

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.

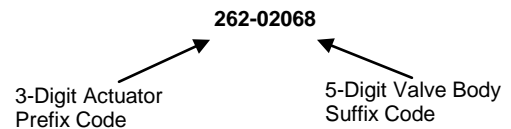


Table 1. 3-Way, Mixing Valve and Actuator Assemblies with Brass Trim.

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	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
599-02064	1/2	0.4 (0.34)	256-02064A	257-02064B	258-02064	259-02064	260-02064	261-02064	262-02064	363-02064	366-02064	364-02064	365-02064
599-02065	1/2	0.63 (0.54)	256-02065A	257-02065B	258-02065	259-02065	260-02065	261-02065	262-02065	363-02065	366-02065	364-02065	365-02065
599-02066	1/2	1 (0.85)	256-02066A	257-02066B	258-02066	259-02066	260-02066	261-02066	262-02066	363-02066	366-02066	364-02066	365-02066
599-02067	1/2	1.6 (1.37)	256-02067A	257-02067B	258-02067	259-02067	260-02067	261-02067	262-02067	363-02067	366-02067	364-02067	365-02067
599-02068	1/2	2.5 (2.14)	256-02068A	257-02068B	258-02068	259-02068	260-02068	261-02068	262-02068	363-02068	366-02068	364-02068	365-02068
599-02069	1/2	4 (3.42)	256-02069A	257-02069B	258-02069	259-02069	260-02069	261-02069	262-02069	363-02069	366-02069	364-02069	365-02069
599-02070	3/4	6.3 (5.38)	256-02070A	257-02070B	258-02070	259-02070	260-02070	261-02070	262-02070	363-02070	366-02070	364-02070	365-02070
599-02071	1	10 (8.55)	256-02071A	257-02071B	258-02071	259-02071	260-02071	261-02071	262-02071	363-02071	366-02071	364-02071	365-02071

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

Table 2. 3-Way, Mixing Valve and 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	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			
599-02072	1/2	0.4 (0.34)	256-02072A	257-02072B	258-02072	259-02072	260-02072	261-02072	262-02072	363-02072	366-02072	364-02072	365-02072
599-02073	1/2	0.63 (0.54)	256-02073A	257-02073B	258-02073	259-02073	260-02073	261-02073	262-02073	363-02073	366-02073	364-02073	365-02073
599-02074	1/2	1 (0.85)	256-02074A	257-02074B	258-02074	259-02074	260-02074	261-02074	262-02074	363-02074	366-02074	364-02074	365-02074
599-02075	1/2	1.6 (1.37)	256-02075A	257-02075B	258-02075	259-02075	260-02075	261-02075	262-02075	363-02075	366-02075	364-02075	365-02075
599-02076	1/2	2.5 (2.14)	256-02076A	257-02076B	258-02076	259-02076	260-02076	261-02076	262-02076	363-02076	366-02076	364-02076	365-02076
599-02077	1/2	4 (3.42)	256-02077A	257-02077B	258-02077	259-02077	260-02077	261-02077	262-02077	363-02077	366-02077	364-02077	365-02077
599-02078	3/4	6.3 (5.38)	256-02078A	257-02078B	258-02078	259-02078	260-02078	261-02078	262-02078	363-02078	366-02078	364-02078	365-02078
599-02079	1	10 (8.55)	256-02079A	257-02079B	258-02079	259-02079	260-02079	261-02079	262-02079	363-02079	366-02079	364-02079	365-02079

* 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, 1/2- and 3/4-inch C37700 Forged brass 1-inch UNS CA 844 Bronze
Trim	Brass or Stainless Steel
Stem	Stainless steel ASTM A582 Type 303, 7/32-inch (5.5-mm) stroke
Seat	Metal-to-metal
Packing	Ethylene propylene O-ring
Spring Range	8 to 13 psi (55 to 90 kPa)
Close-off Ratings	According to ANSI/FCI 70-2 See Table 3.

Controlled Medium	Water, glycol solutions to 50%
Medium Temperature	35°F to 250°F (2°C to 120°C)

Maximum Differential Pressure for Modulating Service:

Media	Brass	Stainless Steel
Liquid	25 psi (173 kPa)	50 psi (345 kPa)

Rangeability	Cv <1 = >50:1, Cv >1 = >100:1
Leakage Rate	Class IV (0.01% of Cv)
Flow Characteristics	Linear
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)
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)	—

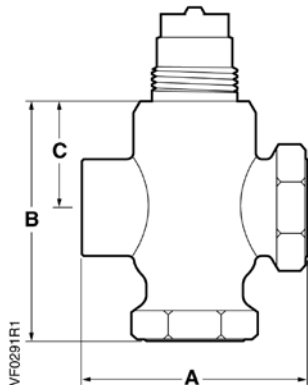


Figure 1. 3-way Valve Dimensions in Inches (mm).

Valve Size Inches	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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