

## Powermite™ 599 Series, MZ Series Zone Control Valves



### Description

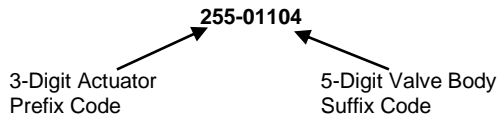
The Powermite 599 Series ANSI Class 250 MZ Series valve bodies work with any MZ Series electronic actuator with a 7/32-inch (5.5 mm) stroke. Typical applications include control of hot or chilled water or water-glycol solutions up to 50%. Compatible actuators deliver a minimum of 45 lb (200 N) of force.

### Features


- Direct-coupled universal bonnet
- Internal thread NPT connections and brass 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.




**2-Way, Normally Open Valve and Actuator Assemblies with Brass Trim and Internal Thread NPT Connections**

 Valve Body	Line Size, In. (mm)	Cv (Kvs)	Electro-mechanical, 24V	
			SSB81U 3 pos., fail-in-place	SSB161.05U 0-10V, fail-in-place
			Actuator Prefix Code	
			254	255
599-01115	1/2 (15)	0.4 (0.34)	254-01115	255-01115
599-01117	1/2 (15)	0.63 (0.54)	254-01117	255-01117
599-01119	1/2 (15)	1 (0.85)	254-01119	255-01119
599-01121	1/2 (15)	1.6 (1.37)	254-01121	255-01121
599-01123	1/2 (15)	2.5 (2.14)	254-01123	255-01123
599-01126	1/2 (15)	4 (3.42)	254-01126	255-01126
599-01129	3/4 (20)	6.3 (5.38)	254-01129	255-01129
599-01131	1 (25)	10 (8.55)	254-01131	255-01131

**2-Way, Normally Closed Valve and Actuator Assemblies with Brass Trim and Internal Thread NPT Connections**

 Valve Body	Line Size, In. (mm)	Cv (Kvs)	Electro-mechanical, 24V	
			SSB81U 3 pos., fail-in-place	SSB161.05U 0-10V, fail-in-place
			Actuator Prefix Code	
			254	255
599-01100	1/2 (15)	0.4 (0.34)	254-01100	255-01100
599-01102	1/2 (15)	0.63 (0.54)	254-01102	255-01102
599-01104	1/2 (15)	1 (0.85)	254-01104	255-01104
599-01106	1/2 (15)	1.6 (1.37)	254-01106	255-01106
599-01108	1/2 (15)	2.5 (2.14)	254-01108	255-01108
599-01110	1/2 (15)	4 (3.42)	254-01110	255-01110
599-01112	3/4 (20)	6.3 (5.38)	254-01112	255-01112
599-01114	1 (25)	10 (8.55)	254-01114	255-01114

**3-Way, Mixing Valve and Actuator Assemblies with Brass Trim and Internal Thread NPT Connections**

 Valve Body	Line Size, In. (mm)	Cv (Kvs)	Electro-mechanical, 24V	
			SSB81U 3 pos., fail-in-place	SSB161.05U 0-10V, fail-in-place
			Actuator Prefix Code	
			254	255
599-01132	1/2 (15)	0.4 (0.34)	254-01132	255-01132
599-01133	1/2 (15)	0.63 (0.54)	254-01133	255-01133
599-01134	1/2 (15)	1 (0.85)	254-01134	255-01134
599-01135	1/2 (15)	1.6 (1.37)	254-01135	255-01135
599-01136	1/2 (15)	2.5 (2.14)	254-01136	255-01136
599-01137	1/2 (15)	4 (3.42)	254-01137	255-01137
599-01138	3/4 (20)	6.3 (5.38)	254-01138	255-01138
599-01139	1 (25)	10 (8.55)	254-01139	255-01139

**Technical Data**

<b>Line Size</b>	½- to 1-inch (15 to 25 mm)
<b>Body</b>	Globe style, UNS CA 844 bronze or forged brass C37700, ANSI Class 250
<b>Trim</b>	Brass
<b>Stem</b>	Stainless steel ASTM A582 Type 303, 7/32-inch (5.5-mm) stroke
<b>Seat</b>	Metal-to-metal
<b>Packing</b>	Ethylene propylene O-ring
<b>Mounting</b>	NEMA 1 (interior only)
<b>Flow characteristics:</b>	
<b>Two-way valves</b>	Modified equal percentage
<b>Three-way valves</b>	Linear

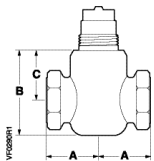
<b>Close-off Ratings</b>	According to ANSI/FCI 70-2 See Table 1.
<b>Controlled Medium:</b>	
<b>Two-way valves</b>	Water or water-glycol solutions to 50%
<b>Three-way valves</b>	Water or water-glycol solutions to 50%
<b>Medium Temperature</b>	35°F to 250°F (2°C to 120°C)
<b>Max. Differential Pressure for Modulating Service:</b>	
<b>Liquid (2w and 3w)</b>	25 psi (173 kPa)
<b>Rangeability</b>	Cv <1 = >50:1, Cv >1 = >100:1
<b>Leakage Rate</b>	Class IV (0.01% of Cv)

**Table 1. Close-Off Ratings.**

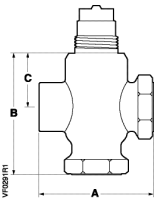
Action	Line Size Inches (mm)	Flow Rate, Cv (Kvs)	Close-Off Ratings psi (kPa)	Action	Line Size Inches (mm)	Flow Rate, Cv (Kvs)	Close-Off Ratings psi (kPa)
			Electronic Actuator SSB...				Electronic Actuator SSB...
NC	1/2 (15)	0.4 to 1.6 (0.34 to 1.37)	70 (483)	3-Way Mixing, upper	1/2 (15)	0.4 to 1.6 (0.34 to 1.37)	70 (483)
	1/2 (15)	2.5 to 4 (2.15 to 3.44)	40 (276)		1/2 (15)	2.5 to 4 (2.15 to 3.44)	40 (276)
	3/4 (20) and 1 (25)	6.3 to 10 (5.43 to 8.6)	30 (207)		3/4 (20) and 1 (25)	6.3 to 10 (5.43 to 8.6)	30 (207)
NO	1/2 (15)	0.4 to 1.6 (0.34 to 1.37)	60 (412)	3-Way Mixing, lower	1/2 (15)	0.4 to 1.6 (0.34 to 1.37)	25 (172)
	1/2 (15)	2.5 to 4 (2.15 to 3.44)	35 (241)		1/2 (15)	2.5 to 4 (2.15 to 3.44)	15 (103)
	3/4 (20) and 1 (25)	6.3 to 10 (5.43 to 8.6)	30 (207)		3/4 (20) and 1 (25)	6.3 to 10 (5.43 to 8.6)	10 (69)

**Table 2. Valve Dimensions.**

**2-Way Valve**



**3-Way Valve**



Size In. (mm)	A	B	C	Weight lbs. (kg)
1/2 (15)	1-3/8 (35)	2-1/4 (57)	1-5/16 (33)	.96 (.44)
3/4 (20)	1-5/8 (41)	2-3/8 (59)	1-5/16 (33)	1.13 (.51)
1 (25)	1-15/16 (49)	2-3/4 (69)	1-9/16 (39)	1.7 (.77)
1/2 (15)	2-3/4 (69)	2-1/4 (74)	1-5/16 (33)	1.10 (0.5)
3/4 (20)	3-1/4 (83)	3-9/16 (90)	1-5/16 (33)	1.44 (.65)
1 (25)	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 (15 mm through 25 mm) 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 a 50:1 rangeability (Cv <1) or better.

All two-way valves shall be provided with equal-percentage contoured throttling plugs. 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 two-way valves with union internal thread, angle internal thread, or union external thread end connections, see *Powermite™ 599 Series, MZ Series Zone Control Unit Two-way Valves Technical Instructions*, Document No. 155-198P25.

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