Press Industry Solutions

Lösungen für die Pressenindustrie
プレス・インダストリー・ソリューション
दबाव उद्यम समाधान
Soluções para Prensas
锻压工业解决方案

• Manufacturers of Premium Pneumatic Controls since 1921 •
Pneumatic Press Applications

DIE CUSHION

COUNTERBALANCE

TO ROLLING BOLSTER

DIE CLAMPING

MECHANICAL DEVICES

FLYWHEEL BRAKE

DOUBLE VALVE

TO CLUTCH & BRAKE

CLUTCH/BRAKE

MAIN AIR DISTRIBUTION

AUX. OUTLET

AIR PREP. & LOCKOUT

DUMP

FILL

BLOW DOWN

MAN- AUTO

AUTO 1

AUTO 2

DUMP

FILL

BLOW DOWN

MAN- AUTO

COUNTERBALANCE

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DOUBLE VALVE

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STANDARD SPECIFICATIONS:

Ambient/Media Temperature:
- Plastic Bowl: 40° to 125°F (4° to 52°C).
- Metal Bowl: 40° to 175°F (4° to 79°C).

Body: Aluminum.

Bowl capacity:

Bowl Drain: Internal automatic drain; optional manual drain or external automatic drain. Consult ROSS for optional internal float drain (on polycarbonate plastic bowl only).

Bowl Ring: Aluminum.

Filter Element:
- 3/4 & 1: 5-micron rated.
- 11/4, 11/2 & 2: 40-micron-rated; optional 5-micron-rated element.

Fluid Media: Compressed air.

For automatic drain model:
- With plastic bowl: 15 to 150 psig (1 to 10 bar).
- With metal bowl: 15 to 200 psig (1 to 14 bar).

For internal float drain model (11/4, 11/2 & 2): 30 to 200 psig (2 to 14 bar).

For manual drain model:
- With plastic bowl: 0 to 150 psig (0 to 10 bar).
- With metal bowl: 0 to 200 psig (0 to 14 bar).

Seals: Nitrile.

FEATURES:
- Inline mounting
- High-strength polycarbonate plastic filter bowl with steel shatterguard; optional metal bowl with clear nylon sight glass
- Internal automatic drain; optional manual drain or external automatic drain
- NPTF port threads; optional SAE or BSPP threads

ISO Symbols

Manual Drain

Automatic Drain

STANDARD 5-µm ELEMENT Inlet Pressure 100 psig (7 bar)

Pressure drop vs. Flow

<table>
<thead>
<tr>
<th>Flow (s/cfm)</th>
<th>Pressure Drop (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>0.07</td>
</tr>
<tr>
<td>100</td>
<td>0.14</td>
</tr>
<tr>
<td>150</td>
<td>0.21</td>
</tr>
<tr>
<td>200</td>
<td>0.28</td>
</tr>
<tr>
<td>250</td>
<td>0.35</td>
</tr>
<tr>
<td>300</td>
<td>0.42</td>
</tr>
<tr>
<td>350</td>
<td>0.50</td>
</tr>
<tr>
<td>400</td>
<td>0.57</td>
</tr>
<tr>
<td>450</td>
<td>0.64</td>
</tr>
<tr>
<td>500</td>
<td>0.71</td>
</tr>
<tr>
<td>550</td>
<td>0.78</td>
</tr>
<tr>
<td>600</td>
<td>0.85</td>
</tr>
<tr>
<td>650</td>
<td>0.93</td>
</tr>
<tr>
<td>700</td>
<td>1.00</td>
</tr>
<tr>
<td>750</td>
<td>1.07</td>
</tr>
<tr>
<td>800</td>
<td>1.14</td>
</tr>
<tr>
<td>850</td>
<td>1.21</td>
</tr>
<tr>
<td>900</td>
<td>1.28</td>
</tr>
</tbody>
</table>

Filter Element:
- 3/4 & 1: 5-micron rated.
- 11/4, 11/2 & 2: 40-micron-rated; optional 5-micron-rated element.

Fluid Media: Compressed air.

For automatic drain model:
- With plastic bowl: 15 to 150 psig (1 to 10 bar).
- With metal bowl: 15 to 200 psig (1 to 14 bar).

For internal float drain model (11/4, 11/2 & 2): 30 to 200 psig (2 to 14 bar).

For manual drain model:
- With plastic bowl: 0 to 150 psig (0 to 10 bar).
- With metal bowl: 0 to 200 psig (0 to 14 bar).

Seals: Nitrile.
High-Capacity Regulators

Ports: 3/4, 1, 1½ & 1 1/2
Flow to 800 scfm

Regulators – Reverse Flow; Piston Type; Knob

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Dimensions inches (mm)</th>
<th>Weight †</th>
<th>Air Flow scfm (l/s)</th>
<th>Model Number*</th>
<th>Model Number*</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4, 1</td>
<td>4.4 (111) 6.1 (154) 2.4 (62) 2.8 (71) 2.19 (0.99)</td>
<td></td>
<td>500 (236) 5X00B5050</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 1/2</td>
<td>4.9 (124) 6.4 (162) 2.1 (54) 2.50 (1.14)</td>
<td></td>
<td>750 (350) 5X00C7003 5X00B7016</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Dome removal clearance: add 0.63 (16).
** Cap removal clearance: add 0.65 (16.5).
† Less gauge.

Regulators – Remote Pilot; Piston Type

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Dimensions inches (mm)</th>
<th>Weight †</th>
<th>Air Flow scfm (l/s)</th>
<th>Model Number*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/2</td>
<td>5.1 (124) 7.36 (187) 3.74 (95) 8.00 (203) 21.77 (9.88)</td>
<td></td>
<td>850 (400) 5211B9008</td>
<td>– Nitrile Seals</td>
</tr>
<tr>
<td>2</td>
<td>650 (300) 5X00D6003 5X00B6038</td>
<td></td>
<td>5211B8027</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>760 (190) 5X00C8001 5X00B8024</td>
<td></td>
<td>5211B9007</td>
<td>– Viton Seals</td>
</tr>
<tr>
<td>4</td>
<td>800 (380) 5X00B5050</td>
<td></td>
<td>5211B9008</td>
<td></td>
</tr>
</tbody>
</table>

† Less gauge.

STANDARD SPECIFICATIONS (for regulators with flow to 800 scfm):
Ambient/Media Temperature: 40°C to 175°F (4°C to 79°C).
Body: Aluminum.
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure:
Manual: 0 to 100 psig (0 to 7 bar).
Remote Pilot: 0 to 200 psig (0 to 14 bar).
NOTE: Outlet pressure depends on the selection of the pilot regulator.
Remote Pilot Port: 1/4 NPTF.
Pressure Gauge: 0 to 200 psig (14 bar); 1/4 NPT gauge ports front and rear.
Seals: Nitrile; optional Viton.
Valve: 3/4" to 2" Ports - Brass; 3" Port - Aluminum.

Regulators – Remote Pilot; Piston Type

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Dimensions inches (mm)</th>
<th>Weight †</th>
<th>Air Flow scfm (l/s)</th>
<th>Model Number*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/2</td>
<td>6.4 (162) 5.0 (127) 2.8 (71) 8.94 (4.06)</td>
<td></td>
<td>850 (400) 5211B8027</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>850 (350) 5X00C7003 5X00B7016</td>
<td></td>
<td>5211B9007</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4000 (1900) 5X00B9021</td>
<td></td>
<td>5211B9008</td>
<td>– Viton Seals</td>
</tr>
</tbody>
</table>

† Less gauge.

STANDARD SPECIFICATIONS (for regulators with flow to 4000 scfm):
Ambient/Media Temperature: 40°C to 175°F (4°C to 79°C).
Body and Dome: Aluminum.
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: 0 to 200 psig (0 to 14 bar).
NOTE: Outlet pressure depends on the selection of the pilot regulator.
Pilot Ports: 1/4 NPTF.
Pressure Gauge: 0 to 200 psig (14 bar); 1/4 NPT gauge ports front and rear.
Seals: Nitrile; optional Viton.
Valve: 1 1/2" to 2" Ports - Brass; 3" Port - Aluminum.
Valve Cap: Aluminum.
ROSS manual L-O-X® energy isolation valves are generally used as the first valve in a line supplying compressed air to equipment. Each manual L-O-X® valve is equipped with a lockout function that immediately exhausts all downstream air into the atmosphere.

Air can be shut off by pushing the red L-O-X® handle inward; downstream air is simultaneously exhausted through the L-O-X® exhaust port. OSHA compliance requires that the valve be padlocked in this position to prevent handle from being pulled out inadvertently during maintenance and/or servicing.

The ROSS manual L-O-X® valve has a large red operating handle for high visibility. When the handle is pulled out, there is full line pressure. A short, full inward push of the handle closes the exhaust port and quickly exhausts the pressure in the downstream line. This action is swift and does not require a difficult, slow, or confusing twisting action.

The controlling spool of the valve employs seals made of very low-friction material. These seals enable the L-O-X® spool to shift smoothly and easily even after being on standby for a long period of time. The exhaust port is threaded for the installation of a silencer or a line for remote exhausting. Two mounting holes are provided to simplify the installation of the L-O-X® valve.

For coordinating silencers, see MUFFL-AIR® Silencers (model numbers 5500A2003, 5500A3003, 5500A5003, 5500A7013 and 5500B9001).

NOTE: Model number 5500B9001 is female threaded as is the exhaust port in the valve. Therefore, a pipe nipple will be needed in order to attach the muffler to the valve.

<table>
<thead>
<tr>
<th>Port Size In-Out</th>
<th>Valve Model Number*</th>
<th>Avg. Cv 1 to 2</th>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>Y1523C2002</td>
<td>1.9</td>
<td>A: 2.3 (58) B: 6.5 (166) C: 1.0 (26)</td>
<td>0.9 (0.4)</td>
</tr>
<tr>
<td>3/8</td>
<td>Y1523C3012</td>
<td>2.5</td>
<td>A: 2.3 (58) B: 6.5 (166) C: 1.0 (26)</td>
<td>0.9 (0.4)</td>
</tr>
<tr>
<td>3/4</td>
<td>Y1523C5002</td>
<td>6.0</td>
<td>A: 6.3 (159) B: 8.8 (225) C: 2.0 (51)</td>
<td>1.5 (0.7)</td>
</tr>
<tr>
<td>1/2</td>
<td>Y1523C6002</td>
<td>7.1</td>
<td>A: 6.3 (159) B: 8.8 (225) C: 2.0 (51)</td>
<td>1.5 (0.7)</td>
</tr>
<tr>
<td>3/4</td>
<td>Y1523C7012</td>
<td>8.6</td>
<td>A: 6.3 (159) B: 8.8 (225) C: 2.0 (51)</td>
<td>1.5 (0.7)</td>
</tr>
<tr>
<td>1⅛</td>
<td>Y1523C8002</td>
<td>13</td>
<td>A: 7.6 (194) B: 10.6 (270) C: 2.5 (57)</td>
<td>2.5 (1.1)</td>
</tr>
<tr>
<td>2</td>
<td>Y1523C9012</td>
<td>38</td>
<td>A: 8.2 (209) B: 14.9 (379) C: 3.0 (77)</td>
<td>8.2 (3.6)</td>
</tr>
</tbody>
</table>

*NPT threads, standard. For BSPP threads, insert a “D” after “Y” to the model number, e.g., YD1523C2002.

Manual L-O-X® valve shown padlocked in closed position. The valve can only be locked in the closed position.

Push/pull operation - Push the handle inward to exhaust downstream air (lockable in this position). Pull the handle outward to supply air downstream.

CAUTION: These L-O-X® valves are rated to 20 bar (300 psig), but the mufflers listed above are rated only to 10 bar (150 psig). These mufflers must not be used for applications with pressures greater than 10 bar (150 psig) or serious injury or damage could occur.

L-O-X® Sensing Port

Series 15 manual L-O-X® valves are now provided with 1/8 NPT sensing ports, enabling installation of a pressure sensing device such as the Pop-Up Indicator or Pressure Switch shown below. Standards suggest a method for verifying the release of energy after lockout.

STANDARD SPECIFICATIONS (for valves on this page):
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air; 5 micron recommended.
Inlet Pressure:
Port sizes 1/4 to 3/8: 15 to 145 psig (1.0 to 10.0 bar).
Port sizes 3/8 to 2: 15 to 300 psig (1.0 to 20 bar).

Lock Hole Diameter: Port sizes 1/4 to 3/8: 0.27 inch (7.06 mm).
Port sizes 1½ to 2: 0.38 inch (9.6 mm).

Length of Hole: Port sizes 1/4 to 3/8: 0.43 inch (10.92 mm).
Port sizes 1½ to 2: 0.75 inch (19.1 mm).

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS on the inside back cover.
Piloted L-O-X® Valves

Main Air and Auxiliary Pneumatic Lockout/Tagout

MANUAL PILOT

Operated just like the smaller manual L-O-X® valve. The position of the red handle indicates instantaneous full flow pressurizing or exhausting capability.

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Valve Model Number*</th>
<th>Avg. Cv</th>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Out Exh.</td>
<td>1 to 2</td>
<td>2 to 3</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>1 1½</td>
<td>Y2783A6006</td>
<td>23</td>
<td>34</td>
<td>7.4 (187)</td>
</tr>
<tr>
<td>1 ¾</td>
<td>Y2783A7006</td>
<td>30</td>
<td>32</td>
<td>7.4 (187)</td>
</tr>
<tr>
<td>1½</td>
<td>Y2783A8016</td>
<td>30</td>
<td>31</td>
<td>7.4 (187)</td>
</tr>
<tr>
<td>1⅛ 2½</td>
<td>Y2783A8006</td>
<td>68</td>
<td>70</td>
<td>8.4 (213)</td>
</tr>
<tr>
<td>2 2½</td>
<td>Y2783A9006</td>
<td>70</td>
<td>70</td>
<td>8.4 (213)</td>
</tr>
<tr>
<td>2½ 2½</td>
<td>Y2783A9016</td>
<td>70</td>
<td>71</td>
<td>8.4 (213)</td>
</tr>
<tr>
<td>3 2½</td>
<td>3900A0829**</td>
<td>140</td>
<td>140</td>
<td>19.6 (496)</td>
</tr>
</tbody>
</table>

*Solenoid Pilot: 40° to 175°F (4° to 80°C).

Solenoid Pilot:

For model Y3900A0896 or a “D” prefix on 3" L-O-X®, e.g., D 3900A0829.

**3 Inch L-O-X® Valve for Lockout

For coordinating silencers, see MUFFL-AIR® Silencers (model numbers 5500A4003, 5500A6003, 5500A8001 and 5500A9002).

STANDARD SPECIFICATIONS for valves on this page:

- Ambient/Media Temperature: Manual Pilot: 40°F to 175°F (4° to 80°C).
- Ambient Temperature: Solenoid Pilot: 40°F to 120°F (4° to 50°C).
- Media Temperature: Solenoid Pilot: 40°F to 175°F (4° to 80°C).
- Flow Media: Filtered air; 5 micron recommended.
- Inlet Pressure: Manual Pilot:
  - Port sizes 1 to 2½: 15 to 150 psig (1.0 to 10.3 bar).
  - Port sizes 1½ to 2½: 30 to 150 psig (2 to 10.3 bar).
- Inlet Pressure: Solenoid Pilot:
  - Port sizes 1 to 2½: 15 to 150 psig (1.0 to 10.3 bar).
  - Port sizes 1½ to 2½: 30 to 150 psig (2.1 to 10.3 bar).
- Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
- Ambient Temperature: 40°F to 120°F (4° to 50°C).
- Media Temperature: 40°F to 175°F (4° to 80°C).

STANDARD SPECIFICATIONS:

- For 3 inch L-O-X®:
  - Inlet Pressure: 30 to 150 psig (2 to 10 bar).
  - Pilot Pressure: Must be equal to or greater than inlet pressure.
  - Flow Media: Filtered air; 5 micron filter recommended.

For model Y3900A0829

- Ambient/Media Temperature: 40°F to 175°F (4° to 80°C).
- For model Y3900A0896
  - Solenoids: AC or DC power.
  - Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
  - Ambient Temperature: 40°F to 120°F (4° to 50°C).
  - Media Temperature: 40°F to 175°F (4° to 80°C).
Air Distribution

Standard Size 12

- Supply headers equipped with an auxiliary outlet 3/4” port
- Independent exhaust ports on circuit branches
- All inlet and outlet ports are 3/4” size
- Additional 1/4” port on outlet
- Modules (of like size) can be stacked to fit application – assembly hardware included

**PAD-HR-N12-A (NPT)**
**PAD-HR-B12-A (BSPP)**
Supply header with regulator.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>7.34 (184)</td>
<td>8.7 (221)</td>
</tr>
</tbody>
</table>

**PAD-HRC-N12-A (NPT)**
**PAD-HRC-B12-A (BSPP)**
Supply header with regulator and check.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>7.34 (184)</td>
<td>10.1 (257)</td>
</tr>
</tbody>
</table>

**PAD-HRX-N12-A (NPT)**
**PAD-HRX-B12-A (BSPP)**
Supply header with regulator and L-O-X® valve.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>7.34 (184)</td>
<td>15.3 (387)</td>
</tr>
</tbody>
</table>

**PAD-HRCX-N12-A (NPT)**
**PAD-HRCX-B12-A (BSPP)**
Supply header with regulator, check, and L-O-X® valve.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>7.34 (184)</td>
<td>15.3 (387)</td>
</tr>
</tbody>
</table>

NOTE: This circuit requires a downstream pressure release.

---

Main Air Panel Applications

Inlet Port 3/4
Outlet Port 3/4

**STANDARD SPECIFICATIONS** (for valves on this page):

- **Ambient Temperature:** 40° to 120°F (4° to 50°C).
- **Media Temperature:** 40° to 175°F (4° to 80°C).
- **Flow Media:** Filtered air; 5 micron recommended.
- **Inlet Pressure:** 0 to 150 psig (0 to 10.3 bar).
Air Distribution

Luftverteilung • エアーディストリビューション • हवा वितरण • Distribuição de Ar • 気流分配

Standard Size 20

- All inlet and exhaust ports are 1¼" size. Outlets are 1" size
- Additional 1/4" port on outlet
- Supply headers equipped with an auxiliary 1" outlet port
- Common exhaust port on circuit branches and headers
- Modules (of like sizes) can be stacked to fit application – assembly hardware included

PAD-HR-N20-A (NPT)
PAD-HR-B20-A (BSPP)
Supply header with regulator.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>8.7 (221)</td>
<td>13.1 (332)</td>
</tr>
</tbody>
</table>

NOTE: This circuit requires a downstream pressure release.

PAD-HRC-N20-A (NPT)
PAD-HRC-B20-A (BSPP)
Supply header with regulator and check.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>8.7 (221)</td>
<td>14.4 (365)</td>
</tr>
</tbody>
</table>

PAD-HRX-N20-A (NPT)
PAD-HRX-B20-A (BSPP)
Supply header with regulator, and L-O-X® valve.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>8.7 (221)</td>
<td>17.9 (454)</td>
</tr>
</tbody>
</table>

PAD-HRCX-N20-A (NPT)
PAD-HRCX-B20-A (BSPP)
Supply header with regulator, check, and L-O-X® valve.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>8.7 (221)</td>
<td>18.8 (477)</td>
</tr>
</tbody>
</table>

STANDARD SPECIFICATIONS (for valves on this page):
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air; 5 micron recommended.
Inlet Pressure: 0 to 150 psig (0 to 10.3 bar).

www.rosscontrols.com
Air Distribution

Economy Size 8

- Supply headers equipped with auxiliary outlet 3/4" NPT or BSPP port
- Gauges shipped loose for field installation
- Modules can be stacked to fit application - assembly hardware included
- For circuits with valves and other options, consult ROSS

### MAS-H-N8-A (NPT)
### MAS-H-B8-A (BSPP)
Supply header outlet.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
<td>Length</td>
</tr>
<tr>
<td>3.2 (81.2)</td>
<td>2.8 (71)</td>
<td>3.8 (96.5)</td>
</tr>
</tbody>
</table>

### MAS-HR-N8-A (NPT)
### MAS-HR-B8-A (BSPP)
Supply header with regulator.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>4.1 (104)</td>
<td>4.7 (119)</td>
</tr>
</tbody>
</table>

### MAS-HRC-N8-A (NPT)
### MAS-HRC-B8-A (BSPP)
Supply header with regulator and check.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>4.1 (104)</td>
<td>4.7 (119)</td>
</tr>
</tbody>
</table>

### MAS-HRX-N8-A (NPT)
### MAS-HRX-B8-A (BSPP)
Supply header with regulator and shut-off.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>4.1 (104)</td>
<td>4.7 (119)</td>
</tr>
</tbody>
</table>

### MAS-HRCX-N8-A (NPT)
### MAS-HRCX-B8-A (BSPP)
Supply header with regulator, check, and shut-off.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>4.1 (104)</td>
<td>4.7 (119)</td>
</tr>
</tbody>
</table>

### Main Air Panel Applications

#### Inlet Port 3/4
#### Outlet Port 1/2

STANDARD SPECIFICATIONS (for valves on this page):
- Ambient Temperature: 40° to 120°F (4° to 50°C).
- Media Temperature: 40° to 175°F (4° to 80°C).
- Flow Media: Filtered air; 5 micron recommended.
- Inlet Pressure: 0 to 150 psig (0 to 10.3 bar).
Economy Size 12

- Supply headers equipped with auxiliary outlet 3/4" NPT or BSPP port
- Gauges shipped loose for field installation
- Modules can be stacked to fit application - assembly hardware included
- For circuits with valves and other options, consult ROSS

**MAS-H-N12-A (NPT)**
**MAS-H-B12-A (BSPP)**
Supply header outlet.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height 3.2 (81.2)</td>
<td>Width 2.8 (71)</td>
</tr>
<tr>
<td>Length 3.8 (96.5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length 3.0 (1.36)</td>
</tr>
</tbody>
</table>

**MAS-HR-N12-A (NPT)**
**MAS-HR-B12-A (BSPP)**
Supply header with regulator.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height 4.6 (117)</td>
<td>Width 7.2 (103)</td>
</tr>
<tr>
<td>Length 7.5 (191)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length 5.4 (2.45)</td>
</tr>
</tbody>
</table>

**MAS-HRC-N12-A (NPT)**
**MAS-HRC-B12-A (BSPP)**
Supply header with regulator and check.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height 4.6 (117)</td>
<td>Width 7.2 (183)</td>
</tr>
<tr>
<td>Length 10.4 (264)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length 5.87 (2.66)</td>
</tr>
</tbody>
</table>

**MAS-HRX-N12-A (NPT)**
**MAS-HRX-B12-A (BSPP)**
Supply header with regulator and shut-off.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height 4.6 (117)</td>
<td>Width 7.2 (183)</td>
</tr>
<tr>
<td>Length 12.1 (307)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length 5.97 (2.71)</td>
</tr>
</tbody>
</table>

**MAS-HRCX-N12-A (NPT)**
**MAS-HRCX-B12-A (BSPP)**
Supply header with regulator, check, and shut-off.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height 4.6 (117)</td>
<td>Width 7.2 (183)</td>
</tr>
<tr>
<td>Length 12.7 (323)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length 6.08 (2.76)</td>
</tr>
</tbody>
</table>

**STANDARD SPECIFICATIONS** (for valves on this page):

- Ambient Temperature: 40° to 120°F (4° to 50°C).
- Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air; 5 micron recommended.
Inlet Pressure: 0 to 150 psig (0 to 10.3 bar).

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Main Air Panel Applications

Features:
- Supply headers equipped with 3/4" auxiliary outlet port on size 8 and 12
- Supply header equipped with 1" auxiliary outlet port on size 20
- Modules of same basic size can be stacked together to fit any application - assembly hardware included
- Common exhaust port on size 20 header blocks
- More efficient use of space
- Reduced engineering cost
- Fast easy installation
- Reduced procurement
- Standardization and improved appearance
- Energy savings

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

PRODUCT SERIES
Standard.................................................PAD
Economy.................................................MAS

CONFIGURATION
Header Block..................................................H*
Header + Regulator .......................................HR
Header + Regulator + Check..............................HRC
Header + Regulator + Lockout............................HRX
Header + Regulator + Check + Lockout..............HRCX

*Only available on MAS Series Air Distribution Stations.

BASIC SIZE
3/4 inlet x 1/2 outlet ..........8*
3/4 inlet x 3/4 outlet ..........12
1¼ inlet x 1 outlet ..........20

THREAD
BSPP (G)............................... B
NPT ........................................ N
SAE .......................................... S*

*Only available on PAD Series air distribution stations.

STANDARD SPECIFICATIONS (for valves on this page):
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air; 5 micron recommended.
Inlet Pressure: 0 to 150 psig (0 to 10 bar).
The ROSS counterbalance system integrates modern air valve technology with electrical controls to monitor and maintain appropriate counterbalance pressures. An automatic counterbalance system receives an input value (called the set pressure) for a particular die and then monitors and maintains the counterbalance pressure automatically. In its simplest form, the operator manually inputs this value from a die/pressure table. In more advanced systems, this can be pre-loaded using a die recipe program. The operator inputs a die number during set-up or the system can read the die number automatically, allowing the set value to be retrieved from stored tables.

The standard OEM system includes two or more air cylinders attached between the slide and main frame, a pressure control regulator, a check valve, a surge tank, and a manual bleed off valve. The surge tank is used to store air displaced from the cylinders, since it would be cost prohibitive to refill the system with every stroke of the press. The system acts like an adjustable spring. The regulator is used to set the pressure for the total weight of the slide plus the die. The press OEM provides a chart for setting the pressure on any given die weight. This setting is the pressure at the full ram up position (top dead center). Surveys show however, that 90% of companies have pressures set at maximum plant pressure or 80-90 psi and never adjust it!

Press position is given in degrees, which represents the position of the crankshaft during the press cycle. 0 degrees is referred to as TDC (top dead center) and 180 degrees, where the work is done, is referred to as BDC (bottom dead center). As the crank moves from TDC to BDC, we are in the downward stroke. As the crank moves from BDC back to TDC, we are in the upward stroke. During the downward stroke, the weight of the slide and die are acted on by gravity, which pulls the slide away from the press drive, opening up small tolerances. When the upper and lower dies meet, the upper die decelerates until all tolerance openings close and the drive begins to push. This creates damaging shock loads throughout the press. After this initial shock loading, the die is driven through the work and then immediately reversed to pull the die back up. Before the die can move upward, all of the tolerances are re-opened, sending additional shock loads into the system. Properly set counterbalance pressures will close these tolerances to eliminate shock loading. The adverse effects of an underbalanced condition include heavy shock loads, increased operating costs (due to the heavier motor loads required to lift the slide), lower parts rates and higher scrap costs, loss of ram parallelism and excessive wear to the drive, dies, gibs and cylinder packings.

While an underbalanced condition is most undesirable, too much pressure in the system also has its drawbacks. An overbalanced condition consumes a great deal of flywheel energy, can reduce tonnage to the part and even result in the slide becoming “stuck on bottom” if there is not sufficient energy to overcome die separation, slide reversal and loading forces. The effects of an overbalanced condition include damage to shut height equipment, tripping of motor overloads, higher air consumption, excessive clutch and brake wear, inconsistent die velocity, inaccurate starting or stopping and higher maintenance costs.

So, what is wrong with the equipment that came on the press? Nothing…but it is a system with a number of minimal performance characteristics. If the system leaks, it is desirable to correct the pressure as quickly as possible and to maintain set pressures. The standard OEM system does not do this. The recovery time to increase pressure is long, due to the regulator effect, and has no way of decreasing pressure, should it be necessary. The ROSS automatic system takes pressure snap-shots (via a transducer mounted on the counterbalance tank) at a pre-determined window (TDC), where set pressure values can be compared to actual pressure in the system. Depending upon requirements, the automatic counterbalance units can fill or exhaust to accurately maintain the set pressure. High flow poppet valves controlling large volumes of air offer maximum adjustment speeds during production as well as during die changes. Each unit has built-in check valves and a manual regulation circuit, should the automatic system require service. Lockout valves are standard for required cylinder maintenance.

Improper Counterbalance settings affect just about every area of press performance. Installing an automatic counterbalance system can improve performance, minimize wear, reduce strain on the press, reduce operating costs and enhance safety.
Automatic Counterbalance

Gewichtsausgleich • カウンターバランス • बराबर भार • Compensador • 平衡力

3900A1018Z (110 volts AC)
3900A1018W (24 volts DC)
Economy 1/2” fill-dump.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>4.2 (107)</td>
<td>7.5 (191)</td>
</tr>
</tbody>
</table>

* For BSPP threads add "D" prefix to the model number, e.g., D3900A1018W.

PFD-MPARX-N12-A-Z (110 volts AC)
PFD-MPARX-N12-A-W (24 volts DC)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>7.1 (181)</td>
<td>10.0 (254)</td>
</tr>
</tbody>
</table>

* For BSPP threads change “N” to “B” in the model number, e.g., PFD-MPARX-B12-A-Z.

PFD-MSARX-N16-A-Z (110 volts AC)
PFD-MSARX-N16-A-W (24 volts DC)
1” fill-dump with auto-manual select and parallel manual circuit.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>8.3 (211)</td>
<td>15.4 (392)</td>
</tr>
</tbody>
</table>

* For BSPP threads change “N” to “B” in the model number, e.g., PFD-MSARX-B16-A-Z.

PFD-MSAR1X-N16-A-Z (110 volts AC)
PFD-MSAR1X-N16-A-W (24 volts DC)
1” fill-dump with auto-manual select and parallel remote manual adjustment circuit.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>8.3 (211)</td>
<td>15.4 (392)</td>
</tr>
</tbody>
</table>

* For BSPP threads change “N” to “B” in the model number, e.g., PFD-MSAR1X-B16-A-Z.

PFD-MSARX-N20-A-Z (110 volts AC)
PFD-MSARX-N20-A-W (24 volts DC)
1¼” fill-dump with auto-select and parallel manual circuit.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>10.4 (264)</td>
<td>26.5 (673)</td>
</tr>
</tbody>
</table>

* For BSPP threads change “N” to “B” in the model number, e.g., PFD-MSARX-B20-A-Z.

STANDARD SPECIFICATIONS (for valves on this page):
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air; 5 micron recommended.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).

Automatic Pressure Control Applications
- Interfaces with controls to monitor/maintain correct counterbalance pressure
- 3/4” units furnished with DIN electrical connections
- 1” & 1¼” units furnished with Brad Harrison connectors

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Die Cushion Module

**Size 20**

- Butterfly control valve included
- Slow raise cushion circuit included
- Available mounted on a plate and pre-wired
- Furnished with Brad Harrison connectors

**PFD-USMRR-N20-A-Z** (110 volts AC)
**PFD-USMRR-N20-A-W** (24 volts DC)

1-1/4" fill-dump solenoid circuit, butterfly operator valve and remote Blow-down.

<table>
<thead>
<tr>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Width</td>
</tr>
<tr>
<td>11.9 (303)</td>
<td>23.5 (597)</td>
</tr>
</tbody>
</table>

* For BSPP threads change “N” to “B” in the model number, e.g., PFD-USMRR-B20-A-Z.

**Accessory Kit (PFD-KITB):**

Kit includes electrical junction box, twenty terminals, transducer (with integral pressure switch/digital gauge), four solenoid cords with cord grips, and 5-meter transducer cord with connector.

Transducer and electrical box available separately – see page 26.

**Note:** When ordering with option P (pre-mounted and pre-wired), order transducer and 5-meter cord separately. See page 26.

---

Die Clamping

**Size 12**

- Includes electrical cords with cord grips
- Valves are built to the ANSI mounting standard (ISO 5599/II valves also available – Consult ROSS)
- Mounted on a plate and pre-wired

**Single Solenoid**

**PDC-121-PN16-A-Z** (110 volts AC)
**PDC-121-PN16-A-W** (24 volts DC)

**Double Solenoid**

**PDC-221-PN16-A-Z** (110 volts AC)
**PDC-221-PN16-A-W** (24 volts DC)

3/4" 5/2 SAE valve with pressure switch. Mounted on a steel plate, pre-piped and pre-wired to a NEMA 12 junction box.

**Model Numbers**

<table>
<thead>
<tr>
<th>Model Number*</th>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDC-121-PN16-A-Z</td>
<td>6.8 (172)</td>
<td>16.0 (381)</td>
</tr>
<tr>
<td>PDC-221-PN16-A-Z</td>
<td>8.2 (207)</td>
<td>16.0 (381)</td>
</tr>
</tbody>
</table>

*Specify voltage and hertz when ordering.

For BSPP threads change “N” to “B” in the model number, e.g., PDC-121-PB16-A-Z.
Flywheel Brake, Bolster and Part Ejection Applications

2/2 Valves

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Valve Model Number*</th>
<th>Avg. Cv</th>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>2771B2001 2772B2001</td>
<td>2.3</td>
<td>3.6 (91) 3.2 (79) 6.9 (175)</td>
<td>2.5 (1.2)</td>
</tr>
<tr>
<td>3/8</td>
<td>2771B3001 2772B3001</td>
<td>3.8</td>
<td>3.6 (91) 3.2 (79) 6.9 (175)</td>
<td>2.5 (1.2)</td>
</tr>
<tr>
<td>1/2</td>
<td>2771B4011 2772B4011</td>
<td>4.0</td>
<td>3.6 (91) 3.2 (79) 6.9 (175)</td>
<td>2.5 (1.2)</td>
</tr>
<tr>
<td>1/2</td>
<td>2771B4001 2772B4001</td>
<td>7.7</td>
<td>4.6 (116) 3.2 (79) 7.6 (193)</td>
<td>3.3 (1.5)</td>
</tr>
<tr>
<td>3/4</td>
<td>2771B5001 2772B5001</td>
<td>9.0</td>
<td>4.6 (116) 3.2 (79) 7.6 (193)</td>
<td>3.3 (1.5)</td>
</tr>
<tr>
<td>1</td>
<td>2771B6011 2772B6011</td>
<td>9.0</td>
<td>7.9 4.6 (116) 3.2 (79) 7.6 (193)</td>
<td>3.3 (1.5)</td>
</tr>
<tr>
<td>1 1/2</td>
<td>2771B6001 2772B6001</td>
<td>24</td>
<td>21 6.7 (169) 4.1 (104) 10.4 (265)</td>
<td>7.0 (3.2)</td>
</tr>
<tr>
<td>1 1/4</td>
<td>2771B7001 2772B7001</td>
<td>29</td>
<td>20 6.7 (169) 4.1 (104) 10.4 (265)</td>
<td>7.0 (3.2)</td>
</tr>
<tr>
<td>1 1/2</td>
<td>2771B8011 2772B8011</td>
<td>29</td>
<td>21 6.7 (169) 4.1 (104) 10.4 (265)</td>
<td>7.0 (3.2)</td>
</tr>
<tr>
<td>1 1/4</td>
<td>2771B8001 2772B8001</td>
<td>49</td>
<td>49 8.7 (219) 5.2 (131) 11.8 (300)</td>
<td>15.5 (6.9)</td>
</tr>
<tr>
<td>2</td>
<td>2771B9011 2772B9011</td>
<td>57</td>
<td>57 8.7 (219) 5.2 (131) 11.8 (300)</td>
<td>15.5 (6.9)</td>
</tr>
<tr>
<td>2 1/2</td>
<td>2771B9001 2772B9001</td>
<td>64</td>
<td>72 8.7 (219) 5.2 (131) 11.8 (300)</td>
<td>15.5 (6.9)</td>
</tr>
</tbody>
</table>

*STANDARD SPECIFICATIONS (for valves on this page):  
Solenoids: AC or DC power.  
Standard Voltages: 110 volts AC, 24 volts DC.  
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.  
Ambient Temperature: 40° to 120°F (4° to 50°C).  
Media Temperature: 40° to 175°F (4° to 80°C).  
Flow Media: Filtered air; 5 micron recommended.  
Inlet Pressure: 1/4 to 1 1/2 Port Sizes: 15 to 150 psig (1 to 10 bar); 1 1/2 to 2 Port Sizes: 30 to 150 psig (2 to 10 bar).  
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.

Important Note: Please read carefully and thoroughly all of the CAUTIONS on the inside back cover.
Double Valves with Dynamic Monitoring & Complete Memory
Self Monitored - Clutch/Brake Control

Size 2, 4, 8, 12 and 30

- **Dynamic Monitoring With Complete Memory:** Memory, monitoring, and air flow control functions are simply integrated into two identical valve elements. Valves lock-out due to asynchronous movement of valve elements during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply. Overt action is required for reset – cannot be reset by removing and re-applying supply pressure. Reset can only be accomplished by remote air signal or by optional integrated electrical (solenoid) reset.

- **Basic 3/2 Normally Closed Valve Function:** Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. Teflon back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.

- **Status Indicator (Optional):** Includes a pressure switch with both normally open and normally closed contacts to provide status feedback to the press control system indicating whether the valve is in the lockout or ready-to-run condition. The Status Indicator can be ordered installed or purchased separately and added to any DM® base.

- **Silencers:** All models include high flow, clog resistant silencers.

- **Mounting:** Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

Size 12 and 30

- **Intermediate Pilots:** Increase pilot air flow for fast valve response, make it possible to use the same size solenoids as valve sizes 2, 4 & 8, thereby reducing electrical power requirements for these larger valves.

---

**STANDARD SPECIFICATIONS** (for DM® Series D double valves):

**Pilot Solenoids:** According to VDE 0580. Enclosure rating according to DIN 40050, IEC 60529 IP65. Two solenoids, rated for continuous duty (additional solenoid on optional reset).

**Standard Voltages:** 110 volts, 50/60 Hz; 220 volts, 50/60 Hz; 24 volts DC. For other voltages, consult ROSS.

**220 volts AC not available in the U.S.** (OSHA regulations limit press control voltage to no more than 120 volts AC. Specify voltage and frequency on order.

**Power Consumption (each solenoid):**

- **Size 2, 4, 12, 30:**
  - For primary and reset solenoids: 6.0 watts on DC; 15.8 VA inrush and 10.4 VA holding on AC.
  - **Size 8:**
    - Primary solenoids: 15 watts on DC; 36 VA inrush and 24.6 VA holding on AC.
    - Reset solenoid: 6.0 watts on DC; 15.8 VA inrush and 10.4 VA holding on AC.

**Electrical connection:**

- **Size 2, 4, 8, 12, 30:** DIN 43650, Form A. Order connectors separately.

**Ambient Temperature:** 15° to 120°F (-10° to 50°C).

**Media Temperature:** 40° to 175°F (4° to 80°C).

**Flow Media:** Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46); 5 micron recommended.

**Inlet Pressure:**
- **Size 2:** 45 to 150 psig (3 to 10 bar).
- **Size 4, 8, 12, 30:** 30 to 120 psig (2 to 8 bar).

**Reset Pressure:** For remote reset option – equal to inlet pressure.

**Pressure Switch (Status Indicator) Rating:** Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC.

**Monitoring:** Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.

**Mounting orientation:** Preferably horizontally (valve on top of base) or vertically (with pilot solenoids on top).

**Valve Weight:** Valve and base assembly with status indicator and solenoid reset.
- **Size 2:** 5.0 lb (2.3 kg).
- **Size 4:** 6.0 lb (2.8 kg).
- **Size 8:** 9.1 lb (4.2 kg).
- **Size 12:** 15.5 lb (7.1 kg).
- **Size 30:** 32.6 lb (14.8 kg).

---

**IMPORTANT NOTE:** Please read carefully and thoroughly all of the **CAUTIONS** on the inside back cover.
DM²® Series D Double Valves for Clutch/Brake

Kupplung/Bremse • クラッチ/ブレーキ
पंजा/ गतिरोधक • Embreagem/Freio • 离合器/制动器

HOW TO ORDER
(Choose your options (in red) to configure your valve model number.)

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>DM2D</th>
</tr>
</thead>
<tbody>
<tr>
<td>THREAD</td>
<td>D</td>
</tr>
<tr>
<td>BSPP</td>
<td>D</td>
</tr>
<tr>
<td>NPT</td>
<td>N</td>
</tr>
<tr>
<td>N/A (no base)</td>
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REVOLUTION LEVEL

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<tr>
<th>BASIC SIZE</th>
<th>2</th>
<th>4</th>
<th>8</th>
<th>12</th>
<th>30</th>
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</table>

| BASE PORT SIZE | Size 2 | 1/4 inlet – 1/4 outlet | 0 |
|                | Size 4 | 1/4 inlet – 1/4 outlet | 1 |
|                | Size 8 | 1/4 inlet – 3/4 outlet | 4 |
|                | Size 12| 1/2 inlet – 1 outlet  | 6 |
|                | Size 30| 1 inlet – 1 outlet    | 8 |
|                | Valve only (less base) | X |

<p>| BASE MODEL NUMBERS and BASE SPECIFIC INFORMATION |
| Port Size | Base Model Number* | Status Indicator | Weight (lb (kg)) |</p>
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<th>Inlet</th>
<th>Outlet</th>
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<td>1707C91</td>
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<td>1710C91</td>
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*NPT port threads. For BSPP threads add a “D” prefix to the model number, e.g., D1700C91.

Note: DIN electrical connectors must be ordered separately.

SIZE 2

Average Cᵥ:
1 to 2: 2.17
2 to 3: 3.66

DIMENSIONS – inches (mm)

<table>
<thead>
<tr>
<th>View X</th>
<th>Valve envelope (Based in overall hole dimensions at left.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

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**DM²® Series D Double Valves for Clutch/Brake**

**Kupplung/Bremse • クラッチ/ブレーキ**

**पंजा/ गतिरोधक • Embreagem/Freio • 离合器/制动器**

**SIZE 4**

- Average Cᵥ:
  - 1 to 2: 2.80
  - 2 to 3: 6.70

**SIZE 8**

- Average Cᵥ:
  - 1 to 2: 4.63
  - 2 to 3: 12.55

**SIZE 12**

- Average Cᵥ:
  - 1 to 2: 8.86
  - 2 to 3: 20.78

**SIZE 30**

- Average Cᵥ:
  - 1 to 2: 20.22
  - 2 to 3: 53.68

**DIMENSIONS – inches (mm)**

![Dimensions Diagrams](image-url)
SERPAR® L-G Double Valves for Clutch/Brake

Kupplung/Bremse • クラッチ/ブレーキ

Self Monitored - Clutch/Brake Control

Size 4

<table>
<thead>
<tr>
<th>Valve Port</th>
<th>Size Reset</th>
<th>Valve Model Number* w/ Overrides</th>
<th>Valve Model Number* w/o Overrides</th>
<th>Average Cv</th>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
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<tbody>
<tr>
<td>4</td>
<td>3/8 Manual</td>
<td>3573D3191 3573D3194</td>
<td>3573D3195 3573D3198</td>
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<td>6.0</td>
<td>7.4 (188) 6.3 (160) 7.4 (188)</td>
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<td>1/2 Manual</td>
<td>3573D4211 3573D4214</td>
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<td>7.4 (188) 6.3 (160) 7.4 (188)</td>
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<td>4</td>
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<td>7.4 (188) 6.3 (160) 7.4 (188)</td>
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<tr>
<td>4</td>
<td>3/4 Remote</td>
<td>3573D5212 3573D5215</td>
<td>3573D5219 3573D5222</td>
<td>3.0</td>
<td>9.0</td>
<td>7.4 (188) 6.3 (160) 7.4 (188)</td>
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</tbody>
</table>

Sizes 8, 12, 30

<table>
<thead>
<tr>
<th>Valve Port</th>
<th>Size w/ Overrides</th>
<th>Valve Model Number*</th>
<th>Average Cv</th>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
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<tbody>
<tr>
<td>8</td>
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<td>3573A4142 3573A4145</td>
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<td>8.5 (216) 7.1 (180) 12.3 (312) 15.3 (6.9)</td>
</tr>
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<td>3573A5142 3573A5145</td>
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</tr>
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<td>12</td>
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<td>15.5</td>
<td>9.0 (228) 8.5 (216) 13.4 (340) 19.0 (8.6)</td>
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<td>8.5 (216) 7.1 (180) 12.3 (312) 19.0 (8.6)</td>
</tr>
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<td>12</td>
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<td>3573A6152 3573A6155</td>
<td>6.0</td>
<td>15.5</td>
<td>9.0 (228) 8.5 (216) 13.4 (340) 19.0 (8.6)</td>
</tr>
<tr>
<td>12</td>
<td>11/4</td>
<td>3573A7162 3573A7165</td>
<td>9.0</td>
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<td>30*</td>
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<td>43.5</td>
<td>12.4 (314) 11.1 (282) 17.7 (450) 37.5 (16.9)</td>
</tr>
</tbody>
</table>

*NPT standard. For BSPP threads, add a “D” prefix to the model number, e.g., D3573D3191.
For 110 volts AC add “Z” suffix to the model number, for 24 volts DC add “W” suffix to the model number, e.g.,
3573D3192Z, 3573D3192W.

STANDARD SPECIFICATIONS (for valves on this page):

Pilot Solenoids: Two, rated for continuous duty.

Standard Voltages: 100-110 volts, 50Hz; 100-120 volts, 60 Hz;
24 volts DC, 110 volts DC. Other voltages available, consult ROSS.

Power Consumption: Size 4: Each solenoid, 30 VA inrush, 16 VA holding on 50 or 60 Hz; 11 watts on DC.
Sizes 8, 12, 30: Each solenoid, 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

Electrical Connections: Size 4 uses Form A DIN connectors at solenoids. Size 8, 12 and 30 has built-in terminal strip.

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air; 5 micron recommended.

Inlet Pressure: Size 4: 30 to 100 psig (2 to 7 bar).
Sizes 8, 12, 30: 30 to 125 psig (2 to 8.5 bar).

L-G Reset Pressure: Size 4: Remote pneumatic reset models require a pressure of at least 30 psig (2 bar).
Manual reset models use internal valve pressure. Sizes 8, 12, 30: 60 psig (4 bar) minimum.

Inlet Port: Models are available with the inlet port on either the right or the left side of the valve body (size 4 only).

**IMPORTANT NOTE:** Please read carefully and thoroughly all of the CAUTIONS on the inside back cover.
**STANDARD SPECIFICATIONS** (for valves on this page):

- **Pilot Solenoids:** Two, rated for continuous duty.
- **Standard Voltages:** 100-110 volts, 50Hz; 100-120 volts, 60 Hz; 24 volts DC, 110 volts DC. Other voltages available, consult ROSS.
- **Power Consumption:** Each solenoid, 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
- **E-P Reset Solenoid:** Rated for intermittent duty. Voltages: 24-48 or 100-120 volts AC or DC (for E-P only).
- **Ambient Temperature:** 40° to 120°F (4° to 50°C).
- **Media Temperature:** 40° to 175°F (4° to 80°C).
- **Flow Media:** Filtered air; 5 micron recommended.
- **Pressure Range:** 30 to 125 psig (2 to 8.5 bar).

**IMPORTANT NOTE:** Please read carefully and thoroughly all of the **CAUTIONS** on the inside back cover.

---

### Sizes 8 to 30

#### Single Input Signal and Dual Input Signal

The Single Input Signal and Dual Input Signal models are available in the E-P series of double valves. Both models can be equipped with, or without, manual overrides.

**Single Input valves** require only one main solenoid signal wired into the terminal strip of the E-P monitored double valve. The main solenoid signal is wired into terminal 1 and internally jumpered to the second main solenoid. Commons are wired into terminal 3. This allows both solenoids to be energized and de-energized simultaneously for proper valve operation.

**Dual Input valves** require two solenoid signals wired independently into the terminal strip of the E-P monitored double valve. One main solenoid signal is wired into terminal 1 and the second main solenoid signal is wired into terminal 5. Commons are wired into terminal 3. Both solenoid signals must arrive simultaneously for proper valve operation.

#### Sizes 8 to 30

<table>
<thead>
<tr>
<th>Size</th>
<th>Port Size</th>
<th>Single Signal w/ Overrides</th>
<th>Single Signal w/o Overrides</th>
<th>Dual Signal w/ Overrides</th>
<th>Dual Signal w/o Overrides</th>
<th>Avg. CV</th>
<th>Dimensions A x B x C</th>
<th>Weight lb (kg)</th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>1/2</td>
<td>3573A4141</td>
<td>3573A4161</td>
<td>3573A4341</td>
<td>3573A4361</td>
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<tr>
<td>8</td>
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<td>3573A5141</td>
<td>3573A5161</td>
<td>3573A5341</td>
<td>3573A5361</td>
<td>4.0</td>
<td>8.5 x 8.5 x 18</td>
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<td>3573A6171</td>
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*NPT standard. For BSPP threads, add a “D” prefix to the model number, e.g., D3573A4141.

2 inch port size available on size 30 valves. Order part number 1999H77 flange kit separately.

**For 110 volts AC add “Z” suffix to the model number, for 24 volts DC add “W” suffix to the model number, e.g., 3573A4141Z, 3573A4141W.
Crossflow™ Double Valves*

*Kupplung/Bremse • クラッチ/ブレーキ
Embregem/Freio • 离合器/制动器

** IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS on the inside back cover.

### Size 1 & 2

<table>
<thead>
<tr>
<th>Valve Assembly</th>
<th>Model Number*</th>
<th>Avg. C&lt;sub&gt;1-2&lt;/sub&gt;</th>
<th>Pressure Switches**</th>
<th>Press. Switch Provision</th>
<th>Port Sizes 1 &amp; 2</th>
<th>Dimensions inches (mm)</th>
<th>Avg. Response Constants</th>
<th>Weight lb (kg)</th>
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<tbody>
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<td>0.9 1.4</td>
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<td>2 3573B4620</td>
<td>3.7 6.6</td>
<td>None</td>
<td>No</td>
<td>1/2 1/2</td>
<td>3.4 (86) 3.2 (81) 6.3 (160)</td>
<td>30 1.2 1.0 4.3 (1.95)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 3573B4632</td>
<td>3.7 6.6</td>
<td>None</td>
<td>No</td>
<td>1/2 1/2</td>
<td>3.4 (86) 3.2 (81) 6.5 (165)</td>
<td>30 1.2 1.0 4.3 (1.95)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 3573B4640</td>
<td>3.7 9.0</td>
<td>None</td>
<td>No</td>
<td>1/2 3/4</td>
<td>3.4 (86) 3.2 (81) 6.5 (165)</td>
<td>25 1.1 0.9 4.3 (1.95)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 3573B4642</td>
<td>3.7 9.0</td>
<td>Two</td>
<td>Yes</td>
<td>1/2 1/2</td>
<td>3.4 (86) 3.2 (81) 9.0 (229)</td>
<td>30 1.2 1.0 4.8 (2.18)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 3573B4643</td>
<td>4.2 9.0</td>
<td>None</td>
<td>No</td>
<td>3/4 3/4</td>
<td>3.4 (86) 3.2 (81) 6.5 (165)</td>
<td>25 1.1 0.9 4.7 (2.13)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 3573B4644</td>
<td>4.2 9.0</td>
<td>Two</td>
<td>Yes</td>
<td>3/4 3/4</td>
<td>3.4 (86) 3.2 (81) 9.0 (165)</td>
<td>25 1.1 0.9 5.2 (2.36)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 3573B4645</td>
<td>4.2 9.0</td>
<td>None</td>
<td>No</td>
<td>3/4 3/4</td>
<td>3.4 (86) 3.2 (81) 6.5 (165)</td>
<td>25 1.1 0.9 4.7 (2.13)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 3573B4652</td>
<td>3.7 9.0</td>
<td>None</td>
<td>Yes</td>
<td>1/2 3/4</td>
<td>3.4 (86) 3.2 (81) 9.0 (165)</td>
<td>25 1.1 0.9 4.3 (1.95)</td>
<td></td>
</tr>
</tbody>
</table>

* Only valves with pressure switches should be used to control clutch/brake mechanisms on press machinery. The pressure switches must be used in conjunction with a monitoring device to assist with OSHA compliance (Ref. 1910.217).

### External Monitoring - Clutch/Brake Control

*Non-monitored

**CAUTION:** Each solenoid, 8.5 VA maximum inrush, 8.5 VA maximum holding on 50 or 60 Hz; 7.5 watts nominal on DC.

### STANDARD SPECIFICATIONS

**Pilot Solenoids:** Two, rated for continuous duty.

**Standard Voltages:** 100-110 volts, 50Hz; 100-120 volts, 60 Hz; 24 volts DC, 110 volts DC. Other voltages available, consult ROSS.

**Power Consumption:**
- **Size 1:** Each solenoid, 12 VA maximum inrush, 9.8 VA maximum holding on 50 or 60 Hz; 7.5 watts nominal on DC.
- **Size 2:** Each solenoid, 8.5 VA maximum inrush, 8.5 VA maximum holding on 50 or 60 Hz; 6 watts maximum on DC.

### Electrical Connections

Uses two cord-grip connectors at solenoids (order separately).

- **Size 1:** DIN 43650 Form B connector P/N 266K77.
- **Size 2:** Din 43650 Form A connector P/N 937K87.

**Ambient Temperature:** 40° to 120°F (4° to 50°C).

**Media Temperature:** 40° to 175°F (4° to 80°C).

**Flow Media:** Filtered air; 5 micron recommended.

**Inlet Pressure:** 40 to 100 psig (2.8 to 7 bar).

**IMPORTANT NOTE:** If the system must be reset, electrical signals to both solenoids must be removed to prevent the machine from immediately recycling and producing a potentially hazardous condition.

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40 to 150 psig (2.5 to 10 bar).

Inlet Pressure:

Order connectors separately (see page 25).

Uses cord-grip connectors at solenoids.

Electrical Connections:

on 50 or 60 Hz; 6 watts on DC.

Power Consumption:

Each solenoid, 18 VA inrush, 14 VA holding

Standard Voltages:

100-110 volts, 50Hz; 100-120 volts, 60 Hz;

Pilot Solenoids:

Rated for continuous duty.

Standard Voltages: 100-110 volts, 50Hz; 100-120 volts, 60 Hz;

24 volts DC, 110 volts DC. Other voltages available, consult ROSS.

Power Consumption: Each solenoid, 18 VA inrush, 14 VA holding on 50 or 60 Hz; 6 watts on DC.

Electrical Connections: Uses cord-grip connectors at solenoids. Order connectors separately (see page 25).

Inlet Pressure: 40 to 150 psig (2.5 to 10 bar).

STANDARD SPECIFICATIONS (for valves on this page):

Pilot Solenoids: Rated for continuous duty.

Standard Voltages: 100-110 volts, 50Hz; 100-120 volts, 60 Hz;

24 volts DC, 110 volts DC. Other voltages available, consult ROSS.

Power Consumption: Each solenoid, 18 VA inrush, 14 VA holding on 50 or 60 Hz; 6 watts on DC.

Electrical Connections: Uses cord-grip connectors at solenoids. Order connectors separately (see page 25).

Inlet Pressure: 40 to 150 psig (2.5 to 10 bar).

Pressure Controlled:

Inlet Pressure: 40 to 100 psig (2.5 to 7 bar).

Pilot Pressure: Must be equal or greater than inlet pressure, but should not exceed maximum inlet pressure.

Pressure Switch Rating: Max Current 4A, Max 250 volts AC.

Pressure Switch: Pressure Switch signal indicates when the input signals or parts movement is asynchronous.

Common Specifications:

Ambient Temperature: 40° to 120°F (4° to 50°C).

Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air; 5 micron recommended.

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS on the inside back cover.
Series 19 Check Valves

ROSS check valves are self-actuating and designed to provide free air flow in one direction, and to be closed to flow in the opposite direction.

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>Port Size</th>
<th>Valve Model Number*</th>
<th>Avg. Cv</th>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>1/8</td>
<td>1968D1005</td>
<td>0.5</td>
<td>2.7 (67) 1.2 (29) 1.0 (25)</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td></td>
<td>1/4</td>
<td>1968D2005</td>
<td>0.5</td>
<td>2.7 (67) 1.2 (29) 1.0 (25)</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td>Y</td>
<td>1/4</td>
<td>1968D2001</td>
<td>2.9</td>
<td>2.8 (71) 1.6 (40) 1.4 (35)</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td></td>
<td>3/8</td>
<td>1968D3001</td>
<td>3.7</td>
<td>2.8 (71) 1.6 (40) 1.4 (35)</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td></td>
<td>1/2</td>
<td>1968D4001</td>
<td>3.9</td>
<td>3.7 (94) 1.5 (40) 1.4 (35)</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td>Z*</td>
<td>1/2</td>
<td>1968A4107</td>
<td>5.2</td>
<td>4.8 (122) 3.2 (81) 1.8 (46)</td>
<td>0.9 (0.4)</td>
</tr>
<tr>
<td></td>
<td>3/4</td>
<td>1968A5107</td>
<td>8.6</td>
<td>4.8 (122) 3.2 (81) 1.8 (46)</td>
<td>0.9 (0.4)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1968A6117</td>
<td>8.3</td>
<td>4.8 (122) 3.2 (81) 1.8 (46)</td>
<td>0.9 (0.4)</td>
</tr>
</tbody>
</table>

* NPT port threads. For BSPP threads add a “D” prefix to the model number, e.g., D1968D1005.

MUFFL-AIR® Silencers

ROSS MUFFL-AIR® silencers substantially reduce exhaust noise levels yet produce little back pressure. Typical impact noise reduction is in the 20–25 dB range.

<table>
<thead>
<tr>
<th>Port Size</th>
<th>NPT Threads</th>
<th>Model Number*</th>
<th>Average Cv</th>
<th>Dimensions inches (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>Male</td>
<td>5500A1003</td>
<td>2.0</td>
<td>0.8 (21) 2.2 (56)</td>
<td>0.3 (0.1)</td>
</tr>
<tr>
<td>1/4</td>
<td>Male</td>
<td>5500A2003</td>
<td>2.0</td>
<td>0.8 (21) 2.2 (56)</td>
<td>0.3 (0.1)</td>
</tr>
<tr>
<td>3/8</td>
<td>Male</td>
<td>5500A3013</td>
<td>2.0</td>
<td>0.8 (21) 2.2 (56)</td>
<td>0.3 (0.1)</td>
</tr>
<tr>
<td>3/8</td>
<td>Male</td>
<td>5500A3003</td>
<td>5.7</td>
<td>1.3 (32) 3.8 (96)</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td>1/2</td>
<td>Male</td>
<td>5500A4003</td>
<td>7.0</td>
<td>1.3 (32) 3.8 (96)</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td>3/4</td>
<td>Male</td>
<td>5500A5013</td>
<td>7.0</td>
<td>1.3 (32) 3.8 (96)</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td>3/4</td>
<td>Male</td>
<td>5500A5003</td>
<td>15</td>
<td>2.0 (51) 5.6 (142)</td>
<td>1.5 (0.7)</td>
</tr>
<tr>
<td>1</td>
<td>Male</td>
<td>5500A6003</td>
<td>18</td>
<td>2.0 (51) 5.6 (142)</td>
<td>1.5 (0.7)</td>
</tr>
<tr>
<td>1¼</td>
<td>Male</td>
<td>5500A7013</td>
<td>18</td>
<td>2.0 (51) 5.6 (142)</td>
<td>1.5 (0.7)</td>
</tr>
<tr>
<td>1¼</td>
<td>Female</td>
<td>5500A7001</td>
<td>37</td>
<td>2.5 (64) 5.9 (149)</td>
<td>2.3 (1.0)</td>
</tr>
<tr>
<td>1½</td>
<td>Female</td>
<td>5500A8001</td>
<td>38</td>
<td>2.5 (64) 5.9 (149)</td>
<td>2.3 (1.0)</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
<td>5500B9001</td>
<td>50</td>
<td>3.0 (77) 7.3 (185)</td>
<td>3.5 (1.6)</td>
</tr>
<tr>
<td>2½</td>
<td>Female</td>
<td>5500A9002</td>
<td>65</td>
<td>4.0 (102) 6.9 (173)</td>
<td>3.5 (1.6)</td>
</tr>
</tbody>
</table>

* NPT port threads. For BSPP threads add a “D” prefix to the model number, e.g., D5500A1003.

Silencer Kits

High-flow, noise-reduction silencers for DM® Series D double valves.

<table>
<thead>
<tr>
<th>Valve Threads Size</th>
<th>Kit Model Type</th>
<th>Kit Model Number*</th>
<th>Flow scfm</th>
<th>Overall Dimensions inches</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>NPT</td>
<td>2324H77</td>
<td>800</td>
<td>4.34 (110.2) 19.06 (484.1)</td>
<td>7.27 (184.7)</td>
</tr>
<tr>
<td>8</td>
<td>NPT</td>
<td>2325H77</td>
<td>800</td>
<td>5.41 (137.4) 21.18 (538.0)</td>
<td>8.41 (213.6)</td>
</tr>
<tr>
<td>12</td>
<td>NPT</td>
<td>2326H77</td>
<td>2080</td>
<td>6.74 (171.2) 25.85 (656.6)</td>
<td>10.66 (270.8)</td>
</tr>
<tr>
<td>30</td>
<td>NPT</td>
<td>2327H77</td>
<td>7200</td>
<td>9.85 (250.2) 41.55 (1055.4)</td>
<td>13.47 (342.1)</td>
</tr>
<tr>
<td>4</td>
<td>BSPP</td>
<td>2329H77</td>
<td>800</td>
<td>4.34 (110.2) 21.40 (543.6)</td>
<td>7.27 (184.7)</td>
</tr>
<tr>
<td>8</td>
<td>BSPP</td>
<td>2330H77</td>
<td>800</td>
<td>5.41 (137.4) 23.52 (597.4)</td>
<td>8.41 (213.6)</td>
</tr>
<tr>
<td>12</td>
<td>BSPP</td>
<td>2331H77</td>
<td>2080</td>
<td>6.74 (171.2) 28.20 (716.3)</td>
<td>10.66 (270.8)</td>
</tr>
<tr>
<td>30</td>
<td>BSPP</td>
<td>2332H77</td>
<td>7200</td>
<td>9.85 (250.2) 41.55 (1055.4)</td>
<td>13.47 (342.1)</td>
</tr>
</tbody>
</table>

* Exhaust adapter required for installation, consult ROSS.

Pressure Range: 150 psig (10 bar) maximum.

STANDARD SPECIFICATIONS: For valves on this page.

Ambient/Media Temperature: For valves on this page.

Flow Media: Filtered air; 5 micron recommended.

Inlet Pressure: 5 to 150 psig (0.3 to 10 bar).

Signal Pressure: Must be equal to or greater than inlet.

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS on the inside back cover.
Ball Valves (2/2)

- Chrome plated ball
- Blowout-proof stem w/adjustable packing
- RTFE seats and seals
- Pressure range: 29" Hg to 600 psig (41.3 bar)
- Temperature range: −35° to 400°F

Locking/Relieving Ball Valves (3/2)

- Chrome plated ball
- Blowout-proof stem w/adjustable packing
- RTFE seats and seals
- Pressure range: 29" Hg to 600 psig
- Temperature range: −35° to 400°F

Liquid Filled Gauges

- Liquid filled
- Case: Stainless steel, 2 1/2" diameter
- Scale: Dual (Lb/in² – bar – x100 kpa)
- Dial range: 0 to 160 psig
- Bourdon tube type: ANSI grade B
- Connection: Brass 1/4" NPT center back mount
- Surge protector: Standard

Pressure Gauges

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Model Number</th>
<th>Range psig</th>
<th>Diameter inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>5400A1002</td>
<td>0-160 (0-11)</td>
<td>1.7 (43)</td>
</tr>
<tr>
<td>1/4</td>
<td>5400A2010</td>
<td>0-60 (0-4)</td>
<td>2.2 (56)</td>
</tr>
<tr>
<td>1/4</td>
<td>5400A2011</td>
<td>0-200 (0-14)</td>
<td>2.2 (56)</td>
</tr>
<tr>
<td>1/4</td>
<td>5400A2012</td>
<td>0-300 (0-21)</td>
<td>2.2 (56)</td>
</tr>
</tbody>
</table>

DIN Form Electrical Connectors

WIRED CONNECTORS have 2 meter (6½ ft) cord with three 18 gauge conductors. Cord exits upward, and is available in either 6 mm or 10 mm diameter.

Safety Relief Valve

- Adjustable setpoint pressure range: 2 to 300 psig (0.1 to 20.7 bar).
- Factory set at 125 psig (8.6 bar)
- Bronze construction
- Plated steel spring, washers, stem, lever
- Aluminum alloy cap
- Teflon® PFA fluorocarbon seat
- Maximum temperature: 400°F

Model Number

<table>
<thead>
<tr>
<th>Model Number*</th>
<th>1/4&quot;</th>
<th>3/8&quot;</th>
<th>1/2&quot;</th>
<th>3/4&quot;</th>
<th>1&quot;</th>
<th>1¼&quot;</th>
<th>1½&quot;</th>
<th>2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPT Only</td>
<td>164H74</td>
<td>165H74</td>
<td>166H74</td>
<td>167H74</td>
<td>168H74</td>
<td>169H74</td>
<td>170H74</td>
<td>171H74</td>
</tr>
<tr>
<td>BSPP Only</td>
<td>172H74</td>
<td>173H74</td>
<td>174H74</td>
<td>175H74</td>
<td>176H74</td>
<td>177H74</td>
<td>178H74</td>
<td>179H74</td>
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</tbody>
</table>

Part Numbers of Form A Electrical Connectors

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>Without Light</th>
<th>With Light*</th>
</tr>
</thead>
<tbody>
<tr>
<td>For use with dropcord (Cord not included)</td>
<td>937K87</td>
<td>936K87*</td>
</tr>
<tr>
<td>Wired with 6-mm cord</td>
<td>721K77</td>
<td>720K77*</td>
</tr>
<tr>
<td>Wired with 10-mm cord</td>
<td>371K77</td>
<td>383K77*</td>
</tr>
<tr>
<td>For use with threaded conduit</td>
<td>723K77</td>
<td>724K77*</td>
</tr>
</tbody>
</table>

*Specify solenoid voltage when ordering.
Pressure Switches

- 3 to 150 psi (0.2 to 10.3 bar) pressure range (adjustable)
- 475 psi (37.8 bar) maximum pressure
- High shock resistance & set point stability
- SPDT double break contacts
- NEMA 4, 13 enclosure
- Diaphragm actuated
- Non-adjustable differential
- Numerical range scale window
- UL and CSA listed
- Indicator light
- 5 pin mini-connector

Visual Pop-Up Indicator or Pressure Switch (electrical)

- May be installed on all L-O-X® valves with pressure sensing port
- Provides a means to verify the release of downstream pressure to next obstruction

<table>
<thead>
<tr>
<th>Verification Option</th>
<th>Model Number</th>
<th>Inlet Port Size*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pop-Up Indicator</td>
<td>988A30</td>
<td>1/8</td>
</tr>
<tr>
<td>Pressure Switch</td>
<td>586A86</td>
<td>1/8</td>
</tr>
</tbody>
</table>

*Pressure sensing port threads are NPT on all L-O-X® valves models. (including BSPP)

Gauge Shut-Off

- Allows gauge installation without system shutdown
- Male-female ported for compact installation
- Nickel plated brass construction
- Rated to 250 psi (17.2 bar)

Junction Box

- 6” x 10” x 4” deep
- 20 pre-mounted terminals
- NEMA 12 construction

Three Function Transducer with Integral Pressure Switch and Digital Gauge

<table>
<thead>
<tr>
<th>Specification</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure setpoint range</td>
<td>7.5 to 150 psi (0.5 to 10.3 bar)</td>
</tr>
<tr>
<td>Overpressure limit</td>
<td>700 psi (48.3 bar)</td>
</tr>
<tr>
<td>Burst pressure</td>
<td>2000 psi (137.9 bar)</td>
</tr>
<tr>
<td>Port connection</td>
<td>1/4 NPT female</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>18 to 30 volts DC</td>
</tr>
<tr>
<td>Status indicators</td>
<td>1 red LED: switched output status, 3 numeric LEDs: system pressure</td>
</tr>
<tr>
<td>Outputs</td>
<td>Programmable NO or NC (with window function) &amp; 4–20 mA output</td>
</tr>
<tr>
<td>Switch point accuracy</td>
<td>± 1.5% of full range</td>
</tr>
<tr>
<td>Programmable switch delay</td>
<td>0 to 50 seconds</td>
</tr>
<tr>
<td>Repeatability</td>
<td>± 0.25% of full range</td>
</tr>
<tr>
<td>Wetted parts</td>
<td>304 stainless steel, ceramic cell, Viton O-ring</td>
</tr>
<tr>
<td>Protection rating</td>
<td>NEMA 3, 4, 12, 13, IP65</td>
</tr>
<tr>
<td>Electrical connections</td>
<td>Quick disconnect MICRO DC type</td>
</tr>
</tbody>
</table>

Single Function Unit – Transducer Only: 935H30
5 Meter Cord: 936H30

Model Number 717H30* (NPT) 717H30* (BSPP)

*Specify voltage when ordering.
1/4” NPT Female inlet

Model Number 112H74

Model Number 608F94

Model Number 911H30
Cautions

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure that all sources of energy are turned off, the entire pneumatic system is shut off and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).

2. All ROSS products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any installation can be tampered with or need servicing after installation, persons responsible for the safety of others or the care of equipment must check every installation on a regular basis and perform all necessary maintenance.

3. All applicable instructions should be read and complied with before using any fluid power system in order to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use.

4. Each ROSS product should be used within its specification limits. In addition, use only ROSS parts to repair ROSS products. Failure to follow these directions can adversely affect the performance of the product or result in the potential for human injury or damage to property.

FILTRATION and LUBRICATION

5. Dirt, scale, moisture, etc. are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. ROSS recommends a filter with a 5-micron rating for normal applications.

6. All standard ROSS filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Do not fail to use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition, hazardous leakage, and the potential for human injury or damage to property. Immediately replace a crazed, cracked, or deteriorated bowl. When bowl gets dirty, replace it or wipe it with a clean dry cloth.

7. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum based oils with oxidation inhibitors, an aniline point between 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks human injury, and/or damage to property.

AVOID INTAKE/EXHAUST RESTRICTION

8. Do not restrict the air flow in the supply line. To do so could reduce the pressure of the supply air below the minimum requirements for the valve and thereby cause erratic action.

9. Do not restrict a valve’s exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.

ROSS expressly disclaims all warranties and responsibility for any unsatisfactory performance or injuries caused by the use of the wrong type, wrong size, or an inadequately maintained silencer installed with a ROSS product.

POWER PRESSES

10. Mechanical power presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.

ENERGY ISOLATION/EMERGENCY STOP

11. Per specifications and regulations, ROSS L-O-X® and L-O-X® with EEZ-ON® operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

STANDARD WARRANTY

ROSS' obligation under this warranty is limited to repair or replacement of the product or refund of the purchase price paid solely at the discretion of ROSS and provided such product is returned to ROSS freight prepaid and upon examination by ROSS is found to be defective. This warranty becomes void in the event that product has been subject to misuse, misapplication, improper maintenance, modification or tampering.

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This catalog presents an overview of the extensive ROSS product line. Other literature is available for engineering, maintenance, and service requirements. If you need products or specifications not shown here, please contact ROSS or your ROSS distributor. They will be happy to assist you in selecting the best product for your application.