor plate has four drilled and tapped ports. Side ports are plugged. Specify Series PLD or VLD.

Service kits

| Description                        | Valve size                               | Part number    |
|------------------------------------|--|----------------|
| <b>Lever assembly service kits</b> | PL25, PL25HP, PL37, PL37HP, VL25, & VL37 | <b>PL2425P</b> |
|                                    | PL50, PL50HP & VL50                      | <b>PL2424P</b> |
| <b>Body gasket</b>                 | PL25, PL25HP, PL37, PL37HP, VL25, & VL37 | <b>P66837</b>  |
|                                    | PL50, PL50HP & VL50                      | <b>P66829</b>  |

Most popular.



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series

Viking Xtreme Lever Series

422 Lever / Pedal Series

MO Series

Safety

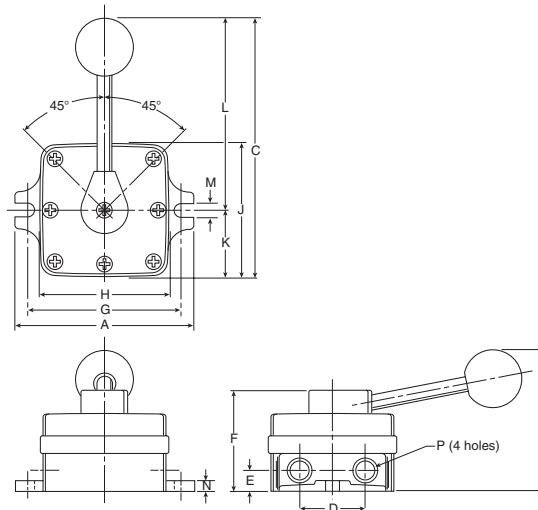


Manual / Mechanical Valves

Brass Poppet / Sliding Seal

Control Panel Products

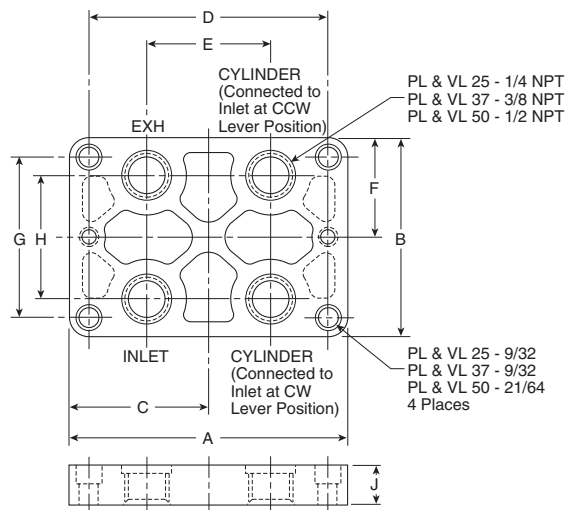
Sensing



**PL-VL Dimensions**

|             | A     | B     | C     | D    | E    | F    | G     | H     | J     | K    | L     | M   | N   | P   |
|-------------|-------|-------|-------|------|------|------|-------|-------|-------|------|-------|-----|-----|-----|
| <b>PL25</b> | 4.75  | 3.81  | 6.81  | 1.69 | .56  | 2.75 | 4.12  | 3.50  | 3.50  | 1.69 | 5.06  | .34 | .28 | 1/4 |
| <b>VL25</b> | (121) | (97)  | (173) | (43) | (14) | (70) | (105) | (89)  | (89)  | (43) | (129) | (9) | (7) | NPT |
| <b>PL37</b> | 4.75  | 3.81  | 6.81  | 1.69 | .56  | 2.75 | 4.12  | 3.50  | 3.50  | 1.69 | 5.06  | .34 | .28 | 3/8 |
| <b>VL37</b> | (121) | (97)  | (173) | (43) | (14) | (70) | (105) | (89)  | (89)  | (43) | (129) | (9) | (7) | NPT |
| <b>PL50</b> | 5.62  | 4.44  | 8.94  | 2.12 | .66  | 3.25 | 5.00  | 4.38  | 4.38  | 2.12 | 6.75  | .34 | .34 | 1/2 |
| <b>VL50</b> | (143) | (113) | (227) | (54) | (17) | (83) | (127) | (111) | (111) | (54) | (171) | (9) | (9) | NPT |

inches (mm)



**Adapter Plate for Series PLD and VLD Dimensions**

|              | A     | B     | C    | D     | E    | F    | G    | H    | J    |
|--------------|-------|-------|------|-------|------|------|------|------|------|
| <b>PLD25</b> | 4.75  | 3.38  | 2.38 | 4.12  | 2.19 | 1.69 | 2.75 | 2.06 | .58  |
| <b>VLD25</b> | (121) | (86)  | (60) | (105) | (56) | (43) | (70) | (52) | (15) |
| <b>PLD37</b> | 4.75  | 3.38  | 2.38 | 4.12  | 2.19 | 1.69 | 2.75 | 2.06 | .58  |
| <b>VLD37</b> | (121) | (86)  | (60) | (105) | (56) | (43) | (70) | (52) | (15) |
| <b>PLD50</b> | 5.62  | 4.25  | 2.81 | 5.00  | 2.59 | 2.12 | 3.62 | 2.81 | .70  |
| <b>VLD50</b> | (143) | (108) | (71) | (127) | (66) | (54) | (92) | (71) | (18) |

inches (mm)



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

M0 Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing

Features / Part Numbers

HV Valve Series

**HV Valve Series**

- Compact and simple design
- Rotary disc, direct operated valves
- Side porting
- Detent action smooth lever actuation
- General pneumatic applications



**Material specifications**

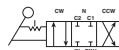
|       |              |
|-------|--------------|
| Cover | Zinc         |
| Body  | Aluminum     |
| Seals | Polyurethane |

**Operating information**

Operating pressure: 0 to 150 PSI (0 to 10 bar)  
 Temperature range: 32°F to 166°F (0°C to 60°C)  
 Lubrication: Filtered and lubricated air recommended for maximum valve life and minimum maintenance.

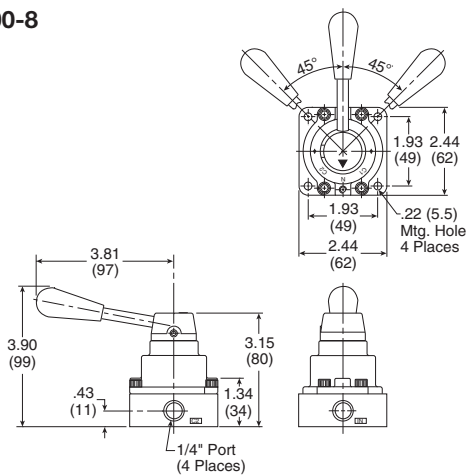
**HV Series Valves**

These closed center valves have a 90° lever movement. In neutral position, the inlet is closed to pressure and outlets are closed to exhaust. With clockwise (CW) rotation, inlet (IN) is connected to C2, C1 is connected to exhaust (EXH). With counter-clockwise (CCW) rotation, inlet (IN) is connected to C1, C2 is connected to exhaust (EXH). These valves are recommended for stationary air cylinders, and as throttling valves for positioning air cylinders. They are not to be used on punch presses or press brakes.

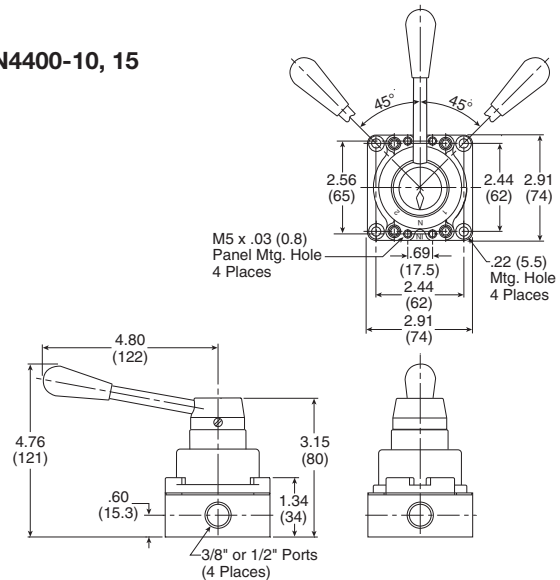


| Port size | Description       | Cv (ANSI) | Cv (JIS) | Part number       |
|-----------|-------------------|-----------|----------|-------------------|
| 1/4" NPT  | 4-way, 3-position | 0.5       | 0.4      | <b>HVN4200-8</b>  |
| 3/8" NPT  | 4-way, 3-position | 1.4       | 2.72     | <b>HVN4400-10</b> |
| 1/2" NPT  | 4-way, 3-position | 1.5       | 3.26     | <b>HVN4400-15</b> |

**HVN4200-8**



**HVN4400-10, 15**



**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.

**Service kits**

| Description              | Valve size | Part number       |
|--------------------------|------------|-------------------|
| Disk & seal service kits | HV4200     | <b>HVRK420001</b> |
|                          | HV4400     | <b>HVRK440001</b> |

Most popular.



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

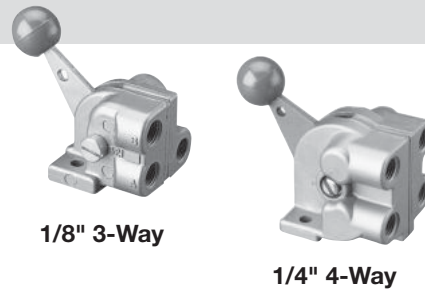
# Hand Operated Sliding Seal Valves

Sliding seal valves provide 3 or 4-Way directional control in a compact body size. Comfortable hand lever is easy to operate and maintains set position. Disc type valve has minimum number of moving parts. Valves should be used with filtered and lubricated air.

**CAUTION:**  
Install guards on all hand operated valves.  
Accidental operation can cause personal injury.

## Material specifications

|                     |                        |
|---------------------|------------------------|
| Internal components | Brass, stainless steel |
| Body                | Die cast zinc          |
| Seals               | Buna N                 |



1/8" 3-Way

1/4" 4-Way

## Operating information

Operating pressure: Max. 200 PSIG air only  
Min. 26" Hg vacuum

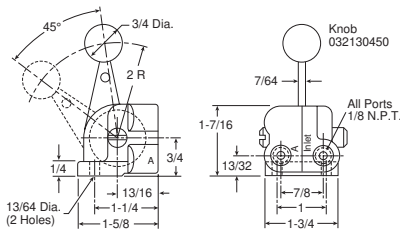
Temperature range: -40°F to 212°F (-40°C to 100°C)  
(If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.)

## Hand Operated Sliding Seal Valve

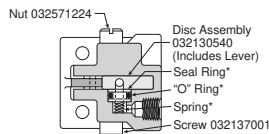
| Symbol | Port size | Function                                    | Cv (Avg) | Service kit*     | Part number      |
|--------|-----------|---|----------|------------------|------------------|
|        | 1/8"      | 3-way, 2-position, detented                 | 0.54     | <b>032130899</b> | <b>032130599</b> |
|        | 1/8"      | 4-way, 2-position, detented                 | 0.54     | <b>032130899</b> | <b>032140299</b> |
|        | 1/4"      | 3-way, 2-position, detented                 | 1.25     | <b>008230299</b> | <b>008230109</b> |
|        | 1/4"      | 4-way, 3-position, detented, center blocked | 1.25     | <b>008230299</b> | <b>008240109</b> |

Note: 3-Way exhaust passage is through an untapped hole in bottom side of valve.

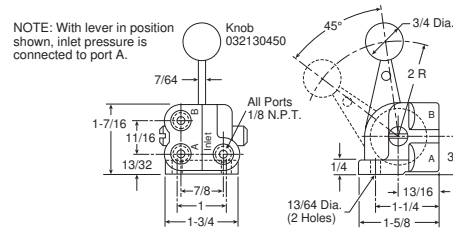
### 1/8" 3-Way 032130599



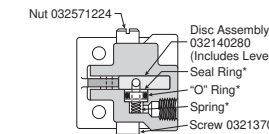
#### Service Kit 032130899\*



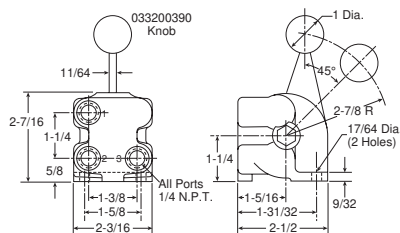
### 1/8" 4-Way 032140299



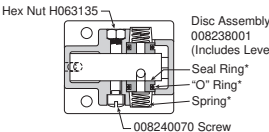
#### Service Kit 032130899\*



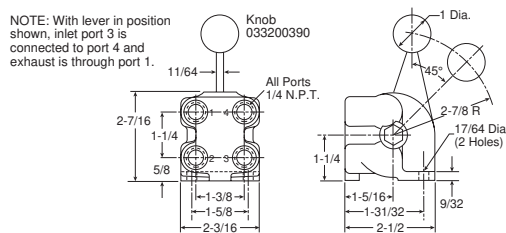
### 1/4" 3-Way 008230109



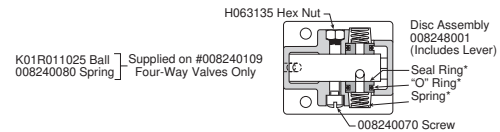
#### Service Kit 032130899\*



### 1/4" 4-Way 008240109



#### Service Kit 032130899\*



Most popular.

\* Service kits contain asterisk items



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing

**Features / Part Numbers**

**Button Operated Valves**

2 & 3-way normally closed poppet, 1/4" Port valve operates at the press of a button and may be installed in a pipe line or used as a portable blow gun attached to a length of hose.

**CAUTION:**  
 Install guards on all hand operated valves.  
 Accidental operation can cause personal injury.





**Material specifications**

|                     |                                   |
|---------------------|-----------------------------------|
| Internal components | Brass, stainless and plated steel |
| Body                | Brass                             |
| Seals               | Buna N                            |

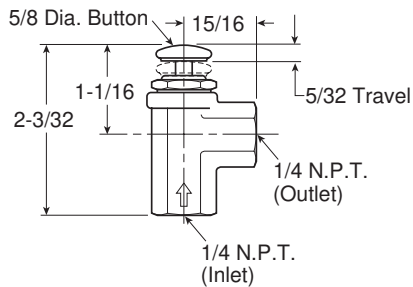
**Operating information**

|                     |                                       |
|---------------------|---------------------------------------|
| Operating pressure: | Max. 150 PSIG air only<br>Min. 0 PSIG |
| Temperature range:  | -20°F to 180°F (-28°C to 82°C)        |

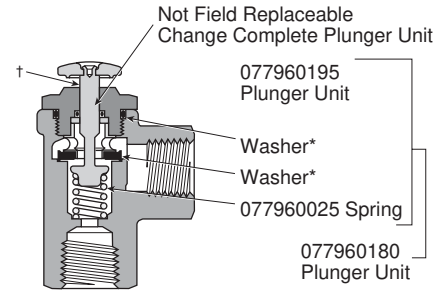
**Button Operated Valves**

|   | Port size | Function | Cv (Avg) | Old number | Service kit      | Part number      |
|---|-----------|----------|----------|------------|------------------|------------------|
|  | 1/4"      | 2-way    | 0.94     | 7796SP1    | <b>077960105</b> | <b>077960199</b> |
|  | 1/4"      | 3-way    | 0.94     | 8187       | <b>077960105</b> | <b>081870129</b> |

**Dimensions**



**Replacement Parts**



† 077960199 2-Way valve shown.  
 \* Included in service kits listed above.



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
 Viking Xtreme Lever Series  
 42 Lever / Pedal Series  
 MO Series  
 Safety  
 Manual / Mechanical Valves  
 Brass Poppet / Sliding Seal  
 Control Panel Products  
 Sensing



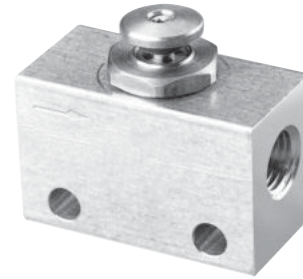
## Hand / Cam Operated Valves

Inline, button-operated, 2 & 3-way normally closed poppet, 1/4" port valve has mounting holes for single or gang mounting. Actuation by hand, cam or mechanical fingers. Valves should be used with filtered and lubricated air.



**CAUTION:**

Install guards on all hand operated valves. Accidental operation can cause personal injury.



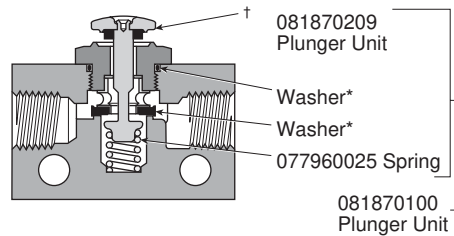
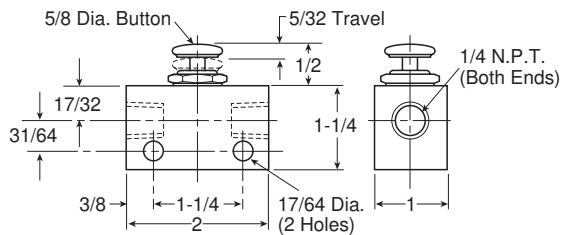
### Operating information

Operating pressure: Max. 150 PSIG air only  
Min. 0 PSIG  
Temperature range: -20°F to 180°F (-28°C to 82°C)

### Hand / Cam Operated Valves

|  | Port size | Function | Cv (Avg) | Old number | Service kit      | Part number      |
|--|-----------|----------|----------|------------|------------------|------------------|
|  | 1/4"      | 2-way    | 0.94     | 7796SP5    | <b>077960105</b> | <b>077960319</b> |
|  | 1/4"      | 3-way    | 0.94     | 8187SP1    | <b>077960105</b> | <b>081870139</b> |

### Replacement Parts



† 081870139 3-Way valve shown.  
\* Included in service kits listed above.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing



Features / Part Numbers

**Bleed Valves**

This 2-way normally closed bleeder valve is an accessory that may be used with any double pilot-operated valve (bleed type). It provides manual or cam-operated control. A 1/4" pipe thread fits either the pilot valve port or the feeder airline. Opposite end has standard 1/2-20 thread for easy mounting on machine or panel. Valves should be used with filtered and lubricated air.



**Material specifications**

|                     |                        |
|---------------------|------------------------|
| Internal components | Brass, stainless steel |
| Body                | Brass                  |
| Seals               | Fluorocarbon           |

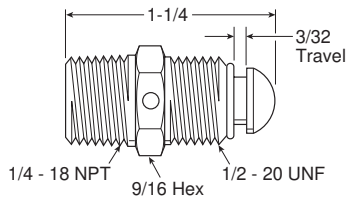
**Operating information**

|                     |                                       |
|---------------------|---------------------------------------|
| Operating pressure: | Max. 150 PSIG air only<br>Min. 0 PSIG |
| Temperature range:  | -40°F to 450°F (-40°C to 232°C)       |

**Bleed Valves**

|  | Port size | Function | Part number      |
|--|-----------|----------|------------------|
|  | 1/4"      | 2-way    | <b>315139000</b> |

**Dimensions**



Directair 2 & 4 Series

Viking Xtreme Lever Series

4/2 Lever / Pedal Series

MO Series

Safety



Manual / Mechanical Valves

Brass Poppet / Sliding Seal

Control Panel Products

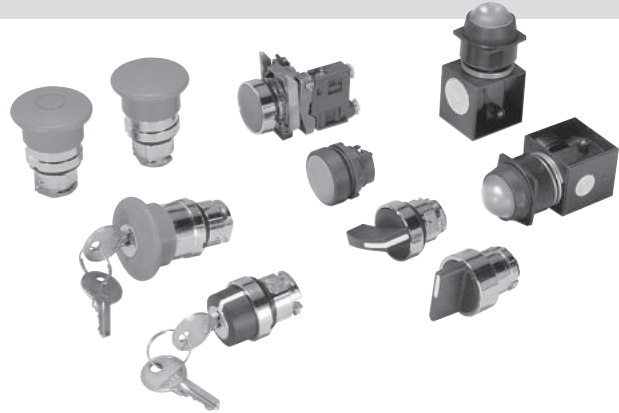
Sensing



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

## Control Panel Products

HUMAN-MACHINE DIALOG requires devices such as push buttons and selector switches to provide command inputs. A wide variety of these devices are available to meet most application needs; in both pneumatic and electrical switch bodies. All of these devices use the 22 mm (7/8") mounting standard.



### Complete Assemblies— 3/2 Valve Bodies with 5/32" Instant Straight Connections

#### Flush Push Buttons

|  | Color | Function      | Type of switching*     | Part number        |
|--|-------|---------------|------------------------|--------------------|
|  | Black |               |                        | <b>PXBB3111BA2</b> |
|  | Green | Spring return | NNP                    | <b>PXBB3111BA3</b> |
|  | Red   |               |                        | <b>PXBB3111BA4</b> |
|  | Black | Spring return | NNP+NP                 | <b>PXBB3251BA2</b> |
|  | Black |               |                        | <b>PXBB4131BA2</b> |
|  | Green | Spring return | Single universal 3-way | <b>PXBB4131BA3</b> |
|  | Red   |               |                        | <b>PXBB4131BA4</b> |
|  | Black | Spring return | Dual universal 3-way   | <b>PXBB4231BA2</b> |

\* Type of switching: Universal 3-way: valve can be connected either as NP or NNP as required by connecting the primary air supply to port 1 or port 3.

**Note:** Mount up to three valves on mounting ring.

#### Mushroom Head Push Buttons (40mm Diameter)

|  | Color | Function      | Type of switching*     | Part number        |
|--|-------|---------------|------------------------|--------------------|
|  | Black | Spring return | NNP                    | <b>PXBB3111BC2</b> |
|  | Red   | Push-pull     |                        | <b>PXBB3111BT4</b> |
|  | Red   | Push-pull     | NP                     | <b>PXBB3121BT4</b> |
|  | Black | Spring return | Single universal 3-way | <b>PXBB4131BC2</b> |
|  | Red   | Push-pull     |                        | <b>PXBB4131BT4</b> |

\* Type of switching: Universal 3-way: valve can be connected either as NP or NNP as required by connecting the primary air supply to port 1 or port 3.

**Note:** Mount up to three valves on mounting ring.

#### Selector Switches

|  | Color | Function  | Type of switching*     | Part number        |
|--|-------|---|------------------------|--------------------|
|  | Black | 2 maintained positions with std. handle               | NNP                    | <b>PXBB3111BD2</b> |
|  | Black |   | NNP+NP                 | <b>PXBB3211BD2</b> |
|  | Black |   | NNP+NP                 | <b>PXBB3251BD2</b> |
|  | Black | 3 maintained positions with std. handle               | NNP+NP                 | <b>PXBB3211BD3</b> |
|  | Black |   | NNP+NP                 | <b>PXBB3251BD3</b> |
|  | Black | 3 positions, spring return to center with long handle | NNP+NP                 | <b>PXBB3211BJ5</b> |
|  | Black | 2 maintained positions with std. Handle               | Single universal 3-way | <b>PXBB4131BD2</b> |
|  | Black | 2 maintained positions with std. handle               | Dual universal 3-way   | <b>PXBB4231BD2</b> |
|  | Black | 3 maintained positions with std. handle               | Dual universal 3-way   | <b>PXBB4231BD3</b> |
|  | Black | 3 maintained positions with long handle               | Dual universal 3-way   | <b>PXBB4231BJ5</b> |

\* Type of switching: Universal 3-way: valve can be connected either as NP or NNP as required by connecting the primary air supply to port 1 or port 3.

Most popular.







For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Accessories**

**For Use With PXBB Valve Bodies and ZBE Electrical Switch Bodies**

**Push Buttons**

|   | Color  | Function          | Type     | Part number   | Plastic head** | Metal head* |
|---|--------|-------------------|----------|---------------|----------------|-------------|
|  | Black  | Spring return     | Flush    | <b>ZB5AA2</b> | <b>ZB4BA2</b>  |             |
|   | Green  |                   |          | <b>ZB5AA3</b> | <b>ZB4BA3</b>  |             |
|   | Red    |                   |          | <b>ZB5AA4</b> | <b>ZB4BA4</b>  |             |
|   | Yellow |                   |          | —             | <b>ZB4BA5</b>  |             |
|   | Blue   |                   |          | —             | <b>ZB4BA6</b>  |             |
|   | Black  |                   |          | <b>ZB5AL2</b> | <b>ZB4BL2</b>  |             |
|  | Green  | Spring return     | Extended | <b>ZB5AL3</b> | <b>ZB4BL3</b>  |             |
|   | Red    |                   |          | <b>ZB5AL4</b> | <b>ZB4BL4</b>  |             |
|   | Yellow |                   |          | —             | <b>ZB4BL5</b>  |             |
|  | Black  | Spring return     | Booted   | —             | <b>ZB4BPA2</b> |             |
|   | Green  |                   |          | —             | <b>ZB4BPA3</b> |             |
|   | Red    |                   |          | —             | <b>ZB4BPA4</b> |             |
|  | Black  | Detent 2 position | Flush    | —             | <b>ZB4BH02</b> |             |
|   | Green  |                   |          | —             | <b>ZB4BH03</b> |             |
|   | Red    |                   |          | —             | <b>ZB4BH04</b> |             |

\* ZB4\*\*\* model numbers are metal head operators  
\*\* ZB5\*\*\* model numbers are plastic head operators, use with plastic mounting ring.




**Selector Switches**

| Standard black handle                              |             |               |  |
|--|-------------|---------------|--|
| Description  | Function    | Part number*  |  |
| Maintained   | 2 positions | <b>ZB4BD2</b> |  |
| Spring return from right to left                   |             | <b>ZB4BD4</b> |  |
| Maintained   | 3 positions | <b>ZB4BD3</b> |  |
| Spring return to center from left and right        |             | <b>ZB4BD5</b> |  |
| Maintained right spring return from left to center | 3 positions | <b>ZB4BD7</b> |  |
| Maintained left spring return from right to center | 3 positions | <b>ZB4BD8</b> |  |
| Long Black Handle                                  |             |               |  |
| Maintained   | 2 positions | <b>ZB4BJ2</b> |  |
| Spring return from right to left                   |             | <b>ZB4BJ4</b> |  |
| Maintained   | 3 positions | <b>ZB4BJ3</b> |  |
| Spring return to center from left and right        |             | <b>ZB4BJ5</b> |  |

\* ZB4\*\*\* model numbers are metal head operators

 Most popular.



**Mushroom Head Push Buttons**

|   | Color | Function           | Description | Part number*   |
|---|-------|--------------------|-------------|----------------|
|  | Black | Spring return      | Ø 40mm head | <b>ZB4BC2</b>  |
|   | Green |                    |             | <b>ZB4BC3</b>  |
|   | Red   |                    |             | <b>ZB4BC4</b>  |
|  | Black | Latching push-pull | Ø 40mm head | <b>ZB4BT2</b>  |
|   | Red   |                    |             | <b>ZB4BT84</b> |
|  | Black | Spring return      | Ø 60mm head | <b>ZB4BR2</b>  |
|   | Green |                    |             | <b>ZB4BR3</b>  |
|   | Red   |                    |             | <b>ZB4BR4</b>  |

\* ZB4\*\*\* model numbers are metal head operators

**For Push Buttons and Visual Indicators**

**Mounting Ring for Valve Bodies, Switch Bodies and Operating Heads**

| Description  | Part number     |
|--|-----------------|
|  Metal mounting ring    | <b>ZB4BZ009</b> |
|  Plastic mounting ring | <b>ZB5AZ009</b> |

**Note:** To release push button from mounting ring, pull lever on top of mounting ring up and remove push button operator. To assemble push button operator to mounting ring, align arrows and snap into place.

**Key Operated Selectors**

| Key withdrawal | Function                              | Part number*  |
|----------------|---------------------------------------|---------------|
| Left           | 2 maintained positions                | <b>ZB4BG2</b> |
| Left and right |                                       | <b>ZB4BG4</b> |
| Center         | 3 maintained positions                | <b>ZB4BG3</b> |
| Left and right |                                       | <b>ZB4BG5</b> |
| Center         | 3 positions 2 spring return to center | <b>ZB4BG7</b> |

\* ZB4\*\*\* Model numbers are metal head operators

**Mushroom Head Push Buttons with Key Select**

| Color | Function                 | Description | Part number*    |
|-------|--------------------------|-------------|-----------------|
| Red   | Latching turn to release | Ø 40mm head | <b>ZB4BS844</b> |
| Red   | Key latching             |             | <b>ZB4BS944</b> |

\* ZB4\*\*\*\* model numbers are metal head operators



For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series

Viking Xtreme Lever Series

42 Lever / Pedal Series

MO Series

Safety



Manual / Mechanical Valves

Brass Poppet / Sliding Seal

Control Panel Products

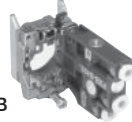
Sensing

**For Use With 2B4\*\*\* Metal Operating Heads**

**3/2 Valve Bodies with Mounting Ring**



PXBB3111B



PXBB4131B

| Connections   | Function | Type of switching* | Part number      |
|---------------|----------|--------------------|------------------|
| 5/32" Instant | 3/2      | NNP                | <b>PXBB3111B</b> |
| 5/32" Instant | 3/2      | NP                 | <b>PXBB3121B</b> |
| 5/32" Instant | 3/2      | Universal 3-way    | <b>PXBB4131B</b> |

\* NNP: Normally non-passing.

Note: Mount up to 3 valves on mounting ring for push buttons.  
 Mount up to 2 valves on mounting ring for selector switches, valves cannot be mounted in center position.

**Specifications**

|   |   |
|---|---|
| Air Quality –<br>Standard Shop Air, Lubricated or Dry | 40 µm Filtration  |
| Flow –  | PXBB3• Cv=.08<br>PXBB4• Cv=.18  |
| Materials –   | Body Polyamide<br>Operating Head Zinc Alloy & Plastic                     |
| Operating Positions                                   | All Positions   |
| Operating Pressure –                                  | PXBB3• 15 to 115 PSIG (1 to 9 bar)<br>PXBB4• 15 to 145 PSIG (1 to 10 bar) |
| Ports   | 5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube                   |
| Operating Temperature –                               | 5°F to 140°F (-15°C to 60°C)  |

**Additional Valve Bodies**



PXBB3911



PXBB4932



PXBB4931

| Connections            | Function | Type of switching* | Part number     |
|------------------------|----------|--------------------|-----------------|
| 5/32" instant straight | 3/2      | NNP                | <b>PXBB3911</b> |
| 5/32" instant swivel   |          |                    | <b>PXBB3912</b> |
| 5/32" instant straight | 3/2      | NP                 | <b>PXBB3921</b> |
| 5/32" instant swivel   |          |                    | <b>PXBB3922</b> |
| 5/32" instant straight | 3/2      | Universal          | <b>PXBB4931</b> |
| 5/32" instant swivel   |          |                    | <b>PXBB4932</b> |

\* NNP: Normally non-passing.

Most popular.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Accessories**

**For Push Buttons and Visual Indicators**

**Legend Plates for PXBB Devices (22mm)**

| Description                                | Part number    |
|--|----------------|
| <b>Without text for customer engraving</b> |                |
| Black / red background (white letters)     | <b>ZBY2101</b> |
| Yellow / white background (black letters)  | <b>ZBY4101</b> |
| <b>With text for push buttons</b>          |                |
| Start                                      | <b>ZBY2303</b> |
| Stop                                       | <b>ZBY2304</b> |
| Forward                                    | <b>ZBY2305</b> |
| Reverse                                    | <b>ZBY2306</b> |
| Up   | <b>ZBY2307</b> |
| Down                                       | <b>ZBY2308</b> |
| Right                                      | <b>ZBY2309</b> |
| Left                                       | <b>ZBY2310</b> |
| On   | <b>ZBY2311</b> |
| Off  | <b>ZBY2312</b> |
| Open                                       | <b>ZBY2313</b> |
| Close                                      | <b>ZBY2314</b> |
| Inch                                       | <b>ZBY2321</b> |
| Reset                                      | <b>ZBY2323</b> |
| Power On                                   | <b>ZBY2326</b> |
| Slow                                       | <b>ZBY2327</b> |
| Fast                                       | <b>ZBY2328</b> |
| Emergency stop                             | <b>ZBY2330</b> |
| Run  | <b>ZBY2334</b> |
| <b>With text for 2-position selectors</b>  |                |
| Off On                                     | <b>ZBY2367</b> |
| <b>With text for 3-position selectors</b>  |                |
| Hand Off Auto                              | <b>ZBY2387</b> |



Most popular.

**Blank Legend Plates for Inscription**

**For PXBB devices** (2 lines of 11 characters maximum)

**Please indicate the required text when ordering.**  
(Allow 3 weeks for delivery)

| Description                      | Part number    |
|----------------------------------|----------------|
| Black background / White letters | <b>ZBY2002</b> |

**For 22mm Visual Indicators Only**

**2 lines of 11 characters maximum**

**Please indicate the required text when ordering.**  
(Allow 3 weeks for delivery)

| Description                      | Part number      |
|----------------------------------|------------------|
| Black background / white letters | <b>ZB2BY2002</b> |

**Electrical Switch Bodies**

When combined with pneumatic valves, these contact blocks allow different forms of power to be provided from a single push button. Can be mounted with both types of valves PXBB3 / PXBB4.

| Type of contact      | Part number   |
|----------------------|---------------|
| Normally open (NO)   | <b>ZBE101</b> |
| Normally closed (NC) | <b>ZBE102</b> |



**Note:** Plastic mounting ring ZB5AZ009 to be used with ZB5 plastic operating heads. Metal mounting ring ZB4BZ009 to be used with ZB4 metal operating heads.

**Electrical specification:** 240V, 10 Amp

Most popular.

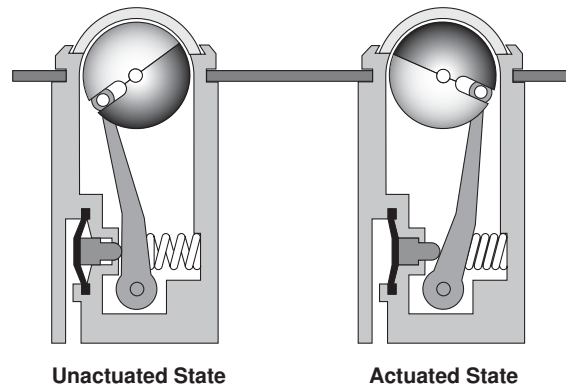


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series  
Viking Xtreme Lever Series  
42 Lever / Pedal Series  
M0 Series  
Safety  
Manual / Mechanical Valves  
Brass Poppet / Sliding Seal  
Control Panel Products  
Sensing

**Pneumatic Visual Indicators**

An indicator ball is rotated by a pneumatic input, changing the visible color. The ball sits behind a clear plastic window, providing a wide field of view. The visual indicators are available in five brightly colored Day-Glow paints for increased visibility. Like push buttons and selector switches, visual indicators use the 22mm (7/8") mounting standard.

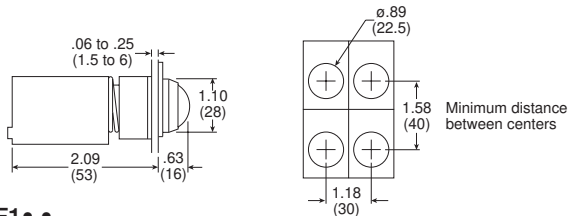


**With 5/32" Instant Connections**

**22mm Visual Indicators**

| Black Plastic Bezel | Color  | Part number "ON" indicator | Part number "OFF" indicator |
|---------------------|--------|----------------------------|-----------------------------|
|                     | Green  | <b>PXVF131</b>             | <b>PXVF1213</b>             |
|                     | Red    | <b>PXVF141</b>             | <b>PXVF1214</b>             |
|                     | Yellow | <b>PXVF151</b>             | <b>PXVF1215</b>             |
|                     | Blue   | <b>PXVF161</b>             | <b>PXVF1216</b>             |
|                     | White  | <b>PXVF111</b>             | <b>PXVF1211</b>             |

**Notes:** The Pneumatic Indicators are black in one position and colored in the other. The colored position corresponds either to the presence of a pressure ("ON" Indicator) or the absence of pressure ("OFF" Indicator).



PXVF1 • •

**Mounting Accessories**

|  | Color         | Description                                     | Part number     |
|--|---------------|---|-----------------|
|  | —             | Plastic head (ZB5) mounting nut tightening tool | <b>ZB5AZ905</b> |
|  | Black plastic | Guard for 40mm                                  | <b>ZBZ1602</b>  |

**Specifications**

|  |   |                                |
|--|---|--------------------------------|
| Air Quality –  | Standard Shop Air, Lubricated or Dry 40 µm Filtration                       |                                |
| Materials –  | Body  | Polyamide                      |
|  | Operating Head  | Zinc Alloy & Plastic           |
| Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) - Frequency 1 Hz | Mushroom Head   | 300,000 Operations             |
|  | Operating Positions   | All Positions                  |
| Operating Pressure –   | 15 to 115 PSIG (1 to 8 bar)   |                                |
| Ports  | 5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube 10-32 UNF Available |                                |
| Operating Temperature –  | Operating   | 32°F to 122°F (0°C to 50°C)    |
|  | Storage   | -22°F to 140°F (-30°C to 60°C) |

Most popular.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)





|  |
|--|
| Directair 2 & 4 Series   |
| Viking Xtreme Lever Series   |
| 42 Lever / Pedal Series  |
| MO Series  |
| Safety   |
|  |
| Manual / Mechanical Valves   |
| Brass Poppet / Sliding Seal  |
| Control Panel Products   |
| Sensing  |

**Modular Pneumatic / Electric Push Buttons**

As with electrical contact switches, pneumatic valve modules can be mounted on a number of different operating heads.

- Pneumatic normally non passing (NNP) is equivalent to electrical normally open (N.O.).
- Pneumatic normally passing (NP) is equivalent to electrical normally closed (N.C.).

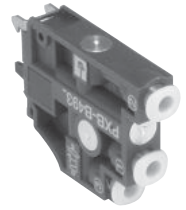
**Note:** Electrical switches can be stacked, but the rear connection on pneumatic switches prevents stacking. Therefore, when mixing electrical and pneumatic switch bodies on the same operator, the pneumatic switch must be mounted last.



PXBB3911



PXBB4932



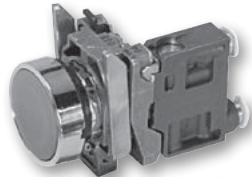
PXBB4931

**Push Buttons**

Spring Return or Latching  
 Mushroom Headed Push Buttons



Standard  
 Push Button

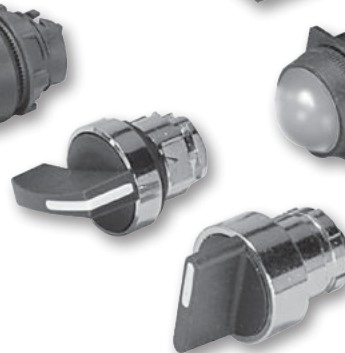


**Visual indicators**



**Selector Switches**

2 or 3 Positions,  
 Fixed or  
 ReturnTo Center





**Functionality Explanation**

| Fluid Power            |        |  | Universal Description      | Electrical             |        |
|------------------------|--------|--|----------------------------|------------------------|--------|
| Function               | Symbol |  |                            | Function               | Symbol |
| Normally Closed (N.C.) | 2-Way  |  | Normally Non-Passing (NNP) | Normally Open (N.O.)   |        |
|                        | 3-Way  |  |                            |                        |        |
| Normally Open (N.O.)   | 2-Way  |  | Normally Passing (NP)      | Normally Closed (N.C.) |        |
|                        | 3-Way  |  |                            |                        |        |

**Type of Switching:** Universal 3-Way: Valve can be connected either as NP or NNP as required by connecting the primary air supply to port 1 or port 3.

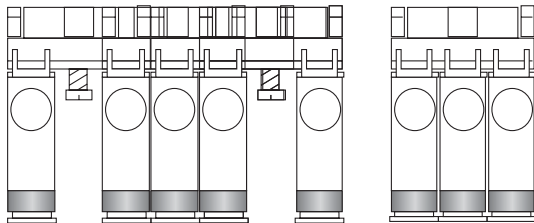


- NNP: Normally Non-Passing.
- NP: Normally Passing.
- NNP + NNP: Double Switch Body, Both Normally Non-Passing.
- NNP + NP: Normally Non passing and Normally-Passing.
- NP + NP: Both Normally Passing.

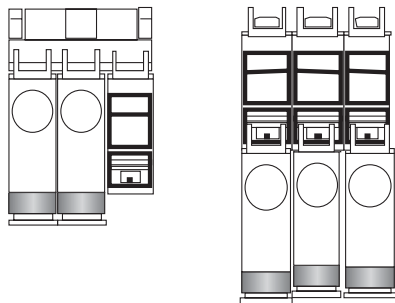
**Combination of Output Devices On a Single Mounting Block**

Up to 3 output devices (valves or electrical contacts) can be mounted side by side on 1 mounting block.

**Note:** The central position can only be activated by push button heads.



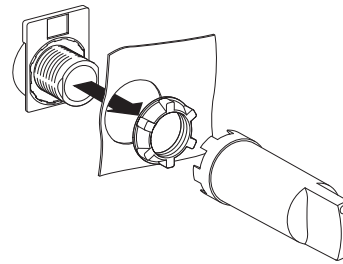
Electrical Contacts and Valves can be Combined Either Side by Side, or by Mounting the Valve on the Back of the Electrical Contact.



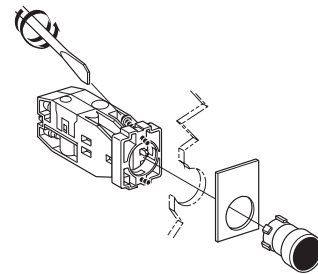
Side by Side Combination

Combination by Mounting Valves On the Back of the Electrical Contact

**Assembling Output Devices and Heads On ZB5 Series Mounting Block**



**Replacement Old Style Mounting**



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2 & 4 Series

Viking Xtreme Lever Series

42 Lever / Pedal Series

MO Series

Safety



Manual / Mechanical Valves

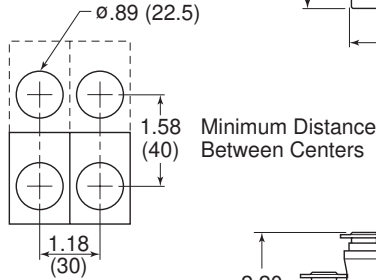
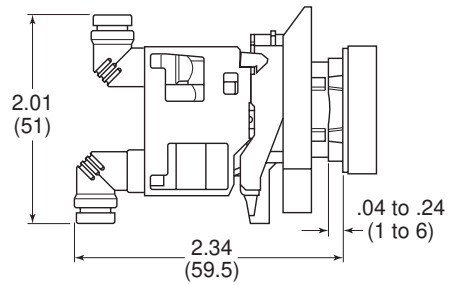
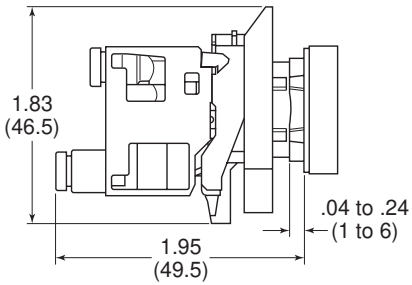
Brass Poppet / Sliding Seal

Control Panel Products

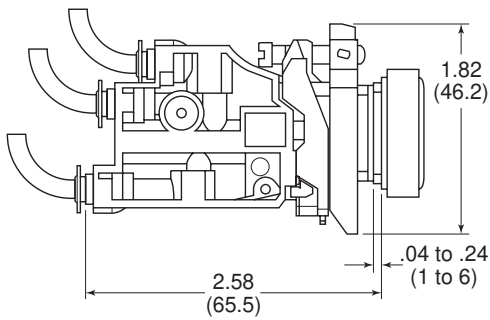
Sensing

**Dimensional Data**

**PXB-B3 Dimensions**

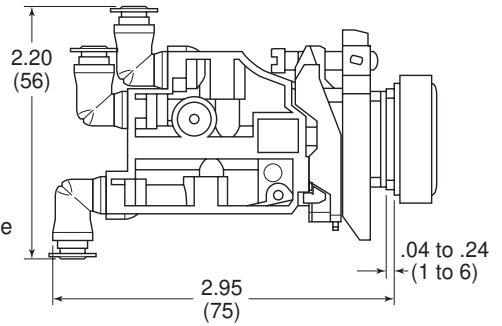


**PXB-B4 Dimensions**



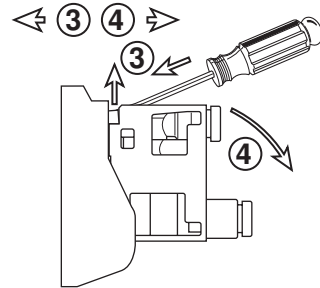
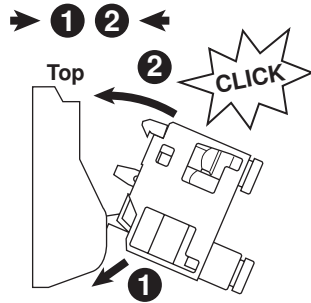
**Tube Bending Radius For PXBB3 and PXBB4**

- 4 mm O.D. x 2 mm I.D. Tube = Minimum 0.39 (10) Radius
- 4 mm O.D. x 2.7 mm I.D. Tube = Minimum 0.59 (15) Radius

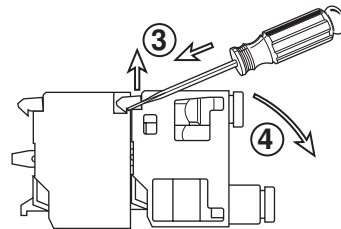
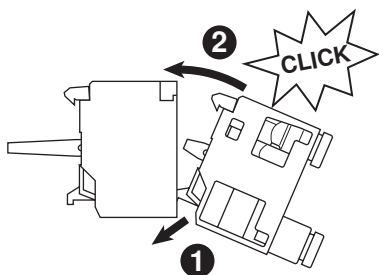


**Assembly**

Assembling PXB Valves On Mounting Block



Assembling PXB Valves On the Back of the Electrical Contact



|                        |                            |                         |           |        |                            |                             |                        |         |
|------------------------|----------------------------|-------------------------|-----------|--------|----------------------------|-----------------------------|------------------------|---------|
| Directair 2 & 4 Series | Viking Xtreme Lever Series | 42 Lever / Pedal Series | MO Series | Safety | Manual / Mechanical Valves | Brass Poppet / Sliding Seal | Control Panel Products | Sensing |
|------------------------|----------------------------|-------------------------|-----------|--------|----------------------------|-----------------------------|------------------------|---------|

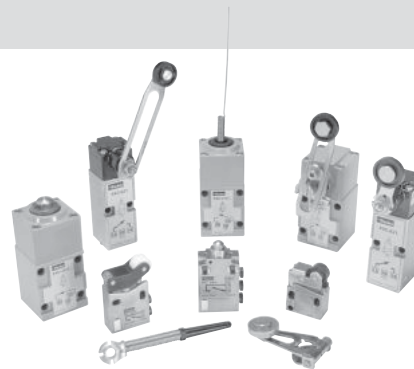
Features

Limit Switches

To achieve the sensing or feedback function, pneumatic sensors can be:

- Limit switches in a variety of sizes and configurations
- Pressure switches with many adjustable ranges
- Components designed specifically for pneumatic technology using pressure variation, air bleed or blocking for detection.

A wide variety of pneumatic sensors are available to suit any application requirement.





Material specifications

|         |                  |
|---------|------------------|
| Body    | Zinc alloy       |
| Poppets | Polyurethane     |
| Seals   | Nitrile (Buna N) |


Operating information

|                        |                                |
|------------------------|--------------------------------|
| Operating pressure:    | 40 to 115 PSIG (3 to 8 bar)    |
| Operating temperature: |                                |
| Operating              | 32°F to 122°F (0°C to 50°C)    |
| Storage                | -22°F to 140°F (-30°C to 60°C) |

3/2 Miniature Direct Acting Limit Switches  
1/16" I.D. Internal Orifice

|   | Actuator                                 | Type of switching* | Flow SCFM (NI/min) | Nominal bore  | Connection    | Part number    |
|---|--|--------------------|--------------------|---------------|---------------|----------------|
|    | Steel plunger operating levers available | NNP                | 2.2 (60)           | 1/16" (1.5mm) | 5/32" instant | <b>PXCM111</b> |
|   |  |                    |                    |               | 10-32 UNF     | <b>PXCM115</b> |
|  | Plastic roller                           | NNP                | 3.0 (85)           |               | 5/32" instant | <b>PXCM121</b> |
|   |  |                    |                    |               | 10-32 UNF     | <b>PXCM125</b> |

7/64" I.D. Internal Orifice

|   |                |     |           |               |               |                |
|---|----------------|-----|-----------|---------------|---------------|----------------|
|  | Plastic roller | NNP | 8.8 (250) | 7/16" (2.5mm) | 5/32" instant | <b>PXCM521</b> |
|---|----------------|-----|-----------|---------------|---------------|----------------|

Actuators For Steel Plunger (Use with PXCM11\*)

|   |                      |  |  |  |  |               |
|---|----------------------|--|--|--|--|---------------|
|  | Plastic roller lever |  |  |  |  | <b>PXCZ11</b> |
|---|----------------------|--|--|--|--|---------------|

\* NNP: Normally non-passing. 

Specifications

|  |                  |
|--|------------------|
| Air Quality – Standard Shop Air, Lubricated or Dry                                   | 40 µm Filtration |
| Maximum Operating Frequency  | 5 Hz             |
| Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) - Frequency 1 Hz | 10 million       |
| Operating Positions  | All Positions    |

 Most popular.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

E77

Parker Hannifin Corporation  
Pneumatic Division  
Richland, Michigan  
[www.parker.com/pneumatics](http://www.parker.com/pneumatics)

Directair 2 & 4 Series

Viking Xtreme Lever Series

42 Lever / Pedal Series

MO Series

Safety






Manual / Mechanical Valves

Brass Poppet / Sliding Seal

Control Panel Products





Sensing

**3/2 Compact Pilot Operated Limit Switches**  
**7/64" I.D. Internal Orifice, 5/32" Instant Connections, Pipeable Exhaust Port**

|                            | Actuator  | Type of switching*                       | Flow SCFM (NI/min) | Nominal bore  | Connection    | Part number        |
|----------------------------|---|--|--------------------|---------------|---------------|--------------------|
| Directair 2 & 4 Series     |  | Steel plunger operating levers available |                    |               |               | <b>PXCM601A110</b> |
| Viking Xtreme Lever Series |  | Steel roller plunger                     | 8.8 (250)          | 7/64" (2.5mm) | 5/32" instant | <b>PXCM601A102</b> |
| 42 Lever / Pedal Series    |  | 90° Steel roller plunger                 |                    |               |               | <b>PXCM601A103</b> |

**Standard Duty Limit Switches – “K” Series**

**Plunger Operated Limit Switches**  
**1/8" I.D. Internal Orifice, 5/32" Instant Connections, Pipeable Exhaust Port**

|                            | Actuator  | Type of switching*          | Flow SCFM (NI/min) | Nominal bore | Connection    | Part number   |
|----------------------------|---|-----------------------------|--------------------|--------------|---------------|---|
| MO Series                  |   | NNP                         | 7.4 (210)          | 1/8" (3mm)   | 5/32" instant | <b>PXCK21101</b>  |
|                            |   | NP                          |                    |              |               | <b>PXCK22101</b>  |
| Safety                     |  | NNP                         | 7.4 (210)          | 1/8" (3mm)   | 5/32" instant | <b>PXCK21102</b>  |
|                            |   | NP                          |                    |              |               | <b>PXCK22102</b>  |
| Manual / Mechanical Valves |  | NNP                         | 7.4 (210)          | 1/8" (3mm)   | 5/32" instant | <b>PXCK21121</b>  |
|                            |   | NP                          |                    |              |               | <b>PXCK22121</b>  |
|                            |   | Brass Poppet / Sliding Seal |                    |              |               |  |
| NP                         | <b>PXCK22106</b>  |                             |                    |              |               |   |

\* NNP: Normally non-passing. 

 Most popular.





For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

E78


**Parker Hannifin Corporation**  
 Pneumatic Division  
 Richland, Michigan  
[www.parker.com/pneumatics](http://www.parker.com/pneumatics)

**Roller Operated Limit Switches**


1/8" I.D. Internal Orifice, 5/32" Instant Connections, Pipeable Exhaust Port

|   | Actuator   | Type of switching* | Flow SCFM (NI/min) | Nominal bore | Connection    | Part number        |
|---|--|--------------------|--------------------|--------------|---------------|--------------------|
|  | Fixed delrin roller lever multi-function head actuates:<br>- from right and left<br>- from right<br>- from left      | NNP                | 7.4 (210)          | 1/8" (3mm)   | 5/32" instant | <b>PXCK2110031</b> |
|   |  | NP                 |                    |              |               | PXCK2210031        |
|  | Adjustable delrin roller lever multi-function head actuates:<br>- from right and left<br>- from right<br>- from left | NNP                |                    |              |               | <b>PXCK2110041</b> |
|   |  | NP                 |                    |              |               | PXCK2210041        |

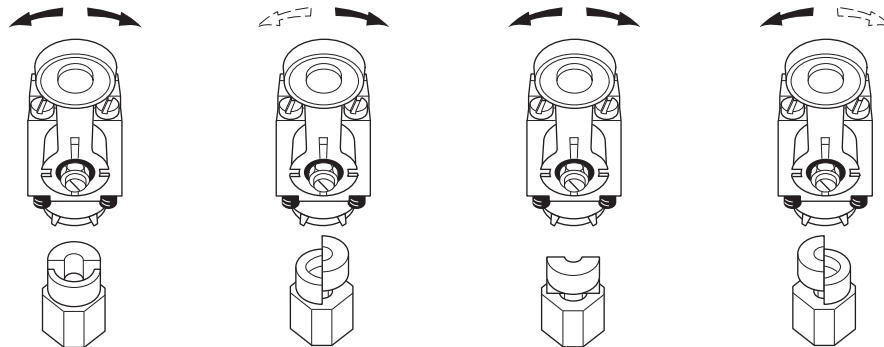
**Separate Pneumatic Switch Bodies**



|   | Actuator                                | Type of switching* | Part number    |
|---|---|--------------------|----------------|
|  | For use with ZCK series operating heads | NNP                | <b>PXCK211</b> |
|   |   | NP                 | <b>PXCK221</b> |

**Pneumatic Switch Bodies with Rotary Heads**

|   | Actuator  | Type of switching* | Part number      |
|---|---|--------------------|------------------|
|  | Multi-function head actuates:<br>- from right and left<br>- from right<br>- from left | NNP                | <b>PXCK21100</b> |
|   |   | NP                 | <b>PXCK22100</b> |

**Field Conversion of Rotary Operating Head**



\* NNP: Normally non-passing.   
 NP: Normally passing. 

 Most popular.



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing


**Part Numbers**

**Sensing**

**Standard Duty Limit Switches – “K” Series**









**Operating Heads**

For Use With PXCK Switch Bodies

| Actuator  | Description      | Part number   |
|---|------------------|---------------|
| <b>Rotary operated</b>  |                  |               |
|  | Die cast zinc    | <b>ZCKG00</b> |
| <b>Plunger operated</b>   |                  |               |
| Roller plunger  |                  | <b>ZCKD02</b> |
| Whisker   |                  | <b>ZCKD06</b> |
| Rod plunger   | Plunger operated | <b>ZCKD10</b> |
| Delrin roller lever on plunger  |                  | <b>ZCKD21</b> |
| Steel roller lever on plunger   |                  | <b>ZCKD23</b> |


**Operating Levers for Rotary Heads**

For Use With Rotary Head ZCKG00

| Actuator  | Description                 | Part number   |
|---|-----------------------------|---------------|
|  | Steel 1/8" square           | <b>ZCKY51</b> |
|  | Fiberglass 1/8" dia. round  | <b>ZCKY52</b> |
|  | Plastic spring rod lever    | <b>ZCKY81</b> |
|  | Metal spring rod lever      | <b>ZCKY91</b> |
|  | Delrin roller lever         | <b>ZCKY11</b> |
|  | Steel roller lever          | <b>ZCKY13</b> |
|  | Adjust. delrin roller lever | <b>ZCKY41</b> |
|  | Adjust. steel roller lever  | <b>ZCKY43</b> |

**Heavy Duty Limit Switches – “J” Series**

**Switch Bodies Only**










|   | Type of switching* | Part number    |
|---|--------------------|----------------|
|  | NNP                | <b>PXCJ117</b> |
|   | NP                 | <b>PXCJ127</b> |

**Separate Pneumatic Switch Bodies**

| Direction of actuator        | Type of switching* | Part number      |
|------------------------------|--------------------|------------------|
| Right & left, spring return  | NNP                | <b>PXCJ11701</b> |
| Right or left, spring return |                    | <b>PXCJ11705</b> |
| Right & left, spring return  | NP                 | <b>PXCJ12701</b> |
| Right or left, spring return |                    | <b>PXCJ12705</b> |










**Operating Levers for Rotary Heads**

Die Cast Zinc. For Use With PXCJ Switch Bodies

| Operator  | Description                  | Part number    |
|---|------------------------------|----------------|
|  | Delrin roller                | <b>ZC2JY11</b> |
|  | Steel roller                 | <b>ZC2JY13</b> |
|  | Offset delrin roller         | <b>ZC2JY21</b> |
|  | Plastic spring rod           | <b>ZC2JY81</b> |
|  | Metal spring rod             | <b>ZC2JY91</b> |
|  | Delrin roller                | <b>ZC2JY31</b> |
|  | Offset delrin roller         | <b>ZC2JY41</b> |
|  | Single track, delrin roller  | <b>ZC2JY71</b> |
|  | Double track, delrin rollers | <b>ZC2JY61</b> |

**Top Plunger & Rotary Operating Heads**

Die Cast Zinc. For Use With PXCJ Switch Bodies

| Operation   | Description                 | Part number    |
|---|-----------------------------|----------------|
| <b>Top Plunger Type</b>   |                             |                |
|  | Top push                    | <b>ZC2JE61</b> |
|  | Top roller push             | <b>ZC2JE62</b> |
|  | Side push                   | <b>ZC2JE63</b> |
|  | Cat's whisker               | <b>ZC2JE70</b> |
| <b>Rotary Type</b>  |                             |                |
|  | From left & right           | <b>ZC2JE01</b> |
|  | Counterclockwise from right | <b>ZC2JE02</b> |
|  | Clockwise from left         | <b>ZC2JE03</b> |
|  | From left or right          | <b>ZC2JE05</b> |
|  | Maintained positions        | <b>ZC2JE09</b> |

\* NNP: Normally non-passing. NP: Normally passing.

Most popular.

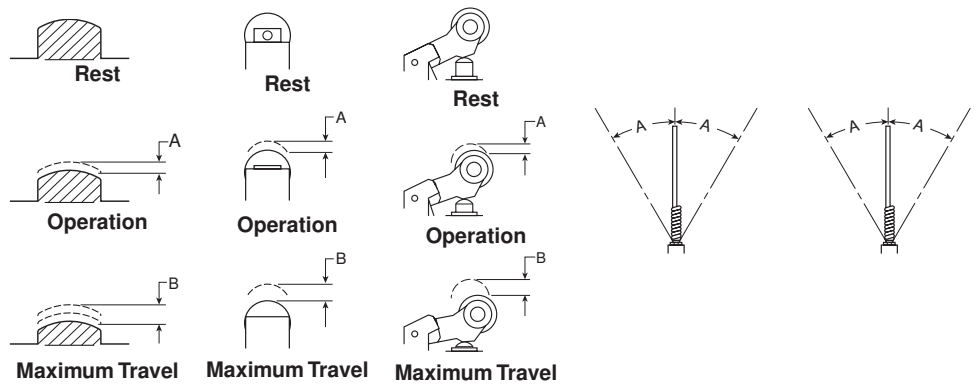


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Operator Specifications**

|   | PXCK2••01      | PXCK2••02      | PXCK2••03      | PXCK2••06              | PXCK2••00 +<br>Actuator  |
|---|----------------|----------------|----------------|------------------------|--|
| Differential angle                            | —              | —              | —              | 12°                    | 3°   |
| Differential travel                           | .008" (0.2 mm) | .008" (0.2 mm) | .008" (0.2 mm) | —                      | —  |
| Maximum angle of travel                       | —              | —              | —              | —                      | 80°  |
| Maximum travel (B)<br>at 90 PSIG (6 bar)      | .228" (5.8 mm) | .228" (5.8 mm) | .228" (5.8 mm) | —                      | —  |
| Minimum pre-travel (A)<br>at 90 PSIG (6 bar)  | .087" (2.2 mm) | .087" (2.2 mm) | .102" (2.6 mm) | —                      | —  |
| Minimum operating force<br>at 90 PSI (6 bar)  | 3.6 lbf (16N)  | 4.5 lbf (20N)  | 3.4 lbf (15N)  | —                      | —  |
| Minimum operating torque<br>at 90 PSI (6 bar) | —              | —              | —              | 17.0 oz in<br>(120mNm) | 29.8 oz in<br>(210mNm)   |
| Operating angle                               | —              | —              | —              | 35°                    | 31°<br>(Minimum<br>lever travel<br>including<br>pre-travel<br>required<br>for operation) |

Operating Diagram

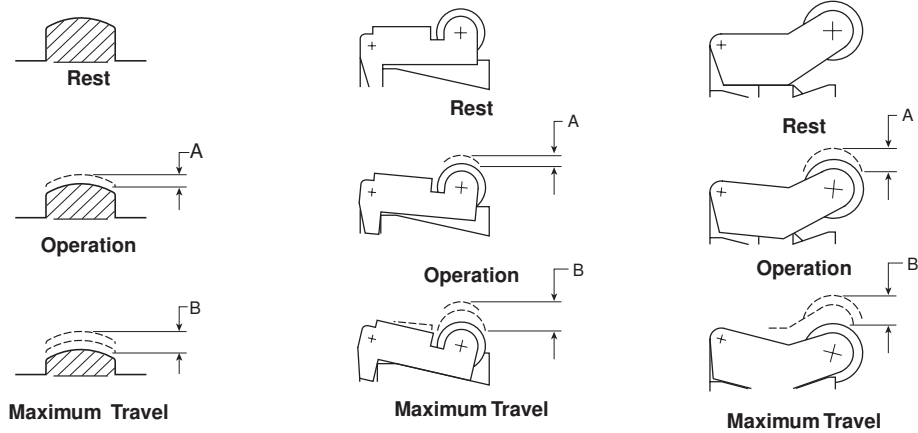




**Operators**

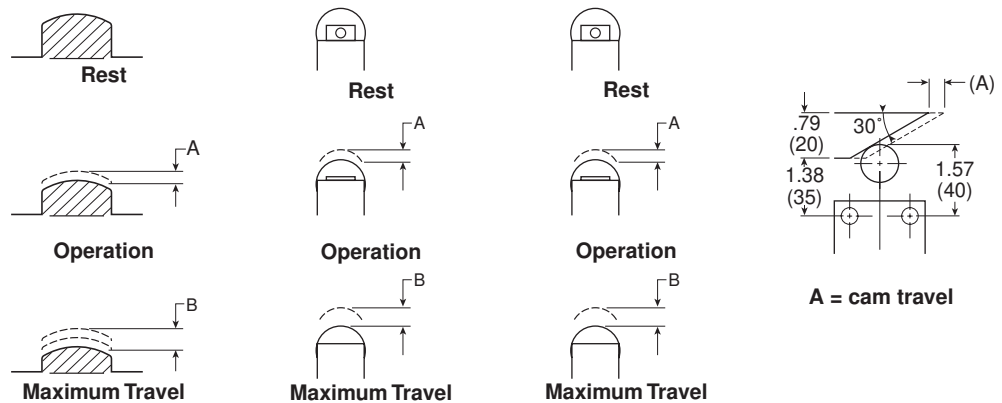
|   | PXCM111         | PXCM121        | PXCM521        |
|---|-----------------|----------------|----------------|
| Differential Travel at 90 PSI (6 bar)     | .006" (0.15 mm) | .012" (0.3 mm) | .020" (0.5 mm) |
| Maximum Travel (B) at 90 PSIG (6 bar)     | .055" (1.4 mm)  | .126" (3.2 mm) | .228" (5.8 mm) |
| Minimum Pre-Travel (A) at 90 PSIG (6 bar) | .035" (0.9 mm)  | .079" (2 mm)   | .087" (2.2 mm) |
| Minimum Operating Force at 90 PSI (6 bar) | 2.5 lb (11 N)   | 1.0 lb (4.5 N) | 1.6 lb (7 N)   |

Operating Diagram



|   | PXCM601A110    | PXCM601A102    | PXCM601A103    | PXCM601A110 + XCMZ24 |
|---|----------------|----------------|----------------|----------------------|
| Differential Travel at 90 PSI (6 bar)     | .012" (0.3 mm) | .008" (0.2 mm) | .020" (0.5 mm) | .047" (1.2 mm) (A)   |
| Maximum Travel (B) at 90 PSIG (6 bar)     | .197" (5 mm)   | .197" (5 mm)   | .197" (5 mm)   | —                    |
| Minimum Pre-Travel (A) at 90 PSIG (6 bar) | .066" (1.7 mm) | .066" (1.7 mm) | .066" (1.7 mm) | .370" (9.4 mm) (A)   |
| Minimum Operating Force at 90 PSI (6 bar) | 5.4 lbf (24 N) | 5.2 lbf (23 N) | 5.2 lbf (23)   | 4.3 lbf (19)         |

Operating Diagram



Directair 2 & 4 Series

Viking Xtreme Lever Series

422 Lever / Pedal Series

MO Series

Safety



Manual / Mechanical Valves

Brass Poppet / Sliding Seal

Control Panel Products

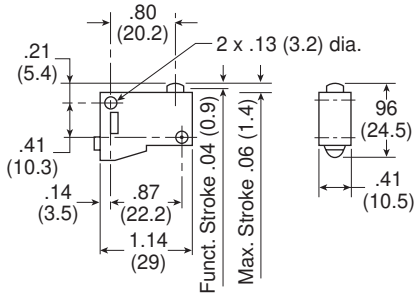
Sensing



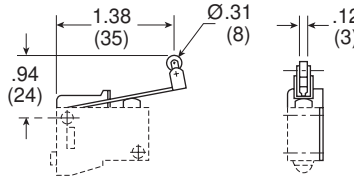
For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

**Miniature Limit Switches**

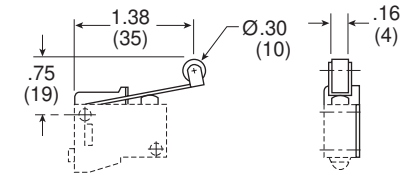
**PXCM111**



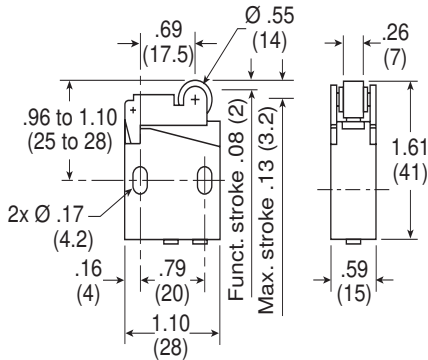
**PXCZ12**



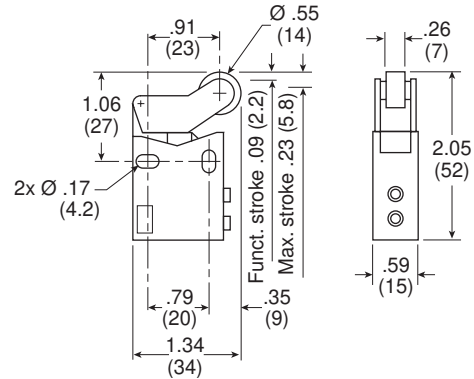
**PXCZ11**



**PXCM121, PXCM131**

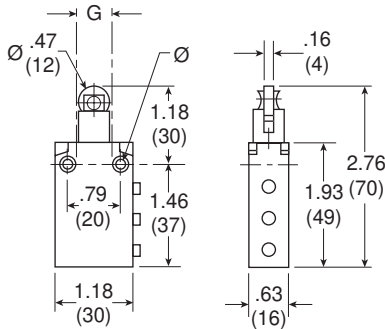


**PXCM521**

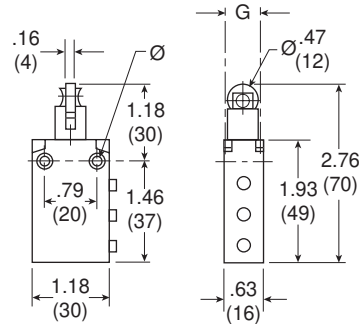


**Compact Limit Switches**

**PXCM601A102**

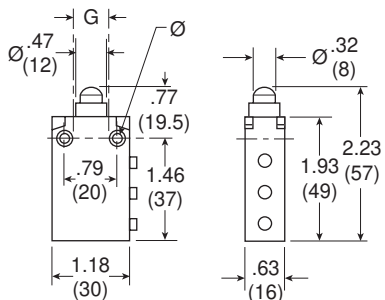


**PXCM601A103**



Ø:  
 2 mounting holes Ø .17" (4.3)  
 2 countersunk Ø .32" (8.2)  
 depth 4 mm

**PXCM601A110**



G:  
 top mounting holes, 2 x M5  
 .71" (18 mm) centers



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

Directair 2  
 & 4 Series

Viking Xtreme  
 Lever Series

42 Lever/  
 Pedal Series

MO Series

Safety



Manual / Mechanical  
 Valves

Brass Poppet /  
 Sliding Seal

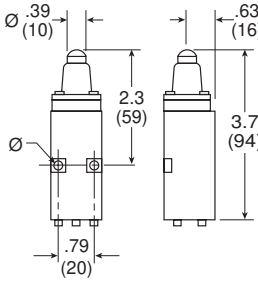
Control Panel  
 Products

Sensing

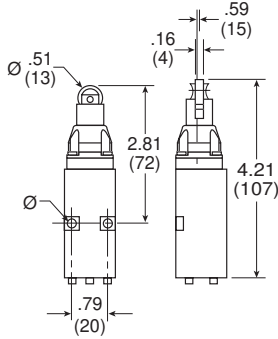
**Dimensional Data**

**K Series**

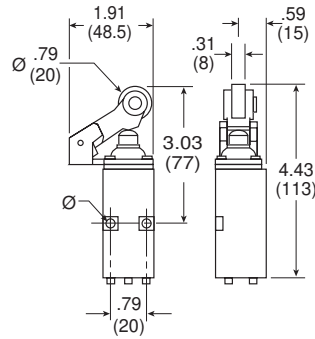
PXCK21101, PXCK22101



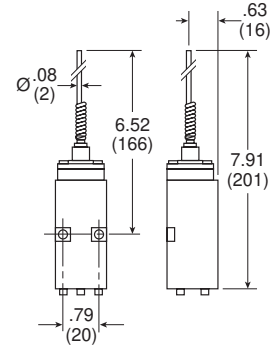
PXCK21102, PXCK22102



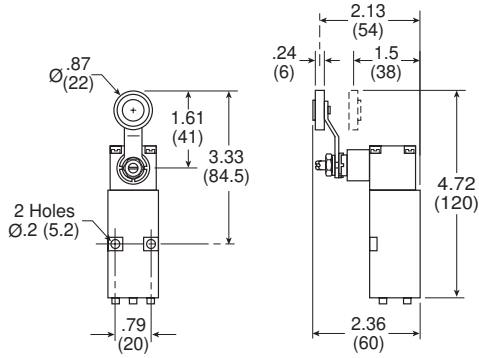
PXCK21121, PXCK22121



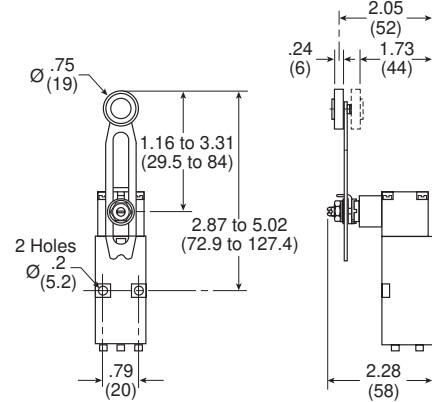
PXCK21106, PXCK22106



PXCK2110031, PXCK2210031

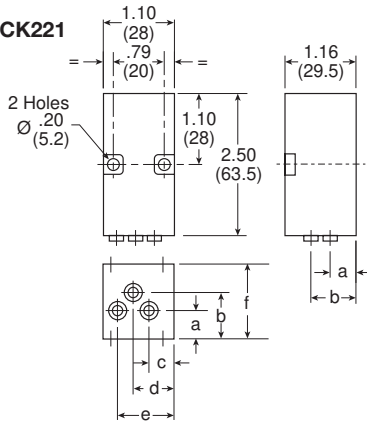


PXCK2110041, PXCK2210041



**Pneumatic Switch Bodies**

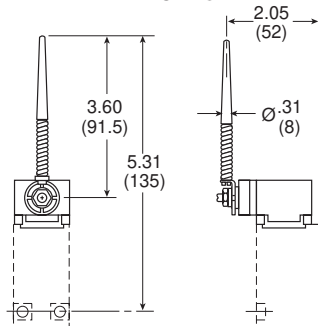
PXCK211, PXCK221



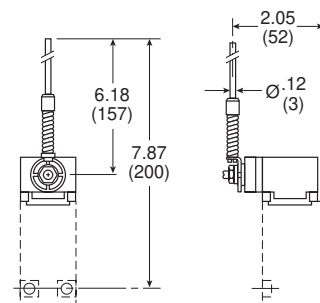
|   | inch | mm   |
|---|------|------|
| a | .39  | 10   |
| b | .77  | 19.5 |
| c | .35  | 9    |
| d | .61  | 15.5 |
| e | .87  | 22   |
| r | 1.66 | 29.5 |

**Rotary Heads with Operating Levers**

ZCKY81



ZCKY91

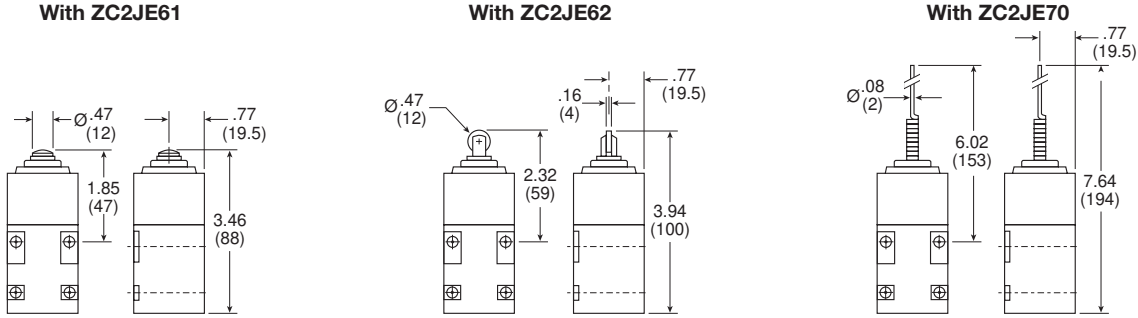


For inventory, lead times, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

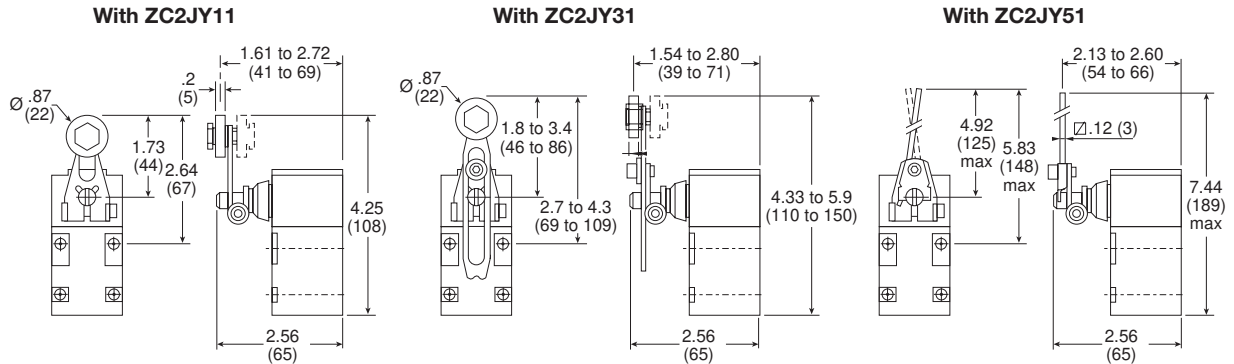
Directair 2 & 4 Series  
Viking Xtreme Lever Series  
42 Lever / Pedal Series  
MO Series  
Safety  
Manual / Mechanical Valves  
Brass Poppet / Sliding Seal  
Control Panel Products  
Sensing

**J Series**

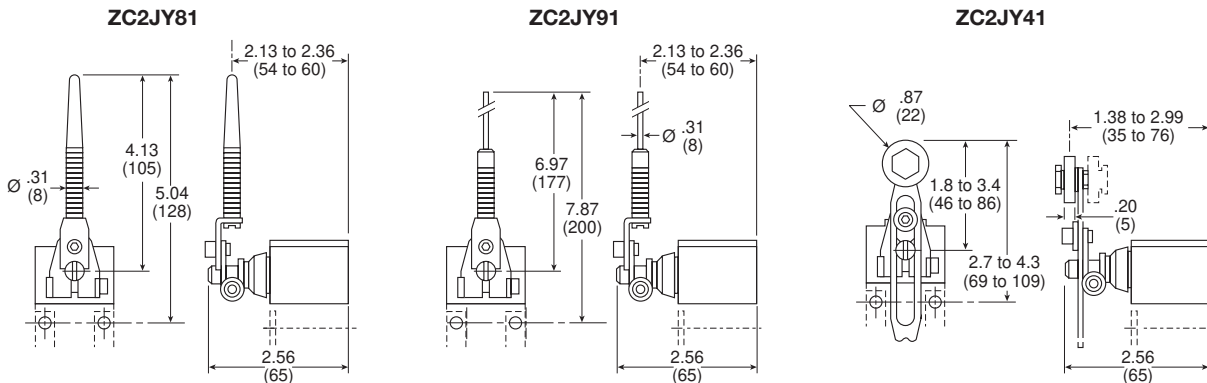
**Switch Body With Plunger Heads**



**Switch Body With Rotary Heads and Operating Levers**

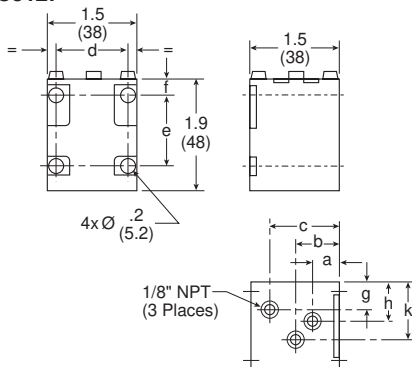


**Rotary Heads With Operating Levers**



**Pneumatic Switch Bodies**

PXCJ117, PXCJ127



|   | inch         | mm       |
|---|--------------|----------|
| a | .47          | 12       |
| b | .75          | 19       |
| c | 1.16         | 29.5     |
| d | 1.14 to 1.18 | 29 to 30 |
| e | 1.18         | 30       |
| f | .28          | 7        |
| g | .43          | 11       |
| h | .51          | 13       |
| k | .94          | 24       |



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

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**Parker Hannifin Corporation**  
 Pneumatic Division  
 Richland, Michigan  
[www.parker.com/pneumatics](http://www.parker.com/pneumatics)

Directair 2  
& 4 Series

Viking Xtreme  
Lever Series

42 Lever/  
Pedal Series

MO Series

Safety



Manual / Mechanical  
Valves

Brass Poppet /  
Sliding Seal

Control Panel  
Products

Sensing

# Safety Guide For Selecting And Using Pneumatic Division Products And Related Accessories

## WARNING:

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF PNEUMATIC DIVISION PRODUCTS, ASSEMBLIES OR RELATED ITEMS ("PRODUCTS") CAN CAUSE DEATH, PERSONAL INJURY, AND PROPERTY DAMAGE. POSSIBLE CONSEQUENCES OF FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THESE PRODUCTS INCLUDE BUT ARE NOT LIMITED TO:**

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work pieces or component parts being thrown off at high speeds.
- Failure of a device to function properly for example, failure to clamp or unclamp an associated item or device.
- Explosion
- Suddenly moving or falling objects.
- Release of toxic or otherwise injurious liquids or gasses.

Before selecting or using any of these Products, it is important that you read and follow the instructions below.

## 1. GENERAL INSTRUCTIONS

- 1.1. Scope:** 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.
- 1.3. Relevant International Standards:** For a good guide to the application of a broad spectrum of pneumatic fluid power devices see: ISO 4414:1998, Pneumatic Fluid Power – General Rules Relating to Systems. See [www.iso.org](http://www.iso.org) for ordering information.
- 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](http://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, ketones, 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.

Part Number  
Index

Safety  
Guide

Offer of  
Sale

Part Number Index,  
Safety Guide, Offer of Sale

G



For inventory, lead time, and kit lookup, visit [www.pdnplu.com](http://www.pdnplu.com)

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Pneumatic Division  
Richland, Michigan  
[www.parker.com/pneumatics](http://www.parker.com/pneumatics)

**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](http://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 4.9.

**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](http://www.parker.com).

**4.3. Lockout / Tagout Procedures:** Be sure to follow all required lockout and tagout procedures when servicing equipment. For more information see: OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – (Lockout / Tagout)

**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:

- Follow all government, state and local safety and servicing practices prior to service including but not limited to all OSHA Lockout Tagout procedures (OSHA Standard – 29 CFR, Part 1910.147, Appendix A, The Control of Hazardous Energy – Lockout / Tagout).
- 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.



**PARKER-HANNIFIN CORPORATION**  
**OFFER OF SALE**

1. **Definitions.** As used herein, the following terms have the meanings indicated.

|           |   |
|-----------|---|
| Buyer:    | means any customer receiving a Quote for Products from Seller.  |
| Goods:    | means any tangible part, system or component to be supplied by the Seller.  |
| Products: | means the Goods, Services and/or Software as described in a Quote provided by the Seller.   |
| Quote:    | means the offer or proposal made by Seller to Buyer for the supply of Products.   |
| Seller:   | means Parker-Hannifin Corporation, including all divisions and businesses thereof.  |
| Services: | means any services to be supplied by the Seller.  |
| Software: | means any software related to the Products, whether embedded or separately downloaded.  |
| Terms:    | means the terms and conditions of this Offer of Sale or any newer version of the same as published by Seller electronically at <a href="http://www.parker.com/saleterms">www.parker.com/saleterms</a> . |

2. **Terms.** All sales of Products by Seller are contingent upon, and will be governed by, these Terms and, these Terms are incorporated into any Quote provided by Seller to any Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic data interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms of purchase. No modification to these Terms will be binding on Seller unless agreed to in writing and signed by an authorized representative of Seller.

3. **Price; Payment.** The Products set forth in Seller's Quote are offered for sale at the prices indicated in Seller's Quote. Unless otherwise specifically stated in Seller's Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices at any time to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2010). All sales are contingent upon 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 the Quote). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

4. **Shipment; Delivery; 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 agreed, Seller may exercise its judgment in choosing the carrier and means of delivery. No deferment of shipment at Buyer's request beyond the respective indicated shipping date will be made except on terms that will indemnify, defend and hold Seller harmless against all loss and additional expense. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions.

5. **Warranty.** The warranty related to the Products is as follows: (i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the completion of the Services by Seller; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer:

**DISCLAIMER OF WARRANTY: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED. BUYER AGREES AND ACKNOWLEDGES THAT UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".**

6. **Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to the Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, 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.

7. **LIMITATION OF LIABILITY.** IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCT, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID 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, NON-COMPLETION OF SERVICES, USE, LOSS OF USE OF, OR INABILITY TO USE THE PRODUCTS OR ANY PART THEREOF, LOSS OF DATA, IDENTITY, PRIVACY, OR CONFIDENTIALITY, 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 PAID FOR THE PRODUCTS.

8. **Loss to Buyer's Property.** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which are or 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 Products manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. **Special Tooling.** Special Tooling includes but is not limited to tooling, jigs, fixtures and associated manufacturing equipment acquired or necessary to manufacture Products. A tooling charge may be imposed for any Special Tooling. Such Special Tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in Special Tooling belonging to Seller that is utilized in the manufacture of the Products, even if such Special Tooling 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. **Security Interest.** To secure payment of all sums due, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect its security interest.

11. **User Responsibility.** The Buyer through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. The Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and other technical information provided with the Product. If Seller provides Product options based upon data or specifications provided by the Buyer, the Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event the Buyer is not the end-user, Buyer will ensure such end-user complies with this paragraph.

12. **Use of Products; Indemnity by Buyer.** Buyer shall comply with all instructions, guides and specifications provided by Seller with the Products. **Unauthorized Uses.** If Buyer uses or resells the Products for any uses prohibited in Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. 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, intellectual property infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, application, design, specification or other misuse of Products provided by Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, tooling, equipment, plans, drawings, designs or specifications or other information or things furnished by Buyer; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing or tampering with the Products for any reason; or (e) Buyer's failure to comply with these Terms. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

13. **Cancellations and Changes.** Buyer may not cancel or modify 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, at any time, may change Product features, specifications, designs and availability.

14. **Limitation on Assignment.** Buyer may not assign its rights or obligations without the prior written consent of Seller.

15. **Force Majeure.** Seller does not assume the risk and is not liable for delay or failure to perform any of Seller's obligations by reason of events or circumstances beyond its reasonable control ("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.

16. **Waiver and Severability.** Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of these Terms by legislation or other rule of law shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

17. **Termination.** Seller may terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms (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 one 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.

18. **Ownership of Software.** Seller retains ownership of all Software supplied to Buyer hereunder. In no event shall Buyer obtain any greater right in and to the Software than a right in the nature of a license limited to the use thereof and subject to compliance with any other terms provided with the Software.

19. **Indemnity for Infringement of Intellectual Property Rights.** Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. 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 a third party claim that one or more of the Products sold hereunder infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by the Seller to the Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products sold hereunder is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products so as to render them non-infringing, or offer to accept return of the Products and refund the purchase price less a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer; or (ii) directed to any Products provided hereunder for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products provided hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for such claims of infringement of Intellectual Property Rights.

20. **Governing Law.** These Terms and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed 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 with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

21. **Entire Agreement.** These Terms, along with the terms set forth in the main body of any Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. In the event of a conflict between any term set forth in the main body of a Quote and these Terms, the terms set forth in the main body of the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. These Terms may not be modified unless in writing and signed by an authorized representative of Seller.

22. **Compliance with Laws.** Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer acknowledges that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Product from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws.