LOGIC POPPET VALVES AND CARTRIDGE MANIFOLD SYSTEMS

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VERSION 19.0

RETURN POLICY

All returns must be made within 90 days of purchase.
A 20% restock charge will be assessed on all items approved for return in stock.
A return authorization number will be required for all items returned and return freight will be prepaid by the customer. All items must be in new/undamaged condition for resale in order to obtain credit. All items returned will be for product credit only.

NO REFUNDS, CASH OR CHECK WILL BE ISSUED
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INSERTS
FORCE BALANCE: (Force = Pressure*Area)

\[ P_{AP} \cdot A_{AP} + \text{SpringForce} = P_{A} \cdot A_{A} + P_{B} \cdot A_{B} \]

Valve Open if,
\[ P_{AP} \cdot A_{AP} + \text{SpringForce} < P_{A} \cdot A_{A} + P_{B} \cdot A_{B} \]

Valve Closed if,
\[ P_{AP} \cdot A_{AP} + \text{SpringForce} > P_{A} \cdot A_{A} + P_{B} \cdot A_{B} \]
Pressure drops for Dampening Valves are on average 60% higher than flows shown.

Order Code

AMT-LCV-**-**-D-**-**

Almo Manifold & Tool

Logic Cartridge Valve

Size: 16, 25, 32, 40, 50, 63, 80mm

L6 = 1.6:1 AP:A area ratio
I = 1:1 AP:A area ratio

Blank = NO Dampening Nose
D = Dampening Nose

5, 15, 30, or 60 psi Spring Cracking Pressure

Blank = No Orifice
Z = Seal on Poppet “Zero Leak”
OA = With Orifice AP to A
OB = With Orifice AP to B

Blank = Viton O Rings
B = Buna 90 O Rings
COVERS
✓ Removable NPT orifice plug  
✓ SAE O-ring port for access to NPT orifice, gauging, or remote piloting

Applications

Check Valve

Provides free-flow from “A to B” & check function from “B to A” by connecting the “X” pilot to the “B” port of the valve insert.

Manual/External Piloting

By not connecting the “X” pilot internally, a separate pilot pressure can be used via the SAE port to manually hold the valve closed. Pilot pressure & spring forces act to close the valve, forces at “A” & “B” act to open the valve.
Sizes 25mm to 63mm

80mm “Top” face shown above

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>“S” SAE</th>
<th>“N”</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td>2.75&quot;</td>
<td>1.40&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.0mm 5/16-18 X 1.50&quot; (4)</td>
</tr>
<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>1.50&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.2mm 1/2-13 X 1.50&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.00&quot;</td>
<td>2.00&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.3 mm 5/8-11 X 2.00&quot; (4)</td>
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<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.5 mm 3/4-10 X 2.50&quot; (4)</td>
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<tr>
<td>50 mm</td>
<td>5.55&quot;</td>
<td>2.75&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.8 mm 3/4-10 X 3.00&quot; (4)</td>
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<tr>
<td>63 mm</td>
<td>7.00&quot;</td>
<td>3.38&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>2.0 mm 1-1/4-7 X 3.50&quot; (4)</td>
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<tr>
<td>80 mm</td>
<td>9.50&quot;</td>
<td>3.50&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>2.8 mm 1-8 X 4.00&quot; (8)</td>
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</tbody>
</table>

Order Code

AMT-PCC-**-C-**-**

Custom Orifice Size in “mm” if other than Standard Size
Examples: 08 = 0.8mm
10 = 1.0mm
12 = 1.2mm

BL = Include bolts at extra charge
Blank = Customer will supply bolts

Almo Manifold & Tool

Poppet Check Cover

Size: 16, 25, 32, 40, 50, 63, 80mm

Standard Check Function
✓ Removable NPT orifice plug
✓ 3 to 1 pilot ratio

Applications

Pilot Operated Check Valve

Provides free-flow from “A to B” & check function from “B to A” by connecting the “X” pilot to the “B” port of the valve insert. To achieve bi-directional flow, just Supply Z1 with pilot pressure. The Pilot ratio is 3 to 1.
Sizes 25mm to 63mm / 80mm not shown

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Thread</th>
<th>*Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td>2.75&quot;</td>
<td>2.75&quot;</td>
<td>.60&quot;</td>
<td>10-24</td>
<td>1.0mm</td>
<td>5/16-18 x 2.50&quot; (4)</td>
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<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>2.75&quot;</td>
<td>.60&quot;</td>
<td>1/16-27</td>
<td>1.0mm</td>
<td>1/2-13 X 2.75&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.00&quot;</td>
<td>2.75&quot;</td>
<td>.60&quot;</td>
<td>1/16-27</td>
<td>1.2mm</td>
<td>5/8-11 X 2.50&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>2.75&quot;</td>
<td>.60&quot;</td>
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<td>1.3mm</td>
<td>3/4-10 X 2.75&quot; (4)</td>
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<td>50 mm</td>
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<td>2.75&quot;</td>
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<td>.60&quot;</td>
<td>1/8-27</td>
<td>1.8mm</td>
<td>1-1/4-7 X 3.50&quot; (4)</td>
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<tr>
<td>80 mm</td>
<td>9.50&quot;</td>
<td>3.50&quot;</td>
<td>.60&quot;</td>
<td>1/8-27</td>
<td>2.0mm</td>
<td>1-8 X 4.00&quot; (8)</td>
</tr>
</tbody>
</table>

**AMT-POCC-**-**-**

- **Almo Manifold & Tool**
- **Pilot Operated Check Cover**

Custom Orifice Size in “mm” if other than Standard Size
Examples: 08 = 0.8mm
        10 = 1.0mm
        12 = 1.2mm

**BL** = Include bolts at extra charge
Blank = Customer will supply bolts

Size: 16, 25, 32, 40, 50, 63, or 80mm
✓ Standard D03 interface
✓ SAE O-ring ports for access to P & T
✓ Removable orifice plug options
✓ Ships standard with an orifice installed in the “P” port & according to **Plug option #1**

Applications

Dump Valve or ON/OFF valve

Can be used as a dump valve by connecting ‘X’ to the ‘B’ port (side of insert) & connecting ‘Y’ to drain. The diagrams to the right show the two different plug options. Plug option #1 will allow the valve to dump in the de-energized state & Plug option #2 will allow the valve to dump in the energized state.

Note: If port “A” is connected to a working port, then connecting ‘X’ to the ‘B’ port as shown above does not prevent pressure at A from overcoming the forces acting to keep the valve closed. Flow could occur from A to B. To prevent this, use a separate pilot pressure for X.
General Layout

Only one orifice installed in ‘P’ port of D03 interface. Other orifices are optional.

Order Code

AMT-PDBASH-**-**-**

Custom Orifice Size in “mm” if other than Standard Size
Examples: 08 = 0.8mm
10 = 1.0mm
12 = 1.2mm

BL = Include bolts at extra charge
Blank = Customer will supply bolts

Poppet Cover with Directional Control Interface.
Basic Cover Design
H style configuration

Size: 16, 25, 32, 40mm

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>NPT</th>
<th>Orifice Size</th>
<th>Interface</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2.75&quot;</td>
<td>1.40&quot;</td>
<td>1/16-27</td>
<td>1.0mm</td>
<td>D03</td>
<td>5/16-18 X 1.50&quot; (4)</td>
</tr>
<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>1.50&quot;</td>
<td>1/16-27</td>
<td>1.2mm</td>
<td>D03</td>
<td>1/2-13 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.00&quot;</td>
<td>2.00&quot;</td>
<td>1/16-27</td>
<td>1.3mm</td>
<td>D03</td>
<td>5/8-11 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>1/16-27</td>
<td>1.5mm</td>
<td>D03</td>
<td>3/4-10 X 2.50&quot; (4)</td>
</tr>
</tbody>
</table>
✓ Standard D05 interface, optional D03
✓ SAE O-ring ports for access to P & T
✓ Removable NPT orifice plug options
✓ Ships standard with an orifice installed in the “P” port & according to Plug option #1

Applications

Dump Valve or ON/OFF valve

Can be used as a dump valve by connecting ‘X’ to the ‘B’ port (side of insert) & connecting ‘Y’ to drain. The diagrams to the right show the two different plug options. Plug option #1 will allow the valve to dump in the de-energized state & Plug option #2 will allow the valve to dump in the energized state.

Note: If port “A” is connected to a working port, then connecting ‘X’ to the ‘B’ port as shown above does not prevent pressure at A from overcoming the forces acting to keep the valve closed. Flow could occur from A to B. To prevent this, use a separate pilot pressure for X.
General Layout

Standard D05 interface Layout (80mm not shown)

<table>
<thead>
<tr>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>NPT</th>
<th>Orifice Size</th>
<th>Standard Interface</th>
<th>Bolts</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 mm</td>
<td>5.55&quot;</td>
<td>2.75&quot;</td>
<td>1/8-27</td>
<td>1.8 mm</td>
<td>D05</td>
<td>3/4-10 X 3.00&quot; (4)</td>
</tr>
<tr>
<td>63 mm</td>
<td>7.00&quot;</td>
<td>3.38&quot;</td>
<td>1/8-27</td>
<td>2.0 mm</td>
<td>D05</td>
<td>1-1/4-7 X 3.50&quot; (4)</td>
</tr>
<tr>
<td>80 mm</td>
<td>9.50&quot;</td>
<td>3.50&quot;</td>
<td>1/8-27</td>
<td>2.5 mm</td>
<td>D05</td>
<td>1-8 X 4.00&quot; (8)</td>
</tr>
</tbody>
</table>

Chart for Standard D05 interface
Only one orifice installed in ‘P’ port of D05 interface. Other orifices are optional.

Order Code

AMT-PDBASH-**-*-_**

Almo Manifold & Tool

Poppet Cover with Directional Control Interface.
Basic Cover Design
H style configuration

Size: 50, 63, or 80mm

Directional Control Interface:
Blank = Standard D05
3 = Optional D03 interface

Custom Orifice Size in “mm” if other than Standard Size
Examples: 08 = 0.8mm
10 = 1.0mm
12 = 1.2mm

BL = Include bolts at extra charge
Blank = Customer will supply bolts
 ✓ Same as the PDBASH with D03 rotated 90 degrees to match industry standard  
 ✓ Removable orifice plug options  
 ✓ Ships standard with an orifice installed in the “P” port & according to Plug option #1  

Applications

Dump Valve or ON/OFF valve

Can be used as a dump valve by connecting ‘X’ to the ‘B’ port (side of insert) & connecting ‘Y’ to drain. The diagrams to the right show the two different plug options. Plug option #1 will allow the valve to dump in the de-energized state & Plug option #2 will allow the valve to dump in the energized state.

Note: If port “A” is connected to a working port, then connecting ‘X’ to the ‘B’ port as shown above does not prevent pressure at A from overcoming the forces acting to keep the valve closed. Flow could occur from A to B. To prevent this, use a separate pilot pressure for X.
General Layout

Only one orifice installed in ‘P’ port of D03 interface. Other orifices are optional.

Order Code

AMT-PDD03-**-**-**

Custom Orifice Size in “mm” if other than Standard Size
Examples: 08 = 0.8mm
10 = 1.0mm
12 = 1.2mm

BL = Include bolts at extra charge
Blank = Customer will supply bolts

Size: 16, 25, 32, or 40mm

<table>
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<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Interface</th>
<th>NPT</th>
<th>Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td>2.75&quot;</td>
<td>3.00&quot;</td>
<td>1.50&quot;</td>
<td>D03</td>
<td>1/16-27</td>
<td>1.0 mm</td>
<td>5/16-18 X 1.50&quot; (4)</td>
</tr>
<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>3.50&quot;</td>
<td>2.00&quot;</td>
<td>D03</td>
<td>1/16-27</td>
<td>1.2 mm</td>
<td>1/2-13 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.00&quot;</td>
<td>4.00&quot;</td>
<td>2.00&quot;</td>
<td>D03</td>
<td>1/16-27</td>
<td>1.3 mm</td>
<td>5/8-11 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>D03</td>
<td>1/16-27</td>
<td>1.5 mm</td>
<td>3/4-10 X 2.50&quot; (4)</td>
</tr>
</tbody>
</table>
✓ Shuttle valve senses the greater of two pressures
✓ Standard D03 interface on 16mm to 63mm sizes
✓ Standard orifice installed in X & A
✓ Removable orifice plug options

Applications

On/Off Check Valve

Will hold valve closed in one condition and serve as a check valve in the other condition.

Senses the greater of two pressures between the “X” pilot & the “A” pilot. The “X” pilot should be connected to the “B” port (side of insert) and the “Z1” port should be connected to the “A” port (nose of insert).

By using a standard D03 directional control with flow from “P to A” in the de-energized condition the shuttle will use the greater pressure to hold the valve closed. Energizing the solenoid prevents the shuttle from sensing the Z1 pilot, thereby establishing free flow from A to B & a check valve function from B to A.
**General Layout**

**Order Code**

**AMT-PDSH2-**

*Almo Manifold & Tool*  
*Poppet Cover w/ Directional Control Interface & Shuttle Function Version #2*

Custom Orifice Size in “mm” if other than Standard Size
Examples: 08 = 0.8mm  
          10 = 1.0mm  
          12 = 1.2mm

*BL* = Include bolts at extra charge

Blank = Customer will supply bolts

Size: **16, 25, 32, 40, 50, or 63**mm

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>&quot;X&quot; NPT</th>
<th>Orifice Size</th>
<th>BOLTS</th>
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<tr>
<td>16 mm</td>
<td>2.75&quot;</td>
<td>3.00&quot;</td>
<td>3.00&quot;</td>
<td>.75&quot;</td>
<td>1/16-27</td>
<td>1.0 mm</td>
<td>5/16-18 X 3.00&quot; (4)</td>
</tr>
<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>3.50&quot;</td>
<td>2.50&quot;</td>
<td>.75&quot;</td>
<td>1/16-27</td>
<td>1.2 mm</td>
<td>1/2-13 X 2.50&quot; (4)</td>
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<tr>
<td>32 mm</td>
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<td>4.00&quot;</td>
<td>2.00&quot;</td>
<td>.75&quot;</td>
<td>1/16-27</td>
<td>1.3 mm</td>
<td>5/8-11 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>.75&quot;</td>
<td>1/16-27</td>
<td>1.5 mm</td>
<td>3/4-10 X 2.50&quot; (4)</td>
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<tr>
<td>50 mm</td>
<td>5.55&quot;</td>
<td>5.55&quot;</td>
<td>2.75&quot;</td>
<td>.75&quot;</td>
<td>1/16-27</td>
<td>1.8 mm</td>
<td>3/4-10 X 3.00&quot; (4)</td>
</tr>
<tr>
<td>63 mm</td>
<td>7.00&quot;</td>
<td>7.00&quot;</td>
<td>3.38&quot;</td>
<td>.75&quot;</td>
<td>1/8-27</td>
<td>2.0 mm</td>
<td>1-1/4-7 X 3.50&quot; (4)</td>
</tr>
</tbody>
</table>
✓ Shuttle valve senses the greater of two pressures
✓ Standard D03 or D05 interface
✓ Standard orifice installed in P
✓ Removable orifice plug options

Applications

On/Off Valve

Will hold valve closed in one condition and will allow valve to open in the other condition.

Senses the greater of two pressures between the “X” pilot & the “Z1” pilot. The “X” pilot should be connected to the “B” port (side of insert) and the “Z1” port should be connected to the “A” port (nose of insert) or vise versa.

By using a standard D03 directional control with flow from “P to A” in the de-energized condition the shuttle will use the greater pressure to hold the valve closed. Energizing the solenoid vents the pressure above the valve insert to the drain. Flow can travel freely from A to B or from B to A as long as the spring force is overcome.
Sizes 40mm to 50mm (C dimension for 40mm only)
Sizes 25 & 32 discontinued.

Size 63mm (80mm not shown)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Interface</th>
<th>NPT</th>
<th>Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>.75&quot;</td>
<td>D03</td>
<td>1/16-27</td>
<td>1.5 mm</td>
<td>3/4-10 X 2.50&quot; (4)</td>
</tr>
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<td>2.86&quot;</td>
<td>.75&quot;</td>
<td>D03</td>
<td>1/8-27</td>
<td>1.8 mm</td>
<td>3/4-10 X 3.00&quot; (4)</td>
</tr>
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<td>63 mm</td>
<td>7.00&quot;</td>
<td>3.38&quot;</td>
<td>.75&quot;</td>
<td>D05</td>
<td>1/8-27</td>
<td>2.0 mm</td>
<td>1-1/4-7 X 3.50&quot; (4)</td>
</tr>
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<td>80 mm</td>
<td>9.50&quot;</td>
<td>3.50&quot;</td>
<td>.75&quot;</td>
<td>D05</td>
<td>1/8-27</td>
<td>2.5 mm</td>
<td>1-8 X 4.00&quot; (8)</td>
</tr>
</tbody>
</table>

Order Code

AMT-PDSH3-**-**-**

Almo Manifold & Tool

Poppet Cover w/ Directional Control Interface & Shuttle Function Version #3

Custom Orifice Size in "mm" if other than Standard Size
Examples: 08 = 0.8mm
10 = 1.0mm
12 = 1.2mm

BL= Include bolts at extra charge
Blank= Customer will supply bolts

Size: 40, 50, 63, or 80mm
✓ Shuttle valve senses the greater of two pressures  
✓ Standard D03 interface or D05  
✓ Standard orifice installed in P  
✓ Removable orifice plug options

Applications

On/Off Valve

Will hold valve closed in one condition and will allow valve to open in the other condition.

Senses the greater of two pressures between the “X” pilot & the “Z1” pilot. The “X” pilot should be connected to the “B” port (side of insert) and the “Z1” port should be connected to the “A” port (nose of insert) or vise versa.

By using a standard D03 directional control with flow from “P to A” in the de-energized condition the shuttle will use the greater pressure to hold the valve closed. Energizing the solenoid vents the pressure above the valve insert to the drain. Flow can travel freely from A to B or from B to A as long as the spring force is overcome.

“All “B” to “Z2” allows control of additional valve.
## General Layout

### Sizes 25mm to 63

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Interface</th>
<th>NPT</th>
<th>Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>2.00&quot;</td>
<td>1.0&quot;</td>
<td>D03</td>
<td>1/16-27</td>
<td>1.2 mm</td>
<td>1/2-13 X 2.25&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.00&quot;</td>
<td>2.00&quot;</td>
<td>.75&quot;</td>
<td>D03</td>
<td>1/16-27</td>
<td>1.3 mm</td>
<td>5/8-11 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>.75&quot;</td>
<td>D03</td>
<td>1/16-27</td>
<td>1.5 mm</td>
<td>3/4-10 X 2.50&quot; (4)</td>
</tr>
<tr>
<td>50 mm</td>
<td>5.55&quot;</td>
<td>2.86&quot;</td>
<td>.75&quot;</td>
<td>D03/D05</td>
<td>1/8-27</td>
<td>1.8 mm</td>
<td>3/4-10 X 3.00&quot; (4)</td>
</tr>
<tr>
<td>63 mm</td>
<td>7.00&quot;</td>
<td>3.38&quot;</td>
<td>.75&quot;</td>
<td>D03/D05</td>
<td>1/8-27</td>
<td>2.0 mm</td>
<td>1-1/4-7 X 3.50&quot; (4)</td>
</tr>
<tr>
<td>80 mm</td>
<td>9.50&quot;</td>
<td>3.50&quot;</td>
<td>.75&quot;</td>
<td>D05</td>
<td>1/8-27</td>
<td>2.5 mm</td>
<td>1-8 X 4.00&quot; (8)</td>
</tr>
</tbody>
</table>

### Sizes 50 to 63mm (80mm not shown)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Interface</th>
<th>NPT</th>
<th>Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 mm</td>
<td>5.55&quot;</td>
<td>2.86&quot;</td>
<td>.75&quot;</td>
<td>D03/D05</td>
<td>1/8-27</td>
<td>1.8 mm</td>
<td></td>
</tr>
<tr>
<td>63 mm</td>
<td>7.00&quot;</td>
<td>3.38&quot;</td>
<td>.75&quot;</td>
<td>D03/D05</td>
<td>1/8-27</td>
<td>2.0 mm</td>
<td></td>
</tr>
<tr>
<td>80 mm</td>
<td>9.50&quot;</td>
<td>3.50&quot;</td>
<td>.75&quot;</td>
<td>D05</td>
<td>1/8-27</td>
<td>2.5 mm</td>
<td></td>
</tr>
</tbody>
</table>

### Order Code

AMT-PDSH5-**-**-**

- **Almo Manifold & Tool**
- **Poppet Cover w/ Directional Control Interface & Shuttle Function Version #5**
- Custom Orifice Size in “mm” if other than Standard Size
  - Examples: 08 = 0.8mm
  - 10 = 1.0mm
  - 12 = 1.2mm
- **BL** = Include bolts at extra charge
- **Blank** = Customer will supply bolts

Size: 25, 32, 40, 50, 63, or 80mm
✓ Adjustable relief setting from 150 psi to 5000 psi
✓ Standard screw adjustment for relief setting. Hand knob available upon request.
✓ Removable NPT orifice plug options
✓ SAE O-ring port for access to NPT orifice and gauging
✓ Pressure at “Y” is directly additive to relief setting

Applications

Relief, Back Pressure, or Sequence Valve

Provides relief function from “A to B” by connecting the “X” pilot to the “A” port of the valve insert. The ‘Y’ pilot can be connected to the “B” port, but a separate drain connection is preferred. This configuration uses a 1:1 ratio insert.
Sizes 25mm to 63mm (80mm not shown)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>SAE</th>
<th>NPT</th>
<th>*Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>2.00&quot;</td>
<td>2.0&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>X .70 AP 1.0</td>
<td>1/2-13 X 2.25&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.00&quot;</td>
<td>2.00&quot;</td>
<td>2.0&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>X .70 AP 1.0</td>
<td>5/8-11 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>2.0&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>X .70 AP 1.0</td>
<td>3/4-10 X 2.50&quot; (4)</td>
</tr>
<tr>
<td>50 mm</td>
<td>5.55&quot;</td>
<td>2.75&quot;</td>
<td>2.0&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>X .70 AP 1.0</td>
<td>3/4-10 X 3.00&quot; (4)</td>
</tr>
<tr>
<td>63 mm</td>
<td>7.00&quot;</td>
<td>3.38&quot;</td>
<td>2.3&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>X .70 AP 1.0</td>
<td>1-1/4-7 X 3.50&quot; (4)</td>
</tr>
<tr>
<td>80 mm</td>
<td>9.50&quot;</td>
<td>3.50&quot;</td>
<td>2.3&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>X .70 AP 1.0</td>
<td>1-8 X 4.00&quot; (8)</td>
</tr>
</tbody>
</table>

*Orifices installed in “X” and “AP” ports only. Other orifice sizes and locations are optional.

Order Code

AMT-PRC-**-S-**-**

Almo Manifold & Tool

Poppet Relief Cover

Size: 25, 32, 40, 50, 63, or 80mm

Standard Relief Function

Custom Orifice Size &/or Location in “mm” 
Example: if desired orifices are .8mm in X & 1mm in AP, then add: -08X10AP at end of code

BL = Include bolts at extra charge

Blank = Customer will supply bolts

General Layout
Adjustable relief setting from 150 psi to 5000 psi
✓ Standard screw adjustment for relief setting. Hand knob available upon request.
✓ Standard D03 interface for loading/venting on sizes 16mm to 40mm, D05 interface on 50mm to 80mm
✓ Removable orifice plug options
✓ SAE O-ring ports for access to NPT orifices, gauging, or remote piloting
✓ Pressure at “Y” is directly additive to relief setting

Applications

Solenoid-Loading Relief Valve

Provides relief function from “A to B” by connecting the “X” pilot to the “A” port of the valve insert (shown at left) or by connecting the “Z1” port to the “A” port (shown at right).

Using a standard directional control with flow from “P to A” in the de-energized condition will unload the valve. In the energized state the system will build pressure until the relief setting is reached. The valve can also be manually vented using the “X” SAE port.

The ‘Y’ pilot can be connected to the “B” port but a separate drain connection is preferred.

This configuration uses a 1:1 ratio insert.
**General Layout**

---

**Sizes 16mm to 40mm**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>X / Z1 PORT</th>
<th>Interface</th>
<th>X / AP</th>
<th>Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16mm</td>
<td>2.75&quot;</td>
<td>2.50&quot;</td>
<td>2.0&quot;</td>
<td>1/4-18 NPT</td>
<td>D03</td>
<td>1/4-20 / 1/16</td>
<td>X .70 AP 1.0</td>
<td>5/16-18 X 2.50&quot; (4)</td>
</tr>
<tr>
<td>25mm</td>
<td>3.50&quot;</td>
<td>2.25&quot;</td>
<td>2.0&quot;</td>
<td>#4 SAE</td>
<td>D03</td>
<td>1/16-27</td>
<td>X .70 AP 1.0</td>
<td>1/2-13 X 2.25&quot; (4)</td>
</tr>
<tr>
<td>32mm</td>
<td>4.00&quot;</td>
<td>2.00&quot;</td>
<td>2.0&quot;</td>
<td>#4 SAE</td>
<td>D03</td>
<td>1/16-27</td>
<td>X .70 AP 1.0</td>
<td>5/8-11 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>40mm</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>2.0&quot;</td>
<td>#4 SAE</td>
<td>D03</td>
<td>1/16-27</td>
<td>X .70 AP 1.0</td>
<td>3/4-10 X 2.50&quot; (4)</td>
</tr>
<tr>
<td>50mm</td>
<td>5.55&quot;</td>
<td>2.75&quot;</td>
<td>2.0&quot;</td>
<td>#6 SAE</td>
<td>D05</td>
<td>1/8-27</td>
<td>X .70 AP 1.0</td>
<td>3/4-10 X 3.00&quot; (4)</td>
</tr>
<tr>
<td>63mm</td>
<td>7.00&quot;</td>
<td>3.38&quot;</td>
<td>2.0&quot;</td>
<td>#6 SAE</td>
<td>D05</td>
<td>1/8-27</td>
<td>X .70 AP 1.0</td>
<td>1-1/4-7 X 3.50&quot; (4)</td>
</tr>
<tr>
<td>80mm</td>
<td>9.50&quot;</td>
<td>3.50&quot;</td>
<td>2.0&quot;</td>
<td>#6 SAE</td>
<td>D05</td>
<td>1/8-27</td>
<td>X .70 AP 1.0</td>
<td>1-8 X 4.00&quot; (8)</td>
</tr>
</tbody>
</table>

*Orifice installed in “X” an “AP” port only. Other orifice locations are optional.

**Order Code**

**AMT-PRC-** **-L-** **-***

- **Almo Manifold & Tool**
- **Poppet Relief Cover**
- **Custom Orifice Size &/or Location in “mm”**
- Example: if desired orifices are .8mm in X & 1mm in AP, then add: -08X10AP at end of code
- **Solenoid Loading/Venting Relief Function**
- **BL** = Include bolts at extra charge
- **Blank** = Customer will supply bolts
✓ Relief accessory for AMT-PRC-**-L relief covers
✓ Adjustable relief setting from 150 psi to 5000 psi
✓ Standard screw adjustment for relief setting.
✓ Pressure at “T” is directly additive to relief setting

Applications

High/Low Pressure Relief Valve

This D03 relief accessory can be combined with an AMT-PRC-**-L to create a high/low relief valve with two independent relief settings.

Using a standard directional control with flow from “P to A” in the de-energized condition will select the relief setting of the cover. Energizing the pilot valve will switch the relief setting to the accessory. Note: The relief setting of the accessory MUST be lower than the setting of the cover.

The ‘Y’ pilot can be connected to the “B” port but a separate drain connection is preferred. This configuration uses a 1:1 ratio insert.
To order the D03 relief accessory individually then use the following code:

AMT-D03-Relief-**

AT = Relief function from “A to T”

BT = Relief function from “B to T”

To order a D03 relief accessory together with a DIN cover then use the code below:

AMT-PRC-**-HL*-*-*-*

Custom Orifice Size &/or Location in “mm”
Example: if desired orifices are .8mm in X & 1mm in AP, then add: -08X10AP at end of code

BL = Include bolts at extra charge

Blank = Customer will supply bolts

Note: The D03 accessory & DIN cover can be ordered separately. This code is for convenience only.
✓ Adjustable stroke-limiting cover for decreasing the traveling distance of poppet insert
✓ Set screws for locking
✓ SAE O-ring port for access to NPT orifice & gauging

Applications

Check/Flow Control Valve

Provides metered flow from “A to B” & check function from “B to A” by connecting the “X” pilot to the “B” port of the valve insert.

NOTE: To eliminate the check valve function & only use the metering capabilities then connect the “X” pilot to a drain line instead of connecting to the “B” port.
General Layout

Sizes 25mm to 63mm (80mm not shown)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>SAE</th>
<th>NPT</th>
<th>ORIFICE</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td>2.75&quot;</td>
<td>1.50&quot;</td>
<td>2.80&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.0mm</td>
<td>5/16-18 X 1.50&quot; (4)</td>
</tr>
<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>1.50&quot;</td>
<td>4.00&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.2mm</td>
<td>1/2-13 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.00&quot;</td>
<td>2.00&quot;</td>
<td>4.00&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.3 mm</td>
<td>5/8-11 X 2.00&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>5.50&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.5 mm</td>
<td>3/4-10 X 2.50&quot; (4)</td>
</tr>
<tr>
<td>50 mm</td>
<td>5.55&quot;</td>
<td>2.75&quot;</td>
<td>5.50&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.8 mm</td>
<td>3/4-10 X 3.00&quot; (4)</td>
</tr>
<tr>
<td>63 mm</td>
<td>7.00&quot;</td>
<td>3.38&quot;</td>
<td>7.00&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>2.0 mm</td>
<td>1-1/4-7 X 3.50&quot; (4)</td>
</tr>
<tr>
<td>80 mm</td>
<td>9.50&quot;</td>
<td>3.50&quot;</td>
<td>7.00&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>2.8 mm</td>
<td>1-8 X 4.00&quot; (8)</td>
</tr>
</tbody>
</table>

Order Code

**AMT-PSTK-**-**-**

- **Almo Manifold & Tool**
- **Poppet Stroke Cover**

Size: 16, 25, 32, 40, 50, 63, 80mm

- **BL** = Include bolts at extra charge
- Blank = Customer will supply bolts

Custom Orifice Size in "mm" if other than Standard Size
Examples: 08 = 0.8mm
10 = 1.0mm
12 = 1.2mm
✓ Adjustable stroke-limiting cover for decreasing the traveling distance of poppet insert
✓ Set screws for locking
✓ A solenoid or B solenoid options
✓ Ships standard with an orifice installed in the “P” port & Z1, Z2, and B plugged
✓ Removable orifice/plug options

Applications

**Directional / Flow control valve**

By connecting the “X” to the “B” port (side of insert) & connecting “Y” to drain you can create a Directional valve with flow control. Plug option 1 will allow the valve to dump in the energized state. Plug option 2 will allow the valve to dump in the de-energized state.
### General Layout

**DO3 Pattern is on the Opposite Side on the 25mm Only**

![Diagram showing the pattern on the opposite side for 25mm only](image)

### Sizes 25mm to 63mm (80mm with D05 not shown)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>SAE</th>
<th>NPT</th>
<th>Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>2.50&quot;</td>
<td>4.00&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.2 mm</td>
<td>1/2-13 X 2.75&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.00&quot;</td>
<td>3.25&quot;</td>
<td>4.00&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.3 mm</td>
<td>5/8-11 X 3.25&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>5.50&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.5 mm</td>
<td>3/4-10 X 2.50&quot; (4)</td>
</tr>
<tr>
<td>50 mm</td>
<td>5.55&quot;</td>
<td>2.75&quot;</td>
<td>5.50&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.8 mm</td>
<td>3/4-10 X 3.00&quot; (4)</td>
</tr>
<tr>
<td>63 mm</td>
<td>7.00&quot;</td>
<td>3.50&quot;</td>
<td>7.00&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>2.0 mm</td>
<td>1-1/4-7 X 3.50&quot; (4)</td>
</tr>
<tr>
<td>80 mm</td>
<td>9.50&quot;</td>
<td>2.75&quot;</td>
<td>7.00&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>2.5 mm</td>
<td>1-8 X 5.00&quot; (8)</td>
</tr>
</tbody>
</table>

### Order Code

**AMT-PSTK-** **D03-** **D**

- **Almo Manifold & Tool**
- **Poppet Stroke Cover**
- **Size:** 25, 32, 40, 50, 63, or 80mm

**BL** = Include bolts at extra charge
Blank = Customer will supply bolts

- Custom Orifice Size in “mm” if other than Standard Size
- Examples: 08 = 0.8mm
  - 10 = 1.0mm
  - 12 = 1.2mm
✓ Adjustable stroke-limiting cover for decreasing the traveling distance of poppet insert
✓ Set screws for locking
✓ Ships standard with an orifice installed in the “P” port & B plugged
✓ Removable orifice/plug options

Applications

**Directional / Flow control valve**

By connecting the “X” to the “B” port (side of insert) & connecting “Y” to drain you can create a Directional valve with flow control. Plug option 1 will allow the valve to dump in the energized state. Plug option 2 will allow the valve to dump in the de-energized state.
General Layout

Sizes 16mm to 63mm

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>SAE</th>
<th>NPT</th>
<th>Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td>3.50&quot;</td>
<td>2.50&quot;</td>
<td>4.00&quot;</td>
<td>#4</td>
<td>1/4-20</td>
<td>1.0 mm</td>
<td>5/16-18 X 2.75&quot; (4)</td>
</tr>
<tr>
<td>25 mm</td>
<td>4.00&quot;</td>
<td>3.25&quot;</td>
<td>4.00&quot;</td>
<td>#4</td>
<td>1/4-20</td>
<td>1.2 mm</td>
<td>1/2-13 X 2.75&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>5.00&quot;</td>
<td>2.40&quot;</td>
<td>5.50&quot;</td>
<td>#4</td>
<td>1/4-20</td>
<td>1.3 mm</td>
<td>5/8-11 X 3.25&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.55&quot;</td>
<td>2.75&quot;</td>
<td>5.50&quot;</td>
<td>#4</td>
<td>1/4-20</td>
<td>1.5 mm</td>
<td>3/4-10 X 2.50&quot; (4)</td>
</tr>
<tr>
<td>50 mm</td>
<td>7.00&quot;</td>
<td>3.50&quot;</td>
<td>7.00&quot;</td>
<td>#4</td>
<td>1/4-20</td>
<td>1.8 mm</td>
<td>3/4-10 X 3.00&quot; (4)</td>
</tr>
<tr>
<td>63 mm</td>
<td>9.50&quot;</td>
<td>2.75&quot;</td>
<td>7.00&quot;</td>
<td>#4</td>
<td>1/4-20</td>
<td>2.0 mm</td>
<td>1-1/4-7 X 3.50&quot;</td>
</tr>
</tbody>
</table>

Order Code

AMT-PSTKY-**-D03-**-**

Almo Manifold & Tool

Poppet Stroke Cover Y side

Size: 16, 25, 32, 40, 50, 63

BL= Include bolts at extra charge
Blank= Customer will supply bolts

Custom Orifice Size in “mm” if other than Standard Size
Examples: 08 = 0.8mm 10 = 1.0mm 12 = 1.2mm
✓ Adjustable stroke-limiting cover for decreasing the traveling distance of poppet insert
✓ Stroke adjustment under SAE plug for tamper resistance and protection from elements.
✓ Jam Nut for locking
✓ SAE O-ring port for gauging & access to orifice.

Applications

Check/Flow Control Valve

Provides metered-flow from “A to B” & check function from “B to A” by connecting the “X” pilot to the “B” port of the valve insert.

NOTE: To eliminate the check valve function & only use the metering capabilities then connect the “X” pilot to a drain line instead of connecting to the “B” port.
### General Layout

![Diagram showing layout](image_url)

### Order Code

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>SAE</th>
<th>NPT</th>
<th>*Orifice Size</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mm</td>
<td>3.50&quot;</td>
<td>5.00&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.2mm</td>
<td>1/2-13 X 5.00&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.00&quot;</td>
<td>5.00&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.3mm</td>
<td>5/8-11 X 5.00&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>5.00&quot;</td>
<td>7.00&quot;</td>
<td>#4</td>
<td>1/16-27</td>
<td>1.5mm</td>
<td>3/4-10 X 6.00&quot; (4)</td>
</tr>
<tr>
<td>50 mm</td>
<td>5.55&quot;</td>
<td>7.00&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>1.8mm</td>
<td>3/4-10 X 6.00&quot; (4)</td>
</tr>
<tr>
<td>63 mm</td>
<td>7.00&quot;</td>
<td>7.00&quot;</td>
<td>#6</td>
<td>1/8-27</td>
<td>2.0mm</td>
<td>1-1/4-7 X 7.00&quot; (4)</td>
</tr>
</tbody>
</table>

*Custom Orifice Size in “mm” if other than Standard Size
Examples: 08 = 0.8mm
10 = 1.0mm
12 = 1.2mm

**BL** = Include bolts at extra charge
Blank = Customer will supply bolts

**AMT-PSLH-**

- **Manifold**
- **Poppet**
- **Stroke Limiter**

Size: 25, 32, 40, 50, & 63
ACTIVE POPPETS
DIN 24342
ACTIVE POPPET
SIZES 25mm TO 50mm  5000 PSI

✓ Standard ISO 7368 and DIN 24342 cavity and porting.
✓ Control Areas provide fast response time.
✓ Can close poppet under high load pressure.

Applications

Active Poppet
The active poppet is pilot operated to cut off the main hydraulic supply to the circuit. In some circumstances can be used as a prefill valve.
<table>
<thead>
<tr>
<th>Size</th>
<th>Flow GPM</th>
<th>A</th>
<th>B</th>
<th>Bolts</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mm</td>
<td>100</td>
<td>3.50</td>
<td>3.30</td>
<td>1/2”-13X3.50</td>
</tr>
<tr>
<td>32 mm</td>
<td>200</td>
<td>4.00</td>
<td>3.40</td>
<td>5/8”-11X3.50</td>
</tr>
<tr>
<td>40 mm</td>
<td>350</td>
<td>5.00</td>
<td>4.60</td>
<td>3/4”-10X4.50</td>
</tr>
<tr>
<td>50 mm</td>
<td>450</td>
<td>5.55</td>
<td>5.00</td>
<td>3/4”-10X5.00</td>
</tr>
</tbody>
</table>

Order Code

AMT-ACT-**-**

BL = Include bolts at extra charge
Blank = Customer will supply bolts

Size: 25, 32, 40, 50
DIN 24342 MONITORED ACTIVE POPPET

SIZES 16mm TO 50mm

5000 PSI

✓ Standard ISO 7368 and DIN 24342 cavity and porting.
✓ Control Areas provide fast response time.
✓ Can close poppet under high load pressure.
✓ Built-in limit switch provides position feedback of Main Cartridge, AC or DC.

Applications

Monitored Active Poppet
Serves to add required protection for clamp circuits. The active poppet is pilot operated to cut off the main hydraulic supply to the clamp circuit. Also used for control press closing.

When used properly can meet ISO 13849-1 PLd (Safety Cat. 3) & ISO 13489 PLe (Safety Cat. 4)

Contact our engineering dept. to go over your Safety Application Needs.
<table>
<thead>
<tr>
<th>SIZE</th>
<th>Flow GPM</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td>80</td>
<td>3.50</td>
<td>4.00</td>
<td>2.00</td>
<td>5/16-18 x 3.50&quot; (4)</td>
</tr>
<tr>
<td>25 mm</td>
<td>100</td>
<td>3.50</td>
<td>3.00</td>
<td>2.00</td>
<td>1/2-13 X 3.50&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>200</td>
<td>4.00</td>
<td>4.11</td>
<td>2.00</td>
<td>5/8-11 X 4.00&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>350</td>
<td>5.00</td>
<td>5.00</td>
<td>2.00</td>
<td>3/4-10 X 5.00&quot; (4)</td>
</tr>
<tr>
<td>50 mm</td>
<td>450</td>
<td>5.55</td>
<td>5.46</td>
<td>2.00</td>
<td>3/4-10 X 6.50&quot; (4)</td>
</tr>
</tbody>
</table>

**Order Code**

AMT-MAP-**-**

- Almo Manifold & Tool
- Monitored Active Poppet
- BL = Include bolts at extra charge
- Blank = Customer will supply bolts

Size: **16, 25, 32, 40, 50**
Proportional Flow Control Valves
The valve has On Board Electronics. All you need to provide is a 0-10-volt command, which is proportionate to the position of the valve. No additional Amplifier Card needed.

Valve Requires a 24-volt supply with a minimal electrical current of 3 amps per valve. It also requires a minimum pilot pressure of 40 psi. If voltage or pressure drops below min. requirement the valve shifts closed to safe mode.

Repeatability .1%

Hysteresis .2%
### Order Code

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td>4.93</td>
<td>7.93</td>
<td>11.25</td>
<td>2.75</td>
<td>5/16-18 x 5.75&quot; (4)</td>
</tr>
<tr>
<td>25 mm</td>
<td>4.93</td>
<td>8.43</td>
<td>11.25</td>
<td>3.50</td>
<td>1/2-13 X 5.75&quot; (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>4.93</td>
<td>8.93</td>
<td>11.25</td>
<td>4.00</td>
<td>5/8-11 X 6.00&quot; (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>4.93</td>
<td>9.93</td>
<td>11.25</td>
<td>5.00</td>
<td>3/4-10 X 6.25&quot; (4)</td>
</tr>
<tr>
<td>50 mm</td>
<td>4.93</td>
<td>10.48</td>
<td>11.25</td>
<td>5.55</td>
<td>3/4-10 X 6.25&quot; (4)</td>
</tr>
</tbody>
</table>

**AMT-PFC-**-**-FC-**

- Almo Manifold & Tool
- Proportional Flow Control

**BL**= Include bolts at extra charge
Blank= Customer will supply bolts

Size: **16, 25, 32, 40, 50**
FAIL CLOSE
Counterbalance Valves
✓ Standard ISO 7368 and DIN 24342 cavity and porting.
✓ Application Specific
✓ Large Pilot ratio
✓ Monitor Optional

Applications

Direct Acting Counterbalance Valve.

External Pilot
External Drain
Drain Can be pressurized to lock valve close.

Required information:
- Range of pressure
- Motor or Cylinder control
- Overall Circuit

When designing Counterbalance valves, we will need to know the desired range of pressure settings. Then design it to be able to hold a constant load 30% higher than required.
### General Layout

<table>
<thead>
<tr>
<th>SIZE</th>
<th>Flow GPM</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>BOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 mm</td>
<td>80</td>
<td>3.50</td>
<td>7.123</td>
<td>3.50</td>
<td>5/16-18 x 7.00” (4)</td>
</tr>
<tr>
<td>25 mm</td>
<td>100</td>
<td>3.50</td>
<td>7.123</td>
<td>3.50</td>
<td>1/2-13 X 7.00” (4)</td>
</tr>
<tr>
<td>32 mm</td>
<td>200</td>
<td>4.00</td>
<td>4.11</td>
<td>3.50</td>
<td>5/8-11 X 7.50” (4)</td>
</tr>
<tr>
<td>40 mm</td>
<td>350</td>
<td>5.00</td>
<td>11.00</td>
<td>3.75</td>
<td>3/4-10 X 11.00” (4)</td>
</tr>
<tr>
<td>50 mm</td>
<td>450</td>
<td>5.55</td>
<td>11.50</td>
<td>3.75</td>
<td>3/4-10 X 11.50” (4)</td>
</tr>
</tbody>
</table>

**Order Code**

AMT-CBV-**-**

- **Almo Manifold & Tool**
- **Counter Balance Valve**
- **BL** = Include bolts at extra charge
- Blank = Customer will supply bolts

**Size:** 16, 25, 32, 40, 50
SINGLE DIN
CAVITY BLOCKS
Our single DIN 24342 cavity manifolds offer pilot circuit flexibility simply by rotating the valve cover 90°. The four active locating positions & pilot port designations are shown below, along with the general layout & dimensional specifications.

Each manifold will be supplied with 4 plugs for the valve face, 2 NPT plugs for internal plumbing, & 3 SAE plugs for ports 1, 2, & 3. None of these plugs are installed upon shipment.

Dimensions

<table>
<thead>
<tr>
<th>DIN SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>3.25</td>
<td>3.25</td>
<td>3.38</td>
<td>1.63</td>
<td>1.63</td>
<td>1.39</td>
<td>1.63</td>
<td>2.68</td>
<td>1.39</td>
<td>2.88</td>
<td>1.39</td>
<td>0.75</td>
<td>0.30</td>
</tr>
<tr>
<td>25</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
<td>2.00</td>
<td>2.00</td>
<td>1.64</td>
<td>2.00</td>
<td>3.30</td>
<td>1.50</td>
<td>3.25</td>
<td>2.13</td>
<td>1.50</td>
<td>0.38</td>
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<tr>
<td>32</td>
<td>5.00</td>
<td>5.00</td>
<td>4.50</td>
<td>2.50</td>
<td>2.50</td>
<td>1.98</td>
<td>2.50</td>
<td>4.15</td>
<td>1.68</td>
<td>3.88</td>
<td>2.37</td>
<td>1.73</td>
<td>0.38</td>
</tr>
<tr>
<td>40</td>
<td>6.00</td>
<td>6.00</td>
<td>5.25</td>
<td>3.00</td>
<td>3.00</td>
<td>2.42</td>
<td>3.00</td>
<td>4.98</td>
<td>2.00</td>
<td>4.68</td>
<td>2.85</td>
<td>2.30</td>
<td>0.38</td>
</tr>
<tr>
<td>50</td>
<td>7.00</td>
<td>7.00</td>
<td>6.25</td>
<td>3.50</td>
<td>3.50</td>
<td>2.73</td>
<td>3.50</td>
<td>5.90</td>
<td>2.25</td>
<td>5.58</td>
<td>3.58</td>
<td>2.50</td>
<td>0.50</td>
</tr>
<tr>
<td>63</td>
<td>9.00</td>
<td>9.00</td>
<td>7.50</td>
<td>4.50</td>
<td>4.50</td>
<td>3.53</td>
<td>5.25</td>
<td>8.33</td>
<td>3.00</td>
<td>6.75</td>
<td>4.13</td>
<td>3.75</td>
<td>0.63</td>
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</tbody>
</table>
**DIMENSIONAL SPECIFICATIONS IN INCHES**

<table>
<thead>
<tr>
<th>DIN SIZE</th>
<th>'N' CODE</th>
<th>'P' SAE</th>
<th>'P' THREAD</th>
<th>'Q' NPT THREAD</th>
<th>'R' DIN SIZE</th>
<th>'S' THREAD</th>
<th>'T' MOUNTING THREAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>1.00&quot;</td>
<td>-04</td>
<td>7/16-20 UNF</td>
<td>1/16-27 NPT</td>
<td>16mm</td>
<td>10-24 UNC</td>
<td>3/8-16 UNC</td>
</tr>
<tr>
<td>25</td>
<td>1.25&quot;</td>
<td>-04</td>
<td>7/16-20 UNF</td>
<td>1/16-27 NPT</td>
<td>25mm</td>
<td>1/4-20 UNC</td>
<td>3/8-16 UNC</td>
</tr>
<tr>
<td>32</td>
<td>1.50&quot;</td>
<td>-06</td>
<td>9/16-18 UNF</td>
<td>1/16-27 NPT</td>
<td>32mm</td>
<td>1/16-27 NPT</td>
<td>3/8-16 UNC</td>
</tr>
<tr>
<td>40</td>
<td>2.00&quot;</td>
<td>-06</td>
<td>9/16-18 UNF</td>
<td>1/16-27 NPT</td>
<td>40mm</td>
<td>1/16-27 NPT</td>
<td>3/8-16 UNC</td>
</tr>
<tr>
<td>50</td>
<td>2.50&quot;</td>
<td>-08</td>
<td>3/4-16 UNF</td>
<td>1/8-27 NPT</td>
<td>50mm</td>
<td>1/8-27 NPT</td>
<td>1/2-13 UNC</td>
</tr>
<tr>
<td>63</td>
<td>3.00&quot;</td>
<td>-08</td>
<td>3/4-16 UNF</td>
<td>1/8-27 NPT</td>
<td>63mm</td>
<td>1/8-27 NPT</td>
<td>5/8-11 UNC</td>
</tr>
</tbody>
</table>

Circuit Options

![Circuit Options Diagram]

Installation

![Installation Diagram]

Order Code

**AMT-UCB-**-D

- Almo Manifold & Tool
- Universal Cavity Block
- Ductile Iron

Size: 16, 25, 32, 40, 50, or 63mm
80 MM DIN CAVITY BLOCK
3000 PSI OR 6000 PSI OPTION

- Our single DIN 24342 80mm cavity manifold offers one circuit with the option of internally isolating the ‘X’ or ‘Y’ pilot ports.
- Each manifold will be supplied with 2 NPT plugs for internal plumbing, & 3 SAE plugs for ports X, Y, & Z1. None of these plugs are installed upon shipment.

Dimensions

Circuit

Port A: Connects to Nose of Cartridge
Port B: Connects to Side of Cartridge
Pilot X: Connects to Port A & Port X or Isolated from A & Connected to X
Pilot Y: Connects to Port B & Port Y or Isolated from B & Connected to Y
Pilot Z1: Connect to Port Z1, Isolated from circuit
Flange Option

3000 Series Flange Option

1\textdegree-8 THREAD
1.6\textdegree DEPTH

5.00

4\textdegree SQUARE FLANGE
3000 SERIES

6000 Series Flange Option

1-1/4\textdegree-7 THREAD
2.0\textdegree DEPTH

6.00

4\textdegree SQUARE FLANGE
6000 SERIES

Cavity Specifications

Order Code

AMT-CB-80-\_\_\_D

Almo Manifold & Tool

Cavity Block

Size: 80mm DIN

Ductile Iron

3 = 3000 Series Flange Option

6 = 6000 Series Flange Option
NOTES:
PILOT OPERATED
DIRECTIONAL
CONTROL VALVE
CIRCUITS
Custom Manifolds that mount directly to a Standard D08/D10 interface or can be designed to accept porting of any size.

- Utilizes Almo Slip-In Cartridge Valves Instead of a Conventional Spool
- Poppet Valve Technology Provides for:
  - Incredible Control
  - Softer Shifting
  - Less Shock
  - Increased Longevity
- Individual Pilot Controls for each Slip-In Valve & Easily Accessible Removable Orifice Plugs Allow Precise Timing for each Application

Standard Directional Schematic

Optional Valve Interface

Standard Model: Spool positions shown above can be obtained by energizing or de-energizing the individual solenoid valves

Closed Center Option
High Flow Directional Control Circuit Functions as a 4-Way, 4-Position Valve
With Extend, Retract, Regeneration, & Float Positions
Utilizes Standard Slip-In Din Cavities

High Flow Pump Control Circuit provides Unloading Relief function along with check valves eliminating back flow and one pump overpowering the other.

Pictured above is the combination of a directional circuit and three pump circuits all in one manifold, creating a clean compact system.
NOTES:
Large Spool Valve Replacements
Large Spool Valve Replacements

Olmstead®, Rexroth®, Vickers® 6000 PSI

Designed to replace aged spool valve technology. Almo offers Custom Valve Packages that mount directly to a large spool valve pattern.

Incorporating Almo Slip-In Cartridge Valve technology.

Poppet Valve Technology Provides:
- Incredible Control
- Softer Shifting
- Less Shock
- Increased Longevity
- Easily Rebuildable
- Internal or External Piloting
- Repeatability

Multiple spool circuit options. Tell us what you’d like, and we will design around your specifications.

Proportional Control Version is also available.

Used in these industries:
- Forging
- Extrusion
- Metal Forming,
- Oil Field
- Press
- Die Cast
- Plywood
- Stamping
Legacy Inline Technology
Replacements

5000 PSI

Designed to replace discontinued/unsupported relief valve technology, like the DB/DBW Size 52 & 82 or CF Size 16 & 24.

Incorporating Almo Slip-In Cartridge Valve technology.

Poppet Valve Technology Provides:
- Incredible Control
- Softer Shifting
- Less Shock
- Increased Longevity
- Easily Rebuildable
- Internal or External Piloting
- Repeatability

Proportional Control Version is also available.

Used in these industries:
- Forging
- Extrusion
- Metal Forming,
- Oil Field
- Press
- Die Cast
- Wood
- Stamping

Multiple Relief circuit options. Tell us what you’d like, and we will design around your specifications.
90 Degree Flanged Valves
Removable NPT orifice
SAE O-ring port for access to NPT orifice, gauging, or remote piloting

Applications

Check Valve

Provides free-flow from “A to B”
& check function from “B to A”

Manual/External Piloting

By blocking the “X” pilot internally, a separate pilot pressure can be used via the SAE port to manually hole the valve closed. Pilot pressure & spring forces act to close the valve, forces At “A” & “B” act to open the valve.
General Layout

**Sizes 1 ¼” to 4.0”**

**(4.0” size not shown contact Almo for further information)**

### Dimensional Specifications in Inches

<table>
<thead>
<tr>
<th>VALVE SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.25</td>
<td>4.00</td>
<td>4.00</td>
<td>5.50</td>
<td>2.00</td>
<td>3.14</td>
<td>2.00</td>
<td>2.00</td>
<td>.38</td>
<td>.38</td>
<td>1/16</td>
<td>#4</td>
<td>3/8-16</td>
<td>N/A</td>
</tr>
<tr>
<td>1.50</td>
<td>5.00</td>
<td>5.00</td>
<td>6.50</td>
<td>2.50</td>
<td>3.98</td>
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<td>.38</td>
<td>.38</td>
<td>1/16</td>
<td>#6</td>
<td>3/8-16</td>
<td>N/A</td>
</tr>
<tr>
<td>2.00</td>
<td>6.00</td>
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<td>.38</td>
<td>.38</td>
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<td>3/8-16</td>
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<td>7.00</td>
<td>9.00</td>
<td>3.50</td>
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<td>.50</td>
<td>.50</td>
<td>1/8</td>
<td>#8</td>
<td>1/2-13</td>
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<td>10.9</td>
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<td>.63</td>
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Order Code

**AMT-9-***-CK-**

- **Almo Manifold & Tool**
- **90 DEGREE**
- **CRACKING PRESSURE 5, 15, 30, 60 p.s.i.**
- **CHECK VALVE**

Size: **125, 150, 200, 250, 300, 400.**
✓ Standard D03 interface on the 1 ¼” thru 2.0”
✓ Standard D05 interface on the 2.50” thru 4.0”
✓ SAE O-ring ports for access to P & T
✓ Ships standard with an orifice installed in the “P” port.

Applications___________________________

Dump Valve or ON/OFF valve

The diagrams to the right show the two options. The normally open option will allow the valve to dump in the de-energized state. The normally closed option will allow the valve to dump in the energized state.

Normally Open

Normally Closed
General Layout

Sizes 1 ¼” to 4.0”  
(4.0” size not shown contact Almo for further information)

DIMENSIONAL SPECIFICATIONS IN INCHES

<table>
<thead>
<tr>
<th>VALVE SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
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Order Code

AMT-9-***-DV-**

Almo Manifold & Tool

90 DEGREE

NO for normally open
NC for normally closed

Size: 125, 150, 200, 250, 300, 400.

DUMP VALVE
✓ Shuttle valve senses the greater of two pressures
✓ Standard D03 interface or D05
✓ Standard orifice installed in P
✓ Removable orifice plug options

Applications

On/Off Valve

Will hold valve closed in one condition and will allow valve to open in the other condition.

Senses the greater of two pressures between the “X” pilot & the “Z1” pilot.
The “X” pilot should be connected to the “B” port (side of insert) and the “Z1” port should be connected to the “A” port (nose of insert) or vise versa.

By using a standard D03 directional control with flow from “P to A” in the de-energized condition the shuttle will use the greater pressure to hold the valve closed. Energizing the solenoid vents the pressure above the valve insert to the drain. Flow can travel freely from A to B or from B to A as long as the spring force is overcome.

“B” to “Z2” allows control of additional valve at port 1.
Sizes 1 ¼” to 4.0”

(4.0” size not shown contact Almo for further information)

<table>
<thead>
<tr>
<th>VALVE SIZE</th>
<th>A</th>
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Order Code

AMT-9-***-BD-**

90 DEGREE

Size: 125, 150, 200, 250, 300, 400.

ED for external drain

Bi Directional
✓ Adjustable relief setting from 150 psi to 6000 psi
✓ Standard screw adjustment for relief setting.
✓ Removable NPT orifice plug options
✓ SAE O-ring port for gauging
✓ Pressure at “Y” is directly additive to relief setting

Applications

Relief, Back Pressure, or Sequence Valve

Provides relief function from “A to B” by connecting the “X” pilot to the “A” port of the valve insert. The ‘Y’ pilot can be connected to the “B” port but a separate drain connection is preferred. This configuration uses a 1:1 ratio insert.
Sizes 1 ¼” to 4.0”

(4.0” size not shown contact Almo for further information)

<table>
<thead>
<tr>
<th>VALVE SIZE</th>
<th>A</th>
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Order Code

**AMT-9-***-RV-**

- **Almo Manifold & Tool**
- **90 DEGREE**
- **ID for internal drain**
- **ED for external drain**
- **Size:** 125, 150, 200, 250, 300, 400.
✓ Adjustable relief setting from 150 psi to 6000 psi
✓ Standard screw adjustment for relief setting.
✓ SAE O-ring port for gauging
✓ Pressure at “Y” is directly additive to relief setting

Applications

Solenoid-Loading Relief Valve

Provides relief function from “A to B” by connecting the “X” pilot to the “A” port of the valve insert (shown at left) or by connecting the “Z1” port to the “A” port (shown at right).

Using a standard directional control with flow from “P to A” in the de-energized condition will unload the valve. In the energized state the system will build pressure until the relief setting is reached. The valve can also be manually vented using the “X” SAE port.

The ‘Y’ pilot can be connected to the “B” port but a separate drain connection is preferred. This configuration uses a 1:1 ratio insert.
Sizes 1 ¼” to 4.0”

(4.0” size not shown contact Almo for further information)

DIMENSIONAL SPECIFICATIONS IN INCHES

<table>
<thead>
<tr>
<th>VALVE SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
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Order Code

AMT-9-***-LR-**

**Almo**
**Manifold & Tool**

**90 DEGREE**

**ID** for internal drain
**ED** for external drain

Size: 125, 150, 200, 250, 300, 400.

LOADING RELIEF VALVE
TECHNICAL INFORMATION
## Installation Dimensions to Modified DIN 24342 Cartridge Valves

### SIZES 16MM THRU 100MM

#### Table: Bolt Size, Torque, Allen Size

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<th>Bolt Size</th>
<th>Torque</th>
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