Stainless Steel Pilot Piston Solenoid Valve 2MS Series
for High Temperature & High Pressure

To Order, Please Specify: 1. Model No, 2. Voltage, 3. Pressure Option

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Voltage</th>
<th>Pressure Option</th>
<th>Port Size (NPT or Flange)</th>
<th>Orifice (MM)</th>
<th>Cv</th>
<th>Power (W)</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>2MS150 - 1/2</td>
<td></td>
<td>H Option: 87 to 1450 PSI</td>
<td>1/2</td>
<td>15</td>
<td>4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS200 - 3/4</td>
<td></td>
<td>Standard: 6 to 230 PSI</td>
<td>3/4</td>
<td>20</td>
<td>7.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS250 - 1</td>
<td></td>
<td></td>
<td>1</td>
<td>25</td>
<td>12</td>
<td>22VA</td>
<td></td>
</tr>
<tr>
<td>2MS320 - 1 1/4</td>
<td></td>
<td></td>
<td>1 1/4</td>
<td>32</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS400 - 1 1/2</td>
<td></td>
<td>Option: Explosion Proof</td>
<td>1 1/2</td>
<td>40</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS500 - 2</td>
<td></td>
<td></td>
<td>2</td>
<td>50</td>
<td>48</td>
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</table>

2 Way, NC Pilot Piston Stainless Steel

<table>
<thead>
<tr>
<th>Valve Model</th>
<th>Valve Type</th>
<th>Action</th>
<th>Port Size (NPT)</th>
<th>Port Size (Flange)</th>
<th>Cv</th>
<th>Orifice</th>
<th>Operating Pressure</th>
<th>Temperature</th>
<th>Body Materials</th>
<th>Seal Materials</th>
<th>Coil Protection Insulation</th>
<th>Coil Duty</th>
<th>Electrical Connections</th>
<th>Wetted Surfaces</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2MS120</td>
<td>2 Way Normally Closed (NC)</td>
<td>Pilot Piston</td>
<td>3/8”</td>
<td>1/2 F</td>
<td>4.5</td>
<td>12</td>
<td>Standard: 6 to 230 PSI</td>
<td>Medium: -6 to 356 °F (-20 TO 180 °C) with PTFE Seal</td>
<td>Stainless Steel</td>
<td>PTFE; Viton, EPDM</td>
<td>H Class IP65</td>
<td>DC: 20W, AC: 22VA</td>
<td>DIN 43650A (Form A)</td>
<td>Stainless Steel &amp; PTFE</td>
<td>Air, Inert Gas, Liquid, Steam, Vacuum</td>
</tr>
</tbody>
</table>

**Internal View of Normally Closed Valve**

<table>
<thead>
<tr>
<th>Valve Model</th>
<th>Valve Type</th>
<th>Action</th>
<th>Port Size (NPT)</th>
<th>Port Size (Flange)</th>
<th>Cv</th>
<th>Orifice</th>
<th>Operating Pressure</th>
<th>Temperature</th>
<th>Body Materials</th>
<th>Seal Materials</th>
<th>Coil Protection Insulation</th>
<th>Coil Duty</th>
<th>Electrical Connections</th>
<th>Wetted Surfaces</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2MS150</td>
<td>2 Way Normally Open (NO)</td>
<td>Pilot Piston</td>
<td>3/4”</td>
<td>3/4 F</td>
<td>4.5</td>
<td>20</td>
<td>Standard: 6 to 230 PSI</td>
<td>Medium: -6 to 356 °F (-20 TO 180 °C) with PTFE Seal</td>
<td>Stainless Steel</td>
<td>PTFE; Viton, EPDM</td>
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<td>Stainless Steel &amp; PTFE</td>
<td>Air, Inert Gas, Liquid, Steam, Vacuum</td>
</tr>
</tbody>
</table>

**Internal View of Normally Open Valve**

StcValve.com; 650-856 8833
# 2MS/2MSO Series Stainless Steel Pilot Piston Solenoid Valve

## Numbering System

### 2 Way Normally Closed

<table>
<thead>
<tr>
<th>Model</th>
<th>Valve Port Size (in)</th>
<th>Connection Style</th>
<th>Pressure</th>
<th>Coil Voltage</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>2MS120</td>
<td>3/8</td>
<td>Blank = NPT</td>
<td>Standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS150</td>
<td>1/2</td>
<td>Blank = NPT</td>
<td>High Pressure Options:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS200</td>
<td>3/4</td>
<td>Blank = NPT</td>
<td>M = 6 to 580 PSI (DC Coil)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS250</td>
<td>1</td>
<td>Blank = NPT</td>
<td>M = 6 to 725 PSI (AC Coil)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS320</td>
<td>1 1/4</td>
<td>Blank = NPT</td>
<td>H = 87 to 1450 PSI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS400</td>
<td>1 1/2</td>
<td>Blank = NPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MS500</td>
<td>2</td>
<td>Blank = NPT</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

### 2 Way Normally Open

<table>
<thead>
<tr>
<th>Model</th>
<th>Valve Port Size (in)</th>
<th>Connection Style</th>
<th>Pressure</th>
<th>Coil Voltage</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>2MSO120</td>
<td>3/8</td>
<td>Blank = NPT</td>
<td>Standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MSO150</td>
<td>1/2</td>
<td>Blank = NPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MSO200</td>
<td>3/4</td>
<td>Blank = NPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MSO250</td>
<td>1</td>
<td>Blank = NPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MSO320</td>
<td>1 1/4</td>
<td>Blank = NPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MSO400</td>
<td>1 1/2</td>
<td>Blank = NPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2MSO500</td>
<td>2</td>
<td>Blank = NPT</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

## Coil Electrical Options:

- D = DIN (43650A)
- E = Explosion Proof Coil (ATEX)
- M = 3 ft Molded Cable (3 Wires)
- N = DIN with 1/2 NPT for Conduit

## Electrical Connection Options:

- M = 3 ft Molded Cable (3 Wires)
- N = DIN with 1/2 NPT for Conduit
- D = DIN (43650A)
2MS & 2MSO Series Valves Internal Components

- Solenoid Coil (Plastic Encapsulated)
- DIN 43650, Form A
- Armature Tube (Stainless Steel)
- Plunger (Stainless Steel)
- Screws, 4x (Stainless Steel)
- Upper Valve Body (Stainless Steel)
- Spring (Stainless Steel)
- Seals (PTFE) Seal Options: EPDM, Viton
- Piston (Stainless Steel)
- Lower Valve Body (Stainless Steel)
Valve Dimensions

Model: 2M Series Dimensions (MM)

<table>
<thead>
<tr>
<th>Normally Closed (NC)</th>
<th>Normally Open (NO)</th>
<th>Pressure (psi)</th>
<th>Medium Temperature</th>
<th>Ambient Temperature</th>
<th>Power Consumption</th>
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<tbody>
<tr>
<td>Brass</td>
<td>Stainless Steel</td>
<td>Port Size H (NPT)</td>
<td>Cv</td>
<td>L</td>
<td>H1</td>
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<tr>
<td>2M150-1/2</td>
<td>2MS150-1/2</td>
<td>1/2</td>
<td>15</td>
<td>4.5</td>
<td>75</td>
</tr>
<tr>
<td>2M200-3/4</td>
<td>2MS200-3/4</td>
<td>3/4</td>
<td>20</td>
<td>7.6</td>
<td>75</td>
</tr>
<tr>
<td>2M250-1</td>
<td>2MS250-1</td>
<td>1</td>
<td>25</td>
<td>12</td>
<td>92</td>
</tr>
<tr>
<td>2M320-1 1/4</td>
<td>2MS320-1 1/4</td>
<td>1 1/4</td>
<td>32</td>
<td>22</td>
<td>110</td>
</tr>
<tr>
<td>2M400-1 1/2</td>
<td>2MS400-1 1/2</td>
<td>1 1/2</td>
<td>40</td>
<td>30</td>
<td>122</td>
</tr>
<tr>
<td>2M500-2</td>
<td>2MS500-2</td>
<td>2</td>
<td>50</td>
<td>48</td>
<td>161</td>
</tr>
</tbody>
</table>

StcValve.com; 650-856 8833
STC 2MS150-500 SERIES VALVES
WATER FLOW RATE VS PRESSURE

WATER FLOW RATE (GPM) vs PRESSURE (PSI)

- 2MS500-2
- 2MS400 1-1/2
- 2MS350 1 1/4
- 2MS250 1
- 2MS200 3/4
- 2MS160 1/2

StcValve.com; 650-856 8833
STC 2MS150-250 SERIES VALVE
WATER FLOW RATE VS PRESSURE

WATER FLOW RATE (GPM)
PRESSURE (PSI)
STC 2MS150-250 SERIES VALVE
WATER FLOW RATE VS PRESSURE
2MS250 -1
2MS200 -3/4
2MS160 -1/2

StcValve.com; 650-856 8833
Installation and Operation:

To connect the valve Inlet and Outlet:
Connect the inlet and outlet in the direction of the arrow marked on the valve.

To install coil:
Put the coil onto the armature tube of the valve. Put the lock-washer and nut onto the armature tube. Hand tighten the nut, then use a wrench to tighten the nut to a quarter turn; do not over-tighten the nut, it may cause the armature tube to fail prematurely.

To connect DIN coil:
1. Remove the Philip screw from the plastic housing and unplug it from the DIN coil.
2. From the screw opening, push the terminal block out from the plastic housing.
3. Note the 1, 2 and ground markings on underside of DIN enclosure.
4. For DC DIN Coil, Connect 1 to Positive, 2 to Negative.
5. For AC DIN Coil, connect 1 to HOT wire, 2 to Neutral wire, and if required connect
6. Do not energize the coil without installing it onto the valve, it will burn the coil and create fire hazards.

Safety Note: Standard valves are supplied with continuous duty coils. The proper class of insulation for the service is indicated on the coil. The coil temperature may become hot after being energized for extended periods, but it is normal. Do not energize the coil without installing it onto the valve or connect the coil to a wrong voltage, as it may overheat and damage the coil; although the coil is made of flame retarded material, misuse of the coil in this manner could create fire hazards and generate smoke or burning odor which indicates excessive coil temperature and should disconnect the power to the coil immediately.

Operation: 2MS series valve is a 2/2 Pilot Piston, Normally Closed Solenoid Valve.
When the valve receives an electrical signal, a magnetic field is formed which attracts the plunger covering the pilot orifice to lift off and allow the media to escape into the outlet port, which causes pressure on the top of the piston to drop. As the pressure is reduced, the full system pressure on the other side of the piston acts to lift the piston away from the main orifice and allows the media to flow through the valve. Since the bleed orifice in the piston is dimensionally smaller than the pilot orifice, the system pressure cannot rebuild on the top of the piston as long as the pilot orifice remains open.

When the valve is de-energized, it releases its hold on the plunger. Then the plunger forced by the spring drops and covers the pilot orifice. As the media enters through the piston bleed orifice into the top side of the piston, it causes the pressure to build up and forces the piston down until it covers the main orifice and stops media flow through the valve.

These valves are equipped with Teflon (PTFE) seals which is not elastic but is formable. It is because of this seal property, if the valve is used in low temperature, there may be small leak and the valve needs to be break-in to form a good mating surface between the seal and the valve orifice. Although the valve have been break-in at the factory level to make sure there is no leak, but due to shipping and installation, the break-in mating surface may have shifted and needs to break-in again, and this is very common. This is accomplished by cycling the valve ON/OFF quickly at the operating pressure until no leak is observed.

The 2MS series valve is to be used with clean media. If the pilot hole is block, use the cleaning procedure to clean the pilot hole.
Valve Pilot Hole Cleaning Procedure

The 2MS series valve is to be used with clean media. If the valve does not open or close properly, the pilot holes inside the valve may be block or restricted. Use the following cleaning procedure to clean the pilot hole.

1. Remove the coil from the valve body.
2. Remove the 4 socket head machine screws from the valve.
3. Remove the top valve cover.
4. Put a small wire through the hole in the valve cover as shown below. Try to dislodge and remove any small particles got trap inside the small pilot hole.
5. Put a small wire through the hole in the valve piston as shown below. Try to dislodge and remove any small particles got trap inside the small pilot hole.
6. Reassemble the valve and test the valve to assure that it is functioning properly before returning it to service.

Wire goes in from here

VALVE COVER

Wire comes out from

VALVE PISTON
Valve Pilot Hole Cleaning Procedure

During re-assembling of the valve, make sure the large hole on the top half of the valve lines up with the hole on the bottom half of the valve.
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All shipments are F.O.B. 892 Commercial Street, Palo Alto, CA 94303, USA. Most orders are shipped via UPS Standard Ground unless instructions accompany order. Outside the UPS zones, shipment will be made Best Way. The responsibility for goods delay, lost or damaged in transit rests with the carrier and purchaser. Purchaser may purchase shipping insurance to cover lost or damaged products caused by shipping.

RETURN OF MERCHANDISE:
No merchandise is accepted for return 30 days after delivery date. No credit allowed on merchandise shipped as ordered and returned without obtaining an authorization number IN ADVANCE. A 20% restocking charge applies to all returns, and transportation charges must be fully prepaid. We will pay ground transportation charges on re-sent or returned merchandise due to STC's error. Shortages & Mis-Shipments: Any shortages or mis-shipment must be reported within 15 days.

CANCELLATION POLICY:
Blanket order can be canceled 90 days before scheduled ship date. There will be a 10% charge if a blanket order is cancel within 90 days of scheduled ship date, and a 20% charge if cancel within 60 days. Regular order for non-custom parts can be canceled any time before the order is shipped. For custom parts, a 30% down payment is required either at the time of order or 90 days prior to scheduled ship date, whichever comes later.

Remittances should be sent to:
Sizto Tech Corporation, 892 Commercial Street, Palo Alto, CA 94303, USA
Credit Card Payments: Visa, MasterCard, Discover, or American Express Accepted
International Customers: Advance Payment Required via Bank Wire, Cashier's Check or Approved Credit Card.
Credit Application: To establish a net 30 day account, please mail or fax three trade references with complete mailing addresses and account numbers.

LIMITED WARRANTY – IMPORTANT NOTICE TO PURCHASER:
Sizto Tech Corporation (STC) only warrants this product to be free from defects in materials and workmanship at the time of shipment. This limited warranty expires one year after delivery to the end-user. STC’s entire obligation to the Purchaser for breach of this limited warranty shall be limited to replacement of the defective product or refund of the original purchase price of this product, at STC’s option. Purchaser has thirty (30) days to return the goods after STC has agreed to accept the return. All freight charges on returned material shall be paid by the Purchaser. STC’s limited warranty shall not apply, however, to the product that have been subjected to misuse, alteration, accident or negligence during handling or storage.

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OBLIGATIONS
You warrant, represent and agree: (1) to comply with all laws; (2) that our sale and shipment of the product will not, by export thereof, your legal status or otherwise, cause us to violate any law; and (3) to indemnify us against any losses from a failure by you or a third party to comply with law or these terms and conditions, or from use of the product.

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