<table>
<thead>
<tr>
<th>Series</th>
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<tbody>
<tr>
<td>SX3000 / SX5000</td>
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<tr>
<td>Solenoid Valve</td>
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<tr>
<td>SY100</td>
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<tr>
<td>3/2 Direct Acting / Solenoid Spring Valve M3 Ported</td>
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<tr>
<td>SY3000/5000/7000</td>
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<tr>
<td>Body Ported Solenoid Valve</td>
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<tr>
<td>SY3000/5000/7000</td>
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<tr>
<td>Base Mounted Solenoid Valve</td>
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<tr>
<td>VQ100</td>
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<td>3/2 Direct Acting / Solenoid Spring Valve M3-M5 Ported</td>
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<tr>
<td>VQ0000</td>
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<tr>
<td>5 Port Metal/Rubber Seal Ultra High Speed Solenoid Valve</td>
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<td>VQ1000</td>
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<tr>
<td>5/2, 5/3 Spool &amp; Sleeve, Ultra High Speed Solenoid Valve</td>
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<tr>
<td>Model</td>
<td>Description</td>
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<tr>
<td>VX21/22/23</td>
<td>2 Port Solenoid Valve Direct Operated Type</td>
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<tr>
<td>VXD21</td>
<td>2 Port Solenoid Valve Pilot Operated Type</td>
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<tr>
<td>VX31/32/33</td>
<td>3 Port Solenoid Valve Direct Operated Type</td>
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<tr>
<td>VXZ22</td>
<td>2 Port Solenoid Valve Pilot Operated Type / Differential Pressure Operation Type</td>
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<tr>
<td>VZ100</td>
<td>3/2 Direct Acting Solenoid Valve M5 Ported</td>
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<td>VZ300</td>
<td>3/2 Pilot Operated Solenoid Spring Valve M5 Ported</td>
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<td>VZ500</td>
<td>3/2 Pilot Operated Solenoid Spring Valve</td>
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<tr>
<td>NVFS</td>
<td>5 Port Pilot Operated Base Mounted Plug In Type</td>
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<td>VQD1000</td>
<td>4 Port Direct Operated Poppet Solenoid Valve</td>
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<tr>
<td>VQZ100/200/300</td>
<td>3 Port Solenoid Valve Base Mounted / Plug Lead Type</td>
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<tr>
<td>VQZ100/200/300</td>
<td>3 Port Solenoid Valve Body Ported / Plug Lead Type</td>
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<td>Model</td>
<td>Description</td>
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<tr>
<td>VQZ1000/2000/3000</td>
<td>5 Port Solenoid Valve Base Mounted / Plug Lead Type</td>
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<td>VQZ1000/2000/3000</td>
<td>5 Port Solenoid Valve Body Ported / Plug Lead Type</td>
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<td>(N)VH</td>
<td>4/2, 4/3 Hand Valve</td>
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<tr>
<td>(N)VM400</td>
<td>3/2 Mechanical Valve</td>
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<td>(N)VM800</td>
<td>3/2 Mechanical Valve</td>
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<tr>
<td>(N)VM1000</td>
<td>3/2 Normally Closed Micro Mechanical Valve</td>
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<tr>
<td>(N)VZM550</td>
<td>5/2 Mechanical Valve</td>
</tr>
<tr>
<td>(N)VR2110</td>
<td>Time Delay Valve</td>
</tr>
<tr>
<td>(N)VR1210/1220</td>
<td>Shuttle Valve</td>
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<tr>
<td>Product Code</td>
<td>Description</td>
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<tr>
<td>(N)AK</td>
<td>Check Valve</td>
</tr>
<tr>
<td>(N)AQ</td>
<td>Quick Exhaust Valve</td>
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<tr>
<td>AQ200/300</td>
<td>Miniature In-Line Quick Exhaust Valve</td>
</tr>
<tr>
<td>ASP</td>
<td>Speed Controller With Pilot Check Valve</td>
</tr>
<tr>
<td>(N)ASV</td>
<td>Adjustable Quick Exhaust Valve With Integral Exhaust Restrictor And Silencer</td>
</tr>
</tbody>
</table>
SMC Pneumatics has again confirmed its technological leadership in the world of pneumatics market with the release of the Z valve series.

The result of a major research and development program is a family of three valve ranges whose generic name ‘Z’ is literally translated as infinity or ultimate.

The Z valve family comprises of three associated yet different product series, VQ, SX and SY, which provide cost effective solutions to pneumatic problems through the extensive range of valve and manifold configurations that are available.

The new Z valves give you major advances in solenoid pilot valve technology, spool design and manifold features that allow benefits in extended life cycle, high flow and low power consumption.

All three series, VQ, SX and SY, are compact, lightweight and aesthetic in appearance. They offer particular strengths for different requirements but have a commonality of major features and benefits across the range to give you maximum versatility, performance and reliability in your quest for competitive advantage.

Both the SX and SY series offer a wide range of conventional body ported and subbase mounted valves. These valves feature the latest guided spool with slimline water resistant seals which protect it against airline condensate carryover. This, together with the low power consumption, high speed solenoid pilot operator, allows a minimum life cycle in excess of fifty million.

In the case of the SX series, a further space saving is achieved by locating both solenoid operators at one end of the valve.

Aluminum bar manifolds, featuring either threaded ports or integrated push-in connectors, together with modular stacking manifolds, allow the valves to be mounted conveniently in the required layout. Also available is a pre-wired, plug-in modular manifold which can be ordered for use on a DIN rail system.

The VQ series incorporates matched lapped and ground stainless steel spool and sleeve design with the new solenoid pilot operator to provide you with high speed operation and a minimum expected life cycle in excess of two hundred million.

Further to the body ported, subbase mounted and modular stacking manifold types, the VQ series also offers two new and innovative multiple valve variants, the flip and cassette types.

The flip type integrates both the valve and base in a super compact arrangement which still allows ease of interchangeability. The cassette type allows modular slices to be clipped onto a DIN rail for another flexible and compact manifold assembly.

The provision of the solenoid electrics in either negative common or positive common will allow compatibility with any chosen control device.

In addition to the above features, the new SMC Z family of valves allows you to select from a comprehensive range of mounting brackets, electrical connectors, port adapters, manifold accessories and serial transmission devices to provide the complete solution for your application.

Should you require the assistance of SMC staff for any reason concerning the use and application of the Z family, please contact your local SMC Sales Office.
How To Use This Guide

START in the top left hand corner of the page and make your first decision – metal spool or rubber spool? Follow your decision line until you come to another choice. ie. individual or multiple valves.

Keep following your decision line until you arrive at a table. Starting at the left of the table, make your first of two possible choices. Follow your choice one column to the right, and make your next decision.

Remember, at each stage across the table you may only select one of the options immediately to the right of the current box. Do not deviate up or down. Eventually you will arrive at a selection in the right hand column (shaded pink). Now choose the valve with your required Cv.
When a valve type has been selected, please consult the relevant catalog page in the following section, or your local SMC Sales Office for how to order information and details of stocked products.

If you require further assistance or explanation with this guide, please contact your local SMC Sales Office.

This guide does not cover “made to order” options and variants e.g. SY body ported external pilot types. Further information is available from catalogs E135-A (SY), E131-B (VQ), E139-A (SX) or your local SMC Sales Office.

The VQ flip type valves offer only two position versions – three position bodies are not available.

A true sub-base mount valve is defined as: “The valve body can be removed from the manifold without disturbing any pneumatic piping” ie all pneumatic connections are made to the manifold, not the valve.
**Series SX3000, 5000 Solenoid Valve**

- Sizes Available SX3000 and SX5000
- Compact and Lightweight Design
- Low Power Consumption: 0.6W
- Large Flow Capacity
- Long Life exceeding 50 million cycles

### Technical Specifications

<table>
<thead>
<tr>
<th>Series</th>
<th>SX3000</th>
<th>SX5000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air / Lubrication Not Required</td>
<td></td>
</tr>
<tr>
<td>Internal Pilot</td>
<td>2 Position Single</td>
<td>0.15 – 0.7 (22 – 100)</td>
</tr>
<tr>
<td></td>
<td>Operating Pressure</td>
<td>0.1 – 0.7 (14.5 – 100)</td>
</tr>
<tr>
<td></td>
<td>Range MPa (PSI)</td>
<td>0.2 – 0.7 (30 – 100)</td>
</tr>
<tr>
<td>External Pilot</td>
<td>2 Position Single</td>
<td>0.25 – 0.7 (37 – 100)</td>
</tr>
<tr>
<td></td>
<td>Operating Pressure</td>
<td>0.25 – 0.7 (37 – 100)</td>
</tr>
<tr>
<td></td>
<td>Range MPa (PSI)</td>
<td>0.25 – 0.7 (37 – 100)</td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperature °C / °F</td>
<td>Max 50°C / 122°F</td>
<td></td>
</tr>
<tr>
<td>Max Operating</td>
<td>2 Position Single</td>
<td>10</td>
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<tr>
<td>Frequency Hz</td>
<td>3 Position</td>
<td>3</td>
</tr>
<tr>
<td>Manual Override</td>
<td>Non Locking Push Type, Push Locking, Slotted Type</td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not Required</td>
<td></td>
</tr>
<tr>
<td>Mounting Piston</td>
<td>Free</td>
<td></td>
</tr>
<tr>
<td>Impact / Vibration Resistance</td>
<td>150 / 30 (8.3 ~ 2000 Hz)</td>
<td></td>
</tr>
<tr>
<td>Protection Structure</td>
<td>Dust Proof</td>
<td></td>
</tr>
</tbody>
</table>

### How To Order

**Series SX3000/5000 Valve Types 45F, 45P**

- **Series**: SX3000, SX5000
- **Configuration**:
  - 1: 2 Position Single
  - 2: 2 Position Double
  - 3: 3 Position Closed Center
  - 4: 3 Position Exhaust Center
  - 5: 3 Position Pressure Center
- **Manual Override**:
  - 0: Non Locking Push Type
  - 1: Push Locking Slotted Type
- **Voltage**:
  - 4: 24VDC
  - 5: 12VDC

**Base Mounted Type**

**Stacking Type Manifold**

**DIN Rail Mounted, Plug-In Type 45F Type (D-Sub Connector)**

---

**Base Mounted Type Stackable Manifold**

**DIN Rail Mounted, Plug-In Stackable Type**

**45F Type (D-Sub Connector)**

---

**Common Specifications**

- Nil ... Positive Common
- N ... Negative Common

---

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230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Local Area: (650) 588-9200 • Outside Local Area: (800) 258-9200 • [www.stevenengineering.com](http://www.stevenengineering.com)
2.2 VALVES
SERIES SX

HOW TO ORDER
Series SX Manifold 45F Type / D-Sub Connector

SS5X  —  45  F

Manifold Series
3  ......SX3000
5  ......SX5000

Common Specifications
Nil  ...Positive Common
N  ......Negative Common

Connector Box Mounting
U  ......U Side
D  ......D Side

Valve Stations
02-10 ......Double Wiring Specifications
11-20 ......Applicable up to 20 Solenoids. Use Manifold Specifications Form to specify wiring

SUP/EXH Block Assembly Mounting Positions
U  ......U Side - 2 ~ 10 Stations
D  ......D Side - 2 ~ 10 Stations
B  ......Both Sides - 2 ~ 20 Stations
*M  ...Special Specifications

HOW TO ORDER
Series SX Manifold 45P Type / Flat Cable Type

SS5X  —  45  P

Manifold Series
3  ......SX3000
5  ......SX5000

Common Specifications
Nil  ...Positive Common
N  ......Negative Common

Connector Box Mounting
U  ......U Side
D  ......D Side

Valve Stations (Blanking Plate Assembly are included)

Manifold Series
3  ......SX3000
5  ......SX5000

Common Specifications
Nil  ...Positive Common
N  ......Negative Common

Connector Poles
Symbol  Poles  Station
A  26  2~20
B  20  2~16
H  10  2~8

A, B Port Size
SX3000
Metric  Imperial
C4  ...One Touch Fittings for ø4  N3  ...One Touch Fittings for ø5/32"
C6  ...One Touch Fittings for ø6  N7  ...One Touch Fittings for ø1/4"

SX5000
Metric  Imperial
C4  ...One Touch Fittings for ø4  N3  ...One Touch Fittings for ø5/32"
C6  ...One Touch Fittings for ø6  N7  ...One Touch Fittings for ø1/4"
C8  ...One Touch Fittings for ø8  N9  ...One Touch Fittings for ø5/16"

*M  ...Special Specifications

Option
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)

Voltage
- 24VDC
12V  12VDC

SUP/EXH Block Assembly Mounting Positions
U  ......U Side - 2 ~ 10 Stations
D  ......D Side - 2 ~ 10 Stations
B  ......Both Sides - 2 ~ 20 Stations
*A  ...Special Specifications (by Special Order)
Consult SMC Customer Service

Note) OTF = One Touch Fittings

BASE MOUNTED TYPE
STACKING TYPE MANIFOLD
DIN RAIL MOUNTED, PLUG-IN TYPE
45P Type (Flat Cable Type)

Option
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)

Voltage
- 24VDC
12V  12VDC

SUP/EXH Block Assembly Mounting Positions
U  ......U Side - 2 ~ 10 Stations
D  ......D Side - 2 ~ 10 Stations
B  ......Both Sides - 2 ~ 20 Stations
*A  ...Special Specifications (by Special Order)
Consult SMC Customer Service

Note) OTF = One Touch Fittings

A, B Port Size
SX3000
Metric  Imperial
C4  ...OTF for ø4  N3  ...OTF for ø5/32"
C6  ...OTF for ø6  N7  ...OTF for ø1/4"

SX5000
Metric  Imperial
C4  ...OTF for ø4  N3  ...OTF for ø5/32"
C6  ...OTF for ø6  N7  ...OTF for ø1/4"
C8  ...OTF for ø8  N9  ...OTF for ø5/16"

*A  ...Special Specifications

Consult SMC Customer Service

Option
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)

Voltage
- 24VDC
12V  12VDC

SUP/EXH Block Assembly Mounting Positions
U  ......U Side - 2 ~ 10 Stations
D  ......D Side - 2 ~ 10 Stations
B  ......Both Sides - 2 ~ 20 Stations
*A  ...Special Specifications (by Special Order)
Consult SMC Customer Service

Note) OTF = One Touch Fittings

20 Pole (PG) Connector
Symbol  Poles  Station
A  26  2~20
B  20  2~16
H  10  2~8

10 Pole (PH) Connector
Symbol  Poles  Station
A  10  1~10
B  11  1~11
H  12  1~12

20 Pole (PG) Connector
Symbol  Poles  Station
A  26  2~20
B  20  2~16
H  10  2~8

Note) OTF = One Touch Fittings

Consult SMC Customer Service

Option
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)

Voltage
- 24VDC
12V  12VDC

SUP/EXH Block Assembly Mounting Positions
U  ......U Side - 2 ~ 10 Stations
D  ......D Side - 2 ~ 10 Stations
B  ......Both Sides - 2 ~ 20 Stations
*A  ...Special Specifications (by Special Order)
Consult SMC Customer Service

Note) OTF = One Touch Fittings

20 Pole (PG) Connector
Symbol  Poles  Station
A  26  2~20
B  20  2~16
H  10  2~8

10 Pole (PH) Connector
Symbol  Poles  Station
A  10  1~10
B  11  1~11
H  12  1~12

20 Pole (PG) Connector
Symbol  Poles  Station
A  26  2~20
B  20  2~16
H  10  2~8

Note) OTF = One Touch Fittings

Consult SMC Customer Service

Option
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)

Voltage
- 24VDC
12V  12VDC

SUP/EXH Block Assembly Mounting Positions
U  ......U Side - 2 ~ 10 Stations
D  ......D Side - 2 ~ 10 Stations
B  ......Both Sides - 2 ~ 20 Stations
*A  ...Special Specifications (by Special Order)
Consult SMC Customer Service

Note) OTF = One Touch Fittings

20 Pole (PG) Connector
Symbol  Poles  Station
A  26  2~20
B  20  2~16
H  10  2~8

10 Pole (PH) Connector
Symbol  Poles  Station
A  10  1~10
B  11  1~11
H  12  1~12

20 Pole (PG) Connector
Symbol  Poles  Station
A  26  2~20
B  20  2~16
H  10  2~8

Note) OTF = One Touch Fittings

Consult SMC Customer Service

Option
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)

Voltage
- 24VDC
12V  12VDC

SUP/EXH Block Assembly Mounting Positions
U  ......U Side - 2 ~ 10 Stations
D  ......D Side - 2 ~ 10 Stations
B  ......Both Sides - 2 ~ 20 Stations
*A  ...Special Specifications (by Special Order)
Consult SMC Customer Service

Note) OTF = One Touch Fittings
2.3

**VALVES**

**SERIES SX**

**OPTIONS**

**SERIES SX MANIFOLD OPTIONS**

- **Blanking plate ass’y**
  - When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

- **SUP block disc**
  - When valve exhaust affects the other stations on the circuit, or when superficially possible, dual pressure valve is used on a standard manifold, insert EXH block disc in between stations to avoid cross-over.

- **EXH block disc**
  - When valve exhaust affects the other stations on the circuit, or when superficially possible, dual pressure valve is used on a standard manifold, insert EXH block disc in between stations to avoid cross-over.

- **Block disc indication seal**
  - These seals are stuck on the block with SUP and EXH block discs inside for confirmation from outside. (3 sheets respectively)

- **Silencer for one-touch fitting**
  - The silencer plugs directly into the one-touch fittings of the manifold.

**PORT PLUGS**

Inserts easily into unused cylinder ports and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.

<table>
<thead>
<tr>
<th>Applicable Fitting Size ød</th>
<th>Model</th>
<th>A</th>
<th>L</th>
<th>D</th>
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<tbody>
<tr>
<td>ø4mm</td>
<td>KQP-04</td>
<td>16</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>ø5/32&quot;</td>
<td>KQP-03</td>
<td>16</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>ø6mm</td>
<td>KQP-06</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>ø1/4&quot;</td>
<td>KQP-07</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>ø8mm</td>
<td>KQP-08</td>
<td>20.5</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>ø5/16&quot;</td>
<td>KQP-09</td>
<td>20.5</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>ø10mm</td>
<td>KQP-10</td>
<td>22</td>
<td>43</td>
<td>12</td>
</tr>
<tr>
<td>ø5/8&quot;</td>
<td>KQP-11</td>
<td>22</td>
<td>43</td>
<td>12</td>
</tr>
</tbody>
</table>

**See Inside Front Cover For Details Of Your Local Sales Office**

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FOR FURTHER TECHNICAL INFORMATION REFER TO CATALOG REFERENCE E139.
D-Sub Connector (25 Pole) / Cable Assembly VXZS3000-21A1/2/3

**D-Sub Connector Cable Assembly**

<table>
<thead>
<tr>
<th>Cable Length</th>
<th>Assembly No</th>
<th>Note</th>
</tr>
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<tbody>
<tr>
<td>1.5m</td>
<td>VXZS3000-21A-1</td>
<td>Cable 25</td>
</tr>
<tr>
<td>3m</td>
<td>VXZS3000-21A-2</td>
<td>- Core</td>
</tr>
<tr>
<td>5m</td>
<td>VXZS3000-21A-3</td>
<td>x 24AWG</td>
</tr>
</tbody>
</table>

* For other commercial connectors, use a 25-pole female connector made in conformity with MIL-C-24308.

**Electric Characteristics**

<table>
<thead>
<tr>
<th>Item</th>
<th>Characteristics</th>
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</thead>
<tbody>
<tr>
<td>Conductor Resistance</td>
<td>65 or less</td>
</tr>
<tr>
<td>Voltage Limit V, 1 min, AC</td>
<td>1000</td>
</tr>
<tr>
<td>Insulation Resistance M km, 20°C</td>
<td>5 or more</td>
</tr>
</tbody>
</table>

Note: The minimum bending radius of D-Sub Connector Cable Assembly is 20mm.

**Flat Cable Connector / Cable Ass’y**

**AxT100-FC□-“**

**Accessories**

**Flat Cable Connector Assembly**

<table>
<thead>
<tr>
<th>Cable Length</th>
<th>10 Pole</th>
<th>20 Pole</th>
<th>26 Pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5m</td>
<td>AxT100-FC10-1</td>
<td>AxT100-FC20-1</td>
<td>AxT100-FC26-1</td>
</tr>
<tr>
<td>3m</td>
<td>AxT100-FC10-2</td>
<td>AxT100-FC20-2</td>
<td>AxT100-FC26-2</td>
</tr>
<tr>
<td>5m</td>
<td>AxT100-FC10-3</td>
<td>AxT100-FC20-3</td>
<td>AxT100-FC26-3</td>
</tr>
<tr>
<td>Connector Width</td>
<td>17.2</td>
<td>30</td>
<td>37.5</td>
</tr>
</tbody>
</table>
FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT REFER TO CATALOG REFERENCE E142 & N219

SOLENOID VALVES
SERIES SY100

3/2 DIRECT ACTING SOLENOID/SPRING VALVES M3 PORTED

- Direct Two-Port Solenoid Valve
- Compact Size
- Power Saving Version

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Type</th>
<th>2 Port Direct Solenoid Valve</th>
</tr>
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<tbody>
<tr>
<td>Function</td>
<td>Normally Closed, Normally Open</td>
</tr>
<tr>
<td>Fluid</td>
<td>Air</td>
</tr>
<tr>
<td>Operating Pressure</td>
<td>0<del>0.7MPa (0</del>100PSI) Vacuum</td>
</tr>
<tr>
<td>Range</td>
<td>P Port - 100KPa ~ 0.6MPa / -14.5~85PSI</td>
</tr>
<tr>
<td>Range</td>
<td>R Port - 100KPa ~ 0.06MPa / -14.5~85PSI</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>Max 50°C / 122°F</td>
</tr>
<tr>
<td>Effective Orifice (Cv)</td>
<td>0.14mm² (0.008) Standard</td>
</tr>
<tr>
<td></td>
<td>0.22mm² (0.012) Large Flow</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>0.75W ~ 0.8; 0.52W ~ 0.6</td>
</tr>
<tr>
<td>Allowable Voltage Fluctuation</td>
<td>≤10%</td>
</tr>
<tr>
<td>Lead Wire Type</td>
<td>M/L &amp; Grommet</td>
</tr>
<tr>
<td>Lead Wire Specification</td>
<td>HVSF 0.3mm² ø1.55mm</td>
</tr>
<tr>
<td>Response Time</td>
<td>&lt;10ms</td>
</tr>
</tbody>
</table>

HOW TO ORDER
SEE NEXT PAGE

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Model Series SY100

<table>
<thead>
<tr>
<th>Type Of Actuation</th>
<th>Model</th>
<th>Type</th>
<th>Operating Pressure Range MPa/PSI</th>
<th>Vacuum Application MPA</th>
<th>Effective Area mm² (Cv Factor)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SY113</td>
<td>Standard</td>
<td>0 ~ 0.7 / 0 ~ 101</td>
<td>-100KPa ~ 0.6</td>
<td>0.14 (0.008)</td>
</tr>
<tr>
<td></td>
<td>SY114</td>
<td>Standard</td>
<td>0 ~ 0.7 / 0 ~ 101</td>
<td>-100KPa ~ 0.6</td>
<td>0.22 (0.012)</td>
</tr>
<tr>
<td></td>
<td>SY113A</td>
<td>Large Flow Capacity</td>
<td>0 ~ 0.7 / 0 ~ 101</td>
<td>-100KPa ~ 0.6</td>
<td>0.14 (0.008)</td>
</tr>
<tr>
<td></td>
<td>SY114A</td>
<td>Large Flow Capacity</td>
<td>0 ~ 0.7 / 0 ~ 101</td>
<td>-100KPa ~ 0.6</td>
<td>0.22 (0.012)</td>
</tr>
<tr>
<td></td>
<td>SY123</td>
<td>Standard</td>
<td>0 ~ 0.7 / 0 ~ 101</td>
<td>-100KPa ~ 0</td>
<td>0.14 (0.008)</td>
</tr>
<tr>
<td></td>
<td>SY124</td>
<td>Standard</td>
<td>0 ~ 0.7 / 0 ~ 101</td>
<td>-100KPa ~ 0</td>
<td>0.22 (0.012)</td>
</tr>
<tr>
<td></td>
<td>SY123A</td>
<td>Large Flow Capacity</td>
<td>0 ~ 0.7 / 0 ~ 101</td>
<td>-100KPa ~ 0.6</td>
<td>0.14 (0.008)</td>
</tr>
<tr>
<td></td>
<td>SY124A</td>
<td>Large Flow Capacity</td>
<td>0 ~ 0.7 / 0 ~ 101</td>
<td>-100KPa ~ 0.6</td>
<td>0.22 (0.012)</td>
</tr>
</tbody>
</table>

Note 1) In case of SY123/4 and SY123/4 A, Supply Air to R Port, P Port will be the Exhaust Port
Note 2) Value for DC, add 1g for AC

1KPA = 0.145PSI

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**Solenoid Valves**
**Series SY100**

How To Order SY100

- **Body Ported**
- **SY1**
- **Model Type**
  1 ... Normally Closed
  2 ... Normally Open
- **Type**
  - ... Standard
  A ... Large Flow Capacity
- **Voltage**
  5 ... 24 VDC
  6 ... 12 VDC
  V ... 6 VDC
  5 ... 5 VDC
  R ... 3 VDC
  1 ... 100 VAC 50/60 Hz
  3 ... 110 VAC 50/60 Hz
  .......... 115 VAC 50/60 Hz
  2 ... 200 VAC 50/60 Hz
  4 ... 220 VAC 50/60 Hz
  .......... 230 VAC 50/60 Hz

- **Piping**
- **Body Ported**
  - ... For Manifold
  P ... For Body Ported Type 10 P, R, A Port
- **Base Mounted**
  - ... Without Subplate
  M3 ... With Subplate

- **Type of Actuation**
  1 ... Normally Closed
  2 ... Normally Open

- **Motor Type**
  3 ... Body Ported
  4 ... Base Mounted

- **Electrical Entry**
  G ... Grommet (Lead Wire Length: 300mm)
  H ... Grommet (Lead Wire Length: 600mm)
  L ... L Type Plug with Lead Wire
  LN ... L Type Plug without Lead Wire
  LO ... L Type Plug without Connector
  M ... M Type Plug with Lead Wire
  MN ... M Type Plug without Lead Wire
  MO ... M Type Plug without Connector

- **Manual Override**
- **Body Ported**
  - ... For Manifold
  P ... For Body Ported Type to P, R, A Port
- **Base Mounted**
  - ... Without Subplate
  M3 ... With Subplate

- **Bracket**
  - ... Without Bracket
  F ... With Bracket

- **Indicator Light & Surge Suppressor**
  - ... Without
  S ... With Surge Voltage Suppressor
  Z ... With Indicator Light and Surge Voltage Suppressor
  U ... As Option Z above but non Polar Type
  * "U" type: 24, 12 VDC only
  * For AC types, there is no "S" Specification since it is integral with Converter

- **How To Order Connector Assembly Number**
  DC : SY100 - 30 - 4A -
  100VAC : SY100 - 30 - 1A -
  200VAC : SY100 - 30 - 2A -
  Other Volatges Of AC : SY100 - 30 - 3A -

  - Lead Wire Length
    - Nil ... 300mm
    - 6 ... 600mm
    - 10 ... 1000mm
    - 15 ... 1500mm
    - 20 ... 2000mm
    - 25 ... 2500mm
    - 30 ... 3000mm
    - 50 ... 5000mm
Common SUP · Common EXH

Type 30

How to Order

SS3Y1-30-05-F

Applicable valves
SY113-XXXX-M3
SY113A-XXXX-M3
Applicable blank plate ass’y
SY100-77-1A

Stations

<table>
<thead>
<tr>
<th>P port</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5×0.8</td>
</tr>
</tbody>
</table>

Note: Piping to exhaust port is not possible.

Type 31

How to Order

SS3Y1-31-05

Applicable valves (Note)
SY113-XXXX-M3
SY113A-XXXX-M3
SY123-XXXX-M3
SY123A-XXXX-M3
Applicable blank plate ass’y
SY100-77-1A

Stations

<table>
<thead>
<tr>
<th>R port</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5×0.8</td>
</tr>
<tr>
<td>P port</td>
</tr>
<tr>
<td>M5×0.8</td>
</tr>
</tbody>
</table>

Note: SY113(A) and SY123(A) cannot be mounted on the same manifold.

Type S41

How to Order

SS3Y1-S41-05-M3

Applicable valves (Note)
SY114-XXXX-M3
SY114A-XXXX-M3
SY124-XXXX-M3
SY124A-XXXX-M3
Applicable blank plate ass’y
SY100-77-1A

Stations

<table>
<thead>
<tr>
<th>A port size</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5×0.8</td>
</tr>
<tr>
<td>M5×0.8</td>
</tr>
</tbody>
</table>

Note: SY114(A) and SY124(A) cannot be mounted on the same manifold.

Combination with Solenoid Valve and Gasket Manifold Base

Body ported

Base mounted

Applicable base
- Sub-plate (for body ported)
- SS3Y1-type 30 / Manifold
- SS3Y1-type 31 / base

Applicable base
- Sub-plate
- SS3Y1-type S41
Manifold base

Applicable base
- Sub-plate
- SS3Y1-type 30
- SS3Y1-type 31
- SS3Y1-type S41
Manifold base

Blank Plate Ass’y

Parts no.: SY100-77-1A

Gasket VJ100-6-2

Cross round head screw
SY100-33-1
(M1.7×13, Mat nickel plated)

Gasket VJ100-6-1

Cross round head screw
SY100-33-2
(M1.7×7, Mat nickel plated)

Blank plate SY100-77-1

Gasket VJ100-20-1

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**Body Ported Valve**

**SY3000/5000/7000**

- Low Power Consumption: 0.5W
- Compact Design, Large Flow Capacity
- High Life Expectancy: >50 million cycles
- Quick Response Time

### Technical Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>SY3000</th>
<th>SY5000</th>
<th>SY7000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Pilot</td>
<td>Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0.15 – 0.7 MPa / 22 – 100 PSI</td>
<td>0.1 – 0.7 MPa / 15 – 100 PSI</td>
<td>0.2 – 0.7 MPa / 30 – 100 PSI</td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temp.</td>
<td>-10 – 50°C / 14 – 122°F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max Operating</td>
<td>10</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Frequency / Hz</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Manual Override</td>
<td>Non Locking Push Type</td>
<td>Push Locking Slotted Type</td>
<td>Push Locking Lever Type</td>
</tr>
<tr>
<td>Pilot Exhaust</td>
<td>Common Exhaust for Main &amp; Pilot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting Position</td>
<td>Free</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cv Factor</td>
<td>0.23</td>
<td>0.59</td>
<td>0.87</td>
</tr>
</tbody>
</table>

### Model Response Time Series SY3/5/7000

<table>
<thead>
<tr>
<th>Model</th>
<th>Configuration</th>
<th>Response Time ms 71 PSI / 0.5 MPa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>W/O Indicator Light</td>
</tr>
<tr>
<td>SY3000</td>
<td>2 Position Single</td>
<td>&amp; Surge Suppressor</td>
</tr>
<tr>
<td></td>
<td>2 Position Double</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Position</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SY5000</td>
<td>2 Position Single</td>
<td>19 or less</td>
</tr>
<tr>
<td></td>
<td>2 Position Double</td>
<td>32 or less</td>
</tr>
<tr>
<td></td>
<td>3 Position</td>
<td>31 or less</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SY7000</td>
<td>2 Position Single</td>
<td>31 or less</td>
</tr>
<tr>
<td></td>
<td>2 Position Double</td>
<td>32 or less</td>
</tr>
<tr>
<td></td>
<td>3 Position</td>
<td>31 or less</td>
</tr>
</tbody>
</table>

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Outside Local Area: (800) 258-9200  
www.stevenengineering.com
### How To Order

**Body Ported/Bar Manifold w/individual lead wire SY3/5/7000**

<table>
<thead>
<tr>
<th>SS5Y</th>
<th>20</th>
</tr>
</thead>
</table>

**Manifold Series**
- 3 ..... SY3000
- 5 ..... SY5000
- 7 ..... SY7000

**Valve Stations**
- 02 ..... 2 Stations
- 10 ..... 20 Stations

**Thread Type**
- ..... PT
- OOT ... NPTF

---

**How To Order**

**Body Ported w/individual lead wire SY3/5/7000**

<table>
<thead>
<tr>
<th>SY</th>
<th>20</th>
</tr>
</thead>
</table>

**Series**
- 3 ..... SY3000
- 5 ..... SY5000
- 7 ..... SY7000

**Configuration**
- 1 ..... 2 Position Single
- 2 ..... 2 Position Double
- 3 ..... 3 Position Closed Center
- 4 ..... 3 Position Exhaust Center
- 5 ..... 3 Position Pressure Center

**Voltage**
- 3 ..... 110VAC
- 5 ..... 24 VDC
- 6 ..... 12 VDC
- 1 ..... 100VAC
- 2 ..... 220VAC
- 4 ..... 6 VDC
- 6 ..... 5 VDC
- 7 ..... 3 VDC
- * Special Order

**Electrical Entry**
- D ..... With Connector (SY5000, 7000 Only)
- DZ ..... Connector w/lead wire & Surge Suppressor (SY5000, 7000 Only)
- L ..... Lead Wire w/Lead Wire & Surge Suppressor
- G ..... Grommet (Lead Wire Length: 300mm)
- H ..... Grommet (Lead Wire Length: 600mm)
- L ..... 1 Type Plug with Lead Wire
- LO ..... 1 Type Plug without Connector
- LOZ ..... W/O Lead Wire, w/Light & Surge Suppressor
- M ..... M Type Plug with Lead Wire
- MO ..... M Type Plug without Connector
- MZ ..... M Type Lead Wire w/Lead Wire & Surge Suppressor

**Bracket**
- .....Without Bracket
- F1 ..... With Foot Bracket
- F2 ..... With Side Bracket

**A, B Port Size**

<table>
<thead>
<tr>
<th>Series</th>
<th>Port Size</th>
<th>Applicable Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metric (mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M5</td>
<td>M5x0.8</td>
<td>SY3000</td>
</tr>
<tr>
<td>C4</td>
<td>One Touch Fitting ø4</td>
<td>SY3000</td>
</tr>
<tr>
<td>C6</td>
<td>One Touch Fitting ø6</td>
<td>SY3000, SY5000</td>
</tr>
<tr>
<td>01</td>
<td>PT 1/8&quot;</td>
<td>SY5000</td>
</tr>
<tr>
<td>C8</td>
<td>One Touch Fitting ø8</td>
<td>SY5000, SY7000</td>
</tr>
<tr>
<td>02</td>
<td>PT 1/4&quot;</td>
<td>SY7000</td>
</tr>
<tr>
<td>C10</td>
<td>One Touch Fitting ø10</td>
<td>SY7000</td>
</tr>
</tbody>
</table>

**Imperial (Inch)**
- M5 ... 10-32Nom SY3000
- N3 ... One Touch Fitting ø5/32" SY3000
- N7 ... One Touch Fitting ø1/4" SY3000
- N7T ... One Touch Fitting ø1/4" SY5000
- 01T ... NPTF 1/8" SY5000
- N9T ... One Touch Fitting ø5/16" SY5000, SY7000
- 02T ... NPTF 1/4" SY7000
- N11T ... One Touch Fitting ø3/8" SY7000

**Manual Override**
- ..... Non-Locking Push Type
- D ..... Push-Locking Slotted Type
- E ..... Push-Locking Lever Type

---

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---

S O L E N O I D  V A L V E S
S E R I E S  S Y 3 0 0 0 / 5 0 0 0 / 7 0 0 0

- Direct Piping to Main Body of Valve
- Up to 20 Valve Stations
- Threaded and Push-In Fittings
- Lightweight Aluminum Construction
- Combination of fittings possible

---

**See inside front cover for details of your local sales office**

---

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---

**FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT REFER TO CATALOG REFERENCE E135 & N237**

---

**SOLENOID VALVES SERIES SY3000/5000/7000**

---

**SEE INSIDE FRONT COVER FOR DETAILS OF YOUR LOCAL SALES OFFICE**

---

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**Solenoid Valves**

**Series SY3000/5000/7000**

### Blanking Plate Assembly

- **Ass'y part no.:**
  - SY3000: SY3000-26-1A
  - SY5000: SY5000-26-1A
  - SY7000: SY7000-26-1A

### Individual/EXH Spacer Assembly

- **Series:** SY3000, SY5000, SY7000
- **Assembly No.:**
  - SY3000-39-1A
  - SY5000-39-1A
  - SY5000-39-1TA
  - SY7000-39-1A
  - SY7000-39-1TA
- **Port Size:**
  - M5 (10-32Nom)
  - PT 1/8
  - NPTF 1/8
  - PT 1/4
  - NPTF 1/4

### Individual/SUP Spacer Assembly

- **Series:** SY3000, SY5000, SY7000
- **Assembly No.:**
  - SY3000-38-1A
  - SY5000-38-1A
  - SY5000-38-1TA
  - SY7000-38-1A
  - SY7000-38-1TA
- **Port Size:**
  - M5 (10-32Nom)
  - PT 1/8
  - NPTF 1/8
  - PT 1/4
  - NPTF 1/4

### Bolt / Gasket

- Phillips/ordinary round head screw
- Gasket

### Port Plugs

- Inserts easily into unused cylinder ports and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.

### Applicable Fitting Size ød

- ø4mm
- ø5/32"
- ø6mm
- ø1/4"
- ø8mm
- ø5/16"
- ø10mm
- ø3/8"

<table>
<thead>
<tr>
<th>ød</th>
<th>Model</th>
<th>A</th>
<th>L</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø4mm</td>
<td>KQP-04</td>
<td>16</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>ø5/32&quot;</td>
<td>KQP-03</td>
<td>16</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>ø6mm</td>
<td>KQP-06</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>ø1/4&quot;</td>
<td>KQP-07</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>ø8mm</td>
<td>KQP-08</td>
<td>20.5</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>ø5/16&quot;</td>
<td>KQP-09</td>
<td>20.5</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>ø10mm</td>
<td>KQP-10</td>
<td>22</td>
<td>43</td>
<td>12</td>
</tr>
<tr>
<td>ø3/8&quot;</td>
<td>KQP-11</td>
<td>22</td>
<td>43</td>
<td>12</td>
</tr>
</tbody>
</table>

### Bracket Assembly Number (if ordered separately)

- **F1 Type:** SX3/5/7000-16-2A (With Mounting Screw)
- **F2 Type:** SX3/5/7000-16-1A (With Mounting Screw)
**Solenoid Valves**

**Series SY3000/5000/7000**

**Body Ported/Bar Manifold**

**Flat Cable Type**

SY3000/5000/7000

- Direct Piping to Main Body of Valve
- Up to 20 Valve Stations
- Threaded and Push-in Fittings
- Lightweight Aluminum Construction
- Combination of Fittings possible

**How To Order**

**Body Ported w/Flat Cable Manifold**

SY3/5/7000

**How To Order**

**Flat Ribbon Cable Manifold**

SY3/5/7000

**How To Order**

**Body Ported/Bar Manifold**

**Flat Cable Type**

SY3000/5000/7000

**Series**

3 .... SY3000
5 .... SY5000
7 .... SY7000

**Configuration**

1 .... 2 Position Single
2 .... 2 Position Double
3 .... 3 Position Closed Center
4 .... 3 Position Exhaust Center
5 .... 3 Position Pressure Center

**Voltage**

5 .... 24 VDC
6 .... 12 VDC

**Manual Override**

- .... Non-Locking Push Type
D .... Push-Locking Slotted Type
E .... Push-Locking Lever Type

**A, B Port Size**

Symbol Port Size

**Applicable Series**

**Metric (mm)**

M5 .... M5x0.8
C4 .... One Touch Fitting #4
E6 .... One Touch Fitting #6
01 .... PT 1/8"
C8 .... One Touch Fitting #8
02 .... PT 1/4"
C10 .... One Touch Fitting #10

**Imperial (Inch)**

M5 .... 10-32
N3 .... One Touch Fitting #5/32" SY3000
N7 .... One Touch Fitting #1/4" SY3000
N7T .... One Touch Fitting #1/4" SY5000
01T .... NPTF 1/8"
N9T .... One Touch Fitting #5/16" SY5000, SY7000
02T .... NPTF 1/4"
N11T .... One Touch Fitting #3/8" SY7000

**Manifold Series**

 SY .... 20P
 LOU ----

**Thread Type**

- ..... PT
**T ..... NPTF

**Valve Stations**

03 .... 3 Stations
to
12 .... 12 Stations

*SS5Y3 has 4 ~ 12 Stations*

**Courtesy of Steven Engineering, Inc.**

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**Solenoid Valves**

**Series SY3000/5000/7000**

### Blank Plate Assembly

<table>
<thead>
<tr>
<th>Series</th>
<th>Assembly No.</th>
<th>Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SY3000</td>
<td>SY3000-39-1A</td>
<td>M5 (10-32 Nom)</td>
</tr>
<tr>
<td>SY3000</td>
<td>SY3000-26-3A</td>
<td>PT 1/8</td>
</tr>
<tr>
<td>SY5000</td>
<td>SY5000-39-1A</td>
<td>PT 1/4</td>
</tr>
<tr>
<td>SY5000</td>
<td>SY5000-39-1TA</td>
<td>NPTF 1/8</td>
</tr>
<tr>
<td>SY7000</td>
<td>SY7000-39-1A</td>
<td>PT 1/4</td>
</tr>
<tr>
<td>SY7000</td>
<td>SY7000-39-1TA</td>
<td>NPTF 1/4</td>
</tr>
</tbody>
</table>

### Individual/EXH Spacer Assembly

<table>
<thead>
<tr>
<th>Assembly No.</th>
<th>Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SY3000-39-1A</td>
<td>M5 (10-32 Nom)</td>
</tr>
<tr>
<td>SY5000-39-1A</td>
<td>PT 1/8</td>
</tr>
<tr>
<td>SY5000-39-1TA</td>
<td>NPTF 1/8</td>
</tr>
<tr>
<td>SY7000-39-1A</td>
<td>PT 1/4</td>
</tr>
<tr>
<td>SY7000-39-1TA</td>
<td>NPTF 1/4</td>
</tr>
</tbody>
</table>

### Individual/SUP Spacer Assembly

<table>
<thead>
<tr>
<th>Assembly No.</th>
<th>Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SY3000-39-1A</td>
<td>M5 (10-32 Nom)</td>
</tr>
<tr>
<td>SY5000-39-1A</td>
<td>PT 1/8</td>
</tr>
<tr>
<td>SY5000-39-1TA</td>
<td>NPTF 1/8</td>
</tr>
<tr>
<td>SY7000-39-1A</td>
<td>PT 1/4</td>
</tr>
<tr>
<td>SY7000-39-1TA</td>
<td>NPTF 1/4</td>
</tr>
</tbody>
</table>

### Flat Ribbon Cable Assembly AXT100-FC26(1/2/3)

<table>
<thead>
<tr>
<th>Cable Length (L)</th>
<th>Assembly Number</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5m</td>
<td>AXT100-FC26-1</td>
<td>Cable 26 CoreX28AWG</td>
</tr>
<tr>
<td>3m</td>
<td>AXT100-FC26-2</td>
<td>Cable 26 CoreX28AWG</td>
</tr>
<tr>
<td>5m</td>
<td>AXT100-FC26-3</td>
<td>Cable 26 CoreX28AWG</td>
</tr>
</tbody>
</table>

### Port Plugs

Inserts easily into unused cylinder ports and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.

<table>
<thead>
<tr>
<th>Applicable Fitting Size ød</th>
<th>Model</th>
<th>A</th>
<th>L</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø4mm</td>
<td>KQP-04</td>
<td>16</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>ø5/32”</td>
<td>KQP-03</td>
<td>16</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>ø6mm</td>
<td>KQP-06</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>ø1/4”</td>
<td>KQP-07</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>ø8mm</td>
<td>KQP-08</td>
<td>20.5</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>ø5/16”</td>
<td>KQP-09</td>
<td>20.5</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>ø10mm</td>
<td>KQP-10</td>
<td>22</td>
<td>43</td>
<td>12</td>
</tr>
<tr>
<td>ø3/8”</td>
<td>KQP-11</td>
<td>22</td>
<td>43</td>
<td>12</td>
</tr>
</tbody>
</table>
BASE MOUNTED VALVE
SY3000/5000/7000

- Low Power Consumption: 0.5W
- Compact Design, Large Flow Capacity
- High Life Expectancy: >50 million cycles
- Quick Response Time
- Serial Interface Option

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Series</th>
<th>SY3000</th>
<th>SY5000</th>
<th>SY7000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air, Lubrication Not Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal Pilot</td>
<td>2 Position Single</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Pressure</td>
<td>2 Position Double</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>3 Position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Pilot</td>
<td>Pilot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Pressure</td>
<td>2 Position Single</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>3 Position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperature</td>
<td>-10°C / 14 ~ 122°F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max Operating Pressure</td>
<td>10 ~ 50 PSI / 0.15 ~ 0.7 MPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency / Hz</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot Exhaust</td>
<td>Internal Pilot</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>External Pilot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting Position</td>
<td>Free</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cv Factor</td>
<td>0.3 0.7 1.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MODEL RESPONSE TIME SERIES SY3/5/7000

<table>
<thead>
<tr>
<th>Model</th>
<th>Configuration</th>
<th>Response Time ms 71 PSI / 0.5 MPa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>W/O Indicator Light</td>
</tr>
<tr>
<td>SY3000</td>
<td>2 Position Single</td>
<td>12 or less</td>
</tr>
<tr>
<td></td>
<td>2 Position Double</td>
<td>10 or less</td>
</tr>
<tr>
<td></td>
<td>3 Position</td>
<td>15 or less</td>
</tr>
<tr>
<td>SY5000</td>
<td>2 Position Single</td>
<td>19 or less</td>
</tr>
<tr>
<td></td>
<td>2 Position Double</td>
<td>18 or less</td>
</tr>
<tr>
<td></td>
<td>3 Position</td>
<td>32 or less</td>
</tr>
<tr>
<td>SY7000</td>
<td>2 Position Single</td>
<td>31 or less</td>
</tr>
<tr>
<td></td>
<td>2 Position Double</td>
<td>27 or less</td>
</tr>
<tr>
<td></td>
<td>3 Position</td>
<td>50 or less</td>
</tr>
</tbody>
</table>

HOW TO ORDER
SEE NEXT PAGE

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2.14

Solenoid Valves
Series SY3000/5000/7000

Base Mounted/Bar Manifold
Individual Wiring Type
SY3000/5000/7000

Facilitates maintenance when valves are changed
Up to 20 Valve Stations
Threaded and Push-in Fittings
Lightweight Aluminum Construction
Vacuum Low Pressure Combination System is Available (Type 42 Only)

How To Order
Base Mounted/Bar Manifold w/individual lead wire
SY3/5/7000

Manifold Series
1 Compact Type
2 External Pilot Capable Type

Valve Stations
02 ... 2 Stations to 20 ... 20 Stations

A, B Port Size

Metric (mm)
M5 ... M5x0.8 (SY3000 Type 41 Only)
01 ... Rc(PT)1/8 (SY5000 Type 41 & SY3000 Type 42 Only)
02 ... Rc(PT)1/4 (SY5000 Type 42 Only)
C4 ... One Touch Fittings for ø4 (SY3000 Only)
C6 ... One Touch Fittings for ø6 (SY3000 & SY5000 Only)
C8 ... One Touch Fittings for ø8 (SY5000 Only)
C10 ... One Touch Fittings for ø10 (SY7000 Only)

Imperial (Inch)
M5T ... 1/2-32Nom (SY3000 Type 41 Only)
01T ... 1/8NPTF (SY5000 Type 41 & SY3000 Type 42 Only)
02T ... 1/4NPTF (SY5000 Type 42 Only)
N3T ... One Touch Fittings for ø3/8 (SY3000 Only)
N7T ... One Touch Fittings for ø5/16 (SY5000 Only)
N9T ... One Touch Fittings for ø5/32 (SY7000 Only)

How To Order
Base Mounted Valve w/individual lead wire
SY3/5/7000

Series
3 SY3000
5 SY5000
7 SY7000

Configuration
1 Position Single
2 Position Double
3 Position Closed Center
4 Position Exhaust Center
5 Position Pressure Center

Pilot Type
- Internal Pilot
R External Pilot

Voltage
1 100VAC
2 200VAC
3 110VAC
4 220VAC (D, DO Only)
5 24 VDC
6 12 VDC
2 200VAC (L M Only)
4 220VAC (L M Only)

Special Order

Individual Light & Surge Voltage Suppressor
- Without
S With Surge Suppressor
Z With Indicator Light and Surge Voltage Suppressor
U With Indicator Light and Surge Voltage Suppressor (Non-Polar Type)

Electrical Entry
D ... DIN Connector
DO ... DIN without Connector
G ... Grommet (300mm)
H ... Grommet (600mm)
L ... L Type Plug Connector (300mm)
LN ... L Type Connector without Lead Wire
LD ... L Type Plug without Connector
M ... M Type Plug with Lead Wire
MN ... M Type Plug without Connector
MD ... M Type Plug without Connector
### Manifold Options

#### Blanking Plate Assembly

![Blanking Plate Assembly](image1)

- **Series** | **Part No**
  - SY3000
  - SY5000
  - SY7000

#### Individual/EXH Spacer Assembly

- **Series** | **Assembly No** | **Port Size**
  - SY3000
  - SY5000
  - SY7000

#### Individual/SUP Spacer Assembly

- **Series** | **Assembly No** | **Port Size**
  - SY3000
  - SY5000
  - SY7000

#### BOLT / GASKET

- **Series** | **Assembly Part No** | **Model** | **A** | **L** | **D**
  - SY3000
  - SY5000
  - SY7000

#### PORT PLUGS

- Inserts easily into an unused cylinder port and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.

- **Applicable Fitting Size** | **Model** | **A** | **L** | **D**
  - ø4mm
  - ø5/32" (Non Glare Nickel Plating)
  - ø8mm
  - ø1/4" (Non Glare Nickel Plating)

- **Series** | **Phillips /Ordinary Round Head Screw** | **Gasket**
  - SY3000
  - SY5000
  - SY7000

---

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HOW TO ORDER

BASE MOUNTED MANIFOLD 45F TYPE (D-Sub Connector 25 Pole)

SS5Y 45 F

SERIES
3 ...... SY3000
5 ...... SY5000

COMMON SPECIFICATIONS
Nil ...... Positive Common
N ...... Negative Common

CONNECTOR BOX MOUNTING POSITION
U ...... U Side
D ...... D Side

VALVE STATIONS
02 ...... 2 Stations
10 ...... 10 Stations
20 ...... 20 Stations
*Single Wiring Specs
(Up to 20 Solenoid Valves)

SUP/EXH BLOCK ASSEMBLY MOUNTING POSITION
U ...... U Side/2~10 Stations
D ...... D Side/2~10 Stations
B ...... Both Sides/2~20 Stations
*N ...... Special Spec

OPTION
Where a longer than Standard DIN Rail is required, enter the number of manifold stations that corresponds with the length of DIN Rail needed (20 Stations max)

VOLTAGE
- ...... 24VDC
12V ...... 12VDC

A, B PORT SIZE

Metric (mm)
C4 ...... One Touch Fittings ø4 (SY3000, SY5000)
C6 ...... One Touch Fittings ø6 (SY3000, SY5000)
C8 ...... One Touch Fittings ø8 (SY5000)

Imperial (Inch)
N3 ...... One Touch Fittings ø5/32” (SY3000, SY5000)
N7 ...... One Touch Fittings ø1/4” (SY3000, SY5000)
N9 ...... One Touch Fittings ø5/16” (SY5000)

Note: Mixed Porting available by Special Order

HOW TO ORDER

BASE MOUNTED VALVE 45F, 45P TYPE

SY 4 FU

SERIES
3 ...... SY3000
5 ...... SY5000

CONFIGURATION
1 ...... 2 Position Single
2 ...... 2 Position Double
3 ...... 3 Position Closed Center
4 ...... 3 Position Exhaust Center
5 ...... 3 Position Pressure Center
0 ...... 2 Position Single
5 ...... 2/3 Position Double (Dual Type)

MANUAL OVERRIDE
- ...... Non Locking Push Type
D ...... Push Locking Slotted Type
E ...... Push Locking Lever Type

VOLTAGE
5 ...... 24 VDC
6 ...... 12 VDC

* When ordering Double Solenoid Valves (3 Position Dual Body Type), please keep in mind that they require two manifold stations.

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www.stevenengineering.com
**Manifold Series**

- 3 ... SY3000
- 5 ... SY5000

**Common Specifications**

- Nil ... Positive Common
- N ... Negative Common

**Connector Poles**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Poles</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>26</td>
<td>2-20</td>
</tr>
<tr>
<td>B</td>
<td>20</td>
<td>2-16</td>
</tr>
<tr>
<td>H</td>
<td>10</td>
<td>2-8</td>
</tr>
</tbody>
</table>

**Connector Mounting Position**

- U ... U Side
- D ... D Side

**Valve Stations (Blanking Plate Assembly are included)**

26 Pole (P) Connector

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Station</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>2</td>
<td>Single</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>Applicable up to 16 Solenoids</td>
</tr>
</tbody>
</table>

20 Pole (PG) Connector

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Station</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>2</td>
<td>Single</td>
</tr>
<tr>
<td>08</td>
<td>08</td>
<td>Applicable up to 8 Solenoids</td>
</tr>
</tbody>
</table>

10 Pole (PH) Connector

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Station</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>2</td>
<td>Single</td>
</tr>
<tr>
<td>08</td>
<td>08</td>
<td>Applicable up to 8 Solenoids</td>
</tr>
</tbody>
</table>

**A, B Port Size**

- SY3000
  - Metric (mm) Imperial (Inch)
  - C4 ... OTF for ø4 N3 ... OTF for ø5/32"
  - C6 ... OTF for ø6 N7 ... OTF for ø1/4"

- SY5000
  - Metric (mm) Imperial (Inch)
  - C8 ... OTF for ø8 N9 ... OTF for ø5/16"

* Mixed Porting Available by Special Order

**Options**

- When a longer than Standard DIN Rail is required, enter the number of Manifold Stations that corresponds with the length of DIN Rail needed (20 stations Max)

**Voltage**

- 24VDC
- 12VDC

**SUP/EXH Block Assembly Mounting Positions**

- U ... U Side - 2 ~ 10 Stations
- D ... D Side - 2 ~ 10 Stations
- B ... Both Sides - 2 ~ 20 Stations

*M ... Special Specifications (by Special Order)

**Additional Information**

**Port Plugs**

Inserts easily into an unused cylinder port and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.
**Flat Cable Connector / Cable Ass’y**

*AXT100-FC□-1/3*

**Triangle mark position**

**Accessories**

**Flat Cable Connector Assembly**

<table>
<thead>
<tr>
<th>Cable Length</th>
<th>10 Pole</th>
<th>20 Pole</th>
<th>26 Pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5m</td>
<td>AXT100-FC10-1</td>
<td>AXT100-FC20-1</td>
<td>AXT100-FC26-1</td>
</tr>
<tr>
<td>3m</td>
<td>AXT100-FC10-2</td>
<td>AXT100-FC20-2</td>
<td>AXT100-FC26-2</td>
</tr>
<tr>
<td>5m</td>
<td>AXT100-FC10-3</td>
<td>AXT100-FC20-3</td>
<td>AXT100-FC26-3</td>
</tr>
</tbody>
</table>

**Connector Width**

|         | 17.2 | 30 | 37.5 |

---

**Electric Characteristics**

<table>
<thead>
<tr>
<th>Item</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor</td>
<td>65 or less km</td>
</tr>
<tr>
<td>Resistance</td>
<td>1000 V, 1 min, AC</td>
</tr>
<tr>
<td>Voltage Limit</td>
<td>1000 M km, 20ºC</td>
</tr>
<tr>
<td>Insulation</td>
<td>5 or more</td>
</tr>
</tbody>
</table>

*Note* The minimum bending radius of D-Sub Connector Cable Assembly is 20mm.

---

**Wire color table by terminal number of D-sub connector cable ass’y**

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Lead wire color</th>
<th>Dot marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>–</td>
</tr>
<tr>
<td>2</td>
<td>Brown</td>
<td>–</td>
</tr>
<tr>
<td>3</td>
<td>Red</td>
<td>–</td>
</tr>
<tr>
<td>4</td>
<td>Orange</td>
<td>–</td>
</tr>
<tr>
<td>5</td>
<td>Yellow</td>
<td>–</td>
</tr>
<tr>
<td>6</td>
<td>Pink</td>
<td>–</td>
</tr>
<tr>
<td>7</td>
<td>Blue</td>
<td>–</td>
</tr>
<tr>
<td>8</td>
<td>Violet, White</td>
<td>–</td>
</tr>
<tr>
<td>9</td>
<td>Gray, Black</td>
<td>–</td>
</tr>
<tr>
<td>10</td>
<td>White, Black</td>
<td>–</td>
</tr>
<tr>
<td>11</td>
<td>White</td>
<td>Red</td>
</tr>
<tr>
<td>12</td>
<td>Yellow, Red</td>
<td>–</td>
</tr>
<tr>
<td>13</td>
<td>Orange, Red</td>
<td>–</td>
</tr>
<tr>
<td>14</td>
<td>Yellow, Black</td>
<td>–</td>
</tr>
<tr>
<td>15</td>
<td>Pink, Black</td>
<td>–</td>
</tr>
<tr>
<td>16</td>
<td>Blue, White</td>
<td>–</td>
</tr>
<tr>
<td>17</td>
<td>Violet, –</td>
<td>–</td>
</tr>
<tr>
<td>18</td>
<td>Gray, –</td>
<td>–</td>
</tr>
<tr>
<td>19</td>
<td>Orange, Black</td>
<td>–</td>
</tr>
<tr>
<td>20</td>
<td>Red, White</td>
<td>–</td>
</tr>
<tr>
<td>21</td>
<td>Brown, White</td>
<td>–</td>
</tr>
<tr>
<td>22</td>
<td>Pink, Red</td>
<td>–</td>
</tr>
<tr>
<td>23</td>
<td>Gray, Red</td>
<td>–</td>
</tr>
<tr>
<td>24</td>
<td>Black, White</td>
<td>–</td>
</tr>
<tr>
<td>25</td>
<td>White</td>
<td>–</td>
</tr>
</tbody>
</table>
3/2 Direct Acting Solenoid Valve M3-M5 Port Series VQ100

- High Speed Repeatable Response - on 3.5ms, off 1.5ms
- Long Life Expectancy - 200 million cycles
- Compact Lightweight Construction - 10mm Body Width
- Low Power Consumption 1 Watt (0.5 Watt Option)
- Latching, Clean Room and Vacuum Valve Options Available
- Normally Open Version Available
- LED Indication and Surge Suppression is Standard
- Cv = 0.02 Standard (Cv = 0.04 Option Available)
- Locking Manual Override Available (Standard on Latching Version)

**Technical Specifications**

<table>
<thead>
<tr>
<th>Application</th>
<th>1 Watt, 0.8MPa (117PSI) / 6.5 Watt, 0.7MPa (101PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Actuation</td>
<td>Direct Operated 3 Port Poppet Type (Normally Closed)</td>
</tr>
<tr>
<td>Fluid</td>
<td>Air - inert gas</td>
</tr>
<tr>
<td>Max Operating Pressure</td>
<td>0.8MPa (117PSI) / 0.7MPa (101PSI)</td>
</tr>
<tr>
<td>Min Operating Pressure</td>
<td>0MPa (0PSI)</td>
</tr>
<tr>
<td>Response Time</td>
<td>ON: 3.5ms OFF: 1.5ms</td>
</tr>
<tr>
<td>Ambient and Fluid Temperature</td>
<td>-10 ~ +50°C (14 ~ 122ºF)</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not Required</td>
</tr>
<tr>
<td>Manual Override</td>
<td>Non Locking Push Type/Locking Optional</td>
</tr>
<tr>
<td>Mounting Position</td>
<td>Free</td>
</tr>
<tr>
<td>Protection Structure</td>
<td>Dust Proof</td>
</tr>
<tr>
<td>Weight</td>
<td>12.6g (L M Connector Type without Subplate)</td>
</tr>
<tr>
<td>Coil Rated Voltage</td>
<td>DC 24V (1 Watt) / DC 12V (0.5 Watt)</td>
</tr>
<tr>
<td>Allowable Voltage Range</td>
<td>±10% of Rated Voltage</td>
</tr>
<tr>
<td>Electrical Entry</td>
<td>Plug In Type, L/M Type Connector (With Lamp/Surge Voltage Suppressor), Grommet</td>
</tr>
</tbody>
</table>

**How to Order**

- Function: Normalized Closed
- Specifications:
  - Standard (1W DC)
  - Low Wattage (0.5W DC)
  - Latching Type (Positive Common)
  - Negative Common
  - High Flow
- Optional Type
- Not Available for Plug-in Type
- Coil Rated Voltage:
  - AC100V with Lamp/ Surge
  - DC 24V with Lamp/Surge
  - DC 12V with Lamp/Surge

**Port Size**

- Without Subplate
- With Subplate
- Non Locking Recessed Type
- Locking Type: Locking Recessed Type
- Locking Tool Type

**Manual Override**

**Electrical Entry**

- Plug-in Type with Lamp/Surge Voltage Suppressor: only for Plug-in Type
- Plug Lead Type: L Type Connector with Lamp/Surge Voltage Suppressor without Connector
- L Type Connector with Lead Wire, Indicator Light and Surge Voltage Suppressor
- M Type Connector with Lead Wire, Indicator Light and Surge Voltage Suppressor
- Plug Lead Type: M Type Connector with Indicator Light and Surge Voltage Suppressor
- Grommet Type

**Accessories/Cable Assemblies**

- Negative Common Standard
  - Single: AXT661-14-AN-*
  - Latching: AXT661-13-AN-*
- Positive Common (Option Available)
  - Single: AXT661-14-A-*
  - Latching: AXT661-13-A-*
  - Cable length code
    - Nil: 300mm
    - 6: 600mm
    - 10: 1000mm
    - 20: 2000mm
    - 30: 3000mm

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**Solenoid Valves**

**Series VQ100**

**Series VQ100 Manifolds**

- Plug-In Version available up to 18 Stations for use with VQ110-*F* Valves (VV3Q11)
- Standard Option for Individual Wiring up to 20 Stations for use with VQ110-*LO* Valves (VV3Q12)

**How To Order Manifolds Series VQ100**

**MANIFOLD BASE TYPE**

1. Plug In Unit
2. Plug Lead Unit

**NUMBER OF STATIONS**

- 02 ... 2 Stations
- 18 ... 18 Stations

Available upto 20 Stations for Plug Lead Type

**ELECTRICAL ENTRY**

- C ... Multi Connector Type

**ACCESSORIES**

**Plug Assembly Series VQ100**

- VVQ100-12A...

**How To Order**

**ACCESSORIES**

**VQ100 Manifolds**

- Blanking Plate Kit for VV3Q11 ................. VVQ100-10A-1
  - (includes fixing screws x2 and gasket)

- Blanking Plate Kit for VV3Q12 ................. VVQ100-10A-2
  - (includes fixing screws x2 and gasket)

**ACCESSORIES**

- RP13A-12PS-20SC
  - Made by Hirose Electric
- RP19-SC-222
  - Made by Hirose Electric
- Vinyl multi-core cable
  - VVRF 0.2mm² 20-core

**Cable Length**

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>VVQ100-12A-1</td>
<td>1.5m</td>
</tr>
<tr>
<td>VVQ100-12A-2</td>
<td>3m</td>
</tr>
<tr>
<td>VVQ100-12A-3</td>
<td>5m</td>
</tr>
</tbody>
</table>

**Cómo hacer la compra**

**ACCESSORIES**

**VQ100 Manifolds**

- Kit de tapones para VV3Q11 ................. VVQ100-10A-1
  - (incluye tornillos de sujeción x2 y sellantes)

- Kit de tapones para VV3Q12 ................. VVQ100-10A-2
  - (incluye tornillos de sujeción x2 y sellantes)

**ACCESSORIES**

- RP13A-12PS-20SC
  - Hecho por Hirose Electric
- RP19-SC-222
  - Hecho por Hirose Electric
- Cable multi-core de vinilo
  - VVRF 0.2mm² 20-core

**Longitud del Cable**

<table>
<thead>
<tr>
<th>Modelo</th>
<th>Longitud</th>
</tr>
</thead>
<tbody>
<tr>
<td>VVQ100-12A-1</td>
<td>1.5m</td>
</tr>
<tr>
<td>VVQ100-12A-2</td>
<td>3m</td>
</tr>
<tr>
<td>VVQ100-12A-3</td>
<td>5m</td>
</tr>
</tbody>
</table>
5 Port Metal Seal/Rubber Seal Ultra High Speed Solenoid Valve Series VQ0000

- High Speed Response from new Solenoid Design.
- Long Life: Over 200 Million Cycles can be achieved with the Special Plunger and Poppet Valve Construction of the Patent Pilot Valve.
- Space Saving Design
- Four Options for Electrical Connection.
- Indicator light and Voltage Surge Suppressor
- Ease of Assembly and Maintenance.
- Optimum performance from Metal Seal Valves is achieved when used with a Mist Separator.

C-Kit (Connector) Series VQ0000

- Type which has lead wires in plug connected to each valve individually.

<table>
<thead>
<tr>
<th>Type of Seal</th>
<th>Metal</th>
<th>Rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air, Inert Gas</td>
<td>Air, Inert Gas</td>
</tr>
<tr>
<td>Min Operating Pressure</td>
<td>0.1MPa/14.5PSI</td>
<td>0.15MPa/22PSI</td>
</tr>
<tr>
<td>Max Operating Pressure (Note 1)</td>
<td>0.75MPa / 109 PSI</td>
<td>0.75MPa / 109 PSI</td>
</tr>
<tr>
<td>Effective Area (Cv Factor) (mm²)</td>
<td>Single Max 12m sec Max 15m sec</td>
<td>Double Max 10m sec Max 13m sec</td>
</tr>
<tr>
<td>Response Time (Note 2)</td>
<td>3-position Max 20m sec Max 25m sec</td>
<td></td>
</tr>
<tr>
<td>Life</td>
<td>200 million cycles or more 200 million cycles</td>
<td></td>
</tr>
<tr>
<td>Ambient and Fluid Temp (Note 3)</td>
<td>-10 to +50°C (14<del>122°F) -5 to +50°C (23</del>122°F)</td>
<td></td>
</tr>
<tr>
<td>Lubricant</td>
<td>Not required</td>
<td>Not required</td>
</tr>
<tr>
<td>Manual Override</td>
<td>Non locking push type Non locking push type</td>
<td></td>
</tr>
<tr>
<td>Protection Structure</td>
<td>Dustproof</td>
<td>Dustproof</td>
</tr>
<tr>
<td>SYMBOLS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2 position single</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2 position double</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3 position center</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3 position exhaust</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3 position pressure center</td>
<td></td>
</tr>
</tbody>
</table>

Symbols

- Metal Seal
- Rubber

- Single 0.1MPa/14.5PSI 0.15MPa/22PSI
- Double 0.1MPa/14.5PSI 0.15MPa/22PSI
- 3 Position 0.1MPa/14.5PSI 0.2MPa/29PSI

<table>
<thead>
<tr>
<th>Coil rated voltage</th>
<th>12 VDC, 24 VDC</th>
<th>100/110 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowable voltage</td>
<td>110% of rated voltage</td>
<td>110% of rated voltage</td>
</tr>
<tr>
<td>Type of coil insulation</td>
<td>Class B</td>
<td>Class B</td>
</tr>
<tr>
<td>Power consumption (Note 1)</td>
<td>1W</td>
<td>1W</td>
</tr>
<tr>
<td>Electrical entry</td>
<td>Plug in or connector type</td>
<td>Plug in or connector type</td>
</tr>
</tbody>
</table>

(Note 1) Contact SMC for the low power consumption (0.5W) type

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The D-sub connector permits simple rationalization and installation labor saving for electrical connection. The D-sub connector (25-pin std., 15-pin option) conforms with MIL permitting use of commercial connectors with wide interchangeability.

Top or side connector receptacle position can be selected in accordance with the available mounting space. Standard max 8 stations (Optional 16 stations possible).

The D-sub connector cable assy can be ordered individually or included with a specific manifold model no. Refer to “How to Order/Manifold”.

### D-Sub connector cable assembly (Option)

<table>
<thead>
<tr>
<th>Cable Length (L)</th>
<th>Assembly No.</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5m</td>
<td>VVZ33000-21A-1</td>
<td>Cable 25-core x 24AWG</td>
</tr>
<tr>
<td>3m</td>
<td>VVZ33000-21A-2</td>
<td></td>
</tr>
<tr>
<td>5m</td>
<td>VVZ33000-21A-3</td>
<td></td>
</tr>
</tbody>
</table>

*For other commercial connectors, use a 25-pin female connector made in conformity with MIL-C-24308

### Electric Characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductance resistance (μm, 20°C)</td>
<td>65 or less</td>
</tr>
<tr>
<td>Voltage limit V, 1 min, AC</td>
<td>1000</td>
</tr>
<tr>
<td>Insulation resistance (MΩ, 20°C)</td>
<td>5 or more</td>
</tr>
</tbody>
</table>

Note) The min. bending radius of D-Sub cable assembly is 20mm.

### Electrical Wiring Specifications

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Lead wire color</th>
<th>Dot marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Brown</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Red</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Orange</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Yellow</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Pink</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Blue</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Violet</td>
<td>White</td>
</tr>
<tr>
<td>9</td>
<td>Grey</td>
<td>Black</td>
</tr>
<tr>
<td>10</td>
<td>White</td>
<td>Black</td>
</tr>
<tr>
<td>11</td>
<td>Black</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Yellow</td>
<td>Red</td>
</tr>
<tr>
<td>13</td>
<td>Orange</td>
<td>Red</td>
</tr>
<tr>
<td>14</td>
<td>Yellow</td>
<td>Black</td>
</tr>
<tr>
<td>15</td>
<td>Pink</td>
<td>Black</td>
</tr>
<tr>
<td>16</td>
<td>Blue</td>
<td>White</td>
</tr>
<tr>
<td>17</td>
<td>Grey</td>
<td>Red</td>
</tr>
<tr>
<td>18</td>
<td>Orange</td>
<td>Black</td>
</tr>
<tr>
<td>19</td>
<td>Red</td>
<td>White</td>
</tr>
<tr>
<td>20</td>
<td>Blue</td>
<td>White</td>
</tr>
<tr>
<td>21</td>
<td>White</td>
<td>Black</td>
</tr>
<tr>
<td>22</td>
<td>Pink</td>
<td>Red</td>
</tr>
<tr>
<td>23</td>
<td>Grey</td>
<td>Red</td>
</tr>
<tr>
<td>24</td>
<td>Black</td>
<td>White</td>
</tr>
<tr>
<td>25</td>
<td>White</td>
<td>-</td>
</tr>
</tbody>
</table>

Note) The color table by terminal number of D-Sub connector cable assembly:

Those figures show the standard internal wiring for double solenoid capability provided for each station.

Positive/GND Negative/GND

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Polarity</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(-)</td>
<td>Black</td>
<td>Black</td>
</tr>
<tr>
<td>2</td>
<td>(+)</td>
<td>Black</td>
<td>Black</td>
</tr>
<tr>
<td>3</td>
<td>(-)</td>
<td>Brown</td>
<td>Brown</td>
</tr>
<tr>
<td>4</td>
<td>(+)</td>
<td>Brown</td>
<td>Brown</td>
</tr>
<tr>
<td>5</td>
<td>(-)</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>6</td>
<td>(+)</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>7</td>
<td>(-)</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>8</td>
<td>(+)</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>9</td>
<td>(-)</td>
<td>Orange</td>
<td>Orange</td>
</tr>
<tr>
<td>10</td>
<td>(+)</td>
<td>Orange</td>
<td>Orange</td>
</tr>
<tr>
<td>11</td>
<td>(-)</td>
<td>Purple</td>
<td>Purple</td>
</tr>
<tr>
<td>12</td>
<td>(+)</td>
<td>Purple</td>
<td>Purple</td>
</tr>
<tr>
<td>13</td>
<td>(-)</td>
<td>Grey</td>
<td>Grey</td>
</tr>
<tr>
<td>14</td>
<td>(+)</td>
<td>Grey</td>
<td>Grey</td>
</tr>
<tr>
<td>15</td>
<td>(-)</td>
<td>Pink</td>
<td>Pink</td>
</tr>
<tr>
<td>16</td>
<td>(+)</td>
<td>Pink</td>
<td>Pink</td>
</tr>
<tr>
<td>17</td>
<td>(-)</td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td>18</td>
<td>(+)</td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td>19</td>
<td>(-)</td>
<td>Orange</td>
<td>Orange</td>
</tr>
<tr>
<td>20</td>
<td>(+)</td>
<td>Orange</td>
<td>Orange</td>
</tr>
</tbody>
</table>

Note) Use negative GND type valves for negative GND specification manifolds.
**Solenoid Valves**

**Series VQ0000**

**How To Order**

**Base Mounted Type Valve**

**Single Unit VQ0000**

![Diagram of VQ0150-5L-C4 series]

**Series VQ0000**

**Configuration**

1. 2 Position Single
2. 2 Position Double
3. 3 Position Closed Center
4. 3 Position Exhaust Center

**Type of Seal**

0. Metal
1. Rubber

**Pilot Valve Specifications (Option)**

Blank, 1W Standard

H. 1.5W (High speed response)

Y. Low wattage type

(Note): Except for 110 VAC type.

**Coil Rated Voltage**

3. 110VAC
5. 24VDC
6. 12VDC

**Subplate SUP • Cylinder ports**

- Without subplate
- C3: One Touch Fittings for Ø3.2
- C4: One Touch Fittings for Ø4
- M5: M5 (10-32 Nom)
- N3: One Touch Fitting ø1/8"
- N3: One Touch Fitting ø5/32"

(Note): EXH port: M5 thread

**Manual Override**

- Non-locking Recessed type
- Locking Tool type (Optional)

**Electrical Entry**

G. Grommet (Except for 100/110VAC)

L. L type plug connector without connector

M. M type plug connector with lead wire

MO. M type plug connector without connector

**See inside front cover for details of your local sales office**

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**SOLENOID VALVES**

**SERIES VQ0000**

**BODY PORTED TYPE**

**PLUG LEAD UNIT/FLIP TYPE**

**HOW TO ORDER MANIFOLD**

**VVQ5Q 0 4 — 08 F S1 — D — —**

**SUP/EXH PORT**

- ... Metric (mm)
- 00T ... Imperial (Inch)

**TYPE OF MANIFOLD**

4 ... Plug lead unit flip type

**NUMBER OF STATIONS**

- Series
- 0 ... VQ0000
- 1 ... Station
- 16 ... 16 Stations

The number of stations differs from kit to kit

**ORDER**

**MANIFOLD**

**VVQ5Q0408FS1D**

**DIN RAIL/OPTION**

- ....... None (C Kit only)
- D ... DIN Rail Mounted
- N ... With Nameplate
- S ... Built-in Silencer (Direct Exhaust)

**Note 1)** When more than one option is desired, combine symbols in alphabetical order. Example: -DNS

**Note 2)** All F. P. and S kits are of DIN rail mounted type, so include suffix "D".

**Note 3)** All VQ0000 series are provided with a built-in silencer (direct exhaust) so include suffix "S".

**Note 4)** F.P. and S kits are provided with an exhaust on one side while C kits are with an exhaust on both sides.

**Kit • Electrical entry • Cable length**

**F kit (D-sub connection)**

**Connector Location**

<table>
<thead>
<tr>
<th>Connector Location</th>
<th>Top entry</th>
<th>8 stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>U0</td>
<td>Without cable</td>
<td></td>
</tr>
<tr>
<td>F1</td>
<td>With cable (1.5m)</td>
<td>8 stations</td>
</tr>
<tr>
<td>F2</td>
<td>With cable (2m)</td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>With cable (5m)</td>
<td></td>
</tr>
</tbody>
</table>

**C kit (Connector)**

**S kit (Serial transmission unit)**

**Note 1)** The max. standard stations are 8. With single wiring, arrangement of up to 16 stations is possible. Specify the arrangement of stations using the manifold specification form for more than 8 stations. Other than those above, F and P kits with different number of pins are available.

**FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT: E137, E138, N238, N239**

**Company Of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com**
### Pilot Valve Specifications
- L: 1W (Standard)
- H: 1.5W (High speed response)
- Y: Low Wattage (0.5W)
- N: Negative Common

### Configuration
- 0: 2 position single
- 1: 2 position dual

### Type of Seal
- 0: Metal
- 1: Rubber

### Cylinder Ports
- C3: One Touch Fittings for ø3.2
- C4: One Touch Fittings for ø4
- M5: M5 (10-32Nom)
- N1: One Touch Fittings ø1/8"
- N3: One Touch Fittings ø5/32"

### Manual Override
- L: Plug connector with lead wire
- LL: Plug connector without connection
- M: Plug connector with lead wire
- MM: Plug connector without connection

### Coil Voltage
- 3: 110VAC
- 5: 24VDC
- 6: 12VDC

### Accessories
- Individual SUP spacer: VVQ0000-P-4-C4
- DIN rail mounted bracket [-D]: VVQ0000-57A-4
- Individual EXH spacer: VVQ0000-R-4-C4

### Manifold Options
- Built in silencer, direct exhaust [-S]: VVQ0000-N4-Station
- Nameplate [-N4]: VVQ0000-N4-Station
- Blanking plug KQP
- Block valve VQ0-4-[N]...
# SOLENOID VALVES
## SERIES VQ1000

### 5 PORT METAL SEAL/RUBBER SEAL
### ULTRA HIGH SPEED SOLENOID VALVE
### SERIES VQ1000

- High Speed Response from new Solenoid Design.
- Long Life: Over 200 Million Cycles can be achieved.
- Indicator light and Voltage Surge Suppressor
- Space Saving Design
- Five Options for Manifold Electrical Connection.
- Plug lead and Plug In Valve manifold options.
- New Cassette type manifold available.

### TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Type of Seal</th>
<th>Metal</th>
<th>Rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air, inert gas</td>
<td>Air, inert gas</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min Operating Pressure</th>
<th>Single</th>
<th>Double</th>
<th>3-position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.1MPa/14.5PSI</td>
<td>0.15MPa/22PSI</td>
<td>0.1MPa/14.5PSI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max Operating Pressure (Note 1)</th>
<th>Single</th>
<th>Double</th>
<th>3-position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.75MPa/109PSI</td>
<td>0.75MPa/109PSI</td>
<td>0.75MPa/109PSI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effective Area (Cv Factor) mm²</th>
<th>Single</th>
<th>Double</th>
<th>3-position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.6 (0.2)</td>
<td>3.6 (0.2)</td>
<td>3.6 (0.2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response Time (Note 2)</th>
<th>Single</th>
<th>Double</th>
<th>3-position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max 12ms</td>
<td>Max 15ms</td>
<td>Max 15ms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Life (Note 3)</th>
<th>200 million cycles or more</th>
</tr>
</thead>
</table>

- **Ambient and Fluid Temperature (Note 3):**
  - -10 to +50°C (14~122°F) for Air, Inert gas.
  - -5 to +50°C (23~122°F) for Air, Inert gas.

- **Lubricant (Note 4):**
  - Not required for Air, Inert gas.

- **Manual Override:**
  - Non-locking, Push for Air, Inert gas.

### COIL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Coil Rated Voltage</th>
<th>12 VDC, 24 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowable Voltage</td>
<td>± 10% of Rated Voltage</td>
</tr>
<tr>
<td>Type of Coil Insulation</td>
<td>Class B</td>
</tr>
<tr>
<td>Power Consumption (Note 1)</td>
<td>1W</td>
</tr>
<tr>
<td>Electrical Entry</td>
<td>Plug In or Connector Type</td>
</tr>
</tbody>
</table>

(Note 1) Contact SMC for the low power consumption (0.5W) type.

---

**SOLVENT SPECIFICATIONS**

- **Coil Rated Voltage:** 12 VDC, 24 VDC
- **Allowable Voltage:** ±10% of Rated Voltage
- **Type of Coil Insulation:** Class B
- **Power Consumption (Note 1):** 1W
- **Electrical Entry:** Plug In or Connector Type

(Note 1) Contact SMC for the low power consumption (0.5W) type.
**F Kit D-sub Connector (25 pin) Series VQ1000**

- The D-Sub Connector permits simple rationalization and installation labor saving for Electrical Connection.
- The D-Sub Connector (25-pin std., 15-pin option) conforms with MIL permitting use of commercial connectors with wide interchangeability.
- Top or Side Connector Receptacle Position can be selected in accordance with the available mounting space.
- Standard max 8 stations (Optional 16 stations possible).

The D-Sub connector cable ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold".

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Brown</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Red</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Green</td>
<td>-</td>
<td>4</td>
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<tr>
<td>Yellow</td>
<td>-</td>
<td>5</td>
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<td>White</td>
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<td>6</td>
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<tr>
<td>Blue</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Violet</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>Grey</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>Light Grey</td>
<td>-</td>
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<td>Silver</td>
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<td>11</td>
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<td>Yellow Black</td>
<td>-</td>
<td>12</td>
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<tr>
<td>Yellow Red</td>
<td>-</td>
<td>13</td>
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<tr>
<td>Yellow</td>
<td>-</td>
<td>14</td>
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<tr>
<td>Blue Red</td>
<td>-</td>
<td>15</td>
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<tr>
<td>Green Black</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>Green</td>
<td>-</td>
<td>17</td>
</tr>
<tr>
<td>Black</td>
<td>-</td>
<td>18</td>
</tr>
<tr>
<td>Orange Black</td>
<td>-</td>
<td>19</td>
</tr>
<tr>
<td>Orange</td>
<td>-</td>
<td>20</td>
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<tr>
<td>Red</td>
<td>-</td>
<td>21</td>
</tr>
<tr>
<td>Green White</td>
<td>-</td>
<td>22</td>
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<tr>
<td>Grey</td>
<td>-</td>
<td>23</td>
</tr>
<tr>
<td>Blue Red</td>
<td>-</td>
<td>24</td>
</tr>
<tr>
<td>White</td>
<td>-</td>
<td>25</td>
</tr>
</tbody>
</table>

Note: Types with 15-pin are also available.

**P Kit (Flat Cable Connection) Series VQ1000**

- MIL Flat Cable Connector permits simple rationalization and installation labor savings for Electrical Connection.
- The Connector (26 pin; 10-, 16-, and 20 pin optional) conforms with MIL spec permitting use of widely interchangeable commercial connectors.
- Top or Side Receptacle Position can be selected in accordance with the available mounting space.
- Standard max 8 Stations (Optional 16 Stations optional).

The total number of stations is tabulated starting from station one at the D side.

- For other commercial connectors, use a 26-pin type with strain relief made in conformity with MIL-C-85525.

**Examples of connector makers**
- Hirose Electric Co., Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Sumitomo 3-M Ltd.
- Japan Solidless Terminal Sales Co., Ltd.
- Fujitsu Ltd.

Note: Types with 10-, 16-, or 20-pin are also available.
2.28

Solenoid Valves
Series VQ1000

T Kit (Terminal Block Board)
Series VQ1000

This Kit has a small Terminal Block inside a junction box.

- The Electrical Entry Port G (PF) 1/2 permits connection of
  Conduit Fittings.
- Max 12 Stations.

Open the terminal block cover for wire connection.

**Sequence 1. How to remove terminal block cover**

Loosen the screws on the terminal block cover and open it in the
direction shown by the arrow. The cover can then be removed
from the terminal block.

**Sequence 2. Wire connection**

The diagram on the right shows the terminal block wiring schematic.
All stations are provided with double solenoid wiring. Insert each lead wire into the terminal opening and tighten the screw
directly above.

**Sequence 3. How to replace terminal block cover**

Hook groove "A" on shaft "A" and close the
cover. Then tighten the screws.

---

**How To Order**

Body Ported Valve - Single Unit

**VQ1 1 6 0 N 5 L C6**

**Series VQ1000**

**Configuration**

1 .... 2 Position single
2 .... 2 Position double (latching)
3 .... 3 Position closed centre
4 .... 3 Position exhaust centre
5 .... 3 Position pressure centre

**Type of Seal**

0 .... Metal
1 .... Rubber

**PILOT Valve Specifications (OPTION)**

- ....... 1W Standard
- H .... 1.5W (High speed response)
- Y .... Low wattage type
- N .... Negative common wiring

(Note): Except for 110 VAC type.

---

**Subplate SUP Cylinder Ports**

C3 .... One Touch Fittings for Ø3.2
C4 .... One Touch Fittings for Ø4
C6 .... One Touch Fittings for Ø6
M5 .... M5 (10-32Nom)
N1 .... One Touch Fittings Ø1/8"
N3 .... One Touch Fittings Ø5/32"
N7 .... One Touch Fittings Ø1/4"

(Note) EXH Port is a Direct Exhaust Type (with Built In Silencer)

**MANUAL OVERRIDE**

- ......... Non locking recessed type
  "B" Locking tool type
  "C" Locking knob type

(Note) Locking type (B) is standard for double (latching) type.
Indicate "B" in model no.

**Electrical Entry**

G .... Grommet (Except for latching type and 100/110VAC)
L .... L type plug connector with lead wire
LO .... L type plug connector without connector
M .... M type plug connector with lead wire
MO .... M type plug connector without connector

**Coil Rated Voltage**

3 ....... 110VAC
5 ....... 24VDC
6 ....... 12VDC

---

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**Solenoid Valves**

**Series VQ1000**

**Base Mounted Type**

**Plug In Unit**

**VQ1000**

**How To Order**

**Manifold**

**Serial:**
1 ..... VQ1000

**Type of Manifold:**
1 ..... Plug In Unit - Base Mounted

**Number of Stations:**
- 01 ..... 1 Station
- ..... 
- 16 ..... 16 Stations

**Cylinder Ports:**
- C3 ..... One Touch Fittings for Ø3.2
- C4 ..... One Touch Fittings for Ø4
- C6 ..... One Touch Fittings for Ø6
- M5 ..... M5 (10-32Nom)
- N1 ..... One Touch Fittings ø1/8"
- N3 ..... One Touch Fittings ø3/32"
- N7 ..... One Touch Fittings ø1/4"
- * Mixed Ports Available

**Note 1:** Insert code L (upward) or B (downward) for elbow type fittings for all manifold stations. Example: BR: Elbow one touch fittings for downward (bottom) piping.

**Note 2:** LM for models with elbow fittings and mixed cylinder port sizes.

**Option**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Option</th>
<th>VQ1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Check valve for prevention of back pressure</td>
<td>*</td>
</tr>
<tr>
<td>D</td>
<td>DIN Rail Mounted Type</td>
<td>*</td>
</tr>
<tr>
<td>J</td>
<td>With Vacuum Ejector Unit</td>
<td>*</td>
</tr>
<tr>
<td>N</td>
<td>With Nameplate</td>
<td>*</td>
</tr>
<tr>
<td>R</td>
<td>External Pilot capable</td>
<td>*</td>
</tr>
<tr>
<td>S</td>
<td>Built-in Silencer (Direct Exhausts)</td>
<td>*</td>
</tr>
</tbody>
</table>

**Note:** When more than one option is desired, combined symbols in alphabetical order.

**Example:** BRS

**Note 2:** Models with a suffix "-B" have checked valves for prevention of back pressure at all manifold stations.

**Note 3:** In the case of the external pilot "-R", order solenoid valves with the external pilot specification "R".

**Note 4:** Contact SMC for details of vacuum ejector unit. Combination of ejector option "J" and nameplate "N" is not possible.

**Kit/Electrical Entry/Cable Length**

**F Kit**

(D-sub connection)

**P Kit**

(Flat cable connection)

**T Kit**

(Terminal block board)

**S Kit**

(Serial transmission unit)

---

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Solenoid Valves
Series VQ1000

HOW TO ORDER VALVE

VQ 1 1 0 0 N - 5

Series
0 ........ VQ1000

Manual Override

Indicator light and surge voltage suppressor
- .......... Yes
E ............ No

Symbol

1 2 3 4 5
2 position single A, B
2 position double A, B
3 position closed center A, B
3 position exhaust center A, B
3 position pressure center A, B

Coil Voltage
3 .... 110VAC
5 .... 24VDC
6 .... 12VDC

Pilot Valve Specifications
- ......... 1W (Standard)
H ......... 1.5W (High Speed response)
Y ......... Low wattage (0.5W)
N ......... Negative common (blank is positive common)

Type of Seal
0 ......... Metal
1 ......... Rubber

Accessories
Manifold Options

Blanking Plate Assembly
VVQ1000-10A-5

Sup Block Plate
VVQ1000-16A-

Nameplate [-N]
VVQ1000-N5-Station (1-Max. stations)

Built in Silencer
Direct exhaust [-S]

Individual SUP Spacer
VVQ1000-P-1-C6

Planking Plug
KQP- 23 04 06 08 10 01 03 07

2 Stations Matching Fittings Assembly
VVQ1000-52A-C8 (VQ1000)

Individual EXH Spacer
VVQ1000-R-1-C6

EXH Block Base Assembly
VVQ1000-19A- [ - B ] (VQ1000)

Elbow Fittings Assembly
VVQ1000-P-L-VQ1000

Silencer (EXH port)
VVQ1000-JAM (VQ1000)

Vacuum Ejector Unit
VVQ1000-JBM (VQ1000)

Check Valve for Prevention of Back Pressure Assembly [-B]
VVQ1000-18A

DIN Rail Mounted Bracket [-D]
VVQ1000-57A

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**Series VQ1000**

**How to Order Manifold**

**Body Ported Type**

**Plug Lead Unit/Flip Type**

**Series VQ1000**

**HOW TO ORDER MANIFOLD**

**Series VQ1000**

**Type of Manifold**

4 ... Plug in unit/flip type

**Number Of Stations**

01 ... 1 Station

......

......

16 ... 16 Stations

The number of stations differs from kit to kit.

**Kit**

**Electrical Entry Cable Length**

**KIT**

**Electrical Entry Cable Length**

**DIN Rail/Option**

Symbol | Option
--- | ---
D | None (C kit only)
N | With Nameplate
S | Built-in Silencer (Direct Exhaust)

Note 1) When more than one option is desired, combined symbols in alphabetical order. Example) DNS

Note 2) All F, P, and S kits are DIN rail mounted type. So include suffix "D".

Note 3) F, P, and S kits are provided with an exhaust on one side while C kits are with an exhaust on both sides.

**Kit**

**Electrical Entry Cable Length**

**F**

(D-sub connection)

**Connector Location**

**Connector** | **Location** | **Option**
--- | --- | ---
**UC** | **90** | Without cable
**UI** | **91** | With cable (1.5m)
**UK** | **92** | With cable (3m)
**UX** | **93** | With cable (5m)

**Note 1)** Max. 8 stations

**Kit**

**Electrical Entry Cable Length**

**C**

(Connector)

**Connector** | **Max. 16 stations**
--- | ---
**C** | **Connector**

**S**

(Serial transmission unit)

**Kit**

**Electrical Entry Cable Length**

**Symbol**

**B** | Without SI unit
**A** | With general type SI unit
**K** | With SI unit for Mitsubishi, MELSEC-A
**C** | With SI unit for Omron, SY5M2AC
**D** | With SI unit for Sharp, New satellite

**Note 1)** The max. standard stations are 8. With single wiring arrangement of up to 16 stations is possible. Specify the arrangement of stations using the manifold specification form for more than 8 stations.

**Note 2)** Other than those above, F and P kits with different number of pins are available.

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**Solenoid Valves**

**Series VQ1000**

**HOW TO ORDER VALVE**

**Series**

VQ1 1 4 0 Y — 5 L — C6

**Configuration**

1. 2 position single
2. 2 position double (stretched)
3. 3 position closed center
4. 3 position without center
5. 3 position pressure center

**Type of Seal**

0 — Metal
1 — Rubber

**Pilot Valve Specifications**

- 1 — 1W (Standard)
- H — 1.5W (High pressure)
- Y — Low wattage (0.5W)
- N — Negative common

Note) Except for AC and double (latching) type.

**Coil Voltage**

3 —…… 110VAC (50/60Hz)
5 —…… 24VDC
6 —…… 12VDC

Note) The C kit is applicable to 200/220VAC. Contact SMC for other kits.

**Electrical Entry**

- G: grommet, C kit single type only
- L: L type plug connector with lead wire
- O: O type plug connector without connector
- M: M type plug connector without connector
- MO: MO type plug connector without connector

Note) Some models are also available with connections without screw terminals.

**Manual Override**

- Non-locking push type
- Push-locking tool type
- Push-locking lever type

**Cylinder Ports**

C3 — One Touch Fittings for Ø3.2
C4 — One Touch Fittings for Ø4
C6 — One Touch Fittings for Ø6
M5 —…… MS (10-32Nom)
N1 —…… One Touch Fittings Ø1/8"
N3 —…… One Touch Fittings Ø5/32"
N7 —…… One Touch Fittings Ø1/4"

**Accessories**

- Individual SUP Spacer: VVQ1000-P-4-C6
- DIN Rail Mounted Bracket [- D]: VVQ1000-57A-4
- Individual EXH Spacer: VVQ1000-R-4-C6
- Built In Silencer, Direct Exhaust [- S]: VQ1000 [S]

**Nameplate [- N4]**

VVQ1000-N4 Station (1-Max. station)

**Silencer (EXH Port)**

AN103-X233 (VQ1000)

**Blanking Plug**

KQP- [ ]

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**How to Order Manifold**

**Type of Manifold**
- 7 ….. Plug lead unit/cassette type

**Number of Stations**
- 01 ….. 1 Station
- …….. ...
- 16 ….. 16 Stations

The number of stations differs from kit to kit.

**Kit • Electrical Entry Cable Length**

**SUP/EXH Port**
- ….. Metric (mm)
- 00T ….. Imperial (Inch)

**DIN Rail/Option**
- D … DIN rail mounted type
- N … With Nameplate

*Note 1* Manifold is of a DIN rail mounted type, and so suffix “D” should be indicated.

*Note 2* When the “N” option is desired, write as “DN”.

**Body Ported Type**
- Plug Lead Unit/Cassette Type

**Series VQ1000**

{VV5Q1} 7 — 08 F U1 — D

---

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**Solenoid Valves**

**Series VQ1000**

**Configuration**
- 2 position single
- 2 position double (retract)
- 3 position clamped center
- 3 position exhaust center
- 3 position pressure center

**Type of Seal**
- 0 ..... Metal
- 1 ..... Rubber

**Pilot Valve Specifications**
- C3 ..... One Touch Fittings for Ø3.2
- C4 ..... One Touch Fittings for Ø4
- C6 ..... One Touch Fittings for Ø6
- M5 ..... M5 (10-32Nom)
- N1 ..... One Touch Fittings ø1/8"
- N3 ..... One Touch Fittings ø5/32"
- N7 ..... One Touch Fittings ø1/4"

Note 1) The code is L for Elbow Piping for all Manifold Stations. Example L6: Elbow with One Touch Fittings.

**Manual Override**
- Note 1) Locking type (B) is used for the double (latching) type as standard. Must include “B” suffix.

**Electrical Entry**
- L Type plug connector with lead wire
- M Type plug connector with lead wire
- MO Type plug connector without connector

Note 1) LO and MO valves are used for F, P, and S kits. Plug connector and lead wire layers are attached to the manifold.

Note 2) Grommet type (G) is also available for C kit type. (Except for latching type and 100/110VAC)

**Coil Voltage**
- 3 ..... 110VAC
- 5 ..... 24VDC
- 6 ..... 12VDC

With indicator light and surge voltage suppressor

**Accessories**

**Manifold Options**

**SUP-EXH Block Push Assembly**

**Nameplate [ -N7]**

**Elbow Fittings Assembly**

**Blanking Plug**

**Silencer**

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ULTRA HIGH SPEED SOLENOID VALVE
SERIES VQ2000

- High Speed Response from new Solenoid Design.
- Long Life: Over 200 Million Cycles can be achieved with Patent Pilot Valve design.
- Indicator Light and Voltage Surge Suppressor
- Space Saving Design
- Plug Lead and Plug In manifold options.

**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Type of Seal</th>
<th>Metal</th>
<th>Rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air, inert gas</td>
<td>Air, inert gas</td>
</tr>
<tr>
<td>Min Operating Pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>0.1MPa / 14.5PSI</td>
<td>0.15MPa / 22PSI</td>
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<tr>
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<td>0.1MPa / 14.5PSI</td>
<td>0.1MPa / 14.5PSI</td>
</tr>
<tr>
<td>Max Operating Pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>0.75MPa / 109PSI</td>
<td>0.75MPa / 109PSI</td>
</tr>
<tr>
<td>Double</td>
<td>0.75MPa / 109PSI</td>
<td>0.75MPa / 109PSI</td>
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<tr>
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<td>0.75MPa / 109PSI</td>
<td>0.75MPa / 109PSI</td>
</tr>
<tr>
<td>Effective Area</td>
<td></td>
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<tr>
<td>Single</td>
<td>14.4 (0.8)</td>
<td>16.2 (0.9)</td>
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<tr>
<td>2-position</td>
<td>12.6 (0.7)</td>
<td>14.4 (0.8)</td>
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<td>3-position</td>
<td>15.2 (0.8)</td>
<td>17.0 (0.9)</td>
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<td>Response Time</td>
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<tr>
<td>Single</td>
<td>Max 23ms</td>
<td>Max 24ms</td>
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<tr>
<td>2-position</td>
<td>Max 18ms</td>
<td>Max 23ms</td>
</tr>
<tr>
<td>3-position</td>
<td>Max 23ms</td>
<td>Max 23ms</td>
</tr>
<tr>
<td>Max Operating Pressure (Note 1.)</td>
<td></td>
<td></td>
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<tr>
<td>Single</td>
<td>0.75MPa / 109PSI</td>
<td>0.75MPa / 109PSI</td>
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<tr>
<td>Double</td>
<td>0.75MPa / 109PSI</td>
<td>0.75MPa / 109PSI</td>
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<tr>
<td>3-position</td>
<td>0.75MPa / 109PSI</td>
<td>0.75MPa / 109PSI</td>
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<tr>
<td>Life Expectancy</td>
<td></td>
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</tr>
<tr>
<td>Single</td>
<td>200 million cycles or more</td>
<td></td>
</tr>
<tr>
<td>2-position</td>
<td>200 million cycles or more</td>
<td></td>
</tr>
<tr>
<td>3-position</td>
<td>200 million cycles or more</td>
<td></td>
</tr>
<tr>
<td>Ambient and Fluid Temperature (Note 2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>-10 to +50°C / 14~122°F</td>
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<tr>
<td>2-position</td>
<td>-5 to +50°C / 23~122°F</td>
<td></td>
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<tr>
<td>Lubricant (Note 4)</td>
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<td></td>
</tr>
<tr>
<td>Single</td>
<td>Not required</td>
<td></td>
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<tr>
<td>2-position</td>
<td>Not required</td>
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</tr>
<tr>
<td>Manual Override</td>
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<td></td>
</tr>
<tr>
<td>Single</td>
<td>Non-locking, momentary</td>
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<tr>
<td>2-position</td>
<td>Non-locking, momentary</td>
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</tr>
<tr>
<td>Protection</td>
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<td>Single</td>
<td>Dustproof</td>
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</tr>
<tr>
<td>2-position</td>
<td>Dustproof</td>
<td></td>
</tr>
</tbody>
</table>

**SOLENOID SPECIFICATIONS**

- Coil rated voltage: 12 VDC, 24 VDC
- Allowable voltage: ±10% of rated voltage
- Type of coil insulation: Class B
- Power consumption (Note 1): 1W
- Electrical entry: Plug-in or Connector type

(Notes:
1. Contact us for 10 bar.
2. Calculated on the basis of JIS B 8375-1981 (Supply pressure 0.5 MPa [5.1 bar]; the above valve shows response time checked when the valve is equipped with an indicator light and surge voltage suppressor).
3. Use dry air to prevent dew condensation in the case when temperature is low.
4. Perfect dry air (dew point equals to -30°C) No grease on main valve.

Special types (Contact SMC for details and availability):
- Pressure center function
- External pilot
- Low power consumption (0.5W)
- Positive common wiring

**WIRING SPECIFICATIONS**

**NEGATIVE COM**

- The lead wires are connected to the valve as shown below.
- Connect each to the power supply side.
- The lead wires are connected to the valve as shown below.

**POSITIVE COM (OPTION)**

- The lead wires are connected to the valve as shown below.
- Connect each to the power supply side.

**SYMBOLS**

- See inside front cover for details of your local sales office.

 Courtesy of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com
The D-sub connector permits simple rationalization and installation labor savings for electrical connection. The D-sub connector (25-pin std., 15-pin option) conforms with MIL permitting use of commercial connectors with wide interchangeability. Top or side connector receptacle position can be selected in accordance with the available mounting space. Standard max 8 stations (Optional 16 stations possible).

### D-sub connector (25-pin)

![D-sub connector](image-url)

**Electrical Wiring Specifications**

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Wire colour</th>
<th>Dot marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Brown</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Red</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Orange</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Violet</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Pink</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Blue</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Grey</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Yellow</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Pink</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>White</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>White</td>
<td>Black</td>
</tr>
<tr>
<td>13</td>
<td>White</td>
<td>Red</td>
</tr>
<tr>
<td>14</td>
<td>Yellow</td>
<td>Red</td>
</tr>
<tr>
<td>15</td>
<td>Yellow</td>
<td>Black</td>
</tr>
<tr>
<td>16</td>
<td>Pink</td>
<td>Black</td>
</tr>
<tr>
<td>17</td>
<td>Blue</td>
<td>White</td>
</tr>
<tr>
<td>18</td>
<td>Grey</td>
<td>-</td>
</tr>
<tr>
<td>19</td>
<td>Orange</td>
<td>Black</td>
</tr>
<tr>
<td>20</td>
<td>Red</td>
<td>White</td>
</tr>
<tr>
<td>21</td>
<td>Brown</td>
<td>White</td>
</tr>
<tr>
<td>22</td>
<td>Pink</td>
<td>Red</td>
</tr>
<tr>
<td>23</td>
<td>Grey</td>
<td>Red</td>
</tr>
<tr>
<td>24</td>
<td>Black</td>
<td>White</td>
</tr>
<tr>
<td>25</td>
<td>White</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: The min. bending radius of D-sub assembly is 20mm.

For other commercial connectors, use a 25-pin female connector made in conformity with MIL-C-24308.

![Cable Length](image-url)

<table>
<thead>
<tr>
<th>Cable Length (L)</th>
<th>Assembly No.</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1m</td>
<td>VVZS3000-21A-1</td>
<td>Cable 25-core 0.4mm² 24AWG</td>
</tr>
<tr>
<td>2m</td>
<td>VVZS3000-21A-2</td>
<td></td>
</tr>
<tr>
<td>3m</td>
<td>VVZS3000-21A-3</td>
<td></td>
</tr>
</tbody>
</table>

Note: Type with 15 pin are also available.

**The total number of stations is tabulated starting from station one at the D side.**
**MIL type flat cable connector permits simple rationalization and installation labor savings for electrical connection.**

**The connector (26 pin; 10-, 16-, and 20 pin optional) conforms with MIL spec permitting use of widely interchangeable commercial connectors.**

**Top or side receptacle position can be selected in accordance with the available mounting space.**

**Standard max 8 stations (Optional 16 stations optional).**

---

**AXT100-FC20**

Flat cable connector ass'y can be ordered individually or included with a specific manifold module. Refer to “How to Order/Manifold.”

- Cable length: 1.5m
- Ass'y No: AXT100-FC20-1
- Note: Cable 26-crimp & 28AWG

- Cable length: 3m
- Ass'y No: AXT100-FC20-2
- Note: Cable 26-crimp & 28AWG

- Cable length: 5m
- Ass'y No: AXT100-FC20-3
- Note: For other commercial connectors, use 26-pin type with strain relief made in conformity with MIL-C-5020.

---

Examples of connector makers:

- Hirose Electric Co., Ltd.
- Sunbroid 3-M Ltd.
- Fujitsu Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Japan Solderless Terminal Sales Co., Ltd.

Note) Types with 10-, 16-, or 20-pin are also available.
**2.38**

**SOLENOID VALVES**

**SERIES VQ2000**

---

**BASE MOUNTED TYPE**

**PLUG IN UNIT**

**VQ2000**

---

**HOW TO ORDER**

**MANIFOLD**

**VV5Q 2 1 — 08 C6 F U1 — N**

**SERIES:**

- 2 …..VQ2000

**TYPE OF MANIFOLD**

- 1 …..Plug in unit

**NUMBER OF STATIONS**

- 01 …..1 Station
- ……..
- ……..
- ……..
- 16 …..16 Stations

The number of stations differ from kit to kit.

**CYLINDER PORTS**

- C4 …..One Touch Fittings for Ø4
- C6 …..One Touch Fittings for Ø6
- CB …..One Touch Fittings for Ø8
- M5 …..M5 (10-32Nom)
- N3 …..One Touch Fittings Ø5/32”
- N7 …..One Touch Fittings Ø7/32”
- N9 …..One Touch Fittings Ø5/16”

* Mixed Ports Available

---

**OPTION**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Option</th>
<th>VQ2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Blank)</td>
<td>None</td>
<td>•</td>
</tr>
<tr>
<td>B</td>
<td>Check valve for prevention of back pressure</td>
<td>•</td>
</tr>
<tr>
<td>D</td>
<td>DIN Rail Mounted Type</td>
<td>•</td>
</tr>
<tr>
<td>K</td>
<td>Special Wiring</td>
<td>•</td>
</tr>
<tr>
<td>N</td>
<td>With Nameplate</td>
<td>•</td>
</tr>
<tr>
<td>R</td>
<td>External Pilot</td>
<td>•</td>
</tr>
<tr>
<td>S</td>
<td>Built-in Silencer (Direct Exhaust)</td>
<td>•</td>
</tr>
</tbody>
</table>

**Note 1:** When more than one option is desired, combined symbols in alphabetical order. Example) • BRS

**Note 2:** In the case of the external pilot “•R”, order solenoid valves with the external pilot specification “R”

---

**KIT • ELECTRICAL ENTRY • CABLE LENGTH**

---

**F kit** (D-sub connector)

**P kit** (Flat cable connector)

**S kit** (Serial transmission unit)

---

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**Solenoid Valves**

**Series VQ2000**

**How to Order Valve**

**VQ 2 1 0 0 N — 5**

**Series**
2 .... VQ2000

**Symbols**

1 2 position single
2 2 position double
3 3 position closed center
4 3 position exhaust center
5 3 position pressure center

**Coil Voltage**
3 .... 110VAC
5 .... 24VDC
6 .... 12VDC

**Type of Seal**
0 .... Metal
1 .... Rubber

**Manual Override**

- (Blank) Non-locking resealable type
- Locking tool type
- Locking head type

**Indicator light and surge voltage suppressor**
(Blank) .... Yes
E ......... No

**Pilot Valve Specifications**
- ...... 1W (Standard)
H ...... 1.5W (High Speed response)
Y ...... Low wattage (0.5W)
N ...... Negative common
R ...... External Pilot

**Type of Pilot Valve**

- .... Blank
E .... No

**Oil Voltage**

2 .... VQ2000 Series

**Note:** Contact SMC for 200, 220 VAC specifications

**Accessories**

**Blanking Plate Assembly**
VVQ2000-10A-1

**Blanking Plug**
KQP-

**Built in Silencer**
Direct Exhaust [-S]

**EXH Block Plate**
VVQ2000-19A (Q2000)

**Individual EXH Spacers**
VVQ2000-R-1-CB

**Individual SUP Spacers**
VVQ2000-P-1-CB

**SUP Block Plate**
VVQ2000-16A

**Nameplate [-N]**
VVQ2000-N-Station (1-Max. stations)

**Silencer (EXH Port)**
AN200-KM10

**DIN Rail Mounted Bracket [-D]**
VVQ2000-57A

**Built in Silencer**

- Silencer (EXH Port)
- AN200-KM10

- Individual EXH Spacers
- VVQ2000-R-1-CB

- Individual SUP Spacers
- VVQ2000-P-1-CB

- SUP Block Plate
- VVQ2000-16A

- Nameplate [-N]
- VVQ2000-N-Station (1-Max. stations)

- EXH Block Plate
- VVQ2000-19A (Q2000)

- Blanking Plug
- KQP-

- Built in Silencer
- Direct Exhaust [-S]

**See inside front cover for details of your local sales office**

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- 230 Ryan Way, South San Francisco, CA 94080-6370
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- www.stevenengineering.com
SOLENOID VALVES
SERIES VQ2000

BODY PORTED TYPE
PLUG LEAD UNIT/FLIP TYPE
VQ2000

HOW TO ORDER MANIFOLD

<table>
<thead>
<tr>
<th>SERIES</th>
<th>VQ2000</th>
</tr>
</thead>
</table>

TYPE OF MANIFOLD
Plug lead unit/flip type

NUMBER OF STATIONS
01  1 Station
16  16 Stations
The number of stations differ from kit to kit.

KIT • ELECTRICAL ENTRY • CABLE LENGTH

DIN RAIL/OPTION

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None (C Kit only)</td>
</tr>
<tr>
<td>-0</td>
<td>DIN Rail Mounted Type</td>
</tr>
<tr>
<td>N</td>
<td>With Nameplate</td>
</tr>
<tr>
<td>-S</td>
<td>Built-in Silencer (Direct Exhaust)</td>
</tr>
</tbody>
</table>

Note 1) When more than one option is desired
Combined symbols in alphabetical order:
Example) • DNS

Note 2) All F.P. and S. kits are of DIN rail mounted type, so include suffix "D".

Note 3) F.P. and S. kits are provided with an exhaust on one side, while C kits are with an exhaust on both sides.

COMPATIBILITY

Kit (D-sub connection)

Compatible only with DC/DC valves.

Kit (Connector)

Kit (Serial transmission unit)

NOTE:

1) The max. standard stations are 8. With single wiring, arrangement of up to 16 stations is possible.

2) Other than those above, Fanil P kits with different number of pins are available.
VQ2 1 4 0 N — 5 L — C6

Series
2 …..VQ2000

Configuration
1
2 position single A-R
2
2 position double A-L

Type of Seal
0 …..Metal
1 …..Rubber

Pilot Valve Specifications
- …..1W (Standard)
H …..1.5W (High Speed response)
LW …..Y Low wattage (0.5W)
N …..Negative common

Coil Voltage
3 …..110VAC
5 …..24VDC
6 …..12VDC

Note) Except for double (latching) type.

Note 1) See “Option Specifications” for negative COM specifications.
Contact SMC for 200, 220VAC

Note2) F, P, and S kits need connector assembly when increasing the valve station. See “Option Specifications” for types.

Cylinder Ports
C4 …..One Touch Fittings for Ø4
C6 …..One Touch Fittings for Ø6
C8 …..One Touch Fittings for Ø8
N3 …..One Touch Fittings ø5/32”
N7 …..One Touch Fittings ø1/4”
N9 …..One Touch Fittings ø5/16”

Manual Override

Electrical Entry

With indicator light and surge voltage suppressor

Manual Override

Electrical Entry

L: Type plug connector with lead wire
L: Type plug connector without connector
L: Type plug connector with lead wire
M: Type plug connector without connector
M: Type plug connector with lead wire

G …..Grommet C Kit
Single Type Only

Accessories

Manifold Options

Individual SUP spacer
VVQ2000-P-4-C8

DIN Rail mounted bracket [-D]
VVQ2000-57A-4

Individual EXH spacer
VVQ2000-R-4-CB

Built in Silencer
Direct exhaust [-S]

Nameplate [-N4]
VVQ2000-N4 station
(1-Max. station.)

Silencer (EXH port)
AN203-KM8 (VVQ2000)

Blanking plug
KQP-

Block valve VQV4-P-4-C8

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Solenoid Valves
Series VQ4000

5 Port Metal Seal/Rubber Seal
Base Mounted / Plug-In Type
Series VQ4000

- High Speed and Long Life
- Compact Design with Large Flow Capacity
- Various Centralized Wiring Options
- Optional IP65 Available
- Dust Proof, Jet Proof

TECHNICAL SPECIFICATIONS
Series VQ4000

<table>
<thead>
<tr>
<th>Type of Seal</th>
<th>Fluid</th>
<th>Metal Seal</th>
<th>Rubber Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Air Inert Gas</td>
<td>Air Inert Gas</td>
</tr>
<tr>
<td>Maximum Operating Pressure</td>
<td>1MPa (145PSI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Single Operating Pressure</td>
<td>0.15MPa (22PSI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Operating Pressure</td>
<td>0.15MPa (22PSI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure</td>
<td>0.15MPa (22PSI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>1.5MPa (220PSI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperature</td>
<td>-10 ~ 50°C / 14 ~ 122°F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual Override</td>
<td>Pushing Type/Slotted Locking Type (Tool Type) Option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock/Vibration Resistance</td>
<td>150/30 m/s²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>Dust Proof (Available to IP65 Type)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve Rated Voltage</td>
<td>12, 24VDC and 100, 110, 200, 220VAC (50/60Hz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allowable Voltage</td>
<td>±10% of Rated Voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coil Insulation</td>
<td>Class B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>1WDC (42mA), 0.5WDC (21mA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td>Inrush 1.2VA (12mA), Holding 1.2VA (12mA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Current Value)</td>
<td>Inrush 2.4VA (12mA), Holding 2.4VA (12mA)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOLVED SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model Series VQ4000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Solenoids</td>
</tr>
<tr>
<td>Single</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Double</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Closed</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Exhaust</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Pressure</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Note 1: Value for Valve on Subplate and Cylinder Port Rc 3/8
Note 2: As per JISB8375-1981 (Supply Pressure: 0.5 MPa (5.1 kgf/cm²); with Indicator Light and Surge Voltage Suppressor; Clean Air)
**Solenoid Valves**

**Series VQ4000**

**Manifold Type**

1 ... Plug In Unit

**Number of Stations**

D2 ... 2 Stations
n ... n Stations
Max & Min depends on Kit

**Option**

- ... None
CD ... Exhaust Cleaner; For D Side Mounting (Note 2)
CU ... Exhaust Cleaner; For U Side Mounting (Note 2, 3)
K ... Special Wiring Spec (Other than Double Wiring) (Note 4)
N ... Name Plate (T Kit Only)
SD ... Direct Jet with Silencer Box; D Side Exhaust
SU ... Direct Jet Silencer Box; U Side Exhaust (Note 4)
W ... Enclosure IP65 (Except F Kit)

**Note 2**) Combination of CU/CD and SU/SD is not possible
**Note 3**) Combination of T and S Kits is not possible
**Note 4**) Specify the wiring specifications by means of the manifold specification form (except L Kit)

**Control Unit**

Refer to CAT:E150 for details

**Kit / Electrical Entry / Cable Length**

**Kit (D sub-connector)**

<table>
<thead>
<tr>
<th>Kit</th>
<th>Electrical entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>D0</td>
<td>U0 Without cable</td>
</tr>
<tr>
<td>D1</td>
<td>U1 Cable length 1.5m</td>
</tr>
<tr>
<td>D2</td>
<td>U2 Cable length 3m</td>
</tr>
<tr>
<td>D3</td>
<td>U3 Cable length 6m</td>
</tr>
</tbody>
</table>

**Kit (Terminal box kit)**

<table>
<thead>
<tr>
<th>Kit</th>
<th>Electrical entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>D0</td>
<td>T0 Terminal box</td>
</tr>
<tr>
<td>D1</td>
<td>T1 3 to 12 stations</td>
</tr>
</tbody>
</table>

**Kit (Serial transmission kit)**

The valve is equipped with a lamp/surge voltage suppressor, and the voltage is 24VDC.

**Apply to IP65**

**Applicable to IP65**

<table>
<thead>
<tr>
<th>Kit</th>
<th>Electrical entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>D0</td>
<td>O0 Without unit</td>
</tr>
<tr>
<td>D1</td>
<td>O1 With general type unit</td>
</tr>
<tr>
<td>D2</td>
<td>O2 With SI unit</td>
</tr>
<tr>
<td>D3</td>
<td>O3 With SI unit for CMONI-MONI</td>
</tr>
</tbody>
</table>
### SOLENOID VALVES

**SERIES VQ4000**

For further technical details on this product, request catalog reference E150.

See inside front cover for details of your local sales office.

#### OPTIONS MANIFOLD SERIES VQ4000

<table>
<thead>
<tr>
<th>Component</th>
<th>Image</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank plate ass'y</td>
<td><img src="blank_plate.jpg" alt="Image" /></td>
<td>VVQ4000-10A-1</td>
</tr>
<tr>
<td>Individual SUP. spacer</td>
<td><img src="spacersup.jpg" alt="Image" /></td>
<td>VVQ4000-P-1-03</td>
</tr>
<tr>
<td>Individual EXH. spacer</td>
<td><img src="spacersup.jpg" alt="Image" /></td>
<td>VVQ4000-R-1-03</td>
</tr>
<tr>
<td>Speed controller spacer</td>
<td><img src="spacerr.jpg" alt="Image" /></td>
<td>VVQ4000-20A-1</td>
</tr>
<tr>
<td>SUP. stop valve spacer</td>
<td><img src="spacersup.jpg" alt="Image" /></td>
<td>VVQ4000-37A-1</td>
</tr>
<tr>
<td>SUP. EXH. block plate</td>
<td><img src="blockplate.jpg" alt="Image" /></td>
<td>VVQ4000-16A</td>
</tr>
<tr>
<td>Release valve spacer</td>
<td><img src="valve.jpg" alt="Image" /></td>
<td>VVQ4000-24A-1D (Note)</td>
</tr>
<tr>
<td>Built-in silencer (Direct exhaust)</td>
<td><img src="silencer.jpg" alt="Image" /></td>
<td>[-S Note]</td>
</tr>
<tr>
<td>For exhaust cleaner mounting</td>
<td><img src="mounting.jpg" alt="Image" /></td>
<td>[-C Note]</td>
</tr>
<tr>
<td>Applicable exhaust cleaner</td>
<td><img src="exhaust.jpg" alt="Image" /></td>
<td>AMC 610-10</td>
</tr>
</tbody>
</table>

(Note) Combination of external pilot specification and release valve spacer, built-in silencer box direct exhaust, exhaust cleaner mounting type is not available.
2.46 SOLENOID VALVES

SERIAL TRANSMISSION SERIES VQ1000

5/2, 5/3 Spool & Sleeve, Ultra High Speed Solenoid Valve Series VQ1000

Choice of Five Supported Protocols
- 512 Points through 32 Transmission Terminals
- 100m Minimum Transmission Distance
- Communication Speeds up to 500K Baud - Protocol Dependent
- "Plug In" System: easy assembly and maintenance
- High Speed Response from new Solenoid Design
- Space Saving Design
- Electrical Connection by D Sub Connector
- Indicator Light (2 Color on Double Solenoid Valve)
- Interface Integral with Manifold

The VQ Valve incorporates a 2 Stage Armature allowing the valve to open before the armature completes its stroke.

TECHNICAL SPECIFICATIONS

Type of Seal | Metal
---|---
Fluid | Air, Inert Gas
Min Operating Pressure | (1.0 Bar) 14.5PSI
Max Operating Pressure | (8.2 Bar) 119PSI
Effective Area (Cv Factor) mm² | 3.6 (0.20)
Response Time (Note 2) | Single: Max 12m sec
| Double: Max 10m sec
| 3-Position: Max 20m sec
Life | 100 million cycles or more
Ambient and Fluid Temperature | -10 to +50ºC / 14~122ºF
Lubricant | Not required
Manual Override | Non-Locking Push Type
Protection Structure | Dustproof

Allowable Voltage | ±10% of Rated Voltage
External Power Supply | 24VDC
Current Consumption | 1.0mA max
Type of Coil Insulation | Class B
Power Consumption | 1.0WDC

VQ5Q1 00 — 5

M A N I F O L D

BASE TYPE
1 ……Plug-in type

NO OF STATIONS*
02 ……2 stations
16 ……16 stations

PORTING
C3 ……3.2mm fittings for Ø3.2mm tube
C4 ……4mm fittings for Ø4mm tube
C6 ……6mm fittings for Ø6mm tube
M5 ……M5/S0.8
N1 ……ø1/8” Fittings for ø1/8” Tube
N3 ……ø5/32” Fittings for ø5/32” Tube
N7 ……ø1/4” Fittings for ø1/4” Tube

INTERFACE
B ……Mitsubishi Melsec - A
C ……Omron Sysmac
D ……Sharp New Satellite
E ……Matsushita Mewnet
G ……Allen Bradley

*Note
2-8 station manifolds are wired for single or double solenoid operation.
Please consult your local SMC Sales Office when ordering manifolds of 9 stations and above.

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Solenoid Valves

Serial Transmission Series VQ1000

For further technical details on this product request Catalog Reference E131, N238, E138 & N239

See inside front cover for details of your local sales office

Dimensions

Stations are counted from the D side

L1 64.5 75 85.5 96 106.5 117 127.5 138 148.5 159 169.5 180 190.5 201 211.5

L2 93.5 104 114.5 125 135.5 146 156.5 167 177.5 188 198.5 209 219.5 230 240.5

Courtesy of Steven Engineering, Inc.

230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com
2 PORT SOLENOID VALVE
DIRECT OPERATED TYPE
 SERIES VX21/22/23

- Compact and Lightweight
- Large Flow Capacity
- Can be quickly disassembled and reassembled
- High Reliability Molded Coil
- Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluids

### Technical Specifications

#### Energized Open Type Series VX

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Orifice Size (mm)</th>
<th>Flow Rate (Cv)</th>
<th>Effective Area (mm²)</th>
<th>Model</th>
<th>Maximum Operating Pressure Differential MPa</th>
<th>Maximum System Pressure MPa</th>
<th>Proof Pressure MPa</th>
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<tr>
<td>1/8 (6A)</td>
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1MPa = 145PSI

---

**Symbols:**

- **IN:** Energized Open Type
- **OUT:** Energized Closed Type

**How to Order:** See Next Page

---

2.48

Solenoid Valves

Series VX

2 Port Solenoid Valve
Direct Operated Type
Series VX21/22/23

- Compact and Lightweight
- Large Flow Capacity
- Can be quickly disassembled and reassembled
- High Reliability Molded Coil
- Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluids
**TECHNICAL SPECIFICATIONS**

**ENERGIZED CLOSED TYPE SERIES VX**

**1MPa = 145PSI**

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<thead>
<tr>
<th>Port Size</th>
<th>Orifice (mm)</th>
<th>Flow Rate Effective Area (mm²)</th>
<th>Model</th>
<th>Maximum Operating Pressure</th>
<th>Maximum System Pressure</th>
<th>Proof Pressure</th>
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**ACCESSORIES BRACKET SERIES VX**

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<td>VX2360</td>
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**HOW TO ORDER SERIES VX**

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<th>Valve Body Type</th>
<th>Option</th>
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<td>1...2mmø</td>
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<tr>
<td>6</td>
<td>6...10mmø Energized Open Type Only</td>
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</table>

**PORT SIZE**

| 01  | 1/8 |
| 02  | 1/4 |
| 03  | 3/8 |
| 04  | 1/2 Energized Open Type Only |

**THREAD**

| 1   | 10DIN  |
| 2   | 10DIN  |
| 3   | 11DIN  |
| 4   | 12DIN  |
| 5   | 13DIN  |
| 6   | 14DIN  |
| 7   | 15DIN  |
| 8   | 16DIN  |

**VOLTAGE**

| 1   | 120VAC  |
| 2   | 200VAC  |
| 3   | 110VAC  |
| 4   | 220VAC  |
| 5   | 24VDC   |
| 6   | 12VDC   |
| 7   | 240VAC  |
| 8   | 48VDC   |

**ELECTRICAL ENTRY**

| 1   | DIN Connector |

**DIMENSIONS**

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<tr>
<th>Type</th>
<th>Port Size</th>
<th>Orifice Size (Number)</th>
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<tr>
<td>VX22</td>
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<td>3mmø</td>
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<tr>
<td>VX23</td>
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<td>4.5mmø</td>
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<td>6mmø</td>
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<td>10</td>
<td>8mmø</td>
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**FOR DIMENSIONS AND MORE TECHNICAL DETAILS ON THIS SERIES, PLEASE REFER TO CAT:E701**

---

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# 2 Port Solenoid Valve
## Pilot Operated Type Series VXD21

- Compact and Lightweight
- Large Flow Capacity
- Can be quickly disassembled and reassembled
- High Reliability Molded Coil
- Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluids

## Technical Specifications
### Energized Open Type Series VXD

<table>
<thead>
<tr>
<th>Connection</th>
<th>Orifice mmØ</th>
<th>Flow Rate Cv Effective Area (mm²)</th>
<th>Model</th>
<th>Minimum Operating Pressure Differential MPa</th>
<th>Maximum Operating Pressure Water / Air / Oil Differential MPa</th>
<th>Maximum System Pressure MPa</th>
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</thead>
<tbody>
<tr>
<td>1/4</td>
<td>10</td>
<td>1.9 34</td>
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<td>2.4 43</td>
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1 MPa = 145 PSI

For further technical details on this product, request catalog reference E701 & E705.
Solenoid Valves
Series VX

How To Order
Series VX

VXD21

Bracket
Nil ...... Without
B ...... With Bracket

Electrical Options
Nil ...... None
S ...... With Surge Voltage Suppressor
I ...... With Indicator Light
IL ...... With Indicator Light and Surge Voltage Suppressor

Electrical Entry
D ...... DIN Connector

Body Size
3 ...... 10A Energized Open Type Only
4 ...... 15A
5 ...... 20A

Valve Body Type
0 ...... Energized Open Type/Single
2 ...... Energized Closed Type/Single

Options
-nil Standard (Air, Water, Oil)

Thread/Connection
02 ...... 1/4
03 ...... 3/8
04 ...... 1/2
06 ...... 3/4

Voltage
1 ...... 100VAC
2 ...... 200VAC
3 ...... 110VAC
4 ...... 220VAC
5 ...... 24VDC
6 ...... 12VDC
7 ...... 240VAC
8 ...... 48VAC

Thread
- ...... Rc(PT)
T ...... NPTF
F ...... G(PF)
N ...... NPT

For dimensions and more technical details on this series, please refer to CAT:E701

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230 Ryan Way, South San Francisco, CA 94080-6370
Main Office: (650) 588-9200
Outside Local Area: (800) 258-9200
www.stevenengineering.com
## 3 Port Solenoid Valve Direct Operated Type Series VX31/32/33

- **Compact and Lightweight**
- **Large Flow Capacity**
- Can be quickly disassembled and reassembled
- **High Reliability Molded Coil**
- Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluid

### Symbols

- N.C.
- N.O.
- CO

### Technical Specifications Series VX31/32/33

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<th>Port Size</th>
<th>Orifice mmø</th>
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<th>Maximum Operating Pressure Differential MPa</th>
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<td></td>
<td>4</td>
<td>0.5 9</td>
<td>VX3344-03</td>
<td>-</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0.5 9</td>
<td>VX3344-03</td>
<td>-</td>
<td>0.3</td>
</tr>
</tbody>
</table>

1MPa = 145PSI
**HOW TO ORDER**

**Series VX**

**VX31**

| ORIFICE NO | 1 | 1.5mm⁰ |
| 2 | 2.2mm⁰ |
| 3 | 3mm⁰ |
| 4 | 4mm⁰ |

**VALVE BODY TYPE**

4 | Commonly Open Type/Single
0 | Valve/Open Type
2 | Valve/Closed Type
* Only VX31 has an Energized Open and Energized Closed Type

**OPTIONS**

- Standard (Air, Water, Oil)

**PORT SIZE**

01 | 1/8
02 | 1/4
03 | 3/8

**VOLTAGE**

1 | 100VAC
2 | 200VAC
3 | 110VAC
4 | 220VAC
5 | 24VDC
6 | 12VDC
7 | 240VAC
8 | 48VAC

**THREAD**

- Rc(PT)
- NPTF
- G(PF)
- NPT

**ELECTRICAL OPTIONS**

Nil | None
5 | With Surge Voltage Suppressor
1 | With Indicator Light
2 | With Indicator Light and Surge Voltage Suppressor

**ELECTRICAL ENTRY**

D | DIN Connector

**BRACKET**

Nil | Without
B | With Bracket

**FOR DIMENSIONS AND MORE TECHNICAL DETAILS ON THIS SERIES, PLEASE REFER TO CAT:E701**
**2 PORT SOLENOID VALVE PILOT OPERATED TYPE DIFFERENTIAL PRESSURE OPERATION TYPE SERIES VXZ22**

- Compact, Lightweight
- Large Valve Capacity
- Zero Differential Pressure Operation
- Low Power Consumption, Long Life
- High Reliability Molded Coil
- Easy Change Of Valve Type from Normally Closed to Normally Open

## Technical Specifications

### Normally Closed Type Series VXZ

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Orifice Size (mm)</th>
<th>Flow Rate Cv Effective (mm²)</th>
<th>Model</th>
<th>Maximum Operating Pressure Differential MPa</th>
<th>Maximum System Pressure MPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>10</td>
<td>1.9 34</td>
<td>VXZ2230-02</td>
<td>1 0.7 1 0.7 1 0.7 1.5</td>
<td></td>
</tr>
<tr>
<td>3/8</td>
<td>10</td>
<td>2.4 43</td>
<td>VXZ2230-03</td>
<td>1 0.7 1 0.7 1 0.7 1.5</td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>15</td>
<td>5.3 95</td>
<td>VXZ2240-04</td>
<td>1 0.7 1 0.7 1 0.7 1.5</td>
<td></td>
</tr>
</tbody>
</table>

### Normally Open Type Series VXZ

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Orifice Size (mm)</th>
<th>Flow Rate Cv Effective (mm²)</th>
<th>Model</th>
<th>Maximum Operating Pressure Differential MPa</th>
<th>Maximum System Pressure MPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>10</td>
<td>1.9 34</td>
<td>VXZ2232-02</td>
<td>0.7 0.6 0.7 0.6 0.7 0.6 1.5</td>
<td></td>
</tr>
<tr>
<td>3/8</td>
<td>10</td>
<td>2.4 43</td>
<td>VXZ2232-03</td>
<td>0.7 0.6 0.7 0.6 0.7 0.6 1.5</td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>15</td>
<td>5.3 95</td>
<td>VXZ2242-04</td>
<td>0.7 0.6 0.7 0.6 0.7 0.6 1.5</td>
<td></td>
</tr>
</tbody>
</table>

1MPa = 145PSI

---

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www.stevenengineering.com
VXZ22

**Orifice No.**

- 3 ……10mmø
- 4 ……15mmø

**Valve Body Type.**

- 0 …… Valve/Open Type
- 2 …… Valve/Closed Type

**Options.**

- …… Standard (Air, Water, Oil)

**Port Size.**

- 02 ……1/4
- 03 ……3/8
- 04 ……1/2

**Electrical Options.**

- Nil ……None
- 5 …… With Surge Voltage Suppressor
- 2 …… With Indicator Light
- 2 …… With Indicator Light and Surge Voltage Suppressor

**Electrical Entry.**

- D …… DIN Connector

**Voltage.**

- 1 ……100VAC
- 2 ……200VAC
- 3 ……110VAC
- 4 ……220VAC
- 7 ……240VAC
- 8 ……48VAC

**Thread.**

- R …… Rc(PT)
- N …… NPTF
- G …… G(PF)
- NPT …… NPT

**Electrical Options.**

- Nil ……None
- 5 …… With Surge Voltage Suppressor
- 2 …… With Indicator Light
- 2 …… With Indicator Light and Surge Voltage Suppressor

**Electrical Entry.**

- D …… DIN Connector

**Voltage.**

- 1 ……100VAC
- 2 ……200VAC
- 3 ……110VAC
- 4 ……220VAC
- 7 ……240VAC
- 8 ……48VAC

**Thread.**

- R …… Rc(PT)
- N …… NPTF
- G …… G(PF)
- NPT …… NPT

**Port Size.**

- 02 ……1/4
- 03 ……3/8
- 04 ……1/2
### 3/2 Direct Acting Solenoid Valve 10-32Nom Ported

- N/O or N/C Option
- 10-32Nom Body Ported, possible to Manifold Mount
- Cv 0.05
- Optional Lamp and Surge Voltage Suppressor
- Suitable for Pressure or Vacuum

#### Technical Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient and Fluid Temperature</td>
<td>Max 50°C / 122°F</td>
</tr>
<tr>
<td>Response Time</td>
<td>15ms or less</td>
</tr>
<tr>
<td>Max Operating Frequency</td>
<td>15c/s</td>
</tr>
<tr>
<td>Manual Override</td>
<td>Non-locking type</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required (Use turbine oil at ISO VG32 if lubrication is provided)</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Dust Proof</td>
</tr>
</tbody>
</table>

#### Solenoid Specifications

<table>
<thead>
<tr>
<th>Electrical Entry</th>
<th>Grommet (G), Plug connector (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Votages AC</td>
<td>240V, 110V, 24V</td>
</tr>
<tr>
<td>DC</td>
<td>12V, 24V</td>
</tr>
<tr>
<td>Allowable Voltage</td>
<td>-15~+10% of rated voltage</td>
</tr>
<tr>
<td>Coil Insulation</td>
<td>Class E or equivalent (120°C)</td>
</tr>
<tr>
<td>Temperature Rise</td>
<td>45°C or less / 113°F or less</td>
</tr>
<tr>
<td>Power Consumption AC</td>
<td>1.8W/2.1W (W/LED)</td>
</tr>
<tr>
<td>DC</td>
<td>4.5VA/50Hz, 4.2VA/60Hz</td>
</tr>
<tr>
<td>Apparent Power AC</td>
<td>4.5VA/50Hz, 4.2VA/60Hz</td>
</tr>
<tr>
<td>Holding</td>
<td>3.5VA/50Hz, 3VA/60Hz</td>
</tr>
<tr>
<td>Surge Voltage Suppressor</td>
<td>DC: Diode, AC: 2N</td>
</tr>
<tr>
<td>Indicator Light</td>
<td>DC: LED (Red), AC: Neon lamp</td>
</tr>
</tbody>
</table>

#### Flow Specifications

<table>
<thead>
<tr>
<th>Body Type</th>
<th>Model</th>
<th>Type Of Actuation</th>
<th>Operating Pressure Range kgf/cm²</th>
<th>Vacuum Application</th>
<th>Effective Orifice mm² (Cv Factor)</th>
<th>Port Size</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N)VZ110</td>
<td>NC</td>
<td>0 ~ 7MPa 0 ~ 100PSI</td>
<td>22in-Hg 0 ~ 85PSI</td>
<td>VAC -0PSI</td>
<td>P-&gt;A 0.6 (0.034) A-&gt;R 0.9 (0.05)</td>
<td>0.15g</td>
<td></td>
</tr>
<tr>
<td>(N)VZ120</td>
<td>NO</td>
<td>0 ~ 5MPa 0 ~ 70PSI</td>
<td>22in-Hg 0 ~ 85PSI</td>
<td>VAC -55PSI</td>
<td>R-&gt;A 0.6 (0.034) A-&gt;P 0.6 (0.034)</td>
<td>10-32Nom (M5x0.8)</td>
<td></td>
</tr>
</tbody>
</table>

Note: In case of (N)VZ120 Supply Air to 'R' Port. "P" Port will be the Exhaust Port.

#### How To Order

(N)VZ100 Solenoid Valve

- **Body Option**
  - 10 ... 3/2 NC
  - 20 ... 3/2 NO

- **Voltage**
  - 1 .... 100V AC
  - 2 .... 200V AC
  - 3 .... 110V AC
  - 4 .... 220V AC
  - 5 .... 24V DC
  - 6 .... 12V DC

- **Lamp & Surge Voltage Suppressor**
  - Nil .... Without
  - 2 .... With Indicator Light & Surge Suppressor
  - 5 .... With Surge Suppressor

- **Electrical Entry**
  - D .... DIN Connector
  - G ....... Grommet (30mm lead)
  - H ....... Grommet (600mm Lead)
  - L ....... L Type Plug Connector w/Lead Wire (300mm Lead)
  - M ....... M Type Plug Connector w/Lead Wire (300mm Lead)
  - LO .... L Type Plug Connector w/o Connector
  - MO .... M Type Plug Connector w/o Connector

- **Option**
  - F Bracket

#### Dimensions

See Next Page
**Solenoid Valves**

**Series (N)VZ100**

**Dimensions**

**(N)VZ100 Body Ported Grommet Type**

**(N)VZ100 Body Ported MN Plug Type**

**Series (N)VZ100 Manifolds**

2 – 9 station manifold with a common supply and exhaust.

**How To Order**

Manifold Type 20 Top Ported

**(N)VV4Z1 – 20 – 1**

**Stations**

- 02 ... 2 Stations
- 20 ... 20 Stations

**Thread Type**

- ..... PT
- ODT ... NPTF

**Option**

- F ..... Bracket

**Accessories**

**Manifold Type 20 Top Ported**

DXT170-25-1A ................. Blanking Plate Assembly

**Dimensions**

**Manifold Type 20 Top Ported Grommet Type**

**Lead Wire Length**

- 18.5

**Manual override**

- M5 x 0.8 (A, B Port)

**L2**

- 2-44.5 (Mounting holes)

**L3**

- 2-44.5 (Mounting holes)

**L4**

- 2-44.5 (Mounting holes)

**Stations (n)**

- 2: 53
- 3: 69
- 4: 85
- 5: 101
- 6: 117
- 7: 133
- 8: 149
- 9: 165
- 10: 181

**L1**

- 65
- 72
- 88
- 104
- 120
- 136
- 152
- 168

**L3**

- 48
- 64
- 80
- 96
- 112
- 128
- 144

**L4**

- 56
- 72
- 88
- 104
- 120
- 136

**See Inside Front Cover For**

Details of Your Local Sales Office

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SOLENOID VALVES SERIES (N)VZ300

3/2 PILOT OPERATED SOLENOID/SPRING VALVE 10-32Nom

- N/O or N/C Option
- 10-32Nom Body Ported or Sub Base Manifold Mounted
- Cv 0.2 – 0.25
- Optional Lamp and Surge Voltage Suppressor
- Solenoid Coils are integral and must not be removed
- These valves are supplied without leads which must be ordered separately (see Accessories Section).

**TECHNICAL SPECIFICATIONS**

| Fluid | Air and Inert Gases |
| Operating Pressure Range | 20 ~ 100PSI (1.5-7kgf/cm²) |
| Ambient and Fluid Temperature | Max 50°C / 122°F |
| Response Time | 20ms or less |
| Max Operating Frequency | 50 Cycles per Second |
| Manual Override | Non-Locking Push Type |
| Pilot Exhaust | Individual, Common |
| Lubrication | Not Required; if lubrication is provided, use SMC Lubricant |
| Enclosure | Dust Proof |

**SOLENOID SPECIFICATIONS**

| Electrical Entry | Grommet (G), Plug Connector (MN) |
| Volumes | AC 24V, 110V, 240V |
| DC | 12V, 24V |
| Allowable voltage | ±15% ±10% of rated voltage |
| Coil insulation | Class E or equivalent |
| Temperature rise | 45°C or less / 113°F or less |
| Power consumption DC | 1.8W/2.1W (W/LED) |
| Apparent Power AC | Im: 4.5VA/50Hz, 4.2VA/60Hz |
| Holding | 3.5VA/50Hz, 3VA/60Hz |
| Surge voltage suppressor | DC: Diode, AC: ZNR |
| Indicator light | DC: LED (Red), AC: Neon lamp |

**DIMENSIONS**

**Series (N)VZ300 Body Ported Grommet Type**

| Model | Type of Actuation | Effective Orifice mm²/(Cv factor) |
| Body Ported Type | (N)VZ312 | NC | 3.6 (0.2) |
| (N)VZ322 | NO | |
| Base Mounted Type | (N)VZ314 | NC | 4.5 (0.25) |
| (N)VZ324 | NO | |

**HOW TO ORDER**

SEE NEXT PAGE

Observe Operating Pressure Ranges – see Technical Specifications for details.
(N)VZ300 Manifolds

A Single Sub-base and 3 different Manifold Designs.

(i) Side Entry Single Sub-base for use with the Base Mounted Valve (Type 40).
(ii) 2-10 Station Type 20 Manifold for use with the Body Ported Valve (Type 20).
(iii) 2-10 Station Type 40 Side Entry Manifold for use with the Base Mounted Valve (Type 40).
(iv) 2 - 10 Station Type 40 Bottom Entry Manifold for use with the Base Mounted Valve (Type 40).

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**Solenoid Valves**

**Series (N)VZ300**

**How To Order**

**Manifold Type 20 Top Ported**

(N)VZ3Z3 — 20 1

Number of Stations
- 02 ... 2 stations
- 20 ... 20 stations

Thread Type
- ... PT
- OOT ... NPTF

**Dimensions**

**Manifold Type 20 Top Ported**

**Accessories**

DXT170-25-1A .......... Blanking Plate Kit
DXT170-34-1A .......... Foot Mount Kit

**How To Order**

**Manifold Type 40 Side Ported**

(N)VZ3Z3 — 40 — 1

Number of Stations
- 02 ... 2 stations
- 20 ... 20 stations

**Dimensions**

**Manifold Type 40 Side Ported**

**Accessories**

DXT220-8-1A .......... Blanking Plate Kit

**Size of A, B Port**

M5 ... 10-32 Nom (P, R Port PT)
M5T ... 10-32 Nom (P, R Port NPTF)
B3T ... One Touch Fitting 5/32"
B7T ... One Touch Fitting 1/4"

**How To Order**

**Manifold Type 40 Side Ported Type G**

**Table**

<table>
<thead>
<tr>
<th>Stations (n)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>53</td>
<td>69</td>
<td>85</td>
<td>101</td>
<td>117</td>
<td>133</td>
<td>149</td>
<td>165</td>
<td>181</td>
</tr>
<tr>
<td>L2</td>
<td>40</td>
<td>56</td>
<td>72</td>
<td>88</td>
<td>104</td>
<td>120</td>
<td>136</td>
<td>152</td>
<td>168</td>
</tr>
<tr>
<td>L3</td>
<td>16</td>
<td>32</td>
<td>48</td>
<td>64</td>
<td>80</td>
<td>96</td>
<td>112</td>
<td>128</td>
<td>144</td>
</tr>
<tr>
<td>L4</td>
<td>8</td>
<td>24</td>
<td>40</td>
<td>56</td>
<td>72</td>
<td>88</td>
<td>104</td>
<td>120</td>
<td>136</td>
</tr>
</tbody>
</table>

**Table**

<table>
<thead>
<tr>
<th>Stations (n)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5 x 0.8</td>
<td>52</td>
<td>68</td>
<td>84</td>
<td>100</td>
<td>116</td>
<td>132</td>
<td>148</td>
<td>164</td>
<td>180</td>
</tr>
<tr>
<td>L2</td>
<td>43</td>
<td>59</td>
<td>75</td>
<td>91</td>
<td>107</td>
<td>123</td>
<td>139</td>
<td>155</td>
<td>171</td>
</tr>
</tbody>
</table>
As part of a long term development program to improve the performance and durability of pneumatic valve seals, SMC has developed a new type of seal which overcomes the problems inherent with traditional O-rings and bonded seals - called Q seal, it features a special profile which reduces sliding resistance to a minimum, enhances both long term reliability and air flow characteristics and provides bi-directional port access.
# Technical Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Pressure Range</strong></td>
<td>20 ~ 100PSI (1.5-7kgf/cm²)</td>
</tr>
<tr>
<td><strong>Ambient and Fluid Temperature</strong></td>
<td>Max 50°C / 122°F</td>
</tr>
<tr>
<td><strong>Response Time</strong></td>
<td>20ms or less</td>
</tr>
<tr>
<td><strong>Max Operating Frequency</strong></td>
<td>50 Cycles per Second</td>
</tr>
<tr>
<td><strong>Manual Override</strong></td>
<td>Non-Locking Push Type</td>
</tr>
<tr>
<td><strong>Pilot Exhaust</strong></td>
<td>Individual, Common</td>
</tr>
<tr>
<td><strong>Lubrication</strong></td>
<td>Not Required; if lubrication is provided, use SMC Lubricant</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Dust Proof</td>
</tr>
</tbody>
</table>

## Electrical Entry
- **Grommet (G), Plug Connector (M)**
- **Voltages**
  - **AC**: 240Hz, 110V50/60Hz, 24V50/60Hz
  - **DC**: 12V, 24V
- **Allowable Voltage**: -15~+10% of rated voltage
- **Coil Insulation**: Class E or equivalent (120°C)
- **Temperature Rise**: 45°C or less / 115°F or less
- **Power Consumption DC**: 1.8W/2.1W (W/LED)
- **Apparent Power AC**
  - **Inrush**: 4.5VA/50Hz, 4.2VA/60Hz
  - **Holding**: 3.5VA/50Hz, 3VA/60Hz
- **Surge Voltage Suppressor**
  - **DC**: Diode, **AC**: ZNR
- **Indicator Light**
  - **DC**: LED (Red), **AC**: Neon lamp

## Safety
- Observe operating pressure ranges - see technical specifications for details

## How to Order

### (N)VZ500 Solenoid Valve
- **Model**
  - Body Ported Type: (N)VZ512 NC, (N)VZ522 NO, (N)VZ514 NC, (N)VZ524 NO
- **Type of Actuation**
  - NC, NO
- **Effective Orifice (Cv Factor)**
  - 9.0 (0.5)

### Symbols

#### NC
- **Solenoid Actuation**
- **P**...Pilot
- **R**...Main

#### NO
- **Solenoid Actuation**
- **P**...Pilot
- **R**...Main

### Options
- **Porting**
  - **-**...Without Sub Plate
  - **01**...1/8" Sub Plate
  - **02**...1/4" Sub Plate
  - **01T**...1/8 (Body Ported)

#### Electrical Entry
- **D**...DIN Connector
- **G**...Grommet (300mm lead)
- **H**...Grommet (600mm Lead)
- **L**...L Type Plug Connector with Lead Wire (300mm)
- **M**...M Type Plug Connector with Lead Wire (300mm)
- **LG**...L Type Plug Connector w/o Connector
- **MO**...M Type Plug Connector w/o Connector

#### Lamp & Surge Voltage Suppressor
- **-**...Without
- **Z**...With (Except Grommet Type & 24V AC)
- **S**...With Surge Suppressor

### Electrical Specifications
- **Porting**
  - **-**...Without Sub Plate
  - **01**...1/8" Sub Plate
  - **02**...1/4" Sub Plate
  - **01T**...1/8 (Body Ported)

### ACCESSORIES

#### (N)VZ500 Solenoid Valve
- **DXT170-123-A-30**...Plug with 3m lead
- **DXT201-19-1A**...Bracket

### Dimensions

See next page
**Series (N)VZ500 Manifolds**

A single sub-base and 3 different manifold design.

(i) Side Entry Single Sub-base for use with the Base Mounted Valve (Type 40).
(ii) 2-10 Station Type 21 Manifold for use with the Body Ported Valve (Type 20).
(iii) 2-10 Station Type 41 Side Entry Manifold for use with the Base Mounted Valve (Type 40).
(iv) 2-10 Station Type 41 Bottom Entry Manifold for use with the Base Mounted Valve (Type 40).
FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT, REQUEST CATALOG REFERENCE E120

Solenoid Valves
Series (N)VZ500

Dimensions
Manifold Type 20 Top Ported Grommet Type

How To Order
Manifold Type 20 Top Ported
(N)VZ5Z5 — 20 — 1 —
Number of Stations
02 … 2 Stations
10 … 20 Stations
Thread Type
- ….. PT
00T … NPTF

For further technical information on this series, request CAT:E120

Accessories
Manifold Type 20 Top Ported
DXT201-15-1A ……… Blanking Plate Kit

For further technical information on this series, request CAT:E120

Dimensions
Manifold Type 41 Side Ported Grommet Type

How To Order
Manifold Type 41 Side Ported
(N)VZ5Z5 — 41 — 1 — 01T
Number of Stations
02 … 2 stations
10 … 20 stations

Size of A, B Port
01T … 1/8" NPTF
B7T … One Touch Fitting 1/4"
B9T … One Touch Fitting 5/16"

Accessories
Manifold Type 41 Side Ported
DXT201-15-1A ……… Blanking Plate Kit

For further technical information on this series, request CAT:E120

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SOLENOID VALVES SERIES (N)VZ500

See inside front cover for details of your local sales office

HOW TO ORDER MANIFOLD TYPE 41 BOTTOM PORTED

(N)VV3Z5 — 41 — 2 — 01T

NUMBER OF STATIONS
02 ... 2 Stations
t0 ... 20 Stations

THREAD TYPE
PT
NPTF

ACCESSORIES MANIFOLD TYPE 41 BOTTOM PORTED
DXT201-15-1A Blanking Plate Kit

FOR ALL OTHER DETAILS, REFER TO TYPE 41 SIDE PORTED MANIFOLD.

<table>
<thead>
<tr>
<th>Stations (n)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>61</td>
<td>80</td>
<td>99</td>
<td>118</td>
<td>137</td>
<td>156</td>
<td>175</td>
<td>194</td>
<td>213</td>
</tr>
<tr>
<td>L2</td>
<td>49</td>
<td>68</td>
<td>87</td>
<td>106</td>
<td>125</td>
<td>144</td>
<td>163</td>
<td>182</td>
<td>201</td>
</tr>
</tbody>
</table>

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

Courtesy of Steven Engineering, Inc.
230 Ryan Way, South San Francisco, CA 94080-6370
Main Office: (650) 588-9200
Outside Local Area: (800) 258-9200
www.stevenengineering.com
Series NVFS 2000, 3000, 4000, 5000, 6000
5 Port Pilot Operated
Base-Mounted / Plug-In Type

- Large Flow Capacity
- Low Power Consumption
- Long Life
- Ease Maintenance
- Many Variations Available

For further information, consult SMC Customer Service

**Models**
NVFS2000

<table>
<thead>
<tr>
<th>Position</th>
<th>Number Of Solenoid</th>
<th>Type Plug-In</th>
<th>Port Size (NPTF)</th>
<th>Cv Factor</th>
<th>Response Time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Position</td>
<td>Single</td>
<td>NVFS2100</td>
<td>1/8</td>
<td>0.7</td>
<td>15 or less</td>
</tr>
<tr>
<td></td>
<td>Double</td>
<td>NVFS2200</td>
<td>1/8</td>
<td>0.7</td>
<td>13 or less</td>
</tr>
<tr>
<td></td>
<td>Closed</td>
<td>NVFS2300</td>
<td>1/8</td>
<td>0.83</td>
<td>20 or less</td>
</tr>
<tr>
<td></td>
<td>Exhaust Center</td>
<td>NVFS2400</td>
<td>1/8</td>
<td>0.65</td>
<td>20 or less</td>
</tr>
<tr>
<td></td>
<td>Pressure Center</td>
<td>NVFS2500</td>
<td>1/8</td>
<td>0.65</td>
<td>20 or less</td>
</tr>
<tr>
<td></td>
<td>Perfect (Double Check)</td>
<td>NVFS2600</td>
<td>1/8</td>
<td>0.4</td>
<td>25 or less</td>
</tr>
<tr>
<td>3 Position</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Technical Specifications Standard**

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air and Inert Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Operating Pressure</td>
<td>150 PSI (1MPa)</td>
</tr>
<tr>
<td>Min Operating Pressure</td>
<td>15 PSI (0.1MPa)</td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperature</td>
<td>14<del>140ºF (-10</del>60ºC)</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not Required</td>
</tr>
<tr>
<td>Pilot Operator Manual Override</td>
<td>Non Locking Push Type (Flush)</td>
</tr>
<tr>
<td>Protection Construction</td>
<td>Dust Proof</td>
</tr>
</tbody>
</table>

**Electrical**

| Rated Voltage | AC 110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz |
| DC 12V, 24V |
| Allowable Voltage Range | -15 ~ 10% Rated Voltage |
| Coil Insulation | Class B or Equivalent |
| Apparent Power AC | 5.0VA/60Hz, 5.6VA/50Hz |
| Power Consumption | Holding 2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz |
| Power Consumption DC | 1.8W |
| Electrical Entry | Plug In, Conduit Terminal (Base Access) |

**Technical Specifications Optional**

<table>
<thead>
<tr>
<th>Pilot Type</th>
<th>Pilot Operator Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual Override</td>
<td>Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)</td>
</tr>
<tr>
<td>Voltage</td>
<td>AC 100V50/60Hz, 200V50/60Hz</td>
</tr>
<tr>
<td>DC 6V, 48V, 100V</td>
<td></td>
</tr>
<tr>
<td>Porting</td>
<td>Bottom Ported Subplate, #Indicator Light &amp; Surge, Voltage Suppressor</td>
</tr>
<tr>
<td>Option</td>
<td>Dust Proof</td>
</tr>
</tbody>
</table>

**Symbols**

2 Position

3 Position

Single Open Center

Double Exhaust Center

Pressure Center

Perfect (Double Check)
2.67

SOLENOID VALVES
SERIES NVFS

HOW TO ORDER
NVFS2000

POSITION
1 .... 2 Position Single
2 .... 2 Position Double
3 .... 2 Position Closed Center
4 .... 3 Position Exhaust Center
5 .... 3 Position Pressure Center
6 .... 3 Position Perfect

BODY TYPE
0 .... Plug-In Type

PILOT OPERATOR
- ...... Internal
R ...... External (Special Order)

VOLTAGE
1 .... 100VAC (Special Order)
2 .... 200VAC (Special Order)
3 .... 110VAC
4 .... 220VAC
5 .... 24VDC
6 .... 12VDC
9 .... Others (Special Order)

HOW TO ORDER
MANIFOLD

NVFS 2

PORT SIZE
- .... Without Subplate
Q1T .... 1/8 NPTF
Q2T .... 1/4 NPTF
* Bottom Ported
1/8 NPTF Only

PORTING
- .... Side
*B .... Bottom
Note) * 1/8 NPTF Only

MANUAL OVERRIDE
- .... Non Locking Push Type (Flush)
*A .... Non Locking Push Type (Extended)
B .... Lock Type (Screw Type)
*C .... Lock Type (Lever)
Note) * Special Order

OPTIONS
- .... None
Z .... With Indicator Light and
Surge Voltage Suppressor

ELECTRICAL ENTRY
F ...... Through Base

Plug in Type: Connector with Lead Wire ("wire harness")
- The insert plug is attached to the manifold block and is connected with valve side.
  Connect leads with corresponding power supply.

NVV5FS2-01  01T

Series NVFS2000
Manifold valve
Plug-in Type Connector with Lead wire
(AXT604-52A-01-3)

Stations:
02 .... 2 stations
03 .... 3 stations

Plug-in Type: With Terminal Blocks
- Lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.

NVV5FS2-01T  02T

Series NVFS2000
Manifold valve
Plug-in type
With terminal block
Junction cover:
- Unit type individual station cover
  - One-pc. type cover
Note: Individual cover part no. above

Stations:
02 .... 2 stations
03 .... 3 stations

PORT SIZE
- .... Without Subplate
Q1T .... 1/8 NPTF
Q2T .... 1/4 NPTF
* Bottom Ported
1/8 NPTF Only

* Special Order
* Bottom porting specification with
  "Q02T" is 1/8"P,A,B bottom and 1/4" A,B side

* Special Order
* Bottom porting specification with
  "Q02T" is 1/8"P,A,B bottom and 1/4" A,B side

Porting
- .... Side
*B .... Bottom
Note) * 1/8 NPTF Only

Manual Override
- .... Non Locking Push Type (Flush)
*A .... Non Locking Push Type (Extended)
B .... Lock Type (Screw Type)
*C .... Lock Type (Lever)
Note) * Special Order

Options
- .... None
Z .... With Indicator Light and
Surge Voltage Suppressor

HOW TO ORDER NVFS2000

How to Order
NVFS 2
## SOLENOID VALVES
### SERIES NVFS

### Manifold /Option Parts Ass’y

#### SUP Relocation spacer
An individual SUP spacer on manifold block can form individual P port for the valve.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPT</td>
<td>NVFS2000-P-0T-I</td>
</tr>
<tr>
<td>NPT</td>
<td>NVFS2000-P-2T-1</td>
</tr>
</tbody>
</table>

#### EXH Relocation spacer
An individual EXH spacer on manifold block can form individual EXH port for the valve.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPT</td>
<td>NVFS2000-R-0T-I</td>
</tr>
<tr>
<td>NPT</td>
<td>NVFS2000-R-2T-1</td>
</tr>
</tbody>
</table>

#### SUP gallery block disc
When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AXT625-12A</td>
</tr>
</tbody>
</table>

#### EXH gallery block disc
When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to isolate valve exhaust.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AXT625-12A</td>
</tr>
</tbody>
</table>

#### Interface speed control
Needle valve on the manifold block can control cylinder speed by throttling exhaust.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
</table>

#### Interface regulator
Spacer type regulator on manifold block controls supply pressure to the valve. With standard gauge.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NVBF2000-00-P-1</td>
</tr>
</tbody>
</table>

#### Air Shutoff valve spacer
The concurrent use of air shutoff valve spacer with NVFS2100 controls supply of air pressure to the manifold (3-way dump valve). Specify location in first (L) or last (R) station of manifold.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NVFS2000-24A-1</td>
</tr>
</tbody>
</table>

*Note: L: U side mount, R: D side mount*

#### Double Check “Perfect” spacer
The concurrent use of perfect spacer with built-in double check valve can stop the cylinder at mid-position and hold for extended time without being affected by the air leakage across spool seals.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NVFS2000-20A-1</td>
</tr>
</tbody>
</table>

#### Blank plate
When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NVFS2000-10A</td>
</tr>
</tbody>
</table>

### Manifold /Option

#### Control Unit
Plug-in type.
- Filter/Regulator, Pressure switch, and Air shutoff valve all combine to form one unit.
- Piping work eliminated.

For more information, please refer to catalog N233.

---

**Company:** Steven Engineering, Inc.  
**Address:** 230 Ryan Way, South San Francisco, CA 94080-6370  
**Main Office:** (650) 588-9200  
**Outside Local Area:** (800) 258-9200  
**Website:** www.stevenengineering.com
### Technical Specifications

#### Standard

<table>
<thead>
<tr>
<th>Position</th>
<th>Number Of Solenoid</th>
<th>Type Plug-In</th>
<th>Port Size (NPTF)</th>
<th>Cv Factor</th>
<th>Response Time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Position</td>
<td>Single</td>
<td>NVFS3100</td>
<td>1/4</td>
<td>1.8</td>
<td>20 or less</td>
</tr>
<tr>
<td></td>
<td>Double</td>
<td>NVFS3200</td>
<td>3/8</td>
<td>2</td>
<td>15 or less</td>
</tr>
<tr>
<td></td>
<td>Closed</td>
<td>NVFS3300</td>
<td>1/4</td>
<td>1.8</td>
<td>40 or less</td>
</tr>
<tr>
<td></td>
<td>Exhaust Center</td>
<td>NVFS3400</td>
<td>3/8</td>
<td>2</td>
<td>40 or less</td>
</tr>
<tr>
<td></td>
<td>Pressure Center</td>
<td>NVFS3500</td>
<td>1/4</td>
<td>1.8</td>
<td>40 or less</td>
</tr>
<tr>
<td></td>
<td>Perfect Center (Double Check)</td>
<td>NVFS3600</td>
<td>3/8</td>
<td>1.1</td>
<td>50 or less</td>
</tr>
</tbody>
</table>

#### Symbols

- Position: 2 position - 3 position
- Type: Single - Double
- Number of Solenoid: Single - Double
- Port Size (NPTF): 1/4 - 3/8
- Cv Factor: 1.8 - 2
- Response Time (ms): 20 or less - 15 or less

#### Optional

- Pilot Type: External Pilot Type
- Manual Override: Direct Manual Override Type
- Voltage: AC 100V-50/60Hz, 200V-50/60Hz
- DC 6V, 48V, 100V
- Porting: Bottom Ported Subplate
- Option: Windicator Light & Surge Voltage Suppressor

#### Technical Specifications

- Fluid: Air and Inert Gas
- Fluid Pressure: 150 PSI (1MPa)
- Min Operating Pressure: 22 PSI (0.15MPa)
- Ambient & Fluid Temperature: 14-140°F (-10-60°C)
- Lubrication: Not Required
- Pilot Operator Manual Override: Non Locking Push Type (Flush)
- Protection Construction: Dust Proof

#### Valve

- Rated Voltage: AC 110VAC/50/60Hz, 220V50/60Hz, 24V/50/60Hz
- DC 12V, 24V

#### Electrical

- Allowable Voltage Range: -15 – 10% Rated Voltage
- Coil Insulation: Class B or Equivalent
- Inrush: 5.0VA/60Hz, 5.6VA/50Hz
- Power Consumption: Holding 2.3W(1.5W)/60Hz, 3.4VA(2.1W)/60Hz
- Power Consumption DC: 1.8W
- Electrical Entry: Plug In
- Electrical: Conduit Terminal (Base Access)
Plug-in Type: With Terminal Blocks

Lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.

NVV5FS3-01T-02T

Series NVFS3000
Manifold valve
Plug-in type
With terminal block

Stations
02 2 stations
: :
10 10 stations

Porting Symbol
Symbol Port specifications
P EA, EB

Porting Specifications (A,B)

1 Common
2 Common
Mixed

Port size
Symbol A, B
02T 1/4NPTF
03T 3/8NPTF

Note: *1/4 NPTF Only

* Special Order.
**Manifold/Option Parts**

### SUP Relocation spacer
An individual SUP spacer on manifold block can form individual P port for the valve.

- **Body type:** Plug-in type
- **Part No.:** NVFS0000-027-1

### EXH Relocation spacer
An individual EXH spacer on the manifold block can form individual R port for the valve.

- **Body type:** Plug-in type
- **Part No.:** NVFS0000-R-071-1

### SUP gallery block disc
When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

- **Body type:** Plug-in type
- **Part No.:** AX1636-1A

### EXH gallery block disc
When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold, insert EXH block disc(a) in between stations to separate valve exhaust.

- **Body type:** Plug-in type
- **Part No.:** AX1636-1A

### Interface Speed Control
Needle valve on the manifold block can control cylinder speed by throttling exhaust.

- **Body type:** Plug-in type
- **Part No.:** NVFS0000-A-1

### Double Check “Perfect” spacer
The concurrent use of perfect spacer with built-in double check valve can stop the cylinder at mid-position and hold for extended time without being affected by normal air leakage across spool seals.

- **Body type:** Plug-in type
- **Part No.:** NVFS0000-206-1

### Interface regulator
Spacer type regulating valve on manifold block can regulate the pressure to the valve.

- **Body type:** Plug-in type
  - **Pressure regulation P:** NVFS0000-M-0-R-1
  - **Pressure regulation A:** NVFS0000-M-0-A-1
  - **Pressure regulation B:** NVFS0000-M-0-B-1

### Blank plate
When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

- **Body type:** Plug-in type
- **Part No.:** VVFS0000-10 A

---

**Manifold Options**

### Exhaust Cleaner Unit
Plug-in type

- Valve exhaust noise damping: 35dB or more.
- Oil mist collection: Rate of collection 99.9% or more.
- Piping process reduced.

![Exhaust Cleaner Unit](image)

### Control Unit
- Filter/Regulator, Pressure switch, and Air shutoff valve all combine to form one unit.
- Piping work eliminated.

For more information, refer to catalog N233

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www.stevenengineering.com
SOLENOID VALVES
SERIES NVFS

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT, REQUEST CATALOG REFERENCE N233

<table>
<thead>
<tr>
<th>Model</th>
<th>Number Of Solenoid</th>
<th>Type</th>
<th>Port Size (NPTF)</th>
<th>Cv Factor</th>
<th>Response Time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVFS4000</td>
<td>Single</td>
<td>NVFS4100</td>
<td>3/8</td>
<td>3.3</td>
<td>40 or less</td>
</tr>
<tr>
<td></td>
<td>Double</td>
<td>NVFS4200</td>
<td>1/2</td>
<td>6</td>
<td>15 or less</td>
</tr>
<tr>
<td></td>
<td>Closed</td>
<td>NVFS4300</td>
<td>3/8</td>
<td>3.3</td>
<td>40 or less</td>
</tr>
<tr>
<td></td>
<td>Center</td>
<td>NVFS4400</td>
<td>1/2</td>
<td>3</td>
<td>50 or less</td>
</tr>
<tr>
<td></td>
<td>Exhaust Center</td>
<td>NVFS4500</td>
<td>3/8</td>
<td>2.8</td>
<td>50 or less</td>
</tr>
<tr>
<td></td>
<td>Pressure Center</td>
<td>NVFS4600</td>
<td>1/2</td>
<td>3.2</td>
<td>50 or less</td>
</tr>
<tr>
<td></td>
<td>Perfect (Double Check)</td>
<td>NVFS4600</td>
<td>3/8</td>
<td>1.7</td>
<td>55 or less</td>
</tr>
</tbody>
</table>

Position
2 Position

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air and Inert Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Operating Pressure</td>
<td>150 PSI (1MPa)</td>
</tr>
<tr>
<td>Min Operating Pressure</td>
<td>15 PSI (0.1MPa)</td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperature</td>
<td>Note 1) 14<del>140ºF (-10</del>60ºC)</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Note 2) Not Required</td>
</tr>
<tr>
<td>Pilot Operator</td>
<td>Manual Override</td>
</tr>
<tr>
<td>Protection Construction</td>
<td>Dust Proof</td>
</tr>
</tbody>
</table>

Electrical Rated

<table>
<thead>
<tr>
<th>Voltage</th>
<th>AC 110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC</td>
<td>12V, 24V</td>
</tr>
<tr>
<td>Allowable Voltage Range</td>
<td>-15 ~ -10% Rated Voltage</td>
</tr>
<tr>
<td>Coil Insulation</td>
<td>Class B or Equivalent</td>
</tr>
<tr>
<td>Apparent Power AC InRush</td>
<td>5.0VA/60Hz, 5.6VA/50Hz</td>
</tr>
<tr>
<td>(Power Consumption)</td>
<td>Holding 2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz</td>
</tr>
<tr>
<td>Power Consumption DC</td>
<td>1.8W</td>
</tr>
<tr>
<td>Electrical Entry</td>
<td>Plug In</td>
</tr>
</tbody>
</table>

Note 1) Use Dry Air at Low Temperature
Note 2) Use Turbine Oil No 1 (ISOVG32), if lubricated

CONTACTS
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230 Ryan Way, South San Francisco, CA 94080-6370
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HOW TO ORDER
NVFS4000

POSITION
1 ...2 Position Single
2 ...2 Position Double
3 ...3 Position Closed Center
4 ...3 Position Exhaust Center
5 ...3 Position Pressure Center
6 ...3 Position Perfect

BODY TYPE
0 ...Plug-In Type

MANUAL OPTION
0 ......Standard
1 ......Std & Direct Manual (Special Order)

PILOT OPERATOR
- ......Internal
R ......External (Special Order)

VOLTAGE
1 ......100VAC (Special Order)
2 ......200VAC (Special Order)
3 ......110VAC
4 ......220VAC
5 ......24VDC
6 ......12VDC
9 ......Others (Special Order)

ELECTRICAL ENTRY
F ......Through Base

PORT SIZE
- ......Without Subplate
04T ...3/8 NPTF
*04T. 1/2 NPTF
* EA, EB: 3/8 NPTF
Bottom Ported: 3/8 Only

PORTING
- ......Side
*B ...Bottom
Note) *1/8 NPTF Only

MANUAL OVERRIDE
- ......Non Locking Push Type (Flush)
*A ......Non Locking Push Type (Extended)
B ......Lock Type (Screw Type)
*C ......Lock Type (Lever)
Note) * Special Order

OPTIONS
- ......None
2 ......With Indicator Light and Surge Voltage Suppressor

HOW TO ORDER
MANIFOLD

Plug-in Type: With Terminal Block

● Lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.

NV5FS4-01T-061-03T

Series NVFS4000 Manifold valve
Plug-in type With terminal block

Port specifications Porting specifications (A,B)
1 ......Side
*2 ......Bottom
Mixed

* Special order.

See inside front cover for details of your local sales office.

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Manifold / Option Parts

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No.</td>
<td>NVFS4000-P-03T-1</td>
</tr>
</tbody>
</table>

EXH Relocation spacer

An individual EXH spacer on manifold block can form individual R port for the valve.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No.</td>
<td>NVFS4000-R-04T-1</td>
</tr>
</tbody>
</table>

SUP gallery block disc

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No.</td>
<td>AXT634-10A</td>
</tr>
</tbody>
</table>

EXH gallery block disc

When valve exhaust affects the other stations on the circuit or when the reverse pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to separate valve exhaust.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parts No.</td>
<td>AXT634-11A</td>
</tr>
</tbody>
</table>

Interface speed control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No.</td>
<td>NVFS4000-20A-1</td>
</tr>
</tbody>
</table>

Double Check “Perfect” spacer

The concurrent use of perfect spacer with built-in double check valve can stop the cylinder at mid-position and hold for extended time without being affected by normal air leakage across the spool seals.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No.</td>
<td>NVFS4000-22A-1</td>
</tr>
</tbody>
</table>

Interface regulator

Spacer type regulating valve on manifold block can regulate the pressure to the valve. With std. gauge.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Regulation P</td>
<td>NARBF4000-N0-P-1</td>
</tr>
<tr>
<td>Pressure Regulation A</td>
<td>NARBF4000-N0-A-1</td>
</tr>
<tr>
<td>Pressure Regulation B</td>
<td>NARBF4000-N0-B-1</td>
</tr>
</tbody>
</table>

Blank plate: VVFS4000-10A

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No.</td>
<td>VVFS4000-10A</td>
</tr>
</tbody>
</table>

Manifold Options

With exhaust cleaner unit

Plug-in type

- Valve exhaust noise damping: 35db or more.
- Oil mist collection: Rate of collection 99.9% or more.
- Piping process reduced.

With Control Unit

Plug-in type

- Filter/Regulator, Pressure Switch, and Air shufloff valve all combine to form one unit.
- Piping work eliminated.
## Technical Specifications - Standard

<table>
<thead>
<tr>
<th>Position</th>
<th>Number Of Solenoid</th>
<th>Type</th>
<th>Port Size (NPTF)</th>
<th>Cv Factor</th>
<th>Response Time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Position</td>
<td>Single</td>
<td>NVFS5100</td>
<td>3/8</td>
<td>4.4</td>
<td>45 or less</td>
</tr>
<tr>
<td></td>
<td>Double</td>
<td>NVFS5200</td>
<td>3/4</td>
<td>5.7</td>
<td>25 or less</td>
</tr>
<tr>
<td></td>
<td>Closed Center</td>
<td>NVFS5300</td>
<td>3/8</td>
<td>4.4</td>
<td>55 or less</td>
</tr>
<tr>
<td></td>
<td>Exhaust Center</td>
<td>NVFS5400</td>
<td>1/2</td>
<td>4.8</td>
<td>55 or less</td>
</tr>
<tr>
<td></td>
<td>Pressure Center</td>
<td>NVFS5500</td>
<td>3/4</td>
<td>4.9</td>
<td>55 or less</td>
</tr>
<tr>
<td>3 Position</td>
<td>Perfect (Double Check)</td>
<td>NVFS5600</td>
<td>1/2</td>
<td>2.7</td>
<td>60 or less</td>
</tr>
</tbody>
</table>

### Technical Specifications - Optional

<table>
<thead>
<tr>
<th>Valve</th>
<th>Fluid</th>
<th>Air and Inert Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Operating Pressure</td>
<td>150 PSI (1MPa)</td>
<td></td>
</tr>
<tr>
<td>Min Operating Pressure</td>
<td>15 PSI (0.15MPa)</td>
<td></td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperature</td>
<td>Note 1) 14<del>140ºF (-10</del>60ºC)</td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Note 2) Not Required</td>
<td></td>
</tr>
<tr>
<td>Pilot Operator Manual Override</td>
<td>Non Locking Push Type (Flush)</td>
<td></td>
</tr>
<tr>
<td>Protection Construction</td>
<td>Dust Proof</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical

| Rated Voltage AC | 110VAC@60Hz, 220VAC@60Hz, 24VAC/DC |
| Rated Voltage DC | 12V, 24V |
| Allowable Voltage Range | -15 ~ 10% Rated Voltage |
| Apparent Power AC InRush | 5.0VA@60Hz, 5.6VA@50Hz |
| Power Consumption Holding | 2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz |
| Power Consumption DC | 1.8W |
| Electrical Entry | Plug In |

**Note 1)** Use Dry Air at Low Temperature  
**Note 2)** Use Turbine Oil No 1 (ISOVG32), if lubricated
HOW TO ORDER
NVFS5000

POSITION
1 ……2 Position Single
2 ……2 Position Double
3 ……3 Position Closed Center
4 ……3 Position Exhaust Center
5 ……3 Position Pressure Center
6 ……3 Position Perfect

BODY TYPE
0 ……Plug-In Type

HOW TO ORDER MANIFOLD

MANUAL OPTION
0 ……Standard
1 ……Std & Direct Manual (Special Order)

PILOT OPERATOR
- ……Internal
R ……External (Special Order)

VOLTAGE
1 ……100VAC (Special Order)
2 ……200VAC (Special Order)
3 ……110VAC
4 ……220VAC
5 ……24VDC
6 ……12VDC
9 ……Others (Special Order)

ELECTRICAL ENTRY
F ……Through Base

PORT SIZE
- ……..Without Subplate
03T … 3/8 NPTF
04T … 1/2 NPTF
06T … 3/4 NPTF

PORTING
- ……..Side
*B ……..Bottom
Note) *1/8 NPTF Only

MANUAL OVERRIDE
- ……..Non Locking Push Type (Flush)
*A ……..Non Locking Push Type (Extended)
B ……..Lock Type (Screw Type)
*C ……..Lock Type (Lever)
Note) * Special Order

OPTIONS
- ……..None
Z ……..With Indicator Light and Surge Voltage Suppressor

PORTING

PORT SIZE

OPTIONS

Plug-in Type: With Terminal Block

● Lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.

NVV5FS5 - 01T 06 1 04T

Series NVFS5000 Manifold valve
Plug-in type With terminal block

Port specifications

<table>
<thead>
<tr>
<th>Port specifications</th>
<th>P</th>
<th>EA, EB</th>
</tr>
</thead>
<tbody>
<tr>
<td>04T</td>
<td>0</td>
<td>% NPTF</td>
</tr>
<tr>
<td>06T</td>
<td>0</td>
<td>% NPTF</td>
</tr>
</tbody>
</table>
* Bottom ported 1/2 NPTF only

Symbol

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Porting specifications</th>
<th>(A, B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Side</td>
<td></td>
</tr>
<tr>
<td>01T</td>
<td># Bottom</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Mixed</td>
<td></td>
</tr>
</tbody>
</table>

| Stations | 02 | 2 stations |
|          | 10 | 10 stations |

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www.stevenengineering.com

Note) * Special order
**Solenoid Valves**

**Series NVFS**

**How To Order**

**Manifold / Option Parts Assembly**

### SUP Relocation spacer
An individual SUP spacer on manifold block can form individual P port for the valve.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NVIFS5000-P-04T-1</td>
</tr>
</tbody>
</table>

### EXH Relocation spacer
An individual EXH spacer on manifold block can form individual R port for the valve.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NVIFS5000-R-04T-1</td>
</tr>
</tbody>
</table>

### SUP gallery block disc
When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AXT628-12A</td>
</tr>
</tbody>
</table>

### EXH gallery block disc
When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to separate valve exhaust.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AXT512-14A</td>
</tr>
</tbody>
</table>

### Interface speed control
Needle valve on the manifold block can control cylinder speed by throttling exhaust.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NVIFS5000-20A-1</td>
</tr>
</tbody>
</table>

### Double Check “Perfect” spacer
The concurrent use of perfect spacer with built-in double check valve can stop the cylinder at mid-position and hold for extended time without being affected by normal air leakage across the spool seals.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NVIFS5000-22A-1</td>
</tr>
</tbody>
</table>

### Interface regulator
Spacer type regulating valve on manifold block can regulate the pressure to the valve.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Pressure Regulation P</th>
<th>Pressure Regulation A</th>
<th>Pressure Regulation B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NARBF5000-N0-P-1</td>
<td>NARBF5000-N0-A-1</td>
<td>NARBF5000-N0-B-1</td>
</tr>
</tbody>
</table>

### Blank plate
When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

<table>
<thead>
<tr>
<th>Body type</th>
<th>Plug-in type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NVIFS5000-10A</td>
</tr>
</tbody>
</table>

**Manifold Options**

**With Exhaust Cleaner**

- Plug-in type
  - Valve exhaust noise damping: 35dB or more.
  - Oil mist collection: Rate of collection 99.9% or more.
  - Piping process reduced.

For more information, please refer to catalog N233

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## Technical Specifications

### Standard Symbols

- 2 position Single
- Double

###-valve characteristics

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air and Inert Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Operating Pressure</td>
<td>145 PSI (1.2MPa)</td>
</tr>
<tr>
<td>Min Operating Pressure</td>
<td>15 PSI (0.1MPa)</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>2200PSI (1.5MPa)</td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperature</td>
<td>14<del>140°F (-10</del>60°C)</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not Required</td>
</tr>
<tr>
<td>Pilot Operator Manual</td>
<td>Non Locking Push Type (Flush)</td>
</tr>
<tr>
<td>Override</td>
<td>Dust Proof</td>
</tr>
<tr>
<td>Protection Construction</td>
<td>110VAC50/60Hz, 24VDC, Others</td>
</tr>
<tr>
<td>Allowable Voltage Range</td>
<td>-15 ~ 10% Rated Voltage</td>
</tr>
<tr>
<td>Coil Insulation</td>
<td>5.0VA/60Hz, 5.9VA/50Hz</td>
</tr>
<tr>
<td>Apparent Power AC InRush</td>
<td>2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>1.8W</td>
</tr>
<tr>
<td>Power Consumption DC</td>
<td>Conduit Terminal</td>
</tr>
<tr>
<td>Electrical Entry</td>
<td>With Indicator Light and Surge</td>
</tr>
<tr>
<td>Option</td>
<td>Voltage Suppressor (FZ Style)</td>
</tr>
</tbody>
</table>

### How To Order NVFS6000

- **Position**
  - 1 ... 2 Position Single
  - 2 ... 2 Position Double

- **Body Type**
  - 0 ... Plug-In Type

- **Option**
  - 0 ... Standard
  - 1 ... Std & Direct Manual (Special Order)

- **Pilot Operator**
  - ... Internal
  - ... External (Special Order)

- **Port Size**
  - - ... Without Subplate
  - OET ... 3/4 NPTF
  - 10T ... 1" NPTF

- **Porting**
  - ... Side
  - ... Bottom
  - Note) *1/8 NPTF Only

- **Electrical Entry**
  - F ... Through Base

- **Voltage**
  - 1 ... 108VAC (Special Order)
  - 2 ... 208VAC (Special Order)
  - 3 ... 110VAC
  - 4 ... 220VAC
  - 5 ... 24VDC
  - 6 ... 12VDC
  - 9 ... Others (Special Order)
4 PORT DIRECT OPERATED POPPET
SOLENOID VALVE
SERIES VQD1000

High Speed Coil with Stable Response Times
Large Flow Capacity in a Compact Lightweight (34g) Valve
Vacuum Applications are possible (up to 10 Torr)
Clean Room Specifications are available as Special
Copper Free Specifications is Standard

HOW TO ORDER
SERIES VQD1000 SOLENOID VALVE

VQD SERIES
4 Port Direct Operated Poppet Valve
(Single Solenoid)

VALVE OPTION
- ...... Standard (2W)
V* ...... Vacuum (2W)
U* ...... High Flow (4W)
W ...... High Flow, Vacuum (4W)
*Power Saving Type

RATED VOLTAGE
5 ...... 24VDC
6 ...... 12VDC

NOTE:
- The 4W Power Saving Circuit, has an inrush power demand of 4W for 10ms when first energized. After this, Holding Power falls to 2W.
- A Clean Room version is available to specified order - please contact your local SMC Sales Office for further information.
- The VQD1000 is used either on a Single Sub-base or Manifold Mounted. Body Ported versions have not been developed.
- Can be used as a 3 Port Valve by plugging either the A or B Port.
# Solenoid Valves
## Series VQZ100/200/300

### 3 Port Solenoid Valve Base Mounted / Plug Lead Type
### Series VQZ100/200/300

#### Technical Specifications

<table>
<thead>
<tr>
<th>Type Of Seal</th>
<th>Metal Seal</th>
<th>Rubber Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air, Inert Gas</td>
<td>Air, Inert Gas</td>
</tr>
<tr>
<td>Maximum Operating Pressure</td>
<td>0.7MPa / 102PSI</td>
<td>(High Pressure Type 0.8MPa / 116PSI)</td>
</tr>
<tr>
<td>Minimum Operating Pressure</td>
<td>0.1MPa / 14.5PSI</td>
<td>0.15MPa / 22PSI</td>
</tr>
<tr>
<td>Ambient &amp; Fluid Temperature</td>
<td>-10º to 50ºC</td>
<td>-10º to 50ºC</td>
</tr>
<tr>
<td>Max Operating Frequency</td>
<td>20Hz</td>
<td>5Hz</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>1.5MPa / 218PSI</td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not Required</td>
<td></td>
</tr>
<tr>
<td>Manual Override</td>
<td>Non-Locking Push Type</td>
<td>Slotted Locking Type</td>
</tr>
<tr>
<td>Shock/Vibration Resistance</td>
<td>150/30 m/s²</td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>Dust Proof</td>
<td></td>
</tr>
<tr>
<td>Coil Rated Voltage</td>
<td>12, 24VDC and 100, 110, 200, 220VAC</td>
<td></td>
</tr>
<tr>
<td>Allowable Voltage</td>
<td>±10% of Rated Voltage</td>
<td></td>
</tr>
<tr>
<td>Coil Insulation</td>
<td>Class 8</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>01  100VAC</td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td>24VDC 1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)</td>
<td></td>
</tr>
<tr>
<td>(Current Value)</td>
<td>12VDC 1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)</td>
<td></td>
</tr>
<tr>
<td>200VAC</td>
<td>Inrush 1.2VA (12mA), Holding 1.2VA (12mA)</td>
<td></td>
</tr>
<tr>
<td>220VAC</td>
<td>Inrush 2.4VA (12mA), Holding 2.4VA (12mA)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)</td>
<td></td>
</tr>
</tbody>
</table>

#### How To Order

**Series VQZ100/200/300 Base Mounted Plug Lead Type**

**VQZ**

**Symbol**

- 1: Normally Closed Metal Seal
- 2: Normally Open Metal Seal (VQZ200/300 Only)
- 3: Normally Closed Rubber Seal (VQZ2200/300 Only)
- 4: Normally Open Rubber Seal (VQZ200/300 Only)
- 5: Base Mounted

### Function

- **R**: External Pilot
- **H**: High Pressure Type (1.5W)
- **Y**: Low Wattage Type (0.5W)
- **Note 1)**: Applicable to DC Specification
- **Note 2)**: Optional Specification

### Electrical Entry

- **L**: L-Type Plug Connector with Lead Wire
- **LD**: L-Type Plug Terminal without Connector
- **M**: M-Type Plug Connector with Lead Wire
- **MO**: M-Type Plug Terminal without Connector
- **Y**: Y-Type Plug Connector (VQZ2200/300)
- **YO**: Y-Type Terminal without Connector (VQZ2200/300)
- **YOS**: Y-Type Terminal without Connector (VQZ2200/300)

### Coil Voltage

- 1*: 100VAC (50/60Hz)
- 2*: 200VAC (50/60Hz)
- 3*: 110VAC (50/60Hz)
- 4*: 220VAC (50/60Hz)
- 5*: 24VDC
- 6*: 12VDC
- 9*: Other (Special Voltage)

---

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SOLENOID VALVES

SERIES VQZ100/200/300

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT REQUEST CATALOG REFERENCE E146

SEE INSIDE FRONT COVER FOR DETAILS OF YOUR LOCAL SALES OFFICE

HOW TO ORDER
SERIES VQZ100/200/300 BASE MOUNTED PLUG LEAD TYPE VALVE

SERIES
1 .... VQZ100
2 .... VQZ200
3 .... VQZ300

PORT SIZE (2A PORT)
Symbol Port Size
C3* One Touch Fitting for ø3.2 (VQZ100)
C4* One Touch Fitting for ø4 (VQZ100/200)
C6* One Touch Fitting for ø6 (VQZ100/200/300)
C8 One Touch Fitting for ø8 (VQZ200/300)
C10 One Touch Fitting for ø10 (VQZ300)
MS* MS Thread (VQZ100)
D1 Rc(PT)1/8 (VQZ200)
D2 Rc(PT)1/4 (VQZ300)
CM Mixture of Port Size (VQZ100/200/300)
Specify the Mixture Port, Port Plug by means of the Manifold Specification Form. For Mixture Port and Port Plug, it is available only by One Touch Fitting Type.
CP With Port Plug (With Lateral Piping)

MANUAL OVERRIDE
- ....Non Locking Push Type (Tool Type)
B ......Slotted Locking Type (Tool Type)

ELECTRICAL ENTRY
L ......Type Plug Connector with Lead Wire
LO ....Type Plug Terminal without Connector
M ......M Type Plug Connector with Lead Wire
MO ....M Type Plug Terminal without Connector
Y ......DIN Connector (VQZ220/300)
YO ....DIN Terminal without Connector (VQZ200/300)
YOS ....DIN Terminal without Connector (VQZ300)

COIL VOLTAGE
1* ....100VAC (50/60Hz)
2* ....200VAC (50/60Hz)
3* ....300VAC (50/60Hz)
4* ....400VAC (50/60Hz)
5 .......24VDC
6 .......12VDC
9* ......Others

Note 1) Value for Sub-Plate and Maximum Diameter
Note 2) Weight without Sub-Plate

Courtesy of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com
**Solenoid Valves**

**Series VQZ100/200/300 Body Ported**

### Technical Specifications

**Series VQZ100/200/300**

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Type Of Seal</th>
<th>Metal Seal</th>
<th>Rubber Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Air, Inert Gas</td>
<td>Air, Inert Gas</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum Operating Pressure</th>
<th>Minimum Operating Pressure</th>
<th>Ambient &amp; Fluid Temperature</th>
<th>Max Operating Frequency</th>
<th>Proof Pressure</th>
<th>Lubrication</th>
<th>Shock/Vibration Resistance</th>
<th>Enclosure</th>
<th>Coil Rated Voltage</th>
<th>Allowable Voltage</th>
<th>Coil Insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7MPa / 102PSI (High Pressure Type)</td>
<td>0.1MPa / 14.5PSI</td>
<td>-10º to 50ºC</td>
<td>20Hz</td>
<td>1.5MPa / 218PSI</td>
<td>Not Required</td>
<td>150/30 m/s²</td>
<td>Dust Proof</td>
<td>12, 24VDC and 100, 110, 200, 220VAC</td>
<td>±10% of Rated Voltage</td>
<td></td>
</tr>
<tr>
<td>0.5MPa / 74PSI (Low Pressure Type)</td>
<td>0.15MPa / 22PSI</td>
<td>-10º to 50ºC</td>
<td>5Hz</td>
<td>1.1MPa / 161PSI</td>
<td>Not Required</td>
<td>150/30 m/s²</td>
<td>Dust Proof</td>
<td>12, 24VDC and 100, 110, 200, 220VAC</td>
<td>±10% of Rated Voltage</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power</th>
<th>Consumption</th>
<th>Inrush</th>
<th>Holding</th>
</tr>
</thead>
<tbody>
<tr>
<td>100VAC</td>
<td>1.2VA (12mA)</td>
<td>1.2VA (12mA)</td>
<td>1.2VA (12mA)</td>
</tr>
<tr>
<td>200VAC</td>
<td>1.3VA (11.7mA)</td>
<td>1.3VA (11.7mA)</td>
<td>1.3VA (11.7mA)</td>
</tr>
<tr>
<td>220VAC</td>
<td>1.3VA (11.7mA)</td>
<td>1.3VA (11.7mA)</td>
<td>1.3VA (11.7mA)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Type Of Seal</th>
<th>Metal Seal</th>
<th>Rubber Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air, Inert Gas</td>
<td>Normally Closed Metal Seal</td>
<td>VQZ100 Body Width 10mm</td>
<td></td>
</tr>
<tr>
<td>Air, Inert Gas</td>
<td>Normally Open Metal Seal (VQZ200/300 Only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air, Inert Gas</td>
<td>Normally Closed Rubber Seal (VQZ200/300 Only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air, Inert Gas</td>
<td>Normally Open Rubber Seal (VQZ200/300 Only)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**How To Order**

**Series VQZ100/200/300 Body Ported Plug Lead Type**

- **Series**
  - 1 ... VQZ100 Body Width 10mm
  - 2 ... VQZ200 Body Width 15mm
  - 3 ... VQZ200 Body Width 18mm

- **Function**
  - H ... Standard Type (1W)
  - Y ... High Pressure Type (1.5W)  (Note 1)  (Note 2)
  - R ... External Pilot
  - Note 1) Applicable to DC Specification
  - Note 2) Optional Specification
  - Note 3) When specifying more than one option, combine symbols in alphabetical order.

- **Coil Voltage**
  - 1* ... 100VAC (50/60Hz)
  - 2* ... 200VAC (50/60Hz)
  - 3* ... 110VAC (50/60Hz)
  - 4* ... 220VAC (50/60Hz)
  - 5* ... 24VDC
  - 6* ... 12VDC
  - 9* ... Other (Special Voltage)

- **Port Size 2(A) Port: VQZ100/200/300**
  - C3 ... One Touch Fitting #3 (VQZ100 Only)
  - C4 ... One Touch Fitting #4 (VQZ100/200)
  - C6 ... One Touch Fitting #6
  - C8 ... One Touch Fitting #8 (VQZ100/200)
  - C10 ... One Touch Fitting #10 (VQZ300)
  - MD ... MS Thread (VQZ100/200)
  - MS ... MS Thread (VQZ200/300)
  - 02 ... R(t)1/4 (VQZ300)

- **Manual Override**
  - 1 ... Non-Locking Push Type (Tool Type)
  - B ... Slotted Locking Type (Tool Type)

- **Electrical Entry**
  - L ... L Type Plug Connector with Lead Wire
  - LO ... L Type Plug Terminal without Connector
  - M ... M Type Plug Connector with Lead Wire
  - MO ... M Type Plug Terminal without Connector
  - Y ... DIN Connector (VQZ100/300)
  - YO ... DIN Connector (VQZ200/300)
  - YO ... DIN Connector (VQZ200/300)

---

For further technical information on Series VQZ100 / 200 / 300, please refer to CAT:E147 or contact your local SMC representative.
### SOLENOID VALVES

#### SERIES VQZ100/200/300 BODY PORTED

<table>
<thead>
<tr>
<th>Series</th>
<th>Valve Construction</th>
<th>Type</th>
<th>Effective Area</th>
<th>Response Time (ms)</th>
<th>Weight (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQZ100</td>
<td>Normally Closed</td>
<td>Poppet</td>
<td>VQZ115</td>
<td>5.4 (0.3)</td>
<td>25</td>
</tr>
<tr>
<td>VQZ200</td>
<td>Normally Closed</td>
<td>Metal</td>
<td>VQZ215</td>
<td>10.6 (0.6)</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubber</td>
<td>VQZ235</td>
<td>12.6 (0.7)</td>
<td>53</td>
</tr>
<tr>
<td>VQZ300</td>
<td>Normally Open</td>
<td>Metal</td>
<td>VQZ325</td>
<td>15.3 (0.85)</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubber</td>
<td>VQZ345</td>
<td>21.6 (1.2)</td>
<td>77</td>
</tr>
</tbody>
</table>

**Note 1)** Value for Sub-Plate and Maximum Diameter

<table>
<thead>
<tr>
<th>Series</th>
<th>Series VQZ100/200/300 Body Ported Plug Lead Type Manifold</th>
</tr>
</thead>
<tbody>
<tr>
<td>VV3QZ</td>
<td>2 C - DIN Rail Mount C Connector</td>
</tr>
</tbody>
</table>

**How To Order**

#### SERIES VQZ100/200/300 BODY PORTED PLUG LEAD TYPE MANIFOLD

<table>
<thead>
<tr>
<th>Series</th>
<th>Port Size 2(A) Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQZ100</td>
<td>C3 One Touch Fitting for ø3.2 (VQZ100)</td>
</tr>
<tr>
<td>VQZ200</td>
<td>C4 One Touch Fitting for ø4 (VQZ100/200)</td>
</tr>
<tr>
<td>VQZ300</td>
<td>C6 One Touch Fitting for ø6 (VQZ100/200/300)</td>
</tr>
<tr>
<td></td>
<td>C10 One Touch Fitting for ø10 (VQZ300)</td>
</tr>
<tr>
<td></td>
<td>MS MS Thread (VQZ300)</td>
</tr>
<tr>
<td></td>
<td>02 Rc(PT)1/4 (VQZ300)</td>
</tr>
</tbody>
</table>

**How To Order**

#### SERIES VQZ100/200/300 BODY PORTED PLUG LEAD TYPE VALVE

<table>
<thead>
<tr>
<th>Series</th>
<th>Port Size 2(A) Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQZ100</td>
<td>C3 One Touch Fitting for ø3.2 (VQZ100)</td>
</tr>
<tr>
<td>VQZ200</td>
<td>C4 One Touch Fitting for ø4 (VQZ100/200)</td>
</tr>
<tr>
<td>VQZ300</td>
<td>C6 One Touch Fitting for ø6 (VQZ100/200/300)</td>
</tr>
<tr>
<td></td>
<td>C10 One Touch Fitting for ø10 (VQZ300)</td>
</tr>
<tr>
<td></td>
<td>MS MS Thread (VQZ300)</td>
</tr>
<tr>
<td></td>
<td>02 Rc(PT)1/4 (VQZ300)</td>
</tr>
</tbody>
</table>

**Electric Entry**

<table>
<thead>
<tr>
<th>Series</th>
<th>Electrical Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQZ100</td>
<td>L Type Plug Connector with Lead Wire</td>
</tr>
<tr>
<td>VQZ200</td>
<td>LO ...L Type Plug Terminal without Connector</td>
</tr>
<tr>
<td>VQZ300</td>
<td>M Type Plug Connector with Lead Wire</td>
</tr>
<tr>
<td></td>
<td>MD ...M Type Plug Terminal without Connector</td>
</tr>
<tr>
<td></td>
<td>YO ...Terminal without Connector (VQZ2200/300)</td>
</tr>
<tr>
<td></td>
<td>YZ ...DIN Connector (VQZ2200/300)</td>
</tr>
<tr>
<td></td>
<td>YOS ...DIN Terminal without Connector (VQZ2200/300)</td>
</tr>
</tbody>
</table>

**See Inside Front Cover for Details of Your Local Sales Office**

![Image](https://www.stevenengineering.com)
5 PORT SOLENOID VALVE
BASE MOUNTED / PLUG LEAD TYPE
SerieS VQZ1000/2000/3000

- High Speed and Long Life
- Compact Design with Large Flow Capacity
- Metal or Rubber Seal Main Valve Construction Options
- Optional IP65 Rated DIN Connector Type Available
- DIN Rail Mounting Available
- Built-In One Touch Fitting for Easier Piping
- Piping Direction can be changed on VQZ100
- Both 3 and 5 Port Valves can be mounted on the same manifold
- Possible to have all Solenoids on same side of Manifold

FOR FURTHER TECHNICAL INFORMATION ON SERIES VQZ1000/2000/3000, PLEASE REFER TO CAT:E146 OR CONTACT YOUR LOCAL SMC REPRESENTATIVE.

TECHNICAL SPECIFICATIONS
SERIES VQZ1000/2000/3000

FOR FURTHER TECHNICAL INFORMATION ON SERIES VQZ1000/2000/3000, PLEASE REFER TO CAT:E146 OR CONTACT YOUR LOCAL SMC REPRESENTATIVE.

Series VQZ1000/2000/3000
Base Mounted Cv Factor

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Metal Spool</th>
<th>Rubber Spool</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.2</td>
<td>0.35</td>
</tr>
<tr>
<td>2</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>3</td>
<td>0.9</td>
<td>1.2</td>
</tr>
</tbody>
</table>

HOW TO ORDER
SERIES VQZ BASE MOUNTED PLUG LEAD TYPE

VQZ

PORT SIZE (4(A), 2(B) PORT)
Symbol Port Size
- Without Sub-Plate (VQZ1000/2000/3000)
01 Rc(P/1/8) (VQZ1000/2000)
02 Rc(P/1/4) (VQZ1000/2000)
03 Rc(P/3/8) (VQZ1000/2000)

MANUAL OVERRIDE
- ....Non Locking Push Type (Tool Type)
B ......Slotted Locking Type (Tool Type)

COIL VOLTAGE

<table>
<thead>
<tr>
<th>Port</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100VAC</td>
</tr>
<tr>
<td>2</td>
<td>200VAC</td>
</tr>
<tr>
<td>3</td>
<td>110VAC</td>
</tr>
<tr>
<td>4</td>
<td>220VAC</td>
</tr>
<tr>
<td>5</td>
<td>240VAC</td>
</tr>
<tr>
<td>6</td>
<td>12VDC</td>
</tr>
<tr>
<td>9</td>
<td>Other</td>
</tr>
</tbody>
</table>

ELECTRICAL ENTRY
L ......L Type Plug Connector with Lead Wire
LD ......L Type Plug Terminal without Connector
M ......M Type Plug Connector with Lead Wire
MO ......M Type Plug Terminal without Connector
Y ......DIN Connector (VQZ2000/3000)
YO ......DIN Terminal without Connector (VQZ2000/3000)
YZ ......DIN Connector (VQZ22000/3000)
YOS ......DIN Terminal without Connector (VQZ22000/3000)

TYPE OF SEAL

<table>
<thead>
<tr>
<th>Fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal Seal</td>
</tr>
<tr>
<td>Rubber Seal</td>
</tr>
</tbody>
</table>

SOLENOIDS

- Standard Type (1W)
- High Pressure Type (1.5W) (Note 1) (Note 2)
- Low Wattage Type (0.5W) (Note 3)
- External Pilot

Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.
### Technical Specifications

#### Series VQZ1000/2000/3000 Manifold

<table>
<thead>
<tr>
<th>Series</th>
<th>Piping Application</th>
<th>Port Size</th>
<th>Applicable Valve</th>
<th>Applicable Stations</th>
<th>Weight g</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQZ1000</td>
<td>3/8(PT)</td>
<td>CW15</td>
<td>VQZ1A50</td>
<td>2 stations</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VQZ1A51</td>
<td>to</td>
<td></td>
</tr>
<tr>
<td>VQZ2000</td>
<td>1/4(PT)</td>
<td>CW25</td>
<td>VQZ2A50</td>
<td>2 stations</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VQZ2A51</td>
<td>to</td>
<td></td>
</tr>
<tr>
<td>VQZ3000</td>
<td>1/8(PT)</td>
<td>CW35</td>
<td>VQZ3A50</td>
<td>3 stations</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VQZ3A51</td>
<td>to</td>
<td></td>
</tr>
</tbody>
</table>

---

### How To Order

#### Series VQZ Base Mounted Plug Lead Type Valve

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Port Size</th>
<th>Position</th>
<th>Body Type</th>
<th>Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQZ</td>
<td>5</td>
<td>5</td>
<td>Base Mounted</td>
<td>Metal Seal</td>
</tr>
</tbody>
</table>

### How To Order

#### Series VQZ Base Mounted Plug Lead Type Manifold

<table>
<thead>
<tr>
<th>Series</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VV5QZ</td>
<td>5 ... Base Mounted</td>
</tr>
</tbody>
</table>

---

### Manual Override

- ...Non Locking Push Type (Tool Type)
- ...Slotted Locking Type (Tool Type)

### Electrical Entry

- **L** ...L Type Plug Connector with Lead Wire
- **LO** ...L Type Plug Terminal without Connector
- **M** ...M Type Plug Connector with Lead Wire
- **MO** ...M Type Plug Terminal without Connector
- **Y** ...DIN Connector (VQZ2000/3000)
- **YO** ...DIN Connector (VQZ2000/3000)
- **YOS** ...DIN Connector (VQZ2000/3000)

### Coil Voltage

- 1* ...100VAC (50/60Hz)
- 2* ...200VAC (50/60Hz)
- 3* ...110VAC (50/60Hz)
- 4* ...220VAC (50/60Hz)
- 5 ...24VDC
- 6 ...12VDC
- 9* ...Other (Special Voltage)

---

**Note 1)** Applicable to DC Specification

**Note 2)** Optional Specification

**Note 3)** When specifying more than one option, combine symbols in alphabetical order.

---

**See inside front cover for details of your local sales office**
COMPACT BODY TYPE
WITH BUILT-IN SPEED CONTROLLER - FOR VQZ2000 ONLY

• Speed Controllers are built into the valve body (Rubber Seal Models only), making it easier to adjust cylinder speed.
• Needle valve is equipped with a mechanism to prevent it from being pulled out.

Note) Compact body type valves and standard valves are not interchangeable. Compact valves cannot be mounted on a standard manifolds and vice versa.

HOW TO ORDER
SERIES VQZ COMPACT BODY TYPE MANIFOLD

V5QZ 2 5 C - C

PORT SIZE: 4(A), 2(B) PORT
C3 . . . One Touch Fitting ø3.2
C4 . . . One Touch Fitting ø4
C6 . . . One Touch Fitting ø6
C01 . . . Rc(PT)1/8

Note) The One Touch Fittings on the compact manifold are pressed in and therefore cannot be changed out.

HOW TO ORDER
SERIES VQZ VALVE

VQZ2 5 - C

COIL VOLTAGE
1 . . . . . 100VAC (50/60Hz)
2 . . . . . 200VAC (50/60Hz)
3 . . . . . 110VAC (50/60Hz)
4 . . . . . 220VAC (50/60Hz)
5 . . . . . 24VDC
6 . . . . . 12VDC
9 . . . . . Others

PILOT VALVE SPECIFICATIONS
- . . . . . Standard type (1W)
H* . . . . High Pressure type (1.5W)
Y* . . . . Low Wattage Type (0.5W)
*Option for DC Coil Voltage Only

COMPACT BODY TYPE
- . . . . . Without
S . . . . . With Speed Controller
Available with Rubber Seal Valve Only

MANIFOLD OPTIONS FOR VQZ2000/3000:
• Blank Plate Assembly
• Individual SUP Spacer
• Individual EXH Spacer
• Port Plug

MANIFOLD OPTIONS FOR VQZ2000:
• Interface Speed Controller

MANIFOLD OPTIONS FOR VQZ1000/2000:
• Nameplate (N)

OTHER MANIFOLD OPTIONS FOR SERIES VQZ:
• DIN Rail
• Fitting Blank Plug
• EXH Port Silencer
• Latching Solenoid Type
• Latching Type Valve
• Latching Type Valve / Manual Override

MANIFOLD OPTION PARTS:
• Perfect Check Block
• Perfect Check Block with Valve or Manifold
5 PORT SOLENOID VALVE
BODY PORTED / PLUG LEAD TYPE
SERIES VQZ1000/2000/3000

- High Speed and Long Life
- Compact Design with Large Flow Capacity
- Metal or Rubber Seal Main Valve Construction Options
- Optional IP65 Rated DIN Connector Type Available
- DIN Rail Mounting Available
- Built-In One Touch Fitting for Easier Piping
- Both 3 and 5 Port Valves can be mounted on the same manifold
- Possible to have all Solenoids on the same side of Manifold

FOR FURTHER TECHNICAL INFORMATION ON SERIES VQZ1000 / 2000 / 3000, PLEASE REFER TO CAT:E147 OR CONTACT YOUR LOCAL SMC REPRESENTATIVE.

Series VQZ1000/2000/3000
Body Ported Cv Factor

<table>
<thead>
<tr>
<th>Port</th>
<th>Metal Spool</th>
<th>Rubber Spool</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.15</td>
<td>0.3</td>
</tr>
<tr>
<td>2</td>
<td>0.45</td>
<td>0.6</td>
</tr>
<tr>
<td>3</td>
<td>0.7</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.

Series
1 .......VQZ1000 Body Width 10mm
2 .......VQZ2000 Body Width 15mm
3 .......VQZ3000 Body Width 18mm

Positions
1 .......2 Position Single
2 .......2 Position Double
3 .......3 Position Closed Center
4 .......3 Position Exhaust Center
5 .......3 Position Pressure Center
6 .......3 Port Normally Closed
7 .......3 Port Normally Open
8 .......3 Port Normally Open
9 .......3 Port Normally Open

Body Type
2 .......Body Ported

Function
- .......Standard Type (1W)
H .......High Pressure Type (1.5W) Note 1 (Note 2)
Y .......Low Wattage Type (0.5W) Note 1
R .......External Pilot
Note 1) Applicable to DC Specification
Note 2) Optional Specification

Bracket
- ......None
F ......With Bracket (Applicable to Single)

Port Size (4(A), 2(B) Port)

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Symbol Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>One Touch Fitting ø3.2 (VQZ1000)</td>
</tr>
<tr>
<td>C4</td>
<td>One Touch Fitting ø4 (VQZ2000/3000)</td>
</tr>
<tr>
<td>C6</td>
<td>One Touch Fitting ø6 (VQZ1000/2000/3000)</td>
</tr>
<tr>
<td>C8</td>
<td>One Touch Fitting ø8 (VQZ3000)</td>
</tr>
<tr>
<td>C10</td>
<td>One Touch Fitting ø10 (VQZ3000)</td>
</tr>
</tbody>
</table>

Manual Override
- ......Non Locking Push Type (Tool Type)
B ......Slotted Locking Type (Tool Type)

Coil Voltage

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Type of Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>100VAC / 50/60Hz</td>
</tr>
<tr>
<td>2*</td>
<td>200VAC / 50/60Hz</td>
</tr>
<tr>
<td>3*</td>
<td>110VAC / 50/60Hz</td>
</tr>
<tr>
<td>4*</td>
<td>220VAC / 50/60Hz</td>
</tr>
<tr>
<td>5</td>
<td>24VDC</td>
</tr>
<tr>
<td>6</td>
<td>12VDC</td>
</tr>
<tr>
<td>9*</td>
<td>Other (Special Voltage)</td>
</tr>
</tbody>
</table>

Electrical Entry
L ......L Type Plug Connector with Lead Wire
LO ......L Type Plug Terminal without Connector
M ......M Type Plug Connector with Lead Wire
MD ......M Type Plug Terminal without Connector
Y ......DIN Connector (VQZ2000/3000)
YO ......Terminal without Connector (VQZ2000/3000)
YZ ......DIN Connector (VQZ2000/3000)
YOS ......DIN Terminal without Connector (VQZ2000/3000)

Crafted by Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com
## Series VQZ - Body Ported Type

### 5 Port Solenoid Valve

**Body Ported / Plug Lead Type**

**Series VQZ1000/2000/3000**

**Manifold / Connector Kit**

---

### Technical Specifications Series VQZ1000/2000/3000 Manifold

<table>
<thead>
<tr>
<th>Series</th>
<th>Base Model</th>
<th>Piping Applications</th>
<th>Applicable Valve</th>
<th>Applicable Stations</th>
<th>Manifold Base Weight g</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQZ1000</td>
<td>VV5QZ12-2-2-2</td>
<td>Top: Rp(PT) 1/8</td>
<td>C3(e:3.2)</td>
<td>2 Stations: 64</td>
<td>Addition per Station: 18</td>
</tr>
<tr>
<td>VQZ2000</td>
<td>VV5QZ22-2-2-2</td>
<td>Top: Rp(PT) 1/8</td>
<td>C4(ø:4)</td>
<td>2 Stations: 86</td>
<td>Addition per Station: 26</td>
</tr>
<tr>
<td>VQZ3000</td>
<td>VV5QZ32-2-2-2</td>
<td>Top: Rp(PT) 1/4</td>
<td>C6(ø:6)</td>
<td>2 Stations: 181</td>
<td>Addition per Station: 53</td>
</tr>
</tbody>
</table>

---

### How To Order Series VQZ Body Ported Plug Lead Type Manifold

**VQZ**

- **Positions**
  1. 2 Position Single
  2. 2 Position Double
  3. 3 Position Closed Center
  4. 3 Position Exhaust Center
  5. 3 Position Pressure Center
  6. 3 Port for Mixture Mounting NC
  7. 3 Port for Mixture Mounting NO
  8. 5 Position Pressure Center
  9. 5* Port for Mixture Mounting NO

**Body Type**

- 2 ... Body Ported

**Seal**

- 0 ... Metal Seal
- 1 ... Rubber Seal

---

### How To Order Series VQZ Body Ported Plug Lead Type Valve

**VQZ**

- **Series**
  1 .... VQZ1000 Body Width 10mm
  2 .... VQZ2000 Body Width 15mm
  3 .... VQZ3000 Body Width 18mm

- **Positions**
  1 ... 2 Position Single
  2 ... 2 Position Double
  3 ... 3 Position Closed Center
  4 ... 3 Position Exhaust Center
  5 ... 3 Position Pressure Center
  6 ... 3 Port for Mixture Mounting NC
  7 ... 3 Port for Mixture Mounting NO
  8 ... 5 Position Pressure Center
  9 ... 5* Port for Mixture Mounting NO

**Body Type**

- 2 ... Body Ported

**Seal**

- 0 ... Metal Seal
- 1 ... Rubber Seal

---

### Electrical Entry

**Port Size (4A, 2B Port)**

- C3 ... One Touch Fitting for ø3.2 (VQZ1000)
- C4 ... One Touch Fitting for ø4 (VQZ1000/2000/3000)
- C6 ... One Touch Fitting for ø6 (VQZ1000/2000/3000)
- C8 ... One Touch Fitting for ø8 (VQZ3000)
- C10 ... One Touch Fitting for ø10 (VQZ3000)
- M5 ... MS Thread (VQZ1000/2000/3000)
- 02 ... Rp(PT) 1/4 (VQZ3000)

**Manifold Type**

- 2 ... Body Ported

**No Of Stations**

- 2 ... 2 Stations
- 20 ... 20 Stations

**DIN Rail Mount**

- None
- D ... DIN Rail Mounting Type (With DIN Rail Standard Length)
- DD ... DIN Rail Mounting Type (Without DIN Rail) Note 1)

Note 1) Order DIN Rail Separately

**Coil Voltage**

- 1* ... 100VAC (50/60Hz)
- 2* ... 200VAC (50/60Hz)
- 3* ... 110VAC (50/60Hz)
- 4* ... 220VAC (50/60Hz)
- 5 ... 24VDC
- 6 ... 12VDC
- 9* ... Other (Special Voltage)

---

**SOLENOID VALVES**

**SERIES VQZ - BODY PORTED TYPE**

**MANIFOLD OPTION**

**SERIES VQZ1000/2000/3000 BLANK PLATE ASSEMBLY**

- **BLANK PLATE ASSEMBLY**
  - VVQZ1000-10A-2
  - VVQZ2000-10A-2
  - VVQZ3000-10A-2

  - Used to reserve a valve mounting space on the manifold for future use.

**MANIFOLD OPTION**

**SERIES VQZ1000/2000/3000 DIN RAIL**

- **DIN RAIL**
  - AXT100 - DR - \( \uparrow \)

  - Suffix number into \( \uparrow \) from the Dimension Table below.

  - To order a manifold with DIN Rail already attached, insert ‘D’ at the end of the manifold part number. The DIN Rail is approximately 30mm longer than the length of the manifold.

**MANIFOLD OPTION**

**SERIES VQZ1000/2000/3000 FITTING BLANK PLUG**

- **FITTING BLANK PLUG**
  - KQP-23-X19
  - KQP-04-X19
  - KQP-06-X19
  - KQP-08-X19
  - KQP-10-X19

  - Color: White

**MANIFOLD OPTION**

**SERIES VQZ1000/2000/3000 EXH PORT SILENCER**

- Silencer is installed in the EXH Port

**MANIFOLD OPTION PARTS AVAILABLE:**

- Perfect Check Block
- Perfect Check Block with Valve or Manifold

**Dimensions**

<table>
<thead>
<tr>
<th>Fitting Size DØ</th>
<th>Number</th>
<th>Part Number</th>
<th>A</th>
<th>L</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2</td>
<td>21</td>
<td>KQP-23-X19</td>
<td>16</td>
<td>31.5</td>
<td>3.2</td>
</tr>
<tr>
<td>4</td>
<td>22</td>
<td>KQP-04-X19</td>
<td>16</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>23</td>
<td>KQP-06-X19</td>
<td>18</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>24</td>
<td>KQP-08-X19</td>
<td>20.5</td>
<td>39</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
<td>KQP-10-X19</td>
<td>22</td>
<td>43</td>
<td>12</td>
</tr>
</tbody>
</table>

**MANIFOLD OPTION**

**SERIES VQZ1000/2000/3000 PORT PLUG**

- **PORT PLUG**
  - VVQZ1000-CP (For VQZ1000/VQZ2000)
  - VVQZ2000-CP (For VQZ3000)

  - Used to block an unused cylinder port when using a 4 way valve as a 3 way valve

**OTHER MANIFOLD OPTIONS:**

- Latching Solenoid Type
- Latching Type Valve
- Latching Type Valve with Manual Override

---

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4/2, 4/3 Hand Valve Series (N)VH

- Durable High Flow Rotary Panel Mounting Hand Valves
- Three Body Sizes with Ports from 1/4 - 3/4
- Having 4 Ports, this valve is available in 2 position or 3 Position Closed or Exhaust Center
- White Color to match Bright Operating Environments

### Technical Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Max Operating Pressure</th>
<th>Ambient &amp; Fluid Temperature</th>
<th>Operation Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>1MPa / 145PSI (VH2/3/400)</td>
<td>-5 ~ 60°C / 23 ~ 140°F</td>
<td>90°C / 194°F</td>
</tr>
<tr>
<td>Air</td>
<td>0.7MPa / 100PSI (VH600)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Symbols

- 2 position
- 0...3 Position/Closed Center
- 1...3 Position/Exhaust Center
- 2...2 Position

### How to Order (N)VH Series

- Symbol: 2...1/4 Port
- Symbol: 3...3/8 Port
- Symbol: 4...1/2 Port
- Symbol: 6...1 Port

### Body Size

- 2...1/4 Port
- 3...3/8 Port
- 4...1/2 Port
- 6...1 Port

### Piping/Mounting

- 0...Side / Body
- 1...Side / Panel
- 2...Bottom / Body
- 3...Bottom / Panel

### Position Symbol

- 0...3 Position/Closed Center
- 1...3 Position/Exhaust Center
- 2...2 Position

### Thread

- -...Rc* Remove (N) when ordering
- N...NPT
- F...G* Remove (N) when ordering

### Porting

- 02...1/4 (Body Size 2)
- 03...3/8 (Body Size 3)
- 04...1/2 (Body Size 4)
- 06...1 (Body Size 4)

### Dimensions

- (N)VH Series Body Size 200
- (N)VH Series Body Size 300
- (N)VH Series Body Size 400
### Mechanical Valves

#### Series (N)VM400

**3/2 Mechanical Valve 1/8 (N)VM400 Series**
- 3/2 Normally Open or Normally Closed Valve
- Many Different Actuators
- Cv 0.38 Flow

## Technical Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Operating Pressure: 0 ~ 1MPa / 0 ~ 145PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ambient &amp; Fluid Temperature: 5 ~ 60°C / 41 ~ 140°F</td>
</tr>
<tr>
<td></td>
<td>Effective Orifice (Cv Factor): 7mm(0.38)</td>
</tr>
<tr>
<td></td>
<td>Recommended Lubricant: SMC Lubricant (ISO VG32)</td>
</tr>
<tr>
<td></td>
<td>Port Size: 1/8</td>
</tr>
</tbody>
</table>

## How To Order (N)VM400 Valve

### (N)VM430 01

- **Thread**: PT (when ordering)
- **Port Size**: 1/8

### Actuator

| 00 | Basic Type |
| 01 | Roller Lever |
| 02 | One Way Trip |
| 05 | Straight Plunger |
| 06 | Roller Plunger |
| 07 | Cross Roller Plunger |
| 08 | Toggle |
| 30 | Push Button–Mushroom |
| 32 | Push Button–Extended |
| 33 | Push Button–Flush |
| 34 | Twist Selector |
| 36 | Key Selector |

### Push Button Color

- R ……Red
- G ……Green
- B ……Black
- S ……Steel

### How To Order (N)VM400 Actuator Only

#### Part No. Application

<table>
<thead>
<tr>
<th>Mechanical Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
</tr>
<tr>
<td>Roller Lever</td>
</tr>
<tr>
<td>Roller Lever</td>
</tr>
<tr>
<td>One Way Trip</td>
</tr>
<tr>
<td>One Way Trip</td>
</tr>
<tr>
<td>Straight Plunger</td>
</tr>
<tr>
<td>Roller Plunger</td>
</tr>
<tr>
<td>Roller Plunger</td>
</tr>
<tr>
<td>Cross Roller Plunger</td>
</tr>
<tr>
<td>Cross Roller Plunger</td>
</tr>
<tr>
<td>Manual Operation</td>
</tr>
<tr>
<td>Toggle</td>
</tr>
<tr>
<td>Push Button–Mushroom</td>
</tr>
<tr>
<td>Push Button–Extended</td>
</tr>
<tr>
<td>Push Button–Flush</td>
</tr>
<tr>
<td>Twist Selector</td>
</tr>
<tr>
<td>Twist Selector</td>
</tr>
<tr>
<td>Key Selector</td>
</tr>
</tbody>
</table>

#### Key To Dimensional Tables

- F.O.F. (Full Operating Force): Required force to total travel position
- P.T. (Pre Travel): From free position to initial valve opening position
- O.T. (Over Travel): From initial valve opening position to total travel position
- T.T. (Total Travel): From free position to total travel position

---

If these valves are used for guarding or safety interlock systems, installation and application should be as per BS5304: 1988. Careful note should be taken of the operating principles and design of different ranges of mechanical valves when specifying valves for safety related systems.

---

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2.92 MECHANICAL VALVES
SERIES (N)VM800

3/2 MECHANICAL VALVE ⅛
(N)VM800 SERIES

- 3/2 Normally Open or Normally Closed Valve
- A Variety Of Actuator Types Available
- Robust Design

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure</td>
<td>0 ~ 9.9 Bar (0 ~ 144PSI)</td>
</tr>
<tr>
<td>Ambient and Fluid Temperature</td>
<td>5 ~ 60°C (41 ~ 140°F)</td>
</tr>
<tr>
<td>Effective Orifice (Cv Ffactor)</td>
<td>6mm (0.33)</td>
</tr>
<tr>
<td>Recommended Lubricant</td>
<td>Turbine Oil #1 (ISO VG32)</td>
</tr>
<tr>
<td>Port Size</td>
<td>⅛</td>
</tr>
</tbody>
</table>

APPLICATIONS

(N)VM830 01

- 3 Ports

- PT
- N (NPT)

Recommend (N) when ordering

ACTUATOR

(00) Basic Type
(01) Roller Lever
(13) Adjustable Roller Lever
(14) Adjustable Rod Lever

HOW TO ORDER (N)VM800 VALVE

- Roller lever ............... VM-01F
- Adjustable roller lever .... VM-13F
- Adjustable rod lever ...... VM14F

HOW TO ORDER NVM800 ACTUATOR ONLY

- Roller lever ............... VM-01F
- Adjustable roller lever .... VM-13F
- Adjustable rod lever ...... VM14F
### Technical Specifications

<table>
<thead>
<tr>
<th>Type of Valve</th>
<th>NC Poppet Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Ports</td>
<td>3</td>
</tr>
<tr>
<td>Total Travel</td>
<td>4.8mm (Basic)</td>
</tr>
<tr>
<td>Piping</td>
<td>Side</td>
</tr>
<tr>
<td>Fluid</td>
<td>Air</td>
</tr>
<tr>
<td>Operating Pressure</td>
<td>0 ~ 8 Bar / 10 ~ 116 PSI</td>
</tr>
<tr>
<td>Ambient and Fluid Temperature</td>
<td>5 ~ 60°C / 41 ~ 140°F</td>
</tr>
<tr>
<td>Effective Orifice (Cv Factor)</td>
<td>1mm²(0.055)</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not Required Use Turbine Oil #1 (ISO VG32) if lubrication is provided</td>
</tr>
<tr>
<td>Fitting</td>
<td>w/Hose Nipple</td>
</tr>
<tr>
<td>Weight (Basic)</td>
<td>20gf</td>
</tr>
</tbody>
</table>

### Dimensions

#### (N)VM1000 Basic Valve

#### (N)VM1000 Roller Lever

#### (N)VM1000 One Way Trip

#### (N)VM1000 Toggle

#### (N)VM1000 Push Button

#### Symbols

- **(N)VM1000 Basic Valve**
- **(N)VM1000 Roller Lever**
- **(N)VM1000 One Way Trip**
- **(N)VM1000 Toggle**
- **(N)VM1000 Push Button**

---

**Type of Valve**

- **3/2 N.C. Micro Mechanical Valve**

**Series (N)VM1000**

- 3/2 Normally Closed Valve
- 5 Different Actuators
- Cv 0.055 Flow
- Built-in Hose Nipple Connection
- Suitable for Ø4mm OD, 2.5mm ID Nylon Tube
- Over travel after Actuation (Mechanical Operation Type)
- Interchangeable with V3 Electrical Switches

---

**How To Order (N)VM1000**

- **(N)VM1000 — 4N —**
- **No Of Ports:**
  - 0 ... 3 Ports
  - 1 ... 2 Ports

- **Actuator:**
  - 00 ... Basic Type
  - 01 ... Roller Lever
  - 02 ... One way Trip
  - 08 ... Toggle
  - 32 ... Push Button

- **Push Button Color**
  - R ...... Red
  - G ...... Green
  - B ...... Black

---

**How To Order (N)VM1000**

- **(N)VM1000 — 4N —**
- **No Of Ports:**
  - 0 ... 3 Ports
  - 1 ... 2 Ports

- **Actuator:**
  - 00 ... Basic Type
  - 01 ... Roller Lever
  - 02 ... One way Trip
  - 08 ... Toggle
  - 32 ... Push Button

- **Push Button Color**
  - R ...... Red
  - G ...... Green
  - B ...... Black

---

**Symbols**

- **(N)VM1000 Basic Valve**
- **(N)VM1000 Roller Lever**
- **(N)VM1000 One Way Trip**
- **(N)VM1000 Toggle**
- **(N)VM1000 Push Button**

---

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Many Different Actuators
High Flow Cv 0.6
High Cycle Rate
Long Life
Interfaces with VZ5000 2-10 Station
Type 21 Manifold

How To Order (N)VZM550 Valve

(N)VZM550 — 01 —

Body Option
0 … Standard
1 … External Pilot

Thread
- … PT
N … NPT
* Remove (N) when ordering

Port Size
01 … 1/8"

Actuator
00 … Basic Type
01 … Roller Lever
02 … One Way Trip
05 … Straight Plunger
06 … Roller Plunger
08 … Toggle
30 … Push Button-Mushroom
32 … Push Button-Extended
33 … Push Button-Flush
34 … Twist Selector
35 … 3/5 Twist Selector
37 … Push-Pull

Push Button Color
R …… Red
G …… Green
B …… Black
S …… Steel

How To Order (N)VZM550 Actuator Only

Part No Application

Mechanical Operation

Basic
Roller Lever ………………… VM-01C …… Polyacetal roller
Roller Lever ………………… VM-01CS …… Hard steel roller
One Way Trip ………………… VM-02C …… Polyacetal roller
One Way Trip ………………… VM-02CS …… Hard steel roller
Straight Plunger …………… VM-05C ……
Roller Plunger ………………… VM-06C …… Polyacetal roller
Roller Plunger ………………… VM-06CS …… Hard steel roller

Manual Operation

Toggle ……………………… VM-08C ……
Push Button-Mushroom … VM-30CR … Red
Push Button-Mushroom … VM-30CB … Black
Push Button-Mushroom … VM-30CG … Green
Push Button-Extended ……… VM-32CR … Red
Push Button-Extended ……… VM-32CB … Black
Push Button-Extended ……… VM-32CG … Green
Push Button-Flush …………. VM-33C ……
Twist Selector ………………. VM-34CR … Red
Twist Selector ………………. VM-34CB … Black
Twist Selector ………………. VM-34CG … Green
Key Selector ………………… VM-36C ……
Push-Pull …………………… VM-36CR …… Black

Accessories

Manifold Type 21 Top Ported
DKT199-22-1A …………. Blanking plate kit

For more technical information on this series, please refer to CAT:E104 and N261

Technical Specifications

Fluid
Air, Inert gas

Operating Pressure
1.5~7 Bar / 22~101 PSI

Ambient & Fluid Temperature
5 ~ 60°C / 41 ~ 140ºF

Effective Orifice (Cv Factor)
10.8mm²(0.6)

Maximum Frequency
300 c.p.m.

Lubrication
Not Required

Port Size
Main Valve 1/8" Pilot Valve (EXH) M5x0.8

Key to Dimensional Tables

F.O.F. (Full Operating Force) … Required force to total travel position
P.T. (Pre Travel) ………………… From free position to initial valve opening position
Q.T. (Over Travel) ………………… From initial valve opening position to total travel position
T.T. (Total Travel) ………………… From free position to total travel position

Valves with certain operators cannot be mounted side by side. Check valve dimensions.

If these valves are used for guarding or safety interlock systems, installation and application should be as per BS5304: 1988. Careful note should be taken of the operating principles and design of different ranges of mechanical valves when specifying valves for safety related systems.
ANCILLARY VALVES
SERIES (N)VR

**Time Delay Valve**

Series (N)VR2110

A combination of adjustable orifice and fixed flow allows transmission of a pneumatic signal after a fixed time period.

**Technical Specifications**

- **Supply Pressure**: 0 ~ 1MPa / 0 ~ 145 PSI
- **Signal Pressure**: 0.25 ~ 0.8MPa / 32 ~ 116 PSI
- **Time Delay**: 0.5 ~ 60 Sec
- **Effective Orifice (Cv Factor)**: 2.5mm² (0.14)
- **Port Size**: 1/8 PT / NPT

**Symbols**

- OUT
- EXH
- P1
- Signal pressure
- 1/4 Signal pressure
- 1/4 Output pressure port
- 1-1/2" Panel mounting hole
- Panel 3mm thick or less
- 4-40 Thumbscrews 1/4"-20 x 1/2"
- Bottom of bracket
- Knob side
- 2-5/16" knobs
- 2-1/2" hole
- 1 1/2" hole
- 80 x 92
- Bottom view

**How To Order**

NVR2110-N01 (1/8 NPT)
VR2110-01 (1/8 PT)

**Dimensions**

- Supply Pressure
- Signal Pressure
- Time Delay
- Effective Orifice (Cv Factor)
- Port Size

**Symbols**

- IN
- OUT
- 6-6 Mounting hole
- 2-1/2" hole
- (N)VR2110
- (N)VR2220

**Shuttle Valve**

Series (N)VR1210, (N)VR1220

Ported Check Valve with one output and 2 pneumatic signal input ports.

**Technical Specifications**

- Series: (N)VR1210-01 (N)VR1220-02
- Max Operating Pressure: 1MPa / 145 PSI
- Min Operating Pressure: 0.05MPa / 8 PSI
- Effective Orifice (Cv Factor): 7mm² (0.38) 15mm² (0.81)
- Port Size: 1/8 PT / NPT 1/4 PT / NPT

**How To Order**

NVR1210-N01 (1/8 NPT)
NVR1220-N02 (1/4 NPT)
VR1210-01 (1/8 PT)
VR1220-02 (1/4 PT)

**Symbols**

- IN
- OUT
- 6-6 Mounting hole
- 2-1/2" hole
- (N)VR1210
- (N)VR1220

SEE INSIDE FRONT COVER FOR DETAILS OF YOUR LOCAL SALES OFFICE
ANCILLARY VALVES
SERIES (N)AK AND (N)AQ

CHECK VALVE SERIES (N)AK
- High Flow Capacity
- Low Cracking
- Pressure: 0.2 Bar
- Port Sizes from ¾ - 1 PT, NPT

Dimensions Series (N)AK

Model | Port Size | A | B | C | D | E | F | G | H | J | ØK
(NNAK2001-N01, 02) | 1/8, 1/4 | 38 | 28 | 18 | 2 | 12 | 8.5 | 11 | 2.3 | 1 | 8.5
(NNAK2000-02, 03, 04) | 1/4, 3/4, 1/2 | 47 | 36 | 30 | 10 | 14 | 11 | 20 | 9 | 1 | 20
(NNAK6000-N06, 10) | 3/4, 1 | 96 | 50 | 50 | 15 | 20 | 12 | 28 | 11 | 1 | 28

Note: When ordering PT Ports, remove 'N' from the model number.
Eg: AK2000-01
*S (mm²) is Effective Orifice
Figure given for A-R Direction (Exhaust Flow)

Fluid Proof Pressure
Air | 1.5MPa / 218 PSI
Max Operating Pressure
(NNAK1500–1510) | 0.7MPa / 101 PSI
(NNAK2000–5000) | 1MPa / 145 PSI
Min Operating Pressure
(NNAK1500–1510) | 0.1MPa / 14.5 PSI
(NNAK2000–5000) | 0.05MPa / 8 PSI
Ambient & Fluid Temperature
5 - 60°C / 41 - 140°F

Quick Exhaust Valve Series (N)AQ
- High Exhaust Characteristics
- Port Sizes from M5 – ¾ PT, NPT
- High Flow Capacity

Dimensions Series (N)AQ2000, 3000, 5000

Model | Port Size | A | B | C | D | E | F | G | H | J | ØK
(NNAQ2000-01, 02) | 1/8, 1/4 | 38 | 28 | 18 | 2 | 12 | 8.5 | 11 | 2.3 | 1 | 8.5
(NNAQ4000-02, 03, 04) | 1/4, 3/4, 1/2 | 47 | 36 | 30 | 10 | 14 | 11 | 20 | 9 | 1 | 20
(NNAQ6000-N06, 10) | 3/4, 1 | 96 | 50 | 50 | 15 | 20 | 12 | 28 | 11 | 1 | 28

Model | Port Size | A | B | C | D | E | F | G | H | J | ØK
(NNAQ1500-M5) | M5x0.8 | 23 | 20 | 14 | 3 | 12.5 | 12 | 15 | 5.5 | 6.5 | 3.1
(NNAQ1510-N01) | 1/8 | 22 | 15 | 11 | 3 | 12.5 | 12 | 15 | 5.5 | 6.5 | 3.1

*5 (mm²) is Effective Orifice
Figure given for A-R Direction (Exhaust Flow)

Fluid Air
Proof Pressure 1.5MPa / 218 PSI
Max Operating Pressure (N)AQ1500–1510 0.7MPa / 101 PSI
(N)AQ2000–5000 1MPa / 145 PSI
Min Operating Pressure (N)AQ1500–1510 0.1MPa / 14.5 PSI
(N)AQ2000–5000 0.05MPa / 8 PSI
Ambient & Fluid Temperature 5 ~ 60ºC / 41 ~ 140ºF

How To Order Series (N)AK

(Body Size .................Port ...........Effective Size NPT ...... Orifice *)
NAK2000-N01 ½ .........25
NAK2000-N02 ⅛ ......27.5
NAK4000-N02 ½ ......47
NAK4000-N03 ½ ......85
NAK4000-N04 ½ ......95
NAK6000-N06 ⅝ ......200
NAK6000-N10 1 ......230

How To Order Series (N)AQ

(Body Size .................Port ...........Effective Size NPT ...... Orifice *)
NAQ1500-M5 ....M5 ......2.8
NAQ1510-N01 1/8 ......5.8
NAQ2000-N01 1/4 ......25
NAQ2000-N02 1/4 ......40
NAQ3000-N02 3/4 ......42
NAQ3000-N03 3/4 ......70
NAQ5000-N04 1/2 ......115
NAQ5000-N06 1/2 ......180

Note: When ordering PT Ports, remove 'N' from the model number.
Eg: AQ1510-01

Symbols

IN OUT

Symbols

IN OUT

Symbols

IN OUT

Symbols

IN OUT

Technical Specifications

Fluid | Air
Proof Pressure | 1.5MPa / 218 PSI
Max Operating Pressure
(NNAQ1500–1510) | 0.7MPa / 101 PSI
(NNAQ2000–5000) | 1MPa / 145 PSI
Min Operating Pressure
(NNAQ1500–1510) | 0.1MPa / 14.5 PSI
(NNAQ2000–5000) | 0.05MPa / 8 PSI
Ambient & Fluid Temperature
5 - 60°C / 41 - 140°F

Dimensions Series (N)AQ1500, 1510

Model | Port Size | A | B | C | D | E | F | G | H | J | ØK
(NNAQ1500-M5) | M5x0.8 | 23 | 20 | 14 | 3 | 12.5 | 12 | 15 | 5.5 | 6.5 | 3.1
(NNAQ1510-N01) | 1/8 | 22 | 15 | 11 | 3 | 12.5 | 12 | 15 | 5.5 | 6.5 | 3.1

*5 (mm²) is Effective Orifice
Figure given for A-R Direction (Exhaust Flow)
MINIATURE IN-LINE QUICK EXHAUST VALVES
SERIES AQ200/300

- Option of Built-in Silencer or Facility to pipe Exhaust away
- Minimizes Installation Time and Cost
- Integral One Touch fittings
- Accepts Nylon and Polyurethane Tubing
- Compact Lightweight Design

TECHNICAL SPECIFICATIONS

- Proof Pressure: 1.5MPa (218 PSI)
- Max Operating Pressure: 1MPa (145 PSI)
- Min Operating Pressure: 0.1MPa (14.5 PSI)
- Ambient and Fluid Temperatures: -40°C / 32°F to 140°F
- Applicable Tube Materials: Nylon, Soft Nylon, Polyurethane

NOTE: observe maximum recommended operating pressures for tube when using Soft Nylon or Polyurethane

FLOW COMPARISON

<table>
<thead>
<tr>
<th>Models</th>
<th>Tube Size</th>
<th>Effective Area mm²</th>
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<tbody>
<tr>
<td>AQ240F-04-04</td>
<td>Ø4</td>
<td>1.7</td>
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<td>AQ240F-06-06</td>
<td>Ø6</td>
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DIMENSIONS

Series AQ240F/340F WITH SILENCER

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<thead>
<tr>
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<th>O.D size d</th>
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<th>D2</th>
<th>D3</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>M1</th>
<th>Weight</th>
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<tbody>
<tr>
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<td>4</td>
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<td>10</td>
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<td>15.3</td>
<td>14</td>
<td>5.2</td>
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<td>11.8</td>
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<td>14</td>
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Series AQ240F/340F WITH EXHAUST TAKE OFF

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<th>O.D size d</th>
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<th>D2</th>
<th>D3</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>M1</th>
<th>Weight</th>
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<td>22.4</td>
<td>13</td>
<td>5.7</td>
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<tr>
<td>AQ240F-06-06</td>
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<td>14.7</td>
<td>26.5</td>
<td>14</td>
<td>7.3</td>
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</tbody>
</table>

HOW TO ORDER

Series AQ240F/340F

- AQ 40

BODY SIZE
- 2 ….. M5
- 3 ….. 1/8

TUBE CONNECTION
- F ….. Built-in One Touch Tube Connection

OD SIZE
- Metric
  - 04 …..Ø4mm
  - 06 …..Ø5mm
- Imperial
  - 07 …..1/4"

EXHAUST PORT
- Metric
  - 00 …..Built-in Silencer
  - 04 …..Ø4mm
  - 06 …..Ø5mm
- Imperial
  - 07 …..1/4"

See Inside Front Cover for Details of Your Local Sales Office

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ANCILLARY VALVES
SERIES ASP

SPEED CONTROLLER WITH PILOT CHECK VALVE
SERIES ASP

- Integrated Pilot Check Valve and Speed Controller
- Temporary Intermediate Stop and Speed Control of Cylinders is possible
- 360° Freedom for Tube Mounting Direction

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Model</th>
<th>Flow Rate (l/min)</th>
<th>Effective Sectional Area (mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASP330F</td>
<td>ASP430F</td>
<td>ASP530F</td>
<td>ASP630F</td>
</tr>
<tr>
<td>Tube Diameter mm</td>
<td>ø6, ø8</td>
<td>ø6</td>
<td>ø8</td>
</tr>
<tr>
<td>Outside Diameter inch</td>
<td>ø1/4&quot;</td>
<td>ø1/4&quot;</td>
<td>ø5/16&quot;</td>
</tr>
<tr>
<td>Controlled Flow Rate (l/min)</td>
<td>180</td>
<td>330</td>
<td>350</td>
</tr>
<tr>
<td>Free Flow Effective Sectional Area (mm²)</td>
<td>2.9</td>
<td>5.2</td>
<td>5.4</td>
</tr>
</tbody>
</table>

SYMBOLES

- Model
- Tube Outside Diameter
- Controlled Flow Rate (l/min)
- Free Flow Effective Sectional Area (mm²)

BODY SIZE

3 ....... 1/8 Standard
4 ....... 1/4 Standard
5 ....... 3/8 Standard
6 ....... 1/2 Standard

TYPE

3 ....... Universal

PORT SIZE

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Cylinder Side</th>
<th>Pilot Port</th>
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<tbody>
<tr>
<td>01 ...</td>
<td>R(PT)1/8</td>
<td>M5x0.8</td>
</tr>
<tr>
<td>02 ...</td>
<td>R(PT)1/4</td>
<td>R(PT)1/8</td>
</tr>
<tr>
<td>03 ...</td>
<td>R(PT)3/8</td>
<td>R(PT)1/8</td>
</tr>
<tr>
<td>04 ...</td>
<td>R(PT)1/2</td>
<td>R(PT)1/4</td>
</tr>
<tr>
<td>05 ...</td>
<td>R(PT)1/4</td>
<td>G(PT)1/8</td>
</tr>
<tr>
<td>06 ...</td>
<td>R(PT)1/4</td>
<td>G(PT)1/8</td>
</tr>
<tr>
<td>07 ...</td>
<td>R(PT)1/4</td>
<td>G(PT)1/8</td>
</tr>
<tr>
<td>08 ...</td>
<td>R(PT)1/4</td>
<td>G(PT)1/4</td>
</tr>
<tr>
<td>09 ...</td>
<td>R(PT)1/4</td>
<td>10-32UNF</td>
</tr>
<tr>
<td>10 ...</td>
<td>NPT1/8</td>
<td>NPT1/8</td>
</tr>
<tr>
<td>11 ...</td>
<td>NPT3/8</td>
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</tr>
<tr>
<td>12 ...</td>
<td>NPT1/2</td>
<td>NPT1/4</td>
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</table>

APPLICABLE TUBE OUTSIDE DIAMETER

<table>
<thead>
<tr>
<th>Metric (mm)</th>
<th>Imperial (inch)</th>
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</thead>
<tbody>
<tr>
<td>06 .... ø6</td>
<td>07 .... ø1/4&quot;</td>
</tr>
<tr>
<td>08 .... ø8</td>
<td>09 .... ø5/16&quot;</td>
</tr>
<tr>
<td>10 .... ø10</td>
<td>11 .... ø3/8&quot;</td>
</tr>
<tr>
<td>12 .... ø12</td>
<td>13 .... ø1/2&quot;</td>
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</tbody>
</table>

HOW TO ORDER SERIES ASP

ASP 30F S

WITH SEALS

Three universal

## Series ASP Dimensions (MM)

<table>
<thead>
<tr>
<th>Model</th>
<th>d</th>
<th>T1</th>
<th>T2</th>
<th>H1</th>
<th>H2</th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>t*A1</th>
<th>t*A2</th>
<th>M</th>
<th>Weight g</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASP330F-01-06S</td>
<td>6</td>
<td>R(P)T/1/8</td>
<td>Mx0.8</td>
<td>12</td>
<td>8</td>
<td>11.6</td>
<td>14.2</td>
<td>11.8</td>
<td>14</td>
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<td>34.6</td>
<td>39.5</td>
<td>35.2</td>
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<tr>
<td>ASP330F-01-08S</td>
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<td>R(P)T/1/8</td>
<td>Mx0.8</td>
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<td>8</td>
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<td>14.2</td>
<td>11.8</td>
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<td>38.9</td>
<td>33.9</td>
<td>39.5</td>
<td>35.2</td>
</tr>
<tr>
<td>ASP430F-02-06S</td>
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<td>R(P)T/1/4</td>
<td>Rc(P)T/1/8</td>
<td>17</td>
<td>12</td>
<td>12.8</td>
<td>18.5</td>
<td>15</td>
<td>18</td>
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<td>48.7</td>
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<tr>
<td>ASP430F-02-08S</td>
<td>8</td>
<td>R(P)T/1/4</td>
<td>Rc(P)T/1/8</td>
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<td>18.5</td>
<td>15</td>
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<td>41.7</td>
<td>36.7</td>
<td>48.7</td>
<td>42.4</td>
</tr>
<tr>
<td>ASP530F-03-08S</td>
<td>8</td>
<td>R(P)T/3/8</td>
<td>Rc(P)T/1/8</td>
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<td>12</td>
<td>15.2</td>
<td>18.5</td>
<td>15</td>
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<td>50</td>
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<tr>
<td>ASP530F-03-10S</td>
<td>10</td>
<td>R(P)T/3/8</td>
<td>Rc(P)T/1/8</td>
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<td>12</td>
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<td>19.8</td>
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<td>50</td>
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<tr>
<td>ASP630F-04-10S</td>
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<td>R(P)T/1/2</td>
<td>Rc(P)T/1/4</td>
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<td>17</td>
<td>18.5</td>
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<td>57.3</td>
<td>70.3</td>
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<tr>
<td>ASP630F-04-12S</td>
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<td>R(P)T/1/2</td>
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<td>17</td>
<td>20.9</td>
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<td>26.5</td>
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## Series ASP Dimensions (INCH)

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<thead>
<tr>
<th>Model</th>
<th>d</th>
<th>T1</th>
<th>T2</th>
<th>H1</th>
<th>H2</th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>t*A1</th>
<th>t*A2</th>
<th>M</th>
<th>Weight g</th>
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</thead>
<tbody>
<tr>
<td>ASP330F-N01-07S</td>
<td>1/4&quot;</td>
<td>NPT3/8</td>
<td>10-32UNF</td>
<td>1/2&quot;</td>
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<td>57.3</td>
<td>70.3</td>
<td>61.8</td>
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</table>
ANCILLARY VALVES

SERIES (N)ASV

ADJUSTABLE QUICK EXHAUST VALVE WITH INTEGRAL EXHAUST RESTRICTOR AND SILENCER SERIES (N)ASV

Three Functions from a Single Component
- Minimizes Installation Time and Cost
- Accepts Nylon and Polyurethane Tubing
- Wide Variety of Sizes M3 to ½
- Excellent Control Characteristics
- Compact Design

Proof Pressure: 1.5 MPa (222 PSI)
Max Operating Pressure: 1 MPa (148 PSI)
Min Operating Pressure: 0.1 MPa (14.5 PSI)
Ambient & Fluid Temperature: 0 to 60ºC / 32 to 140ºF
Suitable Tube Material: Nylon, soft nylon, polyurethane

Note: observe maximum recommended operating pressures for tube when using soft nylon or polyurethane

FLOW COMPARISON

<table>
<thead>
<tr>
<th>Model</th>
<th>Port thread</th>
<th>Tube O.D (mm)</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
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<tr>
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<td>PT1/8</td>
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<td>PT1/4</td>
<td>*</td>
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<td>27</td>
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TUBING DIAMETER

<table>
<thead>
<tr>
<th>Metric (mm)</th>
<th>Imperial (inch)</th>
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<tbody>
<tr>
<td>04</td>
<td>Ø0.44</td>
</tr>
<tr>
<td>06</td>
<td>Ø0.24</td>
</tr>
<tr>
<td>08</td>
<td>Ø0.32</td>
</tr>
<tr>
<td>10</td>
<td>Ø0.39</td>
</tr>
<tr>
<td>12</td>
<td>Ø0.48</td>
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</tbody>
</table>

THREADED BODY SIZE

M3 ... M3x0.5
M5 ... M5x0.8
01 ... 1/8
02 ... 1/4
03 ... 3/8
04 ... 1/2

*Assembled height

Model | Applicable | Tube O.D | T | H | D1 | D2 | D3 | L1 | L2 | L3 | L4 | A1 | A2 | M1 | M2 | Weight g |
<table>
<thead>
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<tbody>
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<td>65.9</td>
<td>69.9</td>
<td>63.9</td>
<td>45.8</td>
<td>39.8</td>
<td>27.4</td>
<td>23.4</td>
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<tr>
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<td>RPT1/4</td>
<td>ø4mm</td>
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<td>16.8</td>
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<td>45.8</td>
<td>39.8</td>
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<td>23.4</td>
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<td>ø4mm</td>
<td>17</td>
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<td>12.8</td>
<td>17.6</td>
<td>71.9</td>
<td>65.9</td>
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<td>45.8</td>
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<td>39.8</td>
<td>27.4</td>
<td>23.4</td>
<td>17</td>
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</tbody>
</table>

HOW TO ORDER

Series (N)ASV

Body Size

1 ....... M3
2 ....... M5
3 ....... Ø1/8
4 ....... Ø1/4
5 ....... Ø3/8

Body Type

1 ....... Tee
2 ....... Elbow

Port Thread

M3 .... M3x0.5
M5 .... M5x0.8
01 ....... 1/8
02 ....... 1/4
03 ....... 3/8
04 ....... 1/2

Tubing Diameter

Metric (mm) | Imperial (inch) |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>04 ... Ø0.44</td>
<td>07 ... Ø1/4</td>
</tr>
<tr>
<td>06 ... Ø0.24</td>
<td>09 ... Ø5/16</td>
</tr>
<tr>
<td>08 ... Ø0.32</td>
<td>11 ... Ø3/8</td>
</tr>
<tr>
<td>10 ... Ø0.39</td>
<td>13 ... Ø1/2</td>
</tr>
<tr>
<td>12 ... Ø0.48</td>
<td>15 ... Ø2</td>
</tr>
</tbody>
</table>

Height to centre based on nominal thread engagement

| Courtesy of Steven Engineering, Inc. | 230 Ryan Way, South San Francisco, CA 94080-6370 | Main Office: (650) 588-9200 | Outside Local Area: (800) 258-9200 | www.stevenengineering.com |
**Tube Releasing Tool TG-1, TG-2**

- Switchable for all manifolds with integral ø4mm and 6mm One-touch fittings (TG-1) or ø1/8" and 1/4" One-touch fittings (TG-2)
- Easy change between 4mm and 6mm tube size fittings or 1/8" and 1/4" tube size fittings
- Simplifies removal of tubing by simultaneously depressing collet and gripping tube
- Can be used one handed in confined spaces

**Usage**

**Operation**
1. Insert the tool straight along the tube in the fittings mounting direction until the leading end of the tool reaches the leading end of the release bush.

2. After inserting the tool into the leading end of the release bush, firmly grip the handle of the tool and push it in until the tube holding section strikes against the stroke end.  
   - Note: Insufficient insertion may not release tubing.

3. After inserting the tube holding section up to the stroke end, release the force. The returning force of the spring releases the tube held with the tool.

**Size change**
- Push and turn the nose of the tool in the directions of arrows simultaneously to release it from the fixed state. Turn the nose by 180° and fix it. The applicable tube size is shown on the back side.

**TG-1 Tube Releasing Tool**  
Available in Blue  
For 4mm and 6mm Tube Size Fittings

**TG-2 Tube Releasing Tool**  
Available in Red  
For 1/8" and 1/4" Tube Size Fittings
As part of a long term development program to improve the performance and durability of pneumatic valve seals, SMC has developed a new type of seal which overcomes the problems inherent with traditional O-rings and bonded seals - called Q Seal, it features a special profile which reduces sliding resistance to a minimum, enhances both long term reliability and air flow characteristics and provides bi-directional port access.