

## Powermite 599

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### MT Series Terminal Unit Valve and Actuator Assembly Selection

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#### Description

This Technical Bulletin aids in selecting a Powermite 599 Series MT Series terminal unit valve and actuator assembly. Figure 1 provides a graph of water capacity for selecting the proper valve size. Figures 2 through 5 show close-off pressures for selecting an actuator according to specifications.

Tables 2 through 10 identify the product numbers. Table 1 provides a guide to these tables. The tables show all possible combinations of Powermite 599 Series valves and compatible actuators that can be ordered as complete valve assemblies from the factory.

Tables 11 through 13 provide the dimensions of all valves and the service envelope required for each actuator.

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#### Using the Valve and Actuator Selection Graphs

Use Figure 1, the water capacity graph, to select a valve size as follows:

1. Locate the specified flow rate on the vertical axis.
2. Follow across on the horizontal axis to the point of intersection with the specified pressure drop.
3. Choose the valve size from the heavy diagonal lines across the graph.

Use Figures 2 through 5, the close-off pressure graphs, to select an actuator as follows:

1. Choose the graph for the valve action (normally open or closed) and actuator power source (electronic or pneumatic) specified.
2. Locate the bar that represents the valve size. The top of the bar indicates the maximum close-off pressure for tight close off.

Use the legend at the bottom of the graph to identify the actuator.

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#### Using the Valve and Actuator Assembly Tables

Use Tables 2 through 10 to select a valve and actuator assembly as follows:

1. Locate the appropriate table based on the required valve type, valve action, and actuator type per Table 1.
  2. Read Tables 2 through 10 from left to right and select the appropriate valve specifications to identify the row with the required valve body.
  3. Read across the top of the table and select the appropriate actuator specifications to identify the column with the required actuator.
  4. Read down the actuator column and read across the valve body row. The column/row intersection determines the appropriate valve and actuator assembly. The valve and actuator assembly product number is the actuator prefix code added to the valve body suffix.
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## Selection Example

### Specifications

In an ANSI 250 piping system, a two-way, normally closed (NC), female-by-female (FxF) NPT threaded valve is to deliver 20 gpm (4.5 m<sup>3</sup>/h) chilled water with no more than 5 psi (35 kPa) pressure drop across the fully open valve.

The actuator is to receive 24 Vac power, supply a floating control signal, and provide non-spring return (NSR) operation. The actuator is to close off tightly against a pump head pressure of 15 psi (103 kPa, 1 bar).

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### Valve Sizing

Use Figure 1, the water capacity graph, to select the valve size as follows:

1. Locate the required flow rate by finding 20 gpm (4.5 m<sup>3</sup>/h) on the vertical axis.
2. Follow across the horizontal axis to find the 5 psi (35 kPa) maximum allowable pressure drop across the open valve.
3. Since the point of intersection is near a 1-inch (25-mm), 10 Cv (8.5 Kvs) valve size, select that valve size to ensure proper flow.

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### Actuator Selection

Use Figure 2, the maximum close-off pressure graph for actuators on two-way valves, to select an actuator as follows:

1. For NC valves with electronic actuators, choose the upper left graph.
2. Locate the 3/4-inch to 1-inch bar to correspond to the 1-inch (25-mm) valve size. Note that the top of the bar or the maximum close-off pressure is 40 psi (276 kPa).
3. The 40 psi (276 kPa) close-off rating of the SQS series actuator will close-off tightly against a pump head pressure of 15 psi (103 kPa, 1 bar).

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### Assembly (Product Number) Selection

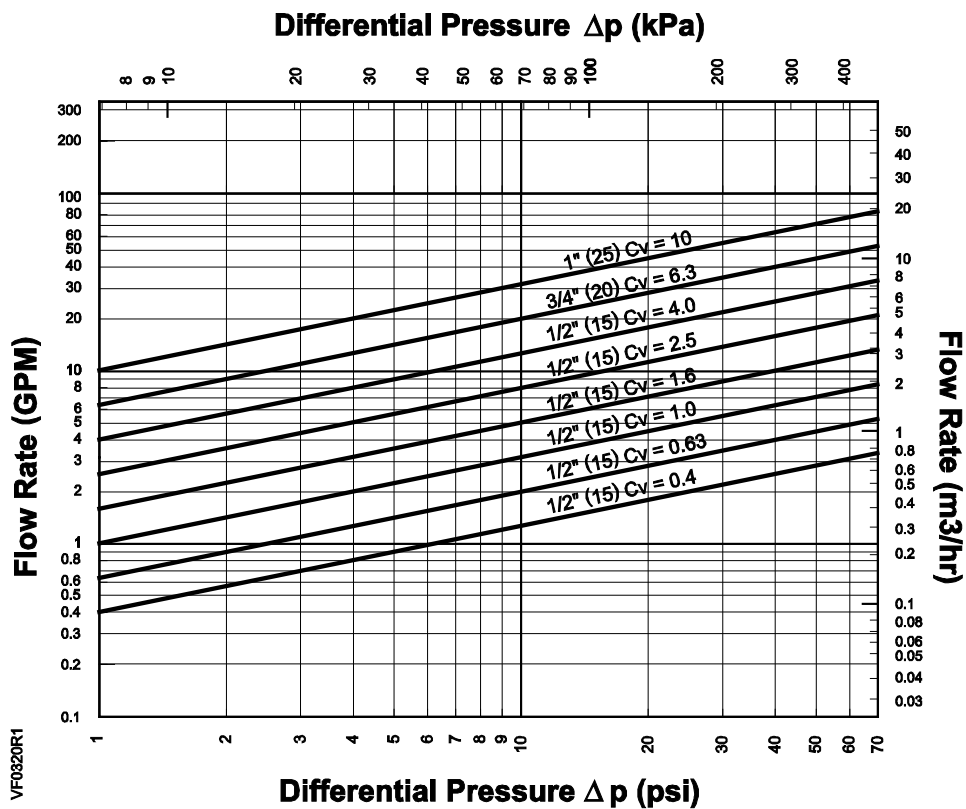
Use Table 3, two-way normally-closed valve assemblies, to select a valve and actuator assembly as follows:

1. Read the table from left to right and select bronze trim for the low pressure, chilled water application; and FxF for NPT valve threads. Select a 10 Cv (8.5 Kvs), 1-inch (25-mm) valve size, determined from the preceding valve sizing example. The valve body part number is 599-02014.
2. Read across the top of the table and select a 24 Vac actuator with floating control signal and spring return (SR) operation. The actuator part number is SQS85.53U. The actuator prefix code number is 266.
3. Read down the SQS85.53U actuator column and across the 599-02014 valve body row. The column/row intersection determines the appropriate valve and actuator assembly, which is 266-02014.

The valve and actuator can be ordered separately by using the part numbers from steps 2 and 3.

**Table 1. Guide to Valve/Actuator Tables.**

| Table No. | Valve Type and Action     | Actuator Type  |
|-----------|---------------------------|----------------|
| 2         | 2-Way,<br>Normally Closed | Pneumatic      |
| 3         |                           | SQS Electronic |
| 4         |                           | SSC Electronic |
| 5         | 2-Way,<br>Normally Open   | Pneumatic      |
| 6         |                           | SQS Electronic |
| 7         |                           | SSC Electronic |
| 8         | 3-Way, Mixing             | Pneumatic      |
| 9         |                           | SQS Electronic |
| 10        |                           | SSC Electronic |



**Figure 1. Water Capacity Graph.**

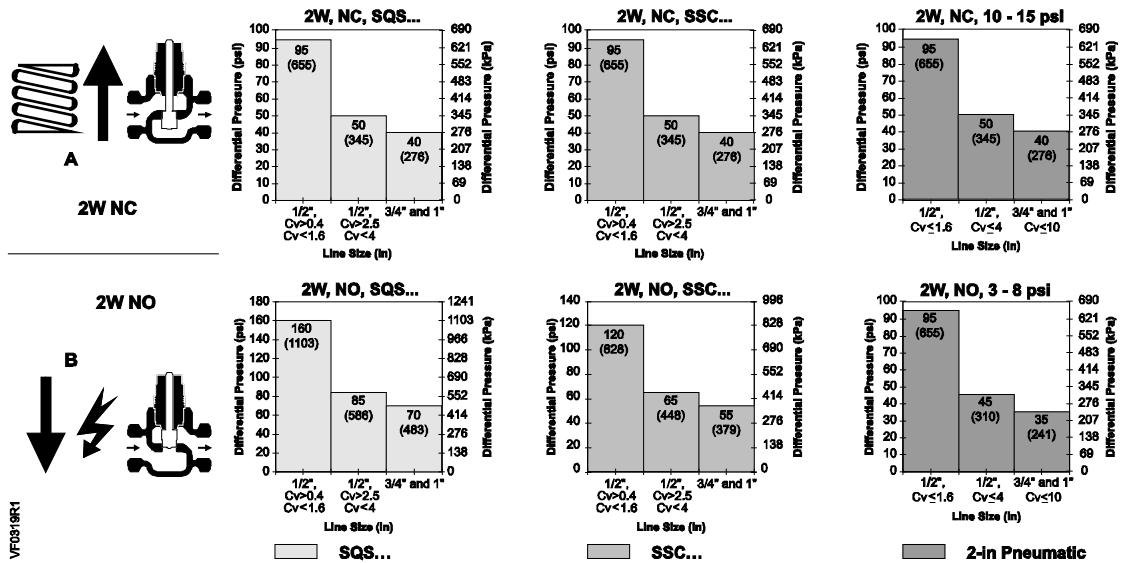


Figure 2. Maximum Close-off Pressure of Electronic Actuators on 2-Way Valves.

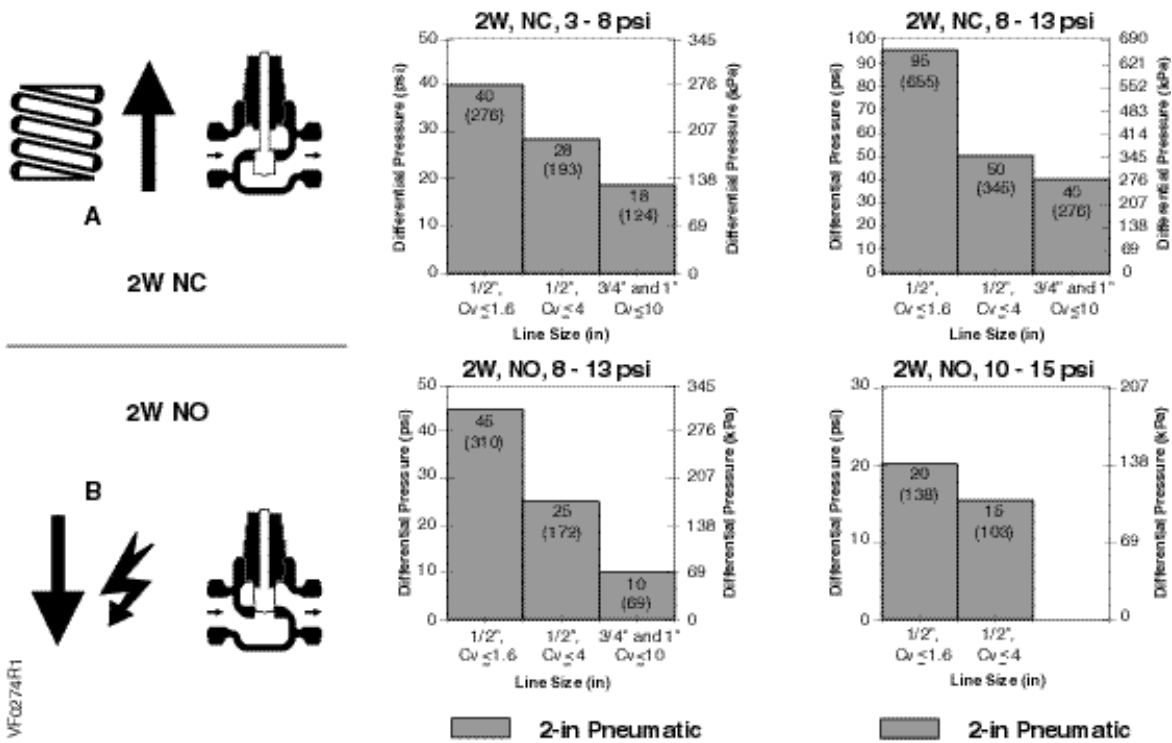


Figure 3. Maximum Close-off Pressure of 2-Inch Pneumatic Actuator on 2-way Valve with Alternate Spring Ranges. (NO at 20 PSI Actuator Pressure, NC 0 PSI, Actuator Pressure.)

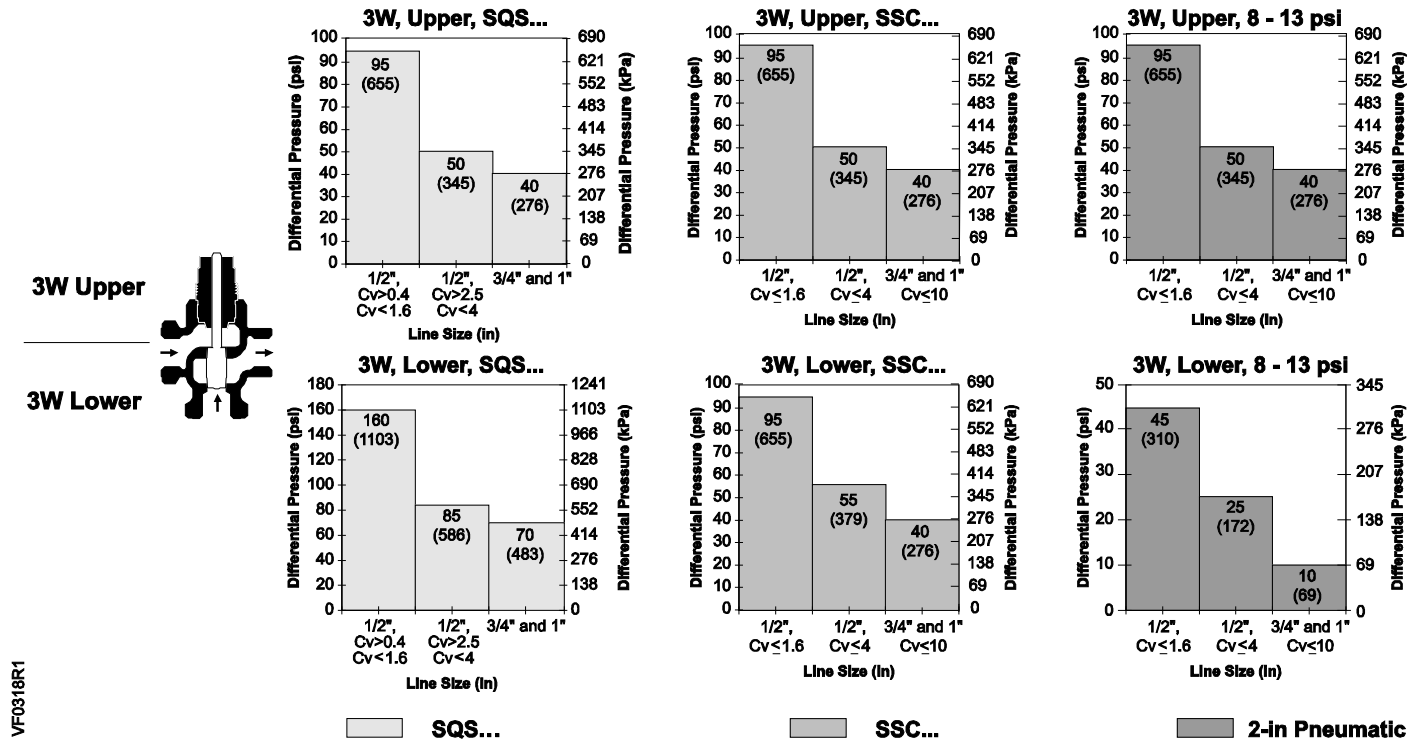


Figure 4. Maximum Close-off Pressure of Electronic Actuators on 3-Way Valves.

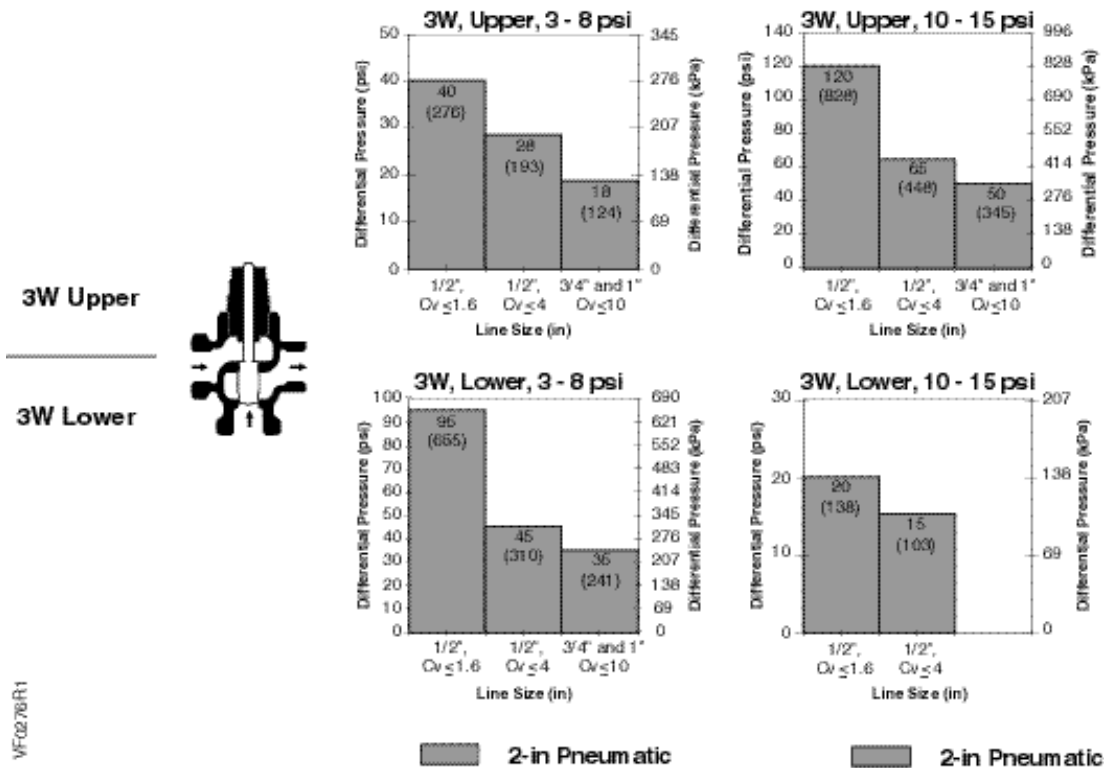


Figure 5. Maximum Close-off Pressure of 2-Inch Pneumatic Actuator on 3-way Valve with Alternate Spring Ranges. (Lower Port Close-off at 20 PSI Actuator Pressure, Port Close-off Pressures at 0 PSI Actuator Pressure.)

**Table 2. 1/2 to 1-Inch, MT Series 2-Way, Normally Closed Valves with Powermite 599 MT Series 2-Inch Valve Actuator (599-01088).**

| Port, Action, & Characteristic   | Trim            | Connection | Flow Rate      |                 | Valve Size | Valve Body Assembly | Pneumatic Actuator Assembly |                     |                      |     |     |  |
|--|-----------------|------------|----------------|-----------------|------------|---------------------|-----------------------------|---------------------|----------------------|-----|-----|--|
|  |                 |            | C <sub>v</sub> | K <sub>vS</sub> | Inch       |                     | Spring Range *              |                     |                      |     |     |  |
|  |                 |            |                |                 |            |                     | 10-15 psi (69-103 kPa)      | 3-8 psi (21-55 kPa) | 8-13 psi (55-90 kPa) |     |     |  |
|  |                 |            | Actuator Code  |                 |            |                     |                             |                     | 256                  | 257 | 258 |  |
|  |                 |            |                |                 |            |                     |                             |                     | 256                  | 257 | 258 |  |
| 2-Way, Normally Closed, Modified Equal Percentage, Technical Instructions 155-196P25 | Brass           | FxF        | 0.4            | 0.34            | 1/2 (15)   | 599-02000           | 256-02000                   | 257-02000B          | 258-02000C           |     |     |  |
|  |                 |            | 0.63           | 0.54            | 1/2 (15)   | 599-02002           | 256-02002                   | 257-02002B          | 258-02002C           |     |     |  |
|  |                 |            | 1              | 0.85            | 1/2 (15)   | 599-02004           | 256-02004                   | 257-02004B          | 258-02004C           |     |     |  |
|  |                 |            | 1.6            | 1.37            | 1/2 (15)   | 599-02006           | 256-02006                   | 257-02006B          | 258-02006C           |     |     |  |
|  |                 |            | 2.5            | 2.14            | 1/2 (15)   | 599-02008           | 256-02008                   | 257-02008B          | 258-02008C           |     |     |  |
|  |                 |            | 4              | 3.42            | 1/2 (15)   | 599-02010           | 256-02010                   | 257-02010B          | 258-02010C           |     |     |  |
|  |                 |            | 6.3            | 5.38            | 3/4 (20)   | 599-02012           | 256-02012                   | 257-02012B          | 258-02012C           |     |     |  |
|  |                 | 10         | 8.55           | 1 (25)          | 599-02014  | 256-02014           | 257-02014B                  | 258-02014C          |                      |     |     |  |
|  |                 | FxUM       | 0.4            | 0.34            | 1/2 (15)   | 599-02001           | 256-02001                   | 257-02001B          | 258-02001C           |     |     |  |
|  |                 |            | 0.63           | 0.54            | 1/2 (15)   | 599-02003           | 256-02003                   | 257-02003B          | 258-02003C           |     |     |  |
|  |                 |            | 1              | 0.85            | 1/2 (15)   | 599-02005           | 256-02005                   | 257-02005B          | 258-02005C           |     |     |  |
|  |                 |            | 1.6            | 1.37            | 1/2 (15)   | 599-02007           | 256-02007                   | 257-02007B          | 258-02007C           |     |     |  |
|  |                 |            | 2.5            | 2.14            | 1/2 (15)   | 599-02009           | 256-02009                   | 257-02009B          | 258-02009C           |     |     |  |
|  |                 |            | 4              | 3.42            | 1/2 (15)   | 599-02011           | 256-02011                   | 257-02011B          | 258-02011C           |     |     |  |
|  | 6.3             |            | 5.38           | 3/4 (20)        | 599-02013  | 256-02013           | 257-02013B                  | 258-02013C          |                      |     |     |  |
|  | Stainless Steel | FxF        | 0.4            | 0.34            | 1/2 (15)   | 599-02015           | 256-02015                   | 257-02015B          | 258-02015C           |     |     |  |
|  |                 |            | 0.63           | 0.54            | 1/2 (15)   | 599-02017           | 256-02017                   | 257-02017B          | 258-02017C           |     |     |  |
|  |                 |            | 1              | 0.85            | 1/2 (15)   | 599-02019           | 256-02019                   | 257-02019B          | 258-02019C           |     |     |  |
|  |                 |            | 1.6            | 1.37            | 1/2 (15)   | 599-02021           | 256-02021                   | 257-02021B          | 258-02021C           |     |     |  |
|  |                 |            | 2.5            | 2.14            | 1/2 (15)   | 599-02023           | 256-02023                   | 257-02023B          | 258-02023C           |     |     |  |
|  |                 |            | 4              | 3.42            | 1/2 (15)   | 599-02025           | 256-02025                   | 257-02025B          | 258-02025C           |     |     |  |
|  |                 |            | 6.3            | 5.38            | 3/4 (20)   | 599-02027           | 256-02027                   | 257-02027B          | 258-02027C           |     |     |  |
|  |                 | 10         | 8.55           | 1 (25)          | 599-02029  | 256-02029           | 257-02029B                  | 258-02029C          |                      |     |     |  |
|  |                 | FxUM       | 0.4            | 0.34            | 1/2 (15)   | 599-02016           | 256-02016                   | 257-02016B          | 258-02016C           |     |     |  |
|  |                 |            | 0.63           | 0.54            | 1/2 (15)   | 599-02018           | 256-02018                   | 257-02018B          | 258-02018C           |     |     |  |
|  |                 |            | 1              | 0.85            | 1/2 (15)   | 599-02020           | 256-02020                   | 257-02020B          | 258-02020C           |     |     |  |
|  |                 |            | 1.6            | 1.37            | 1/2 (15)   | 599-02022           | 256-02022                   | 257-02022B          | 258-02022C           |     |     |  |
|  |                 |            | 2.5            | 2.14            | 1/2 (15)   | 599-02024           | 256-02024                   | 257-02024B          | 258-02024C           |     |     |  |
| 4  |                 |            | 3.42           | 1/2 (15)        | 599-02026  | 256-02026           | 257-02026B                  | 258-02026C          |                      |     |     |  |
| 6.3  | 3/4             |            | 0.75 (20)      | 599-02028       | 256-02028  | 257-02028B          | 258-02028C                  |                     |                      |     |     |  |

\* The standard Normally Closed valves contain a 10 to 15 psi (69 to 103 kPa) spring range.  
 - For an alternate spring range of 3 to 8 psi (21 to 55 kPa), add a "B" to the end of the part number.  
 - For an alternate spring range of 8 to 13 psi (55 to 90 kPa), add a "C" to the end of the part number.

- See *Powermite 599 Series MT Series 2-Inch Pneumatic Valve Actuator Technical Instructions (155-189P25)* for details on the valve actuator.

**Table 3. 1/2 Inch to 1 Inch, MT Series 2-Way, Normally Closed Valves with Powermite 599 MT Series SQS Electronic Valve Actuators.**

| Port, Action, & Characteristic   | Trim            | Connection | Flow Rate      |                 | Valve Size | Valve Body Assembly | 24 Vac Actuator Assembly |               |           |     |     |  |
|--|-----------------|------------|----------------|-----------------|------------|---------------------|--------------------------|---------------|-----------|-----|-----|--|
|  |                 |            | C <sub>v</sub> | K <sub>vs</sub> | Inch       |                     | Non Spring Return        | Spring Return |           |     |     |  |
|  |                 |            |                |                 |            |                     | 0 to 10 Vdc              |               | Floating  |     |     |  |
|  |                 |            | SQS65U         |                 | SQS65.5U   |                     | SQS85.53U                |               |           |     |     |  |
|  |                 |            | Actuator Code  |                 |            |                     |                          |               | 264       | 264 | 266 |  |
|  |                 |            |                |                 |            |                     |                          |               | 264       | 264 | 266 |  |
| 2-Way, Normally Closed, Modified Equal Percentage, Technical Instructions 155-196P25 | Brass           | FxF        | 0.4            | 0.34            | 0.5        | 599-02000           | 264-02000                | 265-02000     | 266-02000 |     |     |  |
|  |                 |            | 0.63           | 0.54            | 0.5        | 599-02002           | 264-02002                | 265-02002     | 266-02002 |     |     |  |
|  |                 |            | 1              | 0.85            | 0.5        | 599-02004           | 264-02004                | 265-02004     | 266-02004 |     |     |  |
|  |                 |            | 1.6            | 1.37            | 0.5        | 599-02006           | 264-02006                | 265-02006     | 266-02006 |     |     |  |
|  |                 |            | 2.5            | 2.14            | 0.5        | 599-02008           | 264-02008                | 265-02008     | 266-02008 |     |     |  |
|  |                 |            | 4              | 3.42            | 0.5        | 599-02010           | 264-02010                | 265-02010     | 266-02010 |     |     |  |
|  |                 |            | 6.3            | 5.38            | 0.75       | 599-02012           | 264-02012                | 265-02012     | 266-02012 |     |     |  |
|  |                 | 10         | 8.55           | 1.0             | 599-02014  | 264-02014           | 265-02014                | 266-02014     |           |     |     |  |
|  |                 | FxUM       | 0.4            | 0.34            | 0.5        | 599-02001           | 264-02001                | 265-02001     | 266-02001 |     |     |  |
|  |                 |            | 0.63           | 0.54            | 0.5        | 599-02003           | 264-02003                | 265-02003     | 266-02003 |     |     |  |
|  |                 |            | 1              | 0.85            | 0.5        | 599-02005           | 264-02005                | 265-02005     | 266-02005 |     |     |  |
|  |                 |            | 1.6            | 1.37            | 0.5        | 599-02007           | 264-02007                | 265-02007     | 266-02007 |     |     |  |
|  |                 |            | 2.5            | 2.14            | 0.5        | 599-02009           | 264-02009                | 265-02009     | 266-02009 |     |     |  |
|  |                 |            | 4              | 3.42            | 0.5        | 599-02011           | 264-02011                | 265-02011     | 266-02011 |     |     |  |
|  | 6.3             |            | 5.38           | 0.75            | 599-02013  | 264-02013           | 265-02013                | 266-02013     |           |     |     |  |
|  | Stainless Steel | FxF        | 0.4            | 0.34            | 0.5        | 599-02015           | 264-02015                | 265-02015     | 266-02015 |     |     |  |
|  |                 |            | 0.63           | 0.54            | 0.5        | 599-02017           | 264-02017                | 265-02017     | 266-02017 |     |     |  |
|  |                 |            | 1              | 0.85            | 0.5        | 599-02019           | 264-02019                | 265-02019     | 266-02019 |     |     |  |
|  |                 |            | 1.6            | 1.37            | 0.5        | 599-02021           | 264-02021                | 265-02021     | 266-02021 |     |     |  |
|  |                 |            | 2.5            | 2.14            | 0.5        | 599-02023           | 264-02023                | 265-02023     | 266-02023 |     |     |  |
|  |                 |            | 4              | 3.42            | 0.5        | 599-02025           | 264-02025                | 265-02025     | 266-02025 |     |     |  |
|  |                 |            | 6.3            | 5.38            | 0.75       | 599-02027           | 264-02027                | 265-02027     | 266-02027 |     |     |  |
|  |                 | 10         | 8.55           | 1.0             | 599-02029  | 264-02029           | 265-02029                | 266-02029     |           |     |     |  |
|  |                 | FxUM       | 0.4            | 0.34            | 0.5        | 599-02016           | 264-02016                | 265-02016     | 266-02016 |     |     |  |
|  |                 |            | 0.63           | 0.54            | 0.5        | 599-02018           | 264-02018                | 265-02018     | 266-02018 |     |     |  |
|  |                 |            | 1              | 0.85            | 0.5        | 599-02020           | 264-02020                | 265-02020     | 266-02020 |     |     |  |
|  |                 |            | 1.6            | 1.37            | 0.5        | 599-02022           | 264-02022                | 265-02022     | 266-02022 |     |     |  |
|  |                 |            | 2.5            | 2.14            | 0.5        | 599-02024           | 264-02024                | 265-02024     | 266-02024 |     |     |  |
| 4  |                 |            | 3.42           | 0.5             | 599-02026  | 264-02026           | 265-02026                | 266-02026     |           |     |     |  |
| 6.3  | 5.38            |            | 0.75           | 599-02028       | 264-02028  | 265-02028           | 266-02028                |               |           |     |     |  |

- For details on the SQS65U and SQS65.5U Actuator, see *Powermite 599 Series MT Series SQS Electronic Valve Actuator Technical Instructions (155-190P25)*.
- For details on the SQS85.53U Actuator, see *Powermite 599 Series MT Series SQS Electronic Valve Actuator Technical Instructions (155-308P25)*.

**Table 4. 1/2-Inch to 1-Inch, MT Series 2-Way, NC, Valves with Powermite 599 MT Series SSC Electronic Valve Actuators.**

| Port, Action, Characteristics   | Trim            | Connection | Flow Rate      |                 | Valve Size | Spring Range Actuator        | Valve Body | 24 Vac Actuator Assembly |           |           |               |           |  |  |
|---|-----------------|------------|----------------|-----------------|------------|------------------------------|------------|--------------------------|-----------|-----------|---------------|-----------|--|--|
|   |                 |            | C <sub>v</sub> | K <sub>vs</sub> | Inch       |                              | Assembly   | 0 to 10 Vdc              |           | Floating  |               |           |  |  |
|   |                 |            |                |                 |            |                              |            | NSR                      | SR        | NSR       | SR            |           |  |  |
|   |                 |            |                |                 | SSC61U     |                              |            | SSC61.5U                 | SSC81U    | SSC81.5U  | Actuator Code |           |  |  |
|   |                 |            |                |                 | 261        |                              |            | 262                      | 259       | 260       |               |           |  |  |
| 2-Way Normally Closed, Modified Equal Percentage, Technical Instructions 155-196P25 | Brass           | FxF        | 0.4            | 0.34            | 0.5        | 10 to 15 psi (69 to 103 kPa) |            | 599-02000                | 261-02000 | 262-02000 | 259-02000     | 260-02000 |  |  |
|   |                 |            | 0.63           | 0.54            | 0.5        |                              | 599-02002  | 261-02002                | 262-02002 | 259-02002 | 260-02002     |           |  |  |
|   |                 |            | 1              | 0.85            | 0.5        |                              | 599-02004  | 261-02004                | 262-02004 | 259-02004 | 260-02004     |           |  |  |
|   |                 |            | 1.6            | 1.37            | 0.5        |                              | 599-02006  | 261-02006                | 262-02006 | 259-02006 | 260-02006     |           |  |  |
|   |                 |            | 2.5            | 2.14            | 0.5        |                              | 599-02008  | 261-02008                | 262-02008 | 259-02008 | 260-02008     |           |  |  |
|   |                 |            | 4              | 3.42            | 0.5        |                              | 599-02010  | 261-02010                | 262-02010 | 259-02010 | 260-02010     |           |  |  |
|   |                 |            | 6.3            | 5.38            | 0.75       |                              | 599-02012  | 261-02012                | 262-02012 | 259-02012 | 260-02012     |           |  |  |
|   |                 |            | 10             | 8.55            | 1.0        |                              | 599-02014  | 261-02014                | 262-02014 | 259-02014 | 260-02014     |           |  |  |
|   | Stainless Steel | FxF        | 0.4            | 0.34            | 0.5        |                              | 599-02001  | 261-02001                | 262-02001 | 259-02001 | 260-02001     |           |  |  |
|   |                 |            | 0.63           | 0.54            | 0.5        |                              | 599-02003  | 261-02003                | 262-02003 | 259-02003 | 260-02003     |           |  |  |
|   |                 |            | 1              | 0.85            | 0.5        |                              | 599-02005  | 261-02005                | 262-02005 | 259-02005 | 260-02005     |           |  |  |
|   |                 |            | 1.6            | 1.37            | 0.5        |                              | 599-02007  | 261-02007                | 262-02007 | 259-02007 | 260-02007     |           |  |  |
|   |                 |            | 2.5            | 2.14            | 0.5        |                              | 599-02009  | 261-02009                | 262-02009 | 259-02009 | 260-02009     |           |  |  |
|   |                 |            | 4              | 3.42            | 0.5        |                              | 599-02011  | 261-02011                | 262-02011 | 259-02011 | 260-02011     |           |  |  |
| 6.3   |                 |            | 5.38           | 0.75            | 599-02013  | 261-02013                    | 262-02013  | 259-02013                | 260-02013 |           |               |           |  |  |
| FxUM  |                 | 0.4        | 0.34           | 0.5             | 599-02015  | 261-02015                    | 262-02015  | 259-02015                | 260-02015 |           |               |           |  |  |
|   |                 | 0.63       | 0.54           | 0.5             | 599-02017  | 261-02017                    | 262-02017  | 259-02017                | 260-02017 |           |               |           |  |  |
|   |                 | 1          | 0.85           | 0.5             | 599-02019  | 261-02019                    | 262-02019  | 259-02019                | 260-02019 |           |               |           |  |  |
|   |                 | 1.6        | 1.37           | 0.5             | 599-02021  | 261-02021                    | 262-02021  | 259-02021                | 260-02021 |           |               |           |  |  |
|   |                 | 2.5        | 2.14           | 0.5             | 599-02023  | 261-02023                    | 262-02023  | 259-02023                | 260-02023 |           |               |           |  |  |
|   |                 | 4          | 3.42           | 0.5             | 599-02025  | 261-02025                    | 262-02025  | 259-02025                | 260-02025 |           |               |           |  |  |
|   |                 | 6.3        | 5.38           | 0.75            | 599-02027  | 261-02027                    | 262-02027  | 259-02027                | 260-02027 |           |               |           |  |  |
| FxUM  | 0.4             | 0.34       | 0.5            | 599-02029       | 261-02029  | 262-02029                    | 259-02029  | 260-02029                |           |           |               |           |  |  |
|   | 0.63            | 0.54       | 0.5            | 599-02016       | 261-02016  | 262-02016                    | 259-02016  | 260-02016                |           |           |               |           |  |  |
|   | 1               | 0.85       | 0.5            | 599-02018       | 261-02018  | 262-02018                    | 259-02018  | 260-02018                |           |           |               |           |  |  |
|   | 1.6             | 1.37       | 0.5            | 599-02020       | 261-02020  | 262-02020                    | 259-02020  | 260-02020                |           |           |               |           |  |  |
|   | 2.5             | 2.14       | 0.5            | 599-02022       | 261-02022  | 262-02022                    | 259-02022  | 260-02022                |           |           |               |           |  |  |
|   | 4               | 3.42       | 0.5            | 599-02024       | 261-02024  | 262-02024                    | 259-02024  | 260-02024                |           |           |               |           |  |  |
|   | 6.3             | 5.38       | 0.75           | 599-02026       | 261-02026  | 262-02026                    | 259-02026  | 260-02026                |           |           |               |           |  |  |
|   |                 |            | 599-02028      | 261-02028       | 262-02028  | 259-02028                    | 260-02028  |                          |           |           |               |           |  |  |

- For details on the SSC61U and SSC61.5U, see *Powermite 599 Series MT Series SSC Electronic Valve Actuator 24 Vac Proportional Control Technical Instructions (155-313P25)*.
- For details on the SSC81U and SSC81.5U, see *Powermite 599 Series MT Series SSC Electronic Valve Actuator 24 Vac Floating (floating) Control Technical Instructions (155-314P25)*.



**Table 5. 1/2 to 1-Inch, MT Series Valves with Powermite 599 MT Series 2-Inch Pneumatic Valve Actuator (599-01088).**

| Port, Action, & Characteristic   | Trim            | Connection | Flow Rate      |                 | Valve Size | Valve Body Assembly | Actuator Assembly      |                     |                      |     |     |  |
|--|-----------------|------------|----------------|-----------------|------------|---------------------|------------------------|---------------------|----------------------|-----|-----|--|
|  |                 |            | C <sub>v</sub> | K <sub>vS</sub> | Inch       |                     | Spring Range *         |                     |                      |     |     |  |
|  |                 |            |                |                 |            |                     | 10-15 psi (69-103 kPa) | 3-8 psi (21-55 kPa) | 8-13 psi (55-90 kPa) |     |     |  |
|  |                 |            | Actuator Code  |                 |            |                     |                        |                     | 256                  | 257 | 258 |  |
|  |                 |            |                |                 |            |                     |                        |                     | 256                  | 257 | 258 |  |
| 2-Way, Normally Open, Modified Equal Percentage, Technical Instructions 155-196P25 | Brass           | FxF        | 0.4            | 0.34            | 1/2 (15)   | 599-02030           | 256-02030A             | 257-02030           | 258-02030C           |     |     |  |
|  |                 |            | 0.63           | 0.54            | 1/2 (15)   | 599-02032           | 256-02032A             | 257-02032           | 258-02032C           |     |     |  |
|  |                 |            | 1              | 0.85            | 1/2 (15)   | 599-02034           | 256-02034A             | 257-02034           | 258-02034C           |     |     |  |
|  |                 |            | 1.6            | 1.37            | 1/2 (15)   | 599-02036           | 256-02036A             | 257-02036           | 258-02036C           |     |     |  |
|  |                 |            | 2.5            | 2.14            | 1/2 (15)   | 599-02038           | 256-02038A             | 257-02038           | 258-02038C           |     |     |  |
|  |                 |            | 4              | 3.42            | 1/2 (15)   | 599-02041           | 256-02041A             | 257-02041           | 258-02041C           |     |     |  |
|  |                 |            | 6.3            | 5.38            | 3/4 (20)   | 599-02044           | 256-02044A             | 257-02044           | 258-02044C           |     |     |  |
|  |                 | 10         | 8.55           | 1 (25)          | 599-02046  | 256-02046A          | 257-02046              | 258-02046C          |                      |     |     |  |
|  |                 | FxFUM      | 0.4            | 0.34            | 1/2 (15)   | 599-02031           | 256-02031A             | 257-02031           | 258-02031C           |     |     |  |
|  |                 |            | 0.63           | 0.54            | 1/2 (15)   | 599-02033           | 256-02033A             | 257-02033           | 258-02033C           |     |     |  |
|  |                 |            | 1              | 0.85            | 1/2 (15)   | 599-02035           | 256-02035A             | 257-02035           | 258-02035C           |     |     |  |
|  |                 |            | 1.6            | 1.37            | 1/2 (15)   | 599-02037           | 256-02037A             | 257-02037           | 258-02037C           |     |     |  |
|  |                 |            | 2.5            | 2.14            | 1/2 (15)   | 599-02039           | 256-02039A             | 257-02039           | 258-02039C           |     |     |  |
|  |                 |            | 4              | 3.42            | 1/2 (15)   | 599-02042           | 256-02042A             | 257-02042           | 258-02042C           |     |     |  |
|  | 6.3             |            | 5.38           | 3/4 (20)        | 599-02045  | 256-02045A          | 257-02045              | 258-02045C          |                      |     |     |  |
|  | AF x UM         | 2.5        | 2.14           | 1/2 (15)        | 599-02040  | 256-02040A          | 257-02040              | 258-02040C          |                      |     |     |  |
|  |                 | 4          | 3.42           | 1/2 (15)        | 599-02043  | 256-02043A          | 257-02043              | 258-02043C          |                      |     |     |  |
|  | Stainless Steel | FxF        | 0.4            | 0.34            | 1/2 (15)   | 599-02047           | 256-02047A             | 257-02047           | 258-02047C           |     |     |  |
|  |                 |            | 0.63           | 0.54            | 1/2 (15)   | 599-02049           | 256-02049A             | 257-02049           | 258-02049C           |     |     |  |
|  |                 |            | 1              | 0.85            | 1/2 (15)   | 599-02051           | 256-02051A             | 257-02051           | 258-02051C           |     |     |  |
|  |                 |            | 1.6            | 1.37            | 1/2 (15)   | 599-02053           | 256-02053A             | 257-02053           | 258-02053C           |     |     |  |
|  |                 |            | 2.5            | 2.14            | 1/2 (15)   | 599-02055           | 256-02055A             | 257-02055           | 258-02055C           |     |     |  |
|  |                 |            | 4              | 3.42            | 1/2 (15)   | 599-02058           | 256-02058A             | 257-02058           | 258-02058C           |     |     |  |
|  |                 |            | 6.3            | 5.38            | 3/4 (20)   | 599-02061           | 256-02061A             | 257-02061           | 258-02061C           |     |     |  |
|  |                 | 10         | 8.55           | 1 (25)          | 599-02063  | 256-02063A          | 257-02063              | 258-02063C          |                      |     |     |  |
|  |                 | FxFUM      | 0.4            | 0.34            | 1/2 (15)   | 599-02048           | 256-02048A             | 257-02048           | 258-02048C           |     |     |  |
|  |                 |            | 0.63           | 0.54            | 1/2 (15)   | 599-02050           | 256-02050A             | 257-02050           | 258-02050C           |     |     |  |
|  |                 |            | 1              | 0.85            | 1/2 (15)   | 599-02052           | 256-02052A             | 257-02052           | 258-02052C           |     |     |  |
| 1.6  |                 |            | 1.37           | 1/2 (15)        | 599-02054  | 256-02054A          | 257-02054              | 258-02054C          |                      |     |     |  |
| 2.5  |                 |            | 2.14           | 1/2 (15)        | 599-02056  | 256-02056A          | 257-02056              | 258-02056C          |                      |     |     |  |
| 4  |                 |            | 3.42           | 1/2 (15)        | 599-02059  | 256-02059A          | 257-02059              | 258-02059C          |                      |     |     |  |
| 6.3  | 5.38            |            | 3/4 (20)       | 599-02062       | 256-02062A | 257-02062           | 258-02062C             |                     |                      |     |     |  |
| AF x UM  | 2.5             | 2.14       | 1/2 (15)       | 599-02057       | 256-02057A | 257-02057           | 258-02057C             |                     |                      |     |     |  |
|  | 4               | 3.42       | 1/2 (15)       | 599-02060       | 256-02060A | 257-02060           | 258-02060C             |                     |                      |     |     |  |

- See *Powermite 599 Series MT Series 2-Inch Pneumatic Valve Actuator Technical Instructions (155-189P25)* for details on the valve actuator.

\* The standard Normally Open valves contain a 3 to 8 psi (21 to 55 kPa) spring range.  
 - For an alternate spring range of 10 to 15 psi (69 to 103 kPa), add an "A" to the end of the part number.  
 - For an alternate spring range of 8 to 13 psi (55 to 90 kPa), add a "C" to the end of the part number.

**Table 6. 1/2-Inch to 1-Inch, MT Series 2-Way, Normally Open Valves  
 with Powermite 599 MT Series SQS Electronic Valve Actuators.**

| Port, Action, &<br>Characteristic   | Trim            | Connection | Flow Rate      |                 | Valve Size<br>Inch<br>(mm) | Valve Body<br>Assembly | 24 Vac Actuator Assembly |               |           |
|---|-----------------|------------|----------------|-----------------|----------------------------|------------------------|--------------------------|---------------|-----------|
|   |                 |            | C <sub>v</sub> | K <sub>vs</sub> |                            |                        | NSR                      | Spring Return |           |
|   |                 |            |                |                 |                            |                        | 0-10 Vdc                 |               | Floating  |
|   |                 |            | SQS65U         | SQS65.5U        |                            |                        | SQS85.53U                |               |           |
|   |                 |            | Actuator Codes |                 |                            |                        |                          |               |           |
| 264   | 265             | 266        |                |                 |                            |                        |                          |               |           |
| 2-Way, Normally Open, Modified Equal Percentage,<br>Technical Instructions 155-196P25 | Brass           | FxF        | 0.4            | 0.34            | 1/2 (15)                   | 599-02030              | 264-02030                | 265-02030     | 266-02030 |
|   |                 |            | 0.63           | 0.54            | 1/2 (15)                   | 599-02032              | 264-02032                | 265-02032     | 266-02032 |
|   |                 |            | 1              | 0.85            | 1/2 (15)                   | 599-02034              | 264-02034                | 265-02034     | 266-02034 |
|   |                 |            | 1.6            | 1.37            | 1/2 (15)                   | 599-02036              | 264-02036                | 265-02036     | 266-02036 |
|   |                 |            | 2.5            | 2.14            | 1/2 (15)                   | 599-02038              | 264-02038                | 265-02038     | 266-02038 |
|   |                 |            | 4              | 3.42            | 1/2 (15)                   | 599-02041              | 264-02041                | 265-02041     | 266-02041 |
|   |                 |            | 6.3            | 5.38            | 3/4 (20)                   | 599-02044              | 264-02044                | 265-02044     | 266-02044 |
|   |                 | 10         | 8.55           | 1 (25)          | 599-02046                  | 264-02046              | 265-02046                | 266-02046     |           |
|   |                 | FxUM       | 0.4            | 0.34            | 1/2 (15)                   | 599-02031              | 264-02031                | 265-02031     | 266-02031 |
|   |                 |            | 0.63           | 0.54            | 1/2 (15)                   | 599-02033              | 264-02033                | 265-02033     | 266-02033 |
|   |                 |            | 1              | 0.85            | 1/2 (15)                   | 599-02035              | 264-02035                | 265-02035     | 266-02035 |
|   |                 |            | 1.6            | 1.37            | 1/2 (15)                   | 599-02037              | 264-02037                | 265-02037     | 266-02037 |
|   |                 |            | 2.5            | 2.14            | 1/2 (15)                   | 599-02039              | 264-02039                | 265-02039     | 266-02039 |
|   |                 |            | 4              | 3.42            | 1/2 (15)                   | 599-02042              | 264-02042                | 265-02042     | 266-02042 |
|   | 6.3             |            | 5.38           | 3/4 (20)        | 599-02045                  | 264-02045              | 265-02045                | 266-02045     |           |
|   | AF x UM         | 2.5        | 2.14           | 1/2 (15)        | 599-02040                  | 264-02040              | 265-02040                | 266-02040     |           |
|   |                 | 4          | 3.42           | 1/2 (15)        | 599-02043                  | 264-02043              | 265-02043                | 266-02043     |           |
|   | Stainless Steel | FxF        | 0.4            | 0.34            | 1/2 (15)                   | 599-02047              | 264-02047                | 265-02047     | 266-02047 |
|   |                 |            | 0.63           | 0.54            | 1/2 (15)                   | 599-02049              | 264-02049                | 265-02049     | 266-02049 |
|   |                 |            | 1              | 0.85            | 1/2 (15)                   | 599-02051              | 264-02051                | 265-02051     | 266-02051 |
|   |                 |            | 1.6            | 1.37            | 1/2 (15)                   | 599-02053              | 264-02053                | 265-02053     | 266-02053 |
|   |                 |            | 2.5            | 2.14            | 1/2 (15)                   | 599-02055              | 264-02055                | 265-02055     | 266-02055 |
|   |                 |            | 4              | 3.42            | 1/2 (15)                   | 599-02058              | 264-02058                | 265-02058     | 266-02058 |
|   |                 |            | 6.3            | 5.38            | 3/4 (20)                   | 599-02061              | 264-02061                | 265-02061     | 266-02061 |
|   |                 | 10         | 8.55           | 1 (25)          | 599-02063                  | 264-02063              | 265-02063                | 266-02063     |           |
|   |                 | FxUM       | 0.4            | 0.34            | 1/2 (15)                   | 599-02048              | 264-02048                | 265-02048     | 266-02048 |
|   |                 |            | 0.63           | 0.54            | 1/2 (15)                   | 599-02050              | 264-02050                | 265-02050     | 266-02050 |
|   |                 |            | 1              | 0.85            | 1/2 (15)                   | 599-02052              | 264-02052                | 265-02052     | 266-02052 |
|   |                 |            | 1.6            | 1.37            | 1/2 (15)                   | 599-02054              | 264-02054                | 265-02054     | 266-02054 |
|   |                 |            | 2.5            | 2.14            | 1/2 (15)                   | 599-02056              | 264-02056                | 265-02056     | 266-02056 |
| 4   |                 |            | 3.42           | 1/2 (15)        | 599-02059                  | 264-02059              | 265-02059                | 266-02059     |           |
| 6.3   |                 |            | 5.38           | 3/4 (20)        | 599-02062                  | 264-02062              | 265-02062                | 266-02062     |           |
| AF x UM   |                 | 2.5        | 2.14           | 1/2 (15)        | 599-02057                  | 264-02057              | 265-02057                | 266-02057     |           |
|   | 4               | 3.42       | 1/2 (15)       | 599-02060       | 264-02060                  | 265-02060              | 266-02060                |               |           |

- For details on the SQS65U and SQS65.5U Actuator, see Powermite 599 Series MT Series SQS Electronic Valve Actuator Technical Instructions (155-190P25).
- For details on the SQS85.53U Actuator, see Powermite 599 Series MT Series SQS Electronic Valve Actuator Technical Instructions (155-308P25).

**Table 7. 1/2-Inch to 1-Inch, MT Series 2-Way, NOen Valves with Powermite 599 MT Series SSC Electronic Valve Actuators.**

| Port. Action, & Characteristic   | Trim  | Connection      | Flow Rate      |                 | Valve Size | Spring Range              | Valve Body Assembly | 24 Vac Actuator Assembly |           |           |           |           |
|--|-------|-----------------|----------------|-----------------|------------|---------------------------|---------------------|--------------------------|-----------|-----------|-----------|-----------|
|  |       |                 | C <sub>v</sub> | K <sub>vs</sub> | Inch       |                           |                     | 0 to 10 Vdc              |           | Floating  |           |           |
|  |       |                 |                |                 |            |                           |                     | NSR                      | SR        | NSR       | SR        |           |
|  |       |                 |                |                 |            |                           |                     | SSC61U                   | SSC61.5U  | SSC81U    | SSC81.5U  |           |
|  |       |                 | Actuator Codes |                 |            |                           |                     |                          |           |           |           |           |
|  |       | 261             | 262            | 259             | 260        |                           |                     |                          |           |           |           |           |
| 2-Way, Normally Open, Modified Equal Percentage, Technical Instructions 155-196P25 | Brass | FxF             | 0.4            | 0.34            | 1/2 (15)   | 3 to 8 psi (21 to 55 kPa) | 599-02030           | 261-02030                | 262-02030 | 259-02030 | 260-02030 |           |
|  |       |                 | 0.63           | 0.54            | 1/2 (15)   |                           | 599-02032           | 261-02032                | 262-02032 | 259-02032 | 260-02032 |           |
|  |       |                 | 1              | 0.85            | 1/2 (15)   |                           | 599-02034           | 261-02034                | 262-02034 | 259-02034 | 260-02034 |           |
|  |       |                 | 1.6            | 1.37            | 1/2 (15)   |                           | 599-02036           | 261-02036                | 262-02036 | 259-02036 | 260-02036 |           |
|  |       |                 | 2.5            | 2.14            | 1/2 (15)   |                           | 599-02038           | 261-02038                | 262-02038 | 259-02038 | 260-02038 |           |
|  |       |                 | 4              | 3.42            | 1/2 (15)   |                           | 599-02041           | 261-02041                | 262-02041 | 259-02041 | 260-02041 |           |
|  |       |                 | 6.3            | 5.38            | 3/4 (20)   |                           | 599-02044           | 261-02044                | 262-02044 | 259-02044 | 260-02044 |           |
|  |       |                 | 10             | 8.55            | 1 (25)     |                           | 599-02046           | 261-02046                | 262-02046 | 259-02046 | 260-02046 |           |
|  |       | FxUM            | 0.4            | 0.34            | 1/2 (15)   |                           | 599-02031           | 261-02031                | 262-02031 | 259-02031 | 260-02031 |           |
|  |       |                 | 0.63           | 0.54            | 1/2 (15)   |                           | 599-02033           | 261-02033                | 262-02033 | 259-02033 | 260-02033 |           |
|  |       |                 | 1              | 0.85            | 1/2 (15)   |                           | 599-02035           | 261-02035                | 262-02035 | 259-02035 | 260-02035 |           |
|  |       |                 | 1.6            | 1.37            | 1/2 (15)   |                           | 599-02037           | 261-02037                | 262-02037 | 259-02037 | 260-02037 |           |
|  |       |                 | 2.5            | 2.14            | 1/2 (15)   |                           | 599-02039           | 261-02039                | 262-02039 | 259-02039 | 260-02039 |           |
|  |       |                 | 4              | 3.42            | 1/2 (15)   |                           | 599-02042           | 261-02042                | 262-02042 | 259-02042 | 260-02042 |           |
|  |       |                 | 6.3            | 5.38            | 3/4 (20)   |                           | 599-02045           | 261-02045                | 262-02045 | 259-02045 | 260-02045 |           |
|  |       |                 | AF x UM        | 2.5             | 2.14       |                           | 1/2 (15)            | 599-02040                | 261-02040 | 262-02040 | 259-02040 | 260-02040 |
|  |       | 4               |                | 3.42            | 1/2 (15)   |                           | 599-02043           | 261-02043                | 262-02043 | 259-02043 | 260-02043 |           |
|  |       | Stainless Steel | FxF            | 0.4             | 0.34       |                           | 1/2 (15)            | 599-02047                | 261-02047 | 262-02047 | 259-02047 | 260-02047 |
|  |       |                 |                | 0.63            | 0.54       |                           | 1/2 (15)            | 599-02049                | 261-02049 | 262-02049 | 259-02049 | 260-02049 |
|  |       |                 |                | 1               | 0.85       |                           | 1/2 (15)            | 599-02051                | 261-02051 | 262-02051 | 259-02051 | 260-02051 |
|  |       |                 |                | 1.6             | 1.37       |                           | 1/2 (15)            | 599-02053                | 261-02053 | 262-02053 | 259-02053 | 260-02053 |
|  |       |                 |                | 2.5             | 2.14       |                           | 1/2 (15)            | 599-02055                | 261-02055 | 262-02055 | 259-02055 | 260-02055 |
|  |       |                 |                | 4               | 3.42       |                           | 1/2 (15)            | 599-02058                | 261-02058 | 262-02058 | 259-02058 | 260-02058 |
|  |       |                 |                | 6.3             | 5.38       |                           | 3/4 (20)            | 599-02061                | 261-02061 | 262-02061 | 259-02061 | 260-02061 |
|  | 10    |                 |                | 8.55            | 1 (25)     |                           | 599-02063           | 261-02063                | 262-02063 | 259-02063 | 260-02063 |           |
|  | FxUM  |                 | 0.4            | 0.34            | 1/2 (15)   |                           | 599-02048           | 261-02048                | 262-02048 | 259-02048 | 260-02048 |           |
|  |       |                 | 0.63           | 0.54            | 1/2 (15)   |                           | 599-02050           | 261-02050                | 262-02050 | 259-02050 | 260-02050 |           |
|  |       |                 | 1              | 0.85            | 1/2 (15)   |                           | 599-02052           | 261-02052                | 262-02052 | 259-02052 | 260-02052 |           |
|  |       |                 | 1.6            | 1.37            | 1/2 (15)   |                           | 599-02054           | 261-02054                | 262-02054 | 259-02054 | 260-02054 |           |
|  |       |                 | 2.5            | 2.14            | 1/2 (15)   |                           | 599-02056           | 261-02056                | 262-02056 | 259-02056 | 260-02056 |           |
|  |       |                 | 4              | 3.42            | 1/2 (15)   |                           | 599-02059           | 261-02059                | 262-02059 | 259-02059 | 260-02059 |           |
|  |       |                 | 6.3            | 5.38            | 3/4 (20)   |                           | 599-02062           | 261-02062                | 262-02062 | 259-02062 | 260-02062 |           |
|  |       |                 | AF x UM        | 2.5             | 2.14       |                           | 1/2 (15)            | 599-02057                | 261-02057 | 262-02057 | 259-02057 | 260-02057 |
|  | 4     |                 |                | 3.42            | 1/2 (15)   |                           | 599-02060           | 261-02060                | 262-02060 | 259-02060 | 260-02060 |           |

- For details on the SSC61U and SSC61.5U, see *Powermite 599 Series MT Series SSC Electronic Valve Actuator 24 Vac Proportional Control Technical Instructions (155-313P25)*.
- For details on the SSC81U and SSC81.5U, see *Powermite 599 Series MT Series SSC Electronic Valve Actuator 24 Vac Floating Control Technical Instructions (155-314P25)*.

**Table 8. 1/2 Inch to 1 Inch, MT Series 3-Way Valves with Powermite MT Series 2-Inch Pneumatic Valve Actuator (599-01088).**

| Port, Action, & Characteristic                           | Trim            | Flow Rate      |                 | Valve Size Inch (mm) | Valve Body Assembly | Actuator Assembly      |                     |                      |
|--|-----------------|----------------|-----------------|----------------------|---------------------|------------------------|---------------------|----------------------|
|  |                 |                |                 |                      |                     | Spring Range *         |                     |                      |
|  |                 | C <sub>v</sub> | K <sub>vS</sub> |                      |                     | 10-15 psi (69-103 kPa) | 3-8 psi (21-55 kPa) | 8-13 psi (55-90 kPa) |
|  |                 |                |                 |                      |                     | Actuator Codes         |                     |                      |
|  |                 | 256            | 257             | 258                  |                     |                        |                     |                      |
| 3-Way, Mixing, Linear, Technical Instructions 155-197P25 | Brass           | 0.4            | 0.34            | 1/2 (15)             | 599-02064           | 256-02064A             | 257-02064B          | 258-02064            |
|  |                 | 0.63           | 0.54            | 1/2 (15)             | 599-02065           | 256-02065A             | 257-02065B          | 258-02065            |
|  |                 | 1.0            | 0.85            | 1/2 (15)             | 599-02066           | 256-02066A             | 257-02066B          | 258-02066            |
|  |                 | 1.6            | 1.37            | 1/2 (15)             | 599-02067           | 256-02067A             | 257-02067B          | 258-02067            |
|  |                 | 2.5            | 2.14            | 1/2 (15)             | 599-02068           | 256-02068A             | 257-02068B          | 258-02068            |
|  |                 | 4.0            | 3.42            | 1/2 (15)             | 599-02069           | 256-02069A             | 257-02069B          | 258-02069            |
|  |                 | 6.3            | 5.38            | 3/4 (20)             | 599-02070           | 256-02070A             | 257-02070B          | 258-02070            |
|  |                 | 10.0           | 8.55            | 1 (25)               | 599-02071           | 256-02071A             | 257-02071B          | 258-02071            |
|  | Stainless Steel | 0.4            | 0.34            | 1/2 (15)             | 599-02072           | 256-02072A             | 257-02072B          | 258-02072            |
|  |                 | 0.63           | 0.54            | 1/2 (15)             | 599-02073           | 256-02073A             | 257-02073B          | 258-02073            |
|  |                 | 1.0            | 0.85            | 1/2 (15)             | 599-02074           | 256-02074A             | 257-02074B          | 258-02074            |
|  |                 | 1.6            | 1.37            | 1/2 (15)             | 599-02075           | 256-02075A             | 257-02075B          | 258-02075            |
|  |                 | 2.5            | 2.14            | 1/2 (15)             | 599-02076           | 256-02076A             | 257-02076B          | 258-02076            |
|  |                 | 4.0            | 3.42            | 1/2 (15)             | 599-02077           | 256-02077A             | 257-02077B          | 258-02077            |
|  |                 | 6.3            | 5.38            | 3/4 (20)             | 599-02078           | 256-02078A             | 257-02078B          | 258-02078            |
|  |                 | 10.0           | 2.14            | 1 (25)               | 599-02079           | 256-02079A             | 257-02079B          | 258-02079            |

- See *Powermite 599 Series MT Series 2-Inch Pneumatic Valve Actuator Technical Instructions (155-189P25)* for details on the valve actuator.
- \* The standard three-way valves contain a 8 to 13 psi (55 to 90 kPa) spring range.
  - For an alternate spring range of 10 to 15 psi (69 to 103 kPa), add an "A" to the end of the part number.
  - For an alternate spring range of 3 to 8 psi (21 to 55 kPa), add a "B" to the end of the part number.

**Table 9. 1/2 to 1-inch, MT Series 3-Way Valves with Powermite 599 MT Series SQS–Electronic Valve Actuators.**

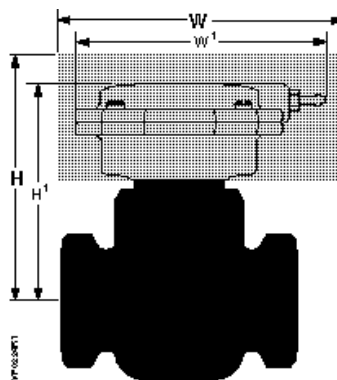
| Port, Action, & Characteristic                           | Trim            | Flow Rate      |                 | Valve Size | Valve Body Assembly | 24 Vac Actuator Assembly |               |           |
|--|-----------------|----------------|-----------------|------------|---------------------|--------------------------|---------------|-----------|
|  |                 | C <sub>v</sub> | K <sub>vs</sub> | Inch       |                     | NSR                      | Spring Return |           |
|  |                 |                |                 |            |                     | 0 to 10 Vdc              |               | Floating  |
|  |                 | SQS65U         | SQS65.5U        | SQS85.53U  |                     | Actuator Codes           |               |           |
|  |                 | 264            | 265             | 266        |                     |                          |               |           |
|  |                 |                |                 |            |                     |                          |               |           |
| 3-Way, Mixing, Linear, Technical Instructions 155-197P25 | Brass           | 0.4            | 0.34            | 1/2 (15)   | 599-02064           | 264-02064                | 265-02064     | 266-02064 |
|  |                 | 0.63           | 0.54            | 1/2 (15)   | 599-02065           | 264-02065                | 265-02065     | 266-02065 |
|  |                 | 1.0            | 0.85            | 1/2 (15)   | 599-02066           | 264-02066                | 265-02066     | 266-02066 |
|  |                 | 1.6            | 1.37            | 1/2 (15)   | 599-02067           | 264-02067                | 265-02067     | 266-02067 |
|  |                 | 2.5            | 2.14            | 1/2 (15)   | 599-02068           | 264-02068                | 265-02068     | 266-02068 |
|  |                 | 4.0            | 3.42            | 1/2 (15)   | 599-02069           | 264-02069                | 265-02069     | 266-02069 |
|  |                 | 6.3            | 5.38            | 0.75 (20)  | 599-02070           | 264-02070                | 265-02070     | 266-02070 |
|  |                 | 10.0           | 8.55            | 1.0 (25)   | 599-02071           | 264-02071                | 265-02071     | 266-02071 |
|  | Stainless Steel | 0.4            | 0.34            | 1/2 (15)   | 599-02072           | 264-02072                | 265-02072     | 266-02072 |
|  |                 | 0.63           | 0.54            | 1/2 (15)   | 599-02073           | 264-02073                | 265-02073     | 266-02073 |
|  |                 | 1.0            | 0.85            | 1/2 (15)   | 599-02074           | 264-02074                | 265-02074     | 266-02074 |
|  |                 | 1.6            | 1.37            | 1/2 (15)   | 599-02075           | 264-02075                | 265-02075     | 266-02075 |
|  |                 | 2.5            | 2.14            | 1/2 (15)   | 599-02076           | 264-02076                | 265-02076     | 266-02076 |
|  |                 | 4.0            | 3.42            | 1/2 (15)   | 599-02077           | 264-02077                | 265-02077     | 266-02077 |
|  |                 | 6.3            | 5.38            | 0.75 (25)  | 599-02078           | 264-02078                | 265-02078     | 266-02078 |
|  |                 | 10.0           | 2.14            | 1.0 (25)   | 599-02079           | 264-02079                | 265-02079     | 266-02079 |

- For details on the SQS65U and SQS65.5U Actuator, see *Powermite 599 Series MT Series SQS Electronic Valve Actuator Technical Instructions (155-190P25)*.
- For details on the SQS85.53U Actuator, see *Powermite 599 Series MT Series SQS Electronic Valve Actuator Technical Instructions (155-308P25)*.

**Table 10. 1/2 to 1 inch, MT Series 3-Way Valves with Powermite 599 MT Series SSC–Electronic Valve Actuators.**

| Port, Action, & Characteristic                              | Trim            | Flow Rate      |                 | Valve Size | Valve Body Assembly | 24 Vac Actuator Assembly |           |           |           |
|---|-----------------|----------------|-----------------|------------|---------------------|--------------------------|-----------|-----------|-----------|
|   |                 |                |                 |            |                     | 0 to 10 Vdc              |           | Floating  |           |
|   |                 | C <sub>v</sub> | K <sub>vs</sub> | Inch (mm)  |                     | NSR                      | SR        | NSR       | SR        |
|   |                 |                |                 |            |                     | SSC61U                   | SSC61.5U  | SSC81U    | SSC81.5U  |
|   |                 |                |                 |            |                     | Actuator Codes           |           |           |           |
|   |                 |                |                 | 261        | 262                 | 259                      | 260       |           |           |
| 3-Way, Mixing, Linear,<br>Technical Instructions 155-197P25 | Brass           | 0.4            | 0.34            | 1/2 (15)   | 599-02064           | 261-02064                | 262-02064 | 259-02064 | 260-02064 |
|   |                 | 0.63           | 0.54            | 1/2 (15)   | 599-02065           | 261-02065                | 262-02065 | 259-02065 | 260-02065 |
|   |                 | 1              | 0.85            | 1/2 (15)   | 599-02066           | 261-02066                | 262-02066 | 259-02066 | 260-02066 |
|   |                 | 1.6            | 1.37            | 1/2 (15)   | 599-02067           | 261-02067                | 262-02067 | 259-02067 | 260-02067 |
|   |                 | 2.5            | 2.14            | 1/2 (15)   | 599-02068           | 261-02068                | 262-02068 | 259-02068 | 260-02068 |
|   |                 | 4              | 3.42            | 1/2 (15)   | 599-02069           | 261-02069                | 262-02069 | 259-02069 | 260-02069 |
|   |                 | 6.3            | 5.38            | 3/4 (20)   | 599-02070           | 261-02070                | 262-02070 | 259-02070 | 260-02070 |
|   |                 | 10             | 8.55            | 1.0 (25)   | 599-02071           | 261-02071                | 262-02071 | 259-02071 | 260-02071 |
|   | Stainless Steel | 0.4            | 0.34            | 1/2 (15)   | 599-02072           | 261-02072                | 262-02072 | 259-02072 | 260-02072 |
|   |                 | 0.63           | 0.54            | 1/2 (15)   | 599-02073           | 261-02073                | 262-02073 | 259-02073 | 260-02073 |
|   |                 | 1              | 0.85            | 1/2 (15)   | 599-02074           | 261-02074                | 262-02074 | 259-02074 | 260-02074 |
|   |                 | 1.6            | 1.37            | 1/2 (15)   | 599-02075           | 261-02075                | 262-02075 | 259-02075 | 260-02075 |
|   |                 | 2.5            | 2.14            | 1/2 (15)   | 599-02076           | 261-02076                | 262-02076 | 259-02076 | 260-02076 |
|   |                 | 4              | 3.42            | 1/2 (15)   | 599-02077           | 261-02077                | 262-02077 | 259-02077 | 260-02077 |
|   |                 | 6.3            | 5.38            | 3/4 (20)   | 599-02078           | 261-02078                | 262-02078 | 259-02078 | 260-02078 |
|   |                 | 10             | 2.14            | 1.0 (25)   | 599-02079           | 261-02079                | 262-02079 | 259-02079 | 260-02079 |

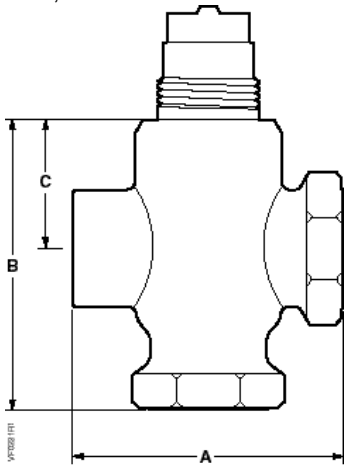
- For details on the SSC61U and SSC61.5U, see *Powermite 599 Series MT Series SSC Electronic Valve Actuator 24 Vac Proportional Control Technical Instructions (155-313P25)*.
- For details on the SSC81U and SSC81.5U, see *Powermite 599 Series MT Series SSC Electronic Valve Actuator 24 Vac Floating Control Technical Instructions (155-314P25)*.



**Figure 5. Service Envelope**

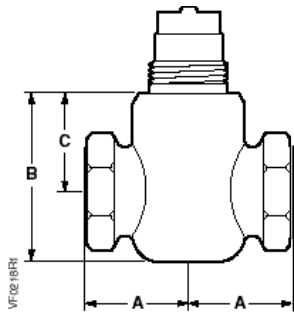
**Table 11. Actuator Dimensions and Recommended Service Envelope.  
 Dimensions in Inches (Millimeters).**

| Actuator                         | Actuator Prefix Code | Valve Size | Center line to Top of Actuator, H1 | Service Height, H | Width or Diameter of Actuator, W1 | Service Width W |
|----------------------------------|----------------------|------------|------------------------------------|-------------------|-----------------------------------|-----------------|
| 599-01088<br>2-Inch<br>Pneumatic | 256,<br>257,<br>258  | 1/2 (15)   | 3-1/16 (78)                        | 11 (280)          | 4 (100)                           | 10 (250)        |
|                                  |                      | 3/4 (20)   | 3-1/16 (78)                        | 11 (280)          | 4 (100)                           | 10 (250)        |
|                                  |                      | 1 (25)     | 3-5/16 (84)                        | 11-1/4 (285)      | 4 (100)                           | 10 (250)        |
| SQS65U<br>0 to 10V<br>NSR        | 264                  | 1/2 (15)   | 6-5/8 (167)                        | 14-1/2 (370)      | 5-1/16 (128)                      | 9 (225)         |
|                                  |                      | 3/4 (20)   | 6-5/8 (167)                        | 14-1/2 (370)      | 5-1/16 (128)                      | 9 (225)         |
|                                  |                      | 1 (25)     | 6-7/8 (173)                        | 15 (380)          | 5-1/16 (128)                      | 9 (225)         |
| SQS65.5U<br>0 to 10V<br>SR       | 265                  | 1/2 (15)   | 6-1/16 (153)                       | 14 (355)          | 5-1/16 (128)                      | 9 (225)         |
|                                  |                      | 3/4 (20)   | 6-1/16 (153)                       | 14 (355)          | 5-1/16 (128)                      | 9 (225)         |
|                                  |                      | 1 (25)     | 6-5/16 (159)                       | 14-1/2 (370)      | 5-1/16 (128)                      | 9 (225)         |
| SQS85.53U<br>Floating<br>SR      | 266                  | 1/2 (15)   | 6-1/16 (153)                       | 14 (355)          | 5-1/16 (128)                      | 9 (225)         |
|                                  |                      | 3/4 (20)   | 6-1/16 (153)                       | 14 (355)          | 5-1/16 (128)                      | 9 (225)         |
|                                  |                      | 1 (25)     | 6-5/16 (159)                       | 14-1/2 (370)      | 5-1/16 (128)                      | 9 (225)         |
| SSC61U<br>0 to 10V<br>NSR        | 261                  | 1/2 (15)   | 5-1/2 (140)                        | 13-1/2 (343)      | 5-1/2 (140)                       | 13-1/2 (343)    |
|                                  |                      | 3/4 (20)   | 5-1/2 (140)                        | 13-1/2 (343)      | 5-1/2 (140)                       | 13-1/2 (343)    |
|                                  |                      | 1 (25)     | 5-3/4 (146)                        | 13-3/4 (349)      | 5-3/4 (146)                       | 13-3/4 (349)    |
| SSC61.5U<br>0 to 10V<br>SR       | 262                  | 1/2 (15)   | 5-1/2 (140)                        | 13-1/2 (343)      | 5-1/2 (140)                       | 13-1/2 (343)    |
|                                  |                      | 3/4 (20)   | 5-1/2 (140)                        | 13-1/2 (343)      | 5-1/2 (140)                       | 13-1/2 (343)    |
|                                  |                      | 1 (25)     | 5-3/4 (146)                        | 13-3/4 (349)      | 5-3/4 (146)                       | 13-3/4 (349)    |
| SSC81U<br>Floating<br>NSR        | 259                  | 1/2 (15)   | 5-1/2 (140)                        | 13-1/2 (343)      | 5-7/8 (140)                       | 13-1/2 (343)    |
|                                  |                      | 3/4 (20)   | 5-1/2 (140)                        | 13-1/2 (343)      | 5-7/8 (140)                       | 13-1/2 (343)    |
|                                  |                      | 1/2 (15)   | 5-3/4 (146)                        | 13-3/4 (349)      | 5-3/4 (146)                       | 13-3/4 (349)    |
| SSC81.5U<br>Floating<br>SR       | 260                  | 3/4 (20)   | 5-1/2 (140)                        | 13-1/2 (343)      | 5-1/2 (140)                       | 13-1/2 (343)    |
|                                  |                      | 1 (25)     | 5-1/2 (140)                        | 13-1/2 (343)      | 5-1/2 (140)                       | 13-1/2 (343)    |
|                                  |                      | 1/2 (15)   | 5-3/4 (146)                        | 13-3/4 (349)      | 5-3/4 (146)                       | 13-3/4 (349)    |

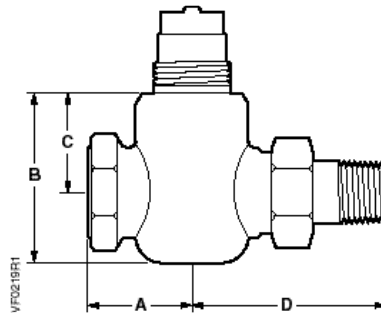


**Table 12. 3-Way Valve Dimensions.**

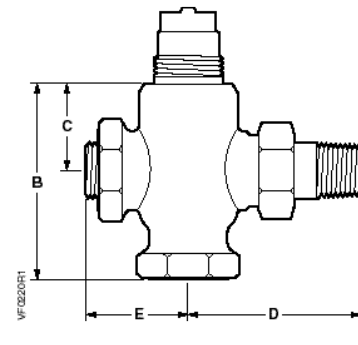
| Valve Size<br>inch (mm) | A             | B               | C              | Weight<br>lb (kg) |
|-------------------------|---------------|-----------------|----------------|-------------------|
| 1/2<br>(15)             | 2-3/4<br>(70) | 2-15/16<br>(74) | 1-5/16<br>(33) | 1.10<br>(0.5)     |
| 3/4<br>(20)             | 3-1/4<br>(83) | 3-9/16<br>(90)  | 1-5/16<br>(33) | 1.44<br>(.65)     |
| 1<br>(25)               | 3-7/8<br>(98) | 3-15/16<br>(99) | 1-9/16<br>(39) | 2.20<br>(1.0)     |



**Female NPT x Female NPT  
FxF**



**Female NPT x Union Male  
FxM**



**Angle Female x Union Male  
AFxM**

**Table 13. 2-Way Valve Dimensions.**

| Valve size<br>Inch | A               | B             |                            | C              | D             | E                        | Weight lb (kg) |               |              |
|--------------------|-----------------|---------------|----------------------------|----------------|---------------|--------------------------|----------------|---------------|--------------|
|                    |                 |               | AFxUM                      |                |               |                          | FxF            | FxUM          | AFxUM        |
| 1/2                | 1-3/8<br>(35)   | 2-1/4<br>(57) | 2-15/16<br>(74)<br>NO Only | 1-5/16<br>(33) | 2-5/8<br>(67) | 1-1/2<br>(38)<br>NO only | .96<br>(0.44)  | 1.14<br>(0.5) | 1.4<br>(0.6) |
| 3/4                | 1-5/8<br>(41)   | 2-3/8<br>(59) | —                          | 1-5/16<br>(33) | 3-1/8<br>(79) | —                        | 1.13<br>(.51)  | 1.45<br>(.66) | —            |
| 1                  | 1-15/16<br>(49) | 2-3/4<br>(69) | —                          | 1-9/16<br>(39) | —             | —                        | 1.7<br>(.77)   | —             | —            |

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