

Powermite 599 ANSI Class 250, MT Series Terminal Unit 3-Way Valves



Description

The Powermite 599 Series ANSI Class 250 MT Series 3-way valve bodies work with any MT Series pneumatic or electronic actuator with a 7/32-inch (5.5 mm) stroke. Typical applications include mixing of hot or chilled water and the control of glycol solutions up to 50%. Compatible actuators deliver a minimum of 67 lb (300 N) of force.

Features

- Direct-coupled universal bonnet.
- Female NPT end connections with brass and 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.

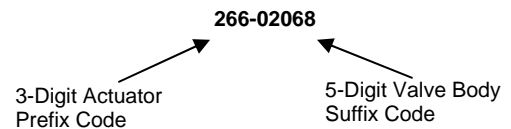











Table 1. 3-Way, Mixing Valve & Actuator Assemblies with Brass Trim.

| Valve Body | 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 | SQS65U 0-10V, NSR | SQS65.5U 0-10V, SR | SQS85.53U Floating, SR |
| | | | | | | | | | | | | |
| Actuator Prefix Code | | | | | | | | | | | | |
| | | | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 264 | 265 | 266 |
| 599-02064 | 1/2 | 0.4 (0.34) | 256-02064A | 257-02064B | 258-02064 | 259-02064 | 260-02064 | 261-02064 | 262-02064 | 264-02064 | 265-02064 | 266-02064 |
| 599-02065 | 1/2 | 0.63 (0.54) | 256-02065A | 257-02065B | 258-02065 | 259-02065 | 260-02065 | 261-02065 | 262-02065 | 264-02065 | 265-02065 | 266-02065 |
| 599-02066 | 1/2 | 1 (0.85) | 256-02066A | 257-02066B | 258-02066 | 259-02066 | 260-02066 | 261-02066 | 262-02066 | 264-02066 | 265-02066 | 266-02066 |
| 599-02067 | 1/2 | 1.6 (1.37) | 256-02067A | 257-02067B | 258-02067 | 259-02067 | 260-02067 | 261-02067 | 262-02067 | 264-02067 | 265-02067 | 266-02067 |
| 599-02068 | 1/2 | 2.5 (2.14) | 256-02068A | 257-02068B | 258-02068 | 259-02068 | 260-02068 | 261-02068 | 262-02068 | 264-02068 | 265-02068 | 266-02068 |
| 599-02069 | 1/2 | 4 (3.42) | 256-02069A | 257-02069B | 258-02069 | 259-02069 | 260-02069 | 261-02069 | 262-02069 | 264-02069 | 265-02069 | 266-02069 |
| 599-02070 | 3/4 | 6.3 (5.38) | 256-02070A | 257-02070B | 258-02070 | 259-02070 | 260-02070 | 261-02070 | 262-02070 | 264-02070 | 265-02070 | 266-02070 |
| 599-02071 | 1 | 10 (8.55) | 256-02071A | 257-02071B | 258-02071 | 259-02071 | 260-02071 | 261-02071 | 262-02071 | 264-02071 | 265-02071 | 266-02071 |

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

Table 2. 3-Way, Mixing Valve & Actuator Assemblies with Stainless Steel Trim.

|  Valve Body | Valve Size, Inch | Cv (Kvs) | 2-Inch Pneumatic Actuators, Spring Return * | | | 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 | SQS65U 0-10V, NSR | SQS65.5U 0-10V, SR | SQS85.53U Floating, SR | | | | | | | |
| | | |  | | |  | |  | |  | |  | |  | |  | |  | |
| | | | Actuator Prefix Code | | | | | | | | | | | | | | | | |
| | | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 264 | 265 | 266 | | | | | | | | |
| 599-02072 | 1/2 | 0.4 (0.34) | 256-02072A | 257-02072B | 258-02072 | 259-02072 | 260-02072 | 261-02072 | 262-02072 | 264-02072 | 265-02072 | 266-02072 | | | | | | | |
| 599-02073 | 1/2 | 0.63 (0.54) | 256-02073A | 257-02073B | 258-02073 | 259-02073 | 260-02073 | 261-02073 | 262-02073 | 264-02073 | 265-02073 | 266-02073 | | | | | | | |
| 599-02074 | 1/2 | 1 (0.85) | 256-02074A | 257-02074B | 258-02074 | 259-02074 | 260-02074 | 261-02074 | 262-02074 | 264-02074 | 265-02074 | 266-02074 | | | | | | | |
| 599-02075 | 1/2 | 1.6 (1.37) | 256-02075A | 257-02075B | 258-02075 | 259-02075 | 260-02075 | 261-02075 | 262-02075 | 264-02075 | 265-02075 | 266-02075 | | | | | | | |
| 599-02076 | 1/2 | 2.5 (2.14) | 256-02076A | 257-02076B | 258-02076 | 259-02076 | 260-02076 | 261-02076 | 262-02076 | 264-02076 | 265-02076 | 266-02076 | | | | | | | |
| 599-02077 | 1/2 | 4 (3.42) | 256-02077A | 257-02077B | 258-02077 | 259-02077 | 260-02077 | 261-02077 | 262-02077 | 264-02077 | 265-02077 | 266-02077 | | | | | | | |
| 599-02078 | 3/4 | 6.3 (5.38) | 256-02078A | 257-02078B | 258-02078 | 259-02078 | 260-02078 | 261-02078 | 262-02078 | 264-02078 | 265-02078 | 266-02078 | | | | | | | |
| 599-02079 | 1 | 10 (8.55) | 256-02079A | 257-02079B | 258-02079 | 259-02079 | 260-02079 | 261-02079 | 262-02079 | 264-02079 | 265-02079 | 266-02079 | | | | | | | |

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

Technical Data

| | | | |
|--------------------------|---|--|----------------------------------|
| Valve Size | 1/2-inch to 1-inch | Controlled Medium | Water, glycol solutions to 50% |
| Body | Globe style, UNS CA 844 bronze or forged brass C37700, ANSI Class 250 | Medium Temperature | 35°F to 250°F (2°C to 120°C) |
| Trim | Brass or Stainless Steel | Maximum Differential Pressure for Modulating Service: | |
| | | Media | Brass |
| | | Liquid | 25 psi (173 kPa) |
| | | | Stainless Steel |
| | | | 50 psi (345 kPa) |
| Stem | Stainless steel ASTM A582 Type 303, 7/32-inch (5.5-mm) stroke | Rangeability | Cv <1 = >50:1, Cv >1 = >100:1 |
| Seat | Metal-to-metal | Leakage Rate | Class IV (0.01% of Cv) |
| Packing | Ethylene propylene O-ring | Flow Characteristics | Linear |
| Spring Range | 8 to 13 psi (55 to 90 kPa) | Mounting | NEMA 1 (interior only) |
| Close-off Ratings | According to ANSI/FCI 70-2 See Table 3. | | |

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

| Action | Valve Size Inch | Flow Rate, Cv (Kvs) | Electronic Actuator | | Close-Off Ratings @ 20 psi (138 kPa) | | |
|--------------|-----------------|---------------------------|---------------------|----------|--------------------------------------|----------------------|-----------------------|
| | | | SQS | SSC | 2-Inch Pneumatic Actuator | | |
| | | | | | 3-8 psi (69-103 kPa) | 8-13 psi (21-55 kPa) | 10-15 psi (55-90 kPa) |
| 3-way, upper | 1/2 | 0.4 to 1.6 (0.34 to 1.37) | 95 (655) | 95 (655) | 40 (276) | 95 (655) | 120 (828) |
| | 1/2 | 2.5 to 4 (2.15 to 3.44) | 50 (345) | 50 (345) | 28 (193) | 50 (345) | 65 (448) |
| | 3/4 and 1 | 6.3 to 10 (5.43 to 8.6) | 40 (276) | 40 (276) | 18 (124) | 40 (276) | 50 (345) |
| 3-way, lower | 1/2 | 0.4 to 1.6 (0.34 to 1.37) | 160 (1103) | 95 (655) | 95 (655) | 45 (310) | 20 (138) |
| | 1/2 | 2.5 to 4 (2.15 to 3.44) | 85 (586) | 55 (379) | 45 (310) | 25 (172) | 15 (103) |
| | 3/4 and 1 | 6.3 to 10 (5.43 to 8.6) | 70 (482) | 40 (276) | 35 (241) | 10 (69) | — |

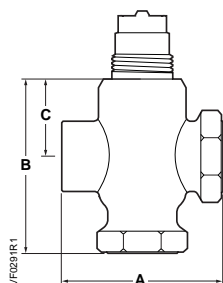


Figure 1. 3-way Valve Dimensions in Inches (mm).

| Valve Size Inch | A | B | C | Weight lbs (kg) |
|-----------------|------------|--------------|-------------|-----------------|
| 1/2 | 2-3/4 (70) | 2-15/16 (74) | 1-5/16 (33) | 1.10 (0.5) |
| 3/4 | 3-1/4 (83) | 3-9/16 (90) | 1-5/16 (33) | 1.44 (.65) |
| 1 | 3-7/8 (98) | 3-15/16 (99) | 1-9/16 (39) | 2.20 (1.0) |

Typical Specifications

Automatic control valves shall have NPT threaded type fittings, 1/2-inch 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.

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

All three-way valves shall be provided with throttling plugs such that the total flow through the valve remains constant (linear) regardless of the valve position.

For complete technical details on valves with stainless steel trim, see *Powermite 599 Series, MT Series Terminal Unit Three-way Valves Technical Instructions*, 155-197P25.

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