

## Powermite 599, ANSI Class 250 MT Series Terminal Unit 2-Way Valves



### Description

The Powermite 599 Series ANSI Class 250 MT Series 2-way valve bodies work with any MT Series pneumatic or electronic actuator with a 7/32-inch (5.5-mm) stroke. They are suitable for normally open or normally closed control. Typical applications include control of hot or chilled water, water-glycol solutions up to 50% and steam up to 15 psi (steam only with stainless steel trim). Compatible actuators deliver a minimum of 67 lbs (300 N) of force.

### Features

- Direct-coupled universal bonnet
- Female NPT end connections with either brass trim or stainless steel trim.
- ANSI Leakage Class IV (0.01% of Cv)

### Product Numbers

Use the product numbers in the tables to order the valve and the actuator assembled together. The product number consists of a 3-digit prefix code, a hyphen, and a 5-digit suffix code. The prefix specifies an actuator. The suffix specifies the valve body.

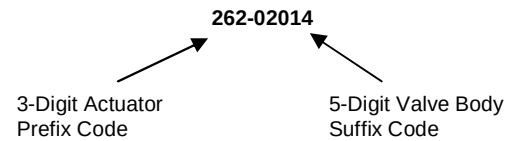


Table 1. 2-Way Valve and Actuator Assemblies with Brass Trim and Female NPT Connections.

|                 |  | Valve Size, Inch | Cv (Kvs)    | 2-Inch Pneumatic Actuators, Spring Return (Fail-safe *)                             |                     |                      | Electro-mechanical, 24V                                                             |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|-----------------|------------------------------------------------------------------------------------|------------------|-------------|-------------------------------------------------------------------------------------|---------------------|----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                 |                                                                                    |                  |             | 10-15 psi (69-103 kPa)                                                              | 3-8 psi (21-55 kPa) | 8-13 psi (55-90 kPa) | SSC81U Floating, NSR                                                                | SSC81.5U Floating, SR                                                               | SSC61U 0-10V, NSR                                                                     | SSC61.5U 0-10V, SR                                                                    | SAS81.03U Floating, NSR                                                               | SAS81.33U Floating, SR                                                                | SAS61.03U 0-10V/4-20 mA NSR                                                           | SAS61.33U 0-10V/4-20 mA SR                                                            |
|                 |                                                                                    |                  |             |  |                     |                      |  |  |  |  |  |  |  |  |
|                 |                                                                                    |                  |             | Actuator Prefix Code                                                                |                     |                      |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|                 |                                                                                    |                  |             | 256                                                                                 | 257                 | 258                  | 259                                                                                 | 260                                                                                 | 261                                                                                   | 262                                                                                   | 363                                                                                   | 366                                                                                   | 364                                                                                   | 365                                                                                   |
| Normally Closed | 599-02000                                                                          | 1/2              | 0.4 (0.34)  | 256-02000                                                                           | 257-02000B          | 258-02000C           | 259-02000                                                                           | 260-02000                                                                           | 261-02000                                                                             | 262-02000                                                                             | 363-02000                                                                             | 366-02000                                                                             | 364-02000                                                                             | 365-02000                                                                             |
|                 | 599-02002                                                                          | 1/2              | 0.63 (0.54) | 256-02002                                                                           | 257-02002B          | 258-02002C           | 259-02002                                                                           | 260-02002                                                                           | 261-02002                                                                             | 262-02002                                                                             | 363-02002                                                                             | 366-02002                                                                             | 364-02002                                                                             | 365-02002                                                                             |
|                 | 599-02004                                                                          | 1/2              | 1 (0.85)    | 256-02004                                                                           | 257-02004B          | 258-02004C           | 259-02004                                                                           | 260-02004                                                                           | 261-02004                                                                             | 262-02004                                                                             | 363-02004                                                                             | 366-02004                                                                             | 364-02004                                                                             | 365-02004                                                                             |
|                 | 599-02006                                                                          | 1/2              | 1.6 (1.37)  | 256-02006                                                                           | 257-02006B          | 258-02006C           | 259-02006                                                                           | 260-02006                                                                           | 261-02006                                                                             | 262-02006                                                                             | 363-02006                                                                             | 366-02006                                                                             | 364-02006                                                                             | 365-02006                                                                             |
|                 | 599-02008                                                                          | 1/2              | 2.5 (2.14)  | 256-02008                                                                           | 257-02008B          | 258-02008C           | 259-02008                                                                           | 260-02008                                                                           | 261-02008                                                                             | 262-02008                                                                             | 363-02008                                                                             | 366-02008                                                                             | 364-02008                                                                             | 365-02008                                                                             |
|                 | 599-02010                                                                          | 1/2              | 4 (3.42)    | 256-02010                                                                           | 257-02010B          | 258-02010C           | 259-02010                                                                           | 260-02010                                                                           | 261-02010                                                                             | 262-02010                                                                             | 363-02010                                                                             | 366-02010                                                                             | 364-02010                                                                             | 365-02010                                                                             |
|                 | 599-02012                                                                          | 3/4              | 6.3 (5.38)  | 256-02012                                                                           | 257-02012B          | 258-02012C           | 259-02012                                                                           | 260-02012                                                                           | 261-02012                                                                             | 262-02012                                                                             | 363-02012                                                                             | 366-02012                                                                             | 364-02012                                                                             | 365-02012                                                                             |
|                 | 599-02014                                                                          | 1                | 10 (8.55)   | 256-02014                                                                           | 257-02014B          | 258-02014C           | 259-02014                                                                           | 260-02014                                                                           | 261-02014                                                                             | 262-02014                                                                             | 363-02014                                                                             | 366-02014                                                                             | 364-02014                                                                             | 365-02014                                                                             |
| Normally Open   | 599-02030                                                                          | 1/2              | 0.4 (0.34)  | 256-02030A                                                                          | 257-02030           | 258-02030C           | 259-02030                                                                           | 260-02030                                                                           | 261-02030                                                                             | 262-02030                                                                             | 363-02030                                                                             | 366-02030                                                                             | 364-02030                                                                             | 365-02030                                                                             |
|                 | 599-02032                                                                          | 1/2              | 0.63 (0.54) | 256-02032A                                                                          | 257-02032           | 258-02032C           | 259-02032                                                                           | 260-02032                                                                           | 261-02032                                                                             | 262-02032                                                                             | 363-02032                                                                             | 366-02032                                                                             | 364-02032                                                                             | 365-02032                                                                             |
|                 | 599-02034                                                                          | 1/2              | 1 (0.85)    | 256-02034A                                                                          | 257-02034           | 258-02034C           | 259-02034                                                                           | 260-02034                                                                           | 261-02034                                                                             | 262-02034                                                                             | 363-02034                                                                             | 366-02034                                                                             | 364-02034                                                                             | 365-02034                                                                             |
|                 | 599-02036                                                                          | 1/2              | 1.6 (1.37)  | 256-02036A                                                                          | 257-02036           | 258-02036C           | 259-02036                                                                           | 260-02036                                                                           | 261-02036                                                                             | 262-02036                                                                             | 363-02036                                                                             | 366-02036                                                                             | 364-02036                                                                             | 365-02036                                                                             |
|                 | 599-02038                                                                          | 1/2              | 2.5 (2.14)  | 256-02038A                                                                          | 257-02038           | 258-02038C           | 259-02038                                                                           | 260-02038                                                                           | 261-02038                                                                             | 262-02038                                                                             | 363-02038                                                                             | 366-02038                                                                             | 364-02038                                                                             | 365-02038                                                                             |
|                 | 599-02041                                                                          | 1/2              | 4 (3.42)    | 256-02041A                                                                          | 257-02041           | 258-02041C           | 259-02041                                                                           | 260-02041                                                                           | 261-02041                                                                             | 262-02041                                                                             | 363-02041                                                                             | 366-02041                                                                             | 364-02041                                                                             | 365-02041                                                                             |
|                 | 599-02044                                                                          | 3/4              | 6.3 (5.38)  | 256-02044A                                                                          | 257-02044           | 258-02044C           | 259-02044                                                                           | 260-02044                                                                           | 261-02044                                                                             | 262-02044                                                                             | 363-02044                                                                             | 366-02044                                                                             | 364-02044                                                                             | 365-02044                                                                             |
|                 | 599-02046                                                                          | 1                | 10 (8.55)   | 256-02046A                                                                          | 257-02046           | 258-02046C           | 259-02046                                                                           | 260-02046                                                                           | 261-02046                                                                             | 262-02046                                                                             | 363-02046                                                                             | 366-02046                                                                             | 364-02046                                                                             | 365-02046                                                                             |

\* Product numbers in gray shading are available as assemblies only.

**Table 2. Two-Way Valve and Actuator Assemblies with Stainless Steel Trim and Female NPT Connections.**

| <br><br>Valve Body | Valve Size, Inches | Cv (Kvs) | 2-Inch Pneumatic Actuators, Spring Return (Fail Safe) *                           |                     |                      | Electro-mechanical, 24 Vac                                                        |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |           |
|-----------------------------------------------------------------------------------------------------|--------------------|----------|-----------------------------------------------------------------------------------|---------------------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|
|                                                                                                     |                    |          | 10-15 psi (69-103 kPa)                                                            | 3-8 psi (21-55 kPa) | 8-13 psi (55-90 kPa) | SSC81U Floating, NSR                                                              | SSC81.5U Floating SR                                                              | SSC61U 0-10V, NSR                                                                  | SSC61.5U 0-10V, SR                                                                  | SAS81.03U Floating, NSR                                                             | SAS81.33U Floating, SR                                                              | SAS61.03U 0-10V/ 4-20 mA NSR                                                        | SAS61.33U 0-10V/ 4-20 mA SR                                                         |           |
|                                                                                                     |                    |          |  |                     |                      |  |  |  |  |  |  |  |  |           |
|                                                                                                     |                    |          | Actuator Prefix Code                                                              |                     |                      |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |           |
|                                                                                                     |                    |          | 256                                                                               | 257                 | 258                  | 259                                                                               | 260                                                                               | 261                                                                                | 262                                                                                 | 363                                                                                 | 366                                                                                 | 364                                                                                 | 365                                                                                 |           |
| Normally Closed                                                                                     | 599-02015          | 1/2      | 0.4 (0.34)                                                                        | 256-02015           | 257-02015B           | 258-02015C                                                                        | 259-02015                                                                         | 260-02015                                                                          | 261-02015                                                                           | 262-02015                                                                           | 363-02015                                                                           | 366-02015                                                                           | 364-02015                                                                           | 365-02015 |
|                                                                                                     | 599-02017          | 1/2      | 0.63 (0.54)                                                                       | 256-02017           | 257-02017B           | 258-02017C                                                                        | 259-02017                                                                         | 260-02017                                                                          | 261-02017                                                                           | 262-02017                                                                           | 363-02017                                                                           | 366-02017                                                                           | 364-02017                                                                           | 365-02017 |
|                                                                                                     | 599-02019          | 1/2      | 1 (0.85)                                                                          | 256-02019           | 257-02019B           | 258-02019C                                                                        | 259-02019                                                                         | 260-02019                                                                          | 261-02019                                                                           | 262-02019                                                                           | 363-02019                                                                           | 366-02019                                                                           | 364-02019                                                                           | 365-02019 |
|                                                                                                     | 599-02021          | 1/2      | 1.6 (1.37)                                                                        | 256-02021           | 257-02021B           | 258-02021C                                                                        | 259-02021                                                                         | 260-02021                                                                          | 261-02021                                                                           | 262-02021                                                                           | 363-02021                                                                           | 366-02021                                                                           | 364-02021                                                                           | 365-02021 |
|                                                                                                     | 599-02023          | 1/2      | 2.5 (2.14)                                                                        | 256-02023           | 257-02023B           | 258-02023C                                                                        | 259-02023                                                                         | 260-02023                                                                          | 261-02023                                                                           | 262-02023                                                                           | 363-02023                                                                           | 366-02023                                                                           | 364-02023                                                                           | 365-02023 |
|                                                                                                     | 599-02025          | 1/2      | 4 (3.42)                                                                          | 256-02025           | 257-02025B           | 258-02025C                                                                        | 259-02025                                                                         | 260-02025                                                                          | 261-02025                                                                           | 262-02025                                                                           | 363-02025                                                                           | 366-02025                                                                           | 364-02025                                                                           | 365-02025 |
|                                                                                                     | 599-02027          | 3/4      | 6.3 (5.38)                                                                        | 256-02027           | 257-02027B           | 258-02027C                                                                        | 259-02027                                                                         | 260-02027                                                                          | 261-02027                                                                           | 262-02027                                                                           | 363-02027                                                                           | 366-02027                                                                           | 364-02027                                                                           | 365-02027 |
|                                                                                                     | 599-02029          | 1        | 10 (8.55)                                                                         | 256-02029           | 257-02029B           | 258-02029                                                                         | 259-02029                                                                         | 260-02029                                                                          | 261-02029                                                                           | 262-02029                                                                           | 363-02029                                                                           | 366-02029                                                                           | 364-02029                                                                           | 365-02029 |
| Normally Open                                                                                       | 599-02047          | 1/2      | 0.4 (0.34)                                                                        | 256-02047A          | 257-02047            | 258-02047C                                                                        | 259-02047                                                                         | 260-02047                                                                          | 261-02047                                                                           | 262-02047                                                                           | 363-02047                                                                           | 366-02047                                                                           | 364-02047                                                                           | 365-02047 |
|                                                                                                     | 599-02049          | 1/2      | 0.63 (0.54)                                                                       | 256-02049A          | 257-02049            | 258-02049C                                                                        | 259-02049                                                                         | 260-02049                                                                          | 261-02049                                                                           | 262-02049                                                                           | 363-02049                                                                           | 366-02049                                                                           | 364-02049                                                                           | 365-02049 |
|                                                                                                     | 599-02051          | 1/2      | 1 (0.85)                                                                          | 256-02051A          | 257-02051            | 258-02051C                                                                        | 259-02051                                                                         | 260-02051                                                                          | 261-02051                                                                           | 262-02051                                                                           | 363-02051                                                                           | 366-02051                                                                           | 364-02051                                                                           | 365-02051 |
|                                                                                                     | 599-02053          | 1/2      | 1.6 (1.37)                                                                        | 256-02053A          | 257-02053            | 258-02053C                                                                        | 259-02053                                                                         | 260-02053                                                                          | 261-02053                                                                           | 262-02053                                                                           | 363-02053                                                                           | 366-02053                                                                           | 364-02053                                                                           | 365-02053 |
|                                                                                                     | 599-02055          | 1/2      | 2.5 (2.14)                                                                        | 256-02055A          | 257-02055            | 258-02055C                                                                        | 259-02055                                                                         | 260-02055                                                                          | 261-02055                                                                           | 262-02055                                                                           | 363-02055                                                                           | 366-02055                                                                           | 364-02055                                                                           | 365-02055 |
|                                                                                                     | 599-02058          | 1/2      | 4 (3.42)                                                                          | 256-02058A          | 257-02058            | 258-02058C                                                                        | 259-02058                                                                         | 260-02058                                                                          | 261-02058                                                                           | 262-02058                                                                           | 363-02058                                                                           | 366-02058                                                                           | 364-02058                                                                           | 365-02058 |
|                                                                                                     | 599-02061          | 3/4      | 6.3 (5.38)                                                                        | 256-02061A          | 257-02061            | 258-02061C                                                                        | 259-02061                                                                         | 260-02061                                                                          | 261-02061                                                                           | 262-02061                                                                           | 363-02061                                                                           | 366-02061                                                                           | 364-02061                                                                           | 365-02061 |
|                                                                                                     | 599-02063          | 1        | 10 (8.55)                                                                         | 256-02063A          | 257-02063            | 258-02063C                                                                        | 259-02063                                                                         | 260-02063                                                                          | 261-02063                                                                           | 262-02063                                                                           | 363-02063                                                                           | 366-02063                                                                           | 364-02063                                                                           | 365-02063 |

\* Product numbers in gray shading are available as assemblies only.

## Technical Data

|                   |                                                                                                   |
|-------------------|---------------------------------------------------------------------------------------------------|
| Valve Size        | 1/2-inch to 1-inch                                                                                |
| Body              | Globe style, ANSI Class 250<br>1/2- and 3/4-inch C37700 Forged brass.<br>1-inch UNS CA 844 Bronze |
| Trim              | Brass or Stainless Steel                                                                          |
| Stem              | Stainless steel<br>ASTM A582 Type 303,<br>7/32-inch (5.5-mm) stroke                               |
| Seat              | Metal-to-metal                                                                                    |
| Packing           | Ethylene propylene O-ring                                                                         |
| Close-off Ratings | According to ANSI/FCI 70-2<br>See Table 3.                                                        |

|                   |                                                                                                    |
|-------------------|----------------------------------------------------------------------------------------------------|
| Controlled Medium | Water, water-glycol solutions to 50%, low pressure steam <15 PSI (with stainless steel trim only). |
|-------------------|----------------------------------------------------------------------------------------------------|

Media Temperature 35°F to 250°F (2°C to 120°C)

Maximum Differential Pressure for Modulating Service:

| Media  | Brass Trim       | Stainless Steel Trim |
|--------|------------------|----------------------|
| Liquid | 25 psi (173 kPa) | 50 psi (345 kPa)     |
| Steam  | —                | 15 psi (103 kPa)     |

Rangeability Cv < 1 = >50:1,  
Cv > 1 = >100:1

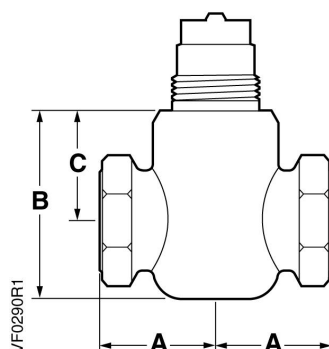
Leakage Rate Class IV (0.01% of Cv)

Flow Characteristics Modified equal percentage

Mounting NEMA 1 (interior only)

Table 3. Close-Off Ratings in psi (kPa).

| Action | Valve Size Inches | Flow Rate, Cv (Kvs)       | Electronic Actuator |           | Close-Off Ratings @ 20 psi (138 kPa) |                      |                       |
|--------|-------------------|---------------------------|---------------------|-----------|--------------------------------------|----------------------|-----------------------|
|        |                   |                           | SAS                 | SSC       | 2-Inch Pneumatic Actuator            |                      |                       |
|        |                   |                           |                     |           | 3-8 psi (69-103 kPa)                 | 8-13 psi (21-55 kPa) | 10-15 psi (55-90 kPa) |
| NC     | 1/2               | 0.4 to 1.6 (0.34 to 1.37) | 95 (655)            | 95 (655)  | 40 (276)                             | 95 (655)             | 95 (655)              |
|        | 1/2               | 2.5 to 4 (2.15 to 3.44)   | 50 (345)            | 50 (345)  | 28 (193)                             | 50 (345)             | 50 (345)              |
|        | 3/4 and 1         | 6.3 to 10 (5.43 to 8.6)   | 40 (276)            | 40 (276)  | 18 (124)                             | 40 (276)             | 40 (276)              |
| NO     | 1/2               | 0.4 to 1.6 (0.34 to 1.37) | 160 (1103)          | 120 (868) | 95 (655)                             | 45 (310)             | 20 (138)              |
|        | 1/2               | 2.5 to 4 (2.15 to 3.44)   | 85 (586)            | 65 (448)  | 45 (310)                             | 25 (172)             | 15 (103)              |
|        | 3/4 and 1         | 6.3 to 10 (5.43 to 8.6)   | 70 (482)            | 55 (379)  | 35 (241)                             | 10 (69)              | —                     |



Female NPT x Female NPT

| Valve Size Inches | A            | B          |    | C           |    | Weight lbs (kg) |
|-------------------|--------------|------------|----|-------------|----|-----------------|
|                   |              | NO         | NC | NO          | NC |                 |
| 1/2               | 1-3/8 (35)   | 2-1/4 (57) |    | 1-5/16 (33) |    | 0.96 (.44)      |
| 3/4               | 1-5/8 (41)   | 2-3/8 (59) |    | 1-5/16 (33) |    | 1.13 (.51)      |
| 1                 | 1-15/16 (49) | 2-3/4 (69) |    | 1-9/16 (39) |    | 1.7 (.77)       |

Figure 1. Two-way Valve Dimensions in Inches (mm).

## Typical Specifications

Automatic control valves shall have NPT threaded type fittings, 1/2 through 1-inch sizes, and shall be ANSI rated to withstand the pressures and temperatures encountered.

Valves shall have metal-to-metal seats, stainless steel stems, and Ethylene propylene O-ring packing.

Valves shall be ANSI Leakage Class IV (0.01% of Cv). Valves shall have >50:1 rangeability for Cv<1 rangeability and >100:1 for Cv>1.

All two-way valves shall be provided with equal-percentage contoured throttling plugs.

For complete technical details on valves with stainless steel trim, or union female, angle female, or union male end connections, see *Powermite 599 Series, MT Series Terminal Unit Two-way Valves* Technical Instructions, 155-196P25.

## Disposal

Do not dispose of valves as household waste.

- Special handling of individual components may be mandated by law or make ecological sense.
- Observe all local and currently applicable laws and regulations.



The actuators are considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- Dispose of the actuators through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

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