

## Powermite 599 Series, MZ Series Zone Control Valves



### Description

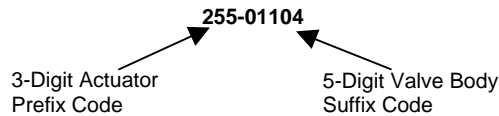
The Powermite 599 Series ANSI Class 250 MZ Series valve bodies work with any MZ Series electronic actuator with a 7/32-inch (5.5 mm) stroke. Typical applications include control of hot or chilled water, glycol solutions up to 50%, or steam up to 15 psi (103 kPa). Compatible actuators deliver a minimum of 45 lbs. (200 N) of force.

### Features


- Direct-coupled universal bonnet
- Female 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 Female NPT Connections**

 Valve Body	Line Size, In. (mm)	Cv (Kvs)	Electro-mechanical, 24V	
			SSB81U 3 pos., fail-in-place	SSB61U 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 Female NPT Connections**

 Valve Body	Line Size, In. (mm)	Cv (Kvs)	Electro-mechanical, 24V	
			SSB81U 3 pos., fail-in-place	SSB61U 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 Female NPT Connections**

 Valve Body	Line Size, In. (mm)	Cv (Kvs)	Electro-mechanical, 24V	
			SSB81U 3 pos., fail-in-place	SSB61U 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>	1/2 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

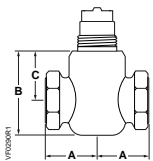
<b>Close-off Ratings</b>	According to ANSI/FCI 70-2 See Table 1.
<b>Controlled Medium:</b>	
<b>Two-way valves</b>	Water, steam, glycol solutions to 50%
<b>Three-way valves</b>	Water, glycol solutions to 50%
<b>Medium Temperature</b>	35 to 250°F (2 to 120°C)
<b>Max. Differential Pressure for Modulating Service:</b>	
<b>Liquid (2w and 3w)</b>	25 psi (173 kPa)
<b>Steam (2w only)</b>	15 psi (103 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.**

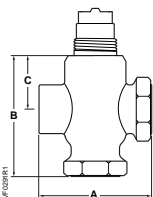
Action	Line Size Inches (mm)	Flow Rate, Cv (Kvs)	Close-Off Ratings psi (kPa)	Action	Line Size Inches (mm)	Flow Rate, Cv (Kvs)	Close-Off Ratings psi (kPa)
			Electronic Actuator SSB...				Electronic Actuator SSB...
NC	1/2 (15)	0.4 to 1.6 (0.34 to 1.37)	70 (483)	3-Way Mixing, upper	1/2 (15)	0.4 to 1.6 (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 (0.5)
3/4 (20)	1-5/8 (41)	2-3/8 (59)	1-5/16 (33)	1.8 (0.8)
1 (25)	1-15/16 (49)	2-3/4 (69)	1-9/16 (39)	2.6 (1.2)
1/2 (15)	2-3/4 (69)	2-1/4 (74)	1-5/16 (33)	1.1 (0.5)
3/4 (20)	3-1/4 (83)	3-9/16 (90)	1-5/16 (33)	2.3 (1.05)
1 (25)	3-7/8 (98)	3-15/16 (99)	1-9/16 (39)	3.3 (1.5)

**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 female, angle female, or union male end connections, see *Powermite™ 599 Series, MZ Series Zone Control Unit Two-way Valves Technical Instructions*, Document No. 155-198P25.

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 Country of Origin: US  
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## Flowrite™ VF 599 Series, 2-Way Valves, 1/2 to 2-Inch



### Description

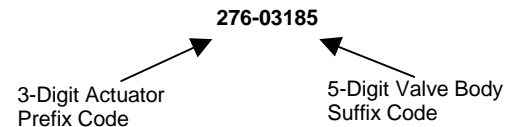
The Flowrite VF 599 Series ANSI Class 250 2-Way Valve bodies work with a Flowrite Series actuator with a 3/4-inch (20 mm) stroke. They are suitable for normally open or normally closed control. Typical applications include control of hot or chilled water, glycol solutions up to 50%, or steam up to 15 psi (103 kPa).

### Features

- Direct-coupled universal bonnet
- Equal percentage flow characteristics and bronze 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, Equal Percentage Valve & Actuator Assemblies with Bronze Trim,  
Normal Duty Packing, and Female NPT Connections**

Valve Body	Line Size, In. (mm)	Cv (Kvs)	Electro-hydraulic, 24V			Electro-mechanical, 24V					
			SKD62U 0-10V, 4-20 mA, SR	SKD82.50U 3 Pos, NSR	SKD82.51U 3 Pos, SR	SQX62U 0-10V, 4- 20 mA, NSR	SQX82.00U 3 Pos, 120 s, NSR	SQX82.03U 3 Pos, 30 s, NSR	599-03609 0-10V, SR	599-03611 2 Pos, SR	
			Actuator Prefix Code								
			274	275	276	271	272	273	298	299	
Normally Closed	599-03180	1/2 (15)	1 (0.85)	274-03180	275-03180	276-03180	271-03180	272-03180	273-03180	298-03180	299-03180
	599-03181	1/2 (15)	1.6 (1.4)	274-03181	275-03181	276-03181	271-03181	272-03181	273-03181	298-03181	299-03181
	599-03182	1/2 (15)	2.5 (2.2)	274-03182	275-03182	276-03182	271-03182	272-03182	273-03182	298-03182	299-03182
	599-03183	1/2 (15)	4 (3.4)	274-03183	275-03183	276-03183	271-03183	272-03183	273-03183	298-03183	299-03183
	599-03184	3/4 (20)	6.3 (5.4)	274-03184	275-03184	276-03184	271-03184	272-03184	273-03184	298-03184	299-03184
	599-03185	1 (25)	10 (8.6)	274-03185	275-03185	276-03185	271-03185	272-03185	273-03185	298-03185	299-03185
	599-03186	1-1/4 (32)	16 (14)	274-03186	275-03186	276-03186	271-03186	272-03186	273-03186	298-03186	299-03186
	599-03187	1-1/2 (40)	25 (22)	274-03187	275-03187	276-03187	271-03187	272-03187	273-03187	298-03187	299-03187
	599-03188	2 (50)	40 (34)	274-03188	275-03188	276-03188	271-03188	272-03188	273-03188	298-03188	299-03188
Normally Open	599-03162	1/2 (15)	1 (0.85)	274-03162	275-03162	276-03162	271-03162	272-03162	273-03162	298-03162	299-03162
	599-03163	1/2 (15)	1.6 (1.4)	274-03163	275-03163	276-03163	271-03163	272-03163	273-03163	298-03163	299-03163
	599-03164	1/2 (15)	2.5 (2.2)	274-03164	275-03164	276-03164	271-03164	272-03164	273-03164	298-03164	299-03164
	599-03165	1/2 (15)	4 (3.4)	274-03165	275-03165	276-03165	271-03165	272-03165	273-03165	298-03165	299-03165
	599-03166	3/4 (20)	6.3 (5.4)	274-03166	275-03166	276-03166	271-03166	272-03166	273-03166	298-03166	299-03166
	599-03167	1 (25)	10 (8.6)	274-03167	275-03167	276-03167	271-03167	272-03167	273-03167	298-03167	299-03167
	599-03168	1-1/4 (32)	16 (14)	274-03168	275-03168	276-03168	271-03168	272-03168	273-03168	298-03168	299-03168
	599-03169	1-1/2 (40)	25 (22)	274-03169	275-03169	276-03169	271-03169	272-03169	273-03169	298-03169	299-03169
	599-03170	2 (50)	40 (34)	274-03170	275-03170	276-03170	271-03170	272-03170	273-03170	298-03170	299-03170

**Technical Data**

<b>Line Size</b>	1/2 to 2 inch (15 to 50 mm)	<b>Controlled Medium</b>	Water, steam, glycol solutions to 50%
<b>Body</b>	Globe style, UNS CA 844 bronze, ANSI Class 250	<b>Medium Temperature:</b>	
<b>Trim</b>	Bronze	<b>Normal Duty</b>	20 to 250°F (-7 to 120°C)
<b>Stem</b>	Stainless steel ASTM A582 Type 303, 3/4-inch (20-mm) stroke	<b>Max. Differential Pressure for Modulating Service:</b>	
<b>Seat</b>	Single seat, metal-to-metal	<b>Liquid</b>	25 psi (173 kPa)
<b>Packing:</b>		<b>Steam</b>	15 psi (103 kPa)
<b>Normal duty</b>	Ethylene propylene O-ring	<b>Rangeability</b>	>100:1
<b>Steam packing</b>	Teflon® V-ring	<b>Leakage Rate</b>	Class IV (0.01% of Cv)
<b>Close-off Ratings</b>	According to ANSI/FCI 70-2 See Table 1.	<b>Flow Characteristics</b>	Equal Percentage
		<b>Mounting</b>	NEMA 1 (interior only)

**Table 1. Close-Off Ratings in psi (kPa).**

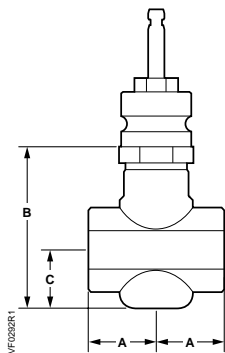
Action	Line Size In. (mm)	Electro-hydraulic		Electro-mechanical	
		SKB...	SKD...	SQX...	599-03609 599-03611
NC	1/2 (15)	250 (1724)	250 (1724)	250 (1724)	250 (1724)
	3/4 (20)	250 (1724)	250 (1724)	221 (1524)	250 (1724)
	1 (25)	250 (1724)	203 (1400)	130 (896)	173 (1193)
	1-1/4 (32)	250 (1724)	117 (807)	75 (517)	100 (690)
	1-1/2 (40)	208 (1334)	73 (503)	46 (317)	61 (421)
	2 (50)	126 (869)	44 (303)	28 (193)	37 (255)
NO	1/2 (15)	250 (1724)	250 (1724)	250 (1724)	250 (1724)
	3/4 (20)	250 (1724)	250 (1724)	173 (1193)	231 (1593)
	1 (25)	250 (1724)	201 (1386)	112 (772)	149 (1028)
	1-1/4 (32)	250 (1724)	124 (855)	69 (476)	92 (634)
	1-1/2 (40)	250 (1724)	80 (552)	44 (303)	59 (407)
	2 (50)	201 (1386)	49 (338)	27 (186)	36 (248)

**Typical Specifications**

Automatic control valves shall have NPT threaded type fittings, 1/2 through 2 inch (15 through 50 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 100:1 rangeability or better.



**Table 2. Valve Dimensions.**

Action	Line Size In. (mm)	A	B	C	Weight lbs. (kg)
NC	1/2 (15)	1-7/16 (36)	3-13/16 (97)	2-13/16 (55)	3 (1.4)
	3/4 (20)	1-11/16 (43)	3-13/16 (97)	2-13/16 (55)	4 (1.8)
	1 (25)	2 (50)	3-13/16 (97)	2-13/16 (55)	5 (2.3)
	1-1/4 (32)	2-1/2 (62)	3-13/16 (97)	2-13/16 (55)	7 (3.2)
	1-1/2 (40)	2-9/16 (65)	3-7/8 (99)	2-1/4 (58)	8 (3.6)
	2 (50)	3-1/8 (79)	4-3/16 (106)	2-9/16 (65)	16 (7.3)
NO	1/2 (15)	1-7/16 (36)	2-15/16 (74)	1-1/4 (32)	3 (1.4)
	3/4 (20)	1-11/16 (43)	3-15/16 (99)	1-7/16 (36)	4 (1.8)
	1 (25)	2 (50)	3-3/4 (96)	1-1/4 (32)	5 (2.3)
	1-1/4 (32)	2-1/2 (62)	4-1/8 (104)	1-5/8 (40)	7 (3.2)
	1-1/2 (40)	2-9/16 (65)	4-1/4 (109)	1-3/4 (44)	9 (4.1)
	2 (50)	3-1/8 (79)	4-9/16 (116)	2 (50)	13 (5.9)

For complete technical details on valves with linear characteristics, stainless steel trim, or union female, angle female, or union male end connections, see *Flowrite™ 599 Series, MT Series Terminal Unit Two-way Valves Technical Instructions*, Document No. 155-184P25.

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## Flowrite™ VF 599 Series, 3-Way Valves, 1/2 to 2-Inch



### Description

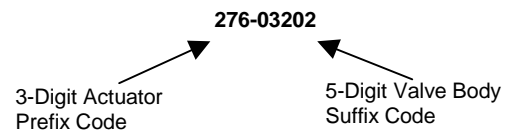
The Flowrite VF 599 Series ANSI Class 250 3-Way Valve bodies work with a Flowrite Series actuator with a 3/4-inch (20 mm) stroke. Typical applications include mixing of hot or chilled water and the control of glycol solutions up to 50%.










### Features

- Direct-coupled universal bonnet
- Bronze 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.



3-Way, Equal Percentage Valve & Actuator Assemblies with Bronze Trim, Normal Duty Packing, and Female NPT Connections										
 Valve Body	Line Size, In. (mm)	Cv (Kvs)	Electro-hydraulic, 24V			Electro-mechanical, 24V				
			SKD62U 0-10V, 4-20 mA, SR	SKD82.50U 3 Pos, NSR	SKD82.51U 3 Pos, SR	SQX62U 0-10V, 4- 20 mA, NSR	SQX82.00U 3 Pos, 120 s, NSR	SQX82.03U 3 Pos, 30 s, NSR	599-03609 0-10V, SR	599-03611 2 Pos, SR
										
Actuator Prefix Code										
			274	275	276	271	272	273	298	299
599-03198	1/2 (15)	1 (0.85)	274-03198	275-03198	276-03198	271-03198	272-03198	273-03198	298-03198	299-03198
599-03199	1/2 (15)	1.6 (1.4)	274-03199	275-03199	276-03199	271-03199	272-03199	273-03199	298-03199	299-03199
599-03200	1/2 (15)	2.5 (2.2)	274-03200	275-03200	276-03200	271-03200	272-03200	273-03200	298-03200	299-03200
599-03201	1/2 (15)	4 (3.4)	274-03201	275-03201	276-03201	271-03201	272-03201	273-03201	298-03201	299-03201
599-03202	3/4 (20)	6.3(5.4)	274-03202	275-03202	276-03202	271-03202	272-03202	273-03202	298-03202	299-03202
599-03203	1 (25)	10(8.6)	274-03203	275-03203	276-03203	271-03203	272-03203	273-03203	298-03203	299-03203
599-03204	1-1/4 (32)	16 (14)	274-03204	275-03204	276-03204	271-03204	272-03204	273-03204	298-03204	299-03204
599-03205	1-1/2 (40)	25 (22)	274-03205	275-03205	276-03205	271-03205	272-03205	273-03205	298-03205	299-03205
599-03206	2 (50)	40 (34)	274-03206	275-03206	276-03206	271-03206	272-03206	273-03206	298-03206	299-03206

**Technical Data**

<b>Line Size</b>	1/2 to 2 inch (15 to 50 mm)	<b>Controlled Medium</b>	Water, steam, glycol solutions to 50%
<b>Body</b>	Globe style, UNS CA 844 bronze, ANSI Class 250	<b>Medium Temperature</b>	20 to 250°F (-7 to 120°C)
<b>Trim</b>	Bronze	<b>Max. Differential Pressure for Modulating Service</b>	25 psi (173 kPa)
<b>Stem</b>	Stainless steel ASTM A582 Type 303, 3/4-inch (20-mm) stroke	<b>Rangeability</b>	>100:1
<b>Seat</b>	Single seat, metal-to-metal	<b>Leakage Rate</b>	Class IV (0.01% of Cv)
<b>Packing</b>	Ethylene propylene O-ring	<b>Flow Characteristics</b>	Equal Percentage
<b>Close-off Ratings</b>	According to ANSI/FCI 70-2 See Table 1.	<b>Mounting</b>	NEMA 1 (interior only)

**Table 1. Close-Off Ratings in psi (kPa).**

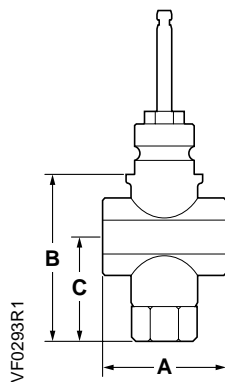
Action	Line Size In. (mm)	Electro-hydraulic		Electro-mechanical	
		SKB...	SKD...	SQX...	599-03609 599-03611
3-way, upper port	1/2 (15)	250 (1724)	250 (1724)	250 (1724)	250 (1724)
	3/4 (20)	250 (1724)	250 (1724)	221 (1524)	250 (1724)
	1 (25)	250 (1724)	203 (1400)	130 (896)	173 (1193)
	1-1/4 (32)	250 (1724)	117 (807)	75 (517)	100 (690)
	1-1/2 (40)	208 (1334)	73 (503)	46 (317)	61 (421)
	2 (50)	126 (869)	44 (303)	28 (193)	37 (255)
3-way, lower port	1/2 (15)	250 (1724)	250 (1724)	250 (1724)	250 (1724)
	3/4 (20)	250 (1724)	250 (1724)	173 (1193)	231 (1593)
	1 (25)	250 (1724)	201 (1386)	112 (772)	149 (1028)
	1-1/4 (32)	250 (1724)	124 (855)	69 (476)	92 (634)
	1-1/2 (40)	250 (1724)	80 (552)	44 (303)	59 (407)
	2 (50)	201 (1386)	49 (338)	27 (186)	36 (248)

**Typical Specifications**

Automatic control valves shall have NPT threaded type fittings, 1/2 through 2-inch (15 through 50 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 100:1 rangeability or better.



**Table 2. Valve Dimensions.**

Line Size In. (mm)	A	B	C	Weight lbs. (kg)
1/2 (15)	2-7/8 (72)	4-5/16 (110)	2-11/16 (68)	3 (1.4)
3/4 (20)	3-3/8 (85)	4-5/16 (110)	2-3/4 (69)	4 (1.8)
1 (25)	3-15/16 (100)	4-1/2 (114)	2-7/8 (72)	5 (2.3)
1-1/4 (32)	4-15/16 (125)	4-5/8 (116)	2-15/16 (74)	7 (3.2)
1-1/2 (40)	5-1/8 (130)	4-5/8 (116)	3 (76)	9 (4.1)
2 (50)	6-1/4 (158)	4-3/4 (121)	3-3/16 (81)	13 (5.9)

For complete technical details on valves with stainless steel trim, or union female, angle female, or union male end connections, see *Flowrite™ 599 Series, MT Series Terminal Unit Three-way Valves Technical Instructions*, Document No. 155-185P25.

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## Flowrite™ VF 599 Series Valves, 2-1/2 to 6-Inch, Flanged, ANSI Class 125, Iron Body



### Description

The Flowrite VF 599 Series ANSI Class 125 Valve bodies work with a Flowrite Series actuator with a 3/4-inch (20 mm) or 1-1/2 inch (40 mm) stroke. Typical applications include control of hot or chilled water, glycol solutions up to 50%, or steam up to 15 psi (103 kPa).













### Features

- Direct-coupled universal bonnet
- Equal percentage or linear flow characteristics and bronze 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.



Flowrite ANSI 125 Valve & Electronic Actuator Assemblies with Bronze Trim and Normal Duty Packing															
 Valve Body	Line Size, In. (mm)	Cv (Kvs)	Stroke	Electro-hydraulic, 24V									Electro-mechanical, 24V		
				SKD62U 0-10V, 4-20 mA, SR	SKD82.50U 3P, NSR	SKD82.51U 3P, SR	SKB82.51U 3P, SR	SKB82.50U 3P, NSR	SKB62U 0-10V, 4-20 mA, SR	SKC82.61U 3P, SR	SKC82.60U 3P, NSR	SKC62U 0-10V, 4-20 mA, SR	599-10021 0-10V, NSR	599-10022 0-10V, SR	
															
				Actuator Prefix Code											295
				274	275	276	289	290	291	292	293	294			
Normally Closed	599-05990	2-1/2 (65)	63 (54)	3/4 (20)	274-05990	275-05990	276-05990	289-05990	290-05990	291-05990	—	—	—	295-05990	296-05990
	599-05991	3 (80)	100 (86)	3/4 (20)	274-05991	275-05991	276-05991	289-05991	290-05991	291-05991	—	—	—	295-05991	296-05991
	599-05992	4 (100)	160 (140)	1-1/2 (40)	—	—	—	—	—	—	292-05992	293-05992	294-05992	—	—
	599-05993	5 (125)	250 (215)	1-1/2 (40)	—	—	—	—	—	—	292-05993	293-05993	294-05993	—	—
	599-05994	6 (150)	400 (340)	1-1/2 (40)	—	—	—	—	—	—	292-05994	293-05994	294-05994	—	—
Normally Open	599-05980	2-1/2 (65)	63 (54)	3/4 (20)	274-05980	275-05980	276-05980	289-05980	290-05980	291-05980	—	—	—	295-05980	296-05980
	599-05981	3 (80)	100 (86)	3/4 (20)	274-05981	275-05981	276-05981	289-05981	290-05981	291-05981	—	—	—	295-05981	296-05981
	599-05982	4 (100)	160 (140)	1-1/2 (40)	—	—	—	—	—	—	292-05982	293-05982	294-05982	—	—
	599-05983	5 (125)	250 (215)	1-1/2 (40)	—	—	—	—	—	—	292-05983	293-05983	294-05983	—	—
	599-05984	6 (150)	400 (340)	1-1/2 (40)	—	—	—	—	—	—	292-05984	293-05984	294-05984	—	—
3-way	599-06160	2-1/2 (65)	63 (54)	3/4 (20)	274-06160	275-06160	276-06160	289-06160	290-06160	291-06160	—	—	—	295-06160	296-06160
	599-06161	3 (80)	100 (86)	3/4 (20)	274-06161	275-06161	276-06161	289-06161	290-06161	291-06161	—	—	—	295-06161	296-06161
	599-06162	4 (100)	160 (140)	1-1/2 (40)	—	—	—	—	—	—	292-06162	293-06162	294-06162	—	—
	599-06163	5 (125)	250 (215)	1-1/2 (40)	—	—	—	—	—	—	292-06163	293-06163	294-06163	—	—
	599-06164	6 (150)	400 (340)	1-1/2 (40)	—	—	—	—	—	—	292-06164	293-06164	294-06164	—	—

**Technical Data**

<b>Line Size</b>	2-1/2 to 6 inch (65 to 150 mm)	<b>Close-off Ratings</b>	According to ANSI/FCI 70-2 See Table 1.
<b>Body</b>	Flanged style, cast iron ASTM A126 Class B, ANSI Class 125	<b>Controlled Medium</b>	Water, steam, glycol solutions to 50%
<b>Trim</b>	Bronze	<b>Medium Temperature: Normal Duty</b>	20 to 250°F (-7 to 120°C)
<b>Stem</b>	Stainless steel ASTM A582 Type 303	<b>Max. Differential Pressure for Modulating Service</b>	25 psi (173 kPa)
<b>Stem Travel:</b>		<b>Rangeability</b>	>100:1
<b>2-1/2 and 3 inch</b>	3/4-inch (20-mm) stroke	<b>Leakage Rate</b>	Class IV (0.01% of Cv)
<b>4, 5, and 6 inch</b>	1-1/2 inch (40 mm) stroke	<b>Flow Characteristics</b>	Equal percentage or linear
<b>Seat</b>	Metal-to-metal	<b>Mounting</b>	NEMA 1 (interior only)
<b>Packing:</b>			
<b>Normal duty</b>	EDPM O-ring		
<b>Steam packing</b>	Teflon® V-ring/EDPM O-ring		

**Table 1. Close-Off Ratings in psi (kPa).**

Action	Line Size In. (mm)	Electro-hydraulic		Electro-mechanical	
		SKB/C	SKD	599-10022	599-10021
NC, Upper Port	2-1/2 (65)	97 (668)	34 (234)	24 (165)	50 (344)
	3 (80)	63 (434)	22 (152)	15 (103)	32 (220)
	4 (100)	39 (268)	—	10 (68)	20 (137)
	5 (125)	25 (172)	—	—	—
NO, Lower Port	2-1/2 (65)	153 (518)	38 (262)	23 (158)	48 (330)
	3 (80)	101 (342)	25 (172)	16 (110)	32 (220)
	4 (100)	65 (448)	—	10 (68)	21 (144)
	5 (125)	42 (289)	—	—	—
	6 (150)	29 (199)	—	—	—

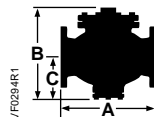
**Typical Specifications**

Automatic control valves shall have flanged connections, 2-1/2 through 6 inch (65 through 150 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.

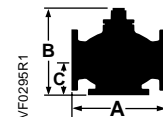
Valve shall be ANSI Leakage Class IV (0.01% of Cv). Valves shall have a 100:1 rangeability or better.

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



Action	Line Size In. (mm)	A	B	C	Weight lbs. (kg)
NC	2-1/2 (65)	10-7/8 (276)	10-5/8 (269)	4-7/8 (125)	107 (48)
	3 (80)	11-3/4 (299)	11-15/16 (303)	5-5/8 (142)	117 (53)
	4 (100)	13-7/8 (352)	13-15/16 (354)	6-5/8 (168)	154 (70)
	5 (125)	15-3/4 (400)	15-1/4 (388)	7-1/2 (185)	175 (79)
	6 (150)	17-3/4 (451)	17-1/16 (433)	8-3/16 (207)	210 (95)
NO	2-1/2 (65)	10-7/8 (276)	11 (281)	4-7/8 (123)	107 (48)
	3 (80)	11-3/4 (299)	12-1/4 (312)	5-5/16 (135)	118 (53)
	4 (100)	13-7/8 (352)	13-9/16 (345)	6-5/16 (160)	153 (70)
	5 (125)	15-3/4 (400)	15-3/16 (385)	7 (177)	176 (80)
	6 (150)	17-3/4 (451)	16-3/4 (426)	7-7/8 (200)	211 (96)

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



Line Size In. (mm)	A	B	C	Weight lbs. (kg)
2-1/2 (65)	10-7/8 (276)	9-3/8 (239)	3-3/4 (95)	104 (47)
3 (80)	11-3/4 (299)	10-3/4 (272)	4-3/8 (111)	114 (52)
4 (100)	13-7/8 (352)	12-1/2 (318)	5-1/8 (132)	146 (66)
5 (125)	15-3/4 (400)	13-3/4 (349)	5-3/4 (146)	170 (77)
6 (150)	17-3/4 (451)	15-1/2 (393)	6-5/8 (167)	199 (90)

For complete technical details on valves with a linear characteristic and stainless steel trim, see *Flowrite™ VF 599 Series Two-way Valves Technical Instructions*, Document No. 155-159P25 or *Flowrite™ VF 599 Series Three-way Valves Technical Instructions*, Document No. 155-160P25.

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## Flowrite™ VF 599 Series Valves, 2-1/2 to 6-Inch, Flanged, ANSI Class 250, Iron Body



### Description

The Flowrite VF 599 Series ANSI Class 250 Valve bodies work with a Flowrite Series actuator with a 3/4-inch (20 mm) or 1-1/2 inch (40 mm) stroke. Typical applications include control of hot or chilled water, glycol solutions up to 50%, or steam up to 15 psi (103 kPa).



### Features

- Direct-coupled universal bonnet
- Equal percentage or linear flow characteristics and bronze 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.



Flowrite ANSI 250 Valve & Electronic Actuator Assemblies with Bronze Trim and Normal Duty Packing															
 Valve Body	Line Size, In. (mm)	Cv (Kvs)	Stroke	Electro-hydraulic, 24V									Electro-mechanical, 24V		
				SKD62U 0-10V, 4-20 mA, SR	SKD82.50U 3P, NSR	SKD82.51U 3P, SR	SKB82.51U 3P, SR	SKB82.50U 3P, NSR	SKB62U 0-10V, 4-20 mA, SR	SKC82.61U 3P, SR	SKC82.60U 3P, NSR	SKC62U 0-10V, 4-20 mA, SR	599-10021 0-10V, NSR	599-10022 0-10V, SR	
															
				274	275	276	289	290	291	292	293	294	295	296	
Normally Closed	599-05950	2-1/2 (65)	63 (54)	3/4 (20)	274-05950	275-05950	276-05950	289-05950	290-05950	291-05950	—	—	—	295-05950	296-05950
	599-05951	3 (80)	100 (86)	3/4 (20)	274-05951	275-05951	276-05951	289-05951	290-05951	291-05951	—	—	—	295-05951	296-05951
	599-05952	4 (100)	160 (140)	1-1/2 (40)	—	—	—	—	—	—	292-05952	293-05952	294-05952	—	—
	599-05953	5 (125)	250 (215)	1-1/2 (40)	—	—	—	—	—	—	292-05953	293-05953	294-05953	—	—
	599-05954	6 (150)	400 (340)	1-1/2 (40)	—	—	—	—	—	—	292-05954	293-05954	294-05954	—	—
Normally Open	599-05940	2-1/2 (65)	63 (54)	3/4 (20)	274-05940	275-05940	276-05940	289-05940	290-05940	291-05940	—	—	—	295-05940	296-05940
	599-05941	3 (80)	100 (86)	3/4 (20)	274-05941	275-05941	276-05941	289-05941	290-05941	291-05941	—	—	—	295-05941	296-05941
	599-05942	4 (100)	160 (140)	1-1/2 (40)	—	—	—	—	—	—	292-05942	293-05942	294-05942	—	—
	599-05943	5 (125)	250 (215)	1-1/2 (40)	—	—	—	—	—	—	292-05943	293-05943	294-05943	—	—
	599-05944	6 (150)	400 (340)	1-1/2 (40)	—	—	—	—	—	—	292-05944	293-05944	294-05944	—	—
3-way	599-06170	2-1/2 (65)	63 (54)	3/4 (20)	274-06170	275-06170	276-06170	289-06170	290-06170	291-06170	—	—	—	295-06170	296-06170
	599-06171	3 (80)	100 (86)	3/4 (20)	274-06171	275-06171	276-06171	289-06171	290-06171	291-06171	—	—	—	295-06171	296-06171
	599-06172	4 (100)	160 (140)	1-1/2 (40)	—	—	—	—	—	—	292-06172	293-06172	294-06172	—	—
	599-06173	5 (125)	250 (215)	1-1/2 (40)	—	—	—	—	—	—	292-06173	293-06173	294-06173	—	—
	599-06174	6 (150)	400 (340)	1-1/2 (40)	—	—	—	—	—	—	292-06174	293-06174	294-06174	—	—

### Technical Data

<b>Line Size</b>	2-1/2 to 6 inch (65 to 150 mm)	<b>Close-off Ratings</b>	According to ANSI/FCI 70-2 See Table 1.
<b>Body</b>	Flanged style, cast iron ASTM A126 Class B, ANSI Class 250	<b>Controlled Medium</b>	Water, steam, glycol solutions to 50%
<b>Trim</b>	Bronze	<b>Medium Temperature:</b>	
<b>Stem</b>	Stainless steel ASTM A582 Type 303	<b>Normal duty</b>	20 to 250°F (-7 to 120°C)
<b>Stem Travel:</b>		<b>Max. Differential Pressure for Modulating Service</b>	25 psi (173 kPa)
<b>2-1/2 and 3 inch</b>	3/4-inch (20-mm) stroke	<b>Rangeability</b>	>100:1
<b>4, 5, and 6 inch</b>	1-1/2 inch (40 mm) stroke	<b>Leakage Rate</b>	Class IV (0.01% of Cv)
<b>Seat</b>	Metal-to-metal	<b>Flow Characteristics</b>	Equal percentage or linear
<b>Packing:</b>		<b>Mounting</b>	NEMA 1 (interior only)
<b>Normal duty</b>	EDPM O-ring		
<b>Steam packing</b>	Teflon® V-ring/EDPM O-ring		

**Table 1. Close-Off Ratings in psi (kPa).**

Action	Line Size In. (mm)	Electro-hydraulic		Electro-mechanical	
		SKB/C	SKD	599-10022	599-10021
NC, Upper Port	2-1/2 (65)	97 (668)	34 (234)	24 (165)	50 (344)
	3 (80)	63 (434)	22 (152)	15 (103)	32 (220)
	4 (100)	39 (268)	—	10 (68)	20 (137)
	5 (125)	25 (172)	—	—	—
NO, Lower Port	2-1/2 (65)	153 (518)	38 (262)	23 (158)	48 (330)
	3 (80)	101 (342)	25 (172)	16 (110)	32 (220)
	4 (100)	65 (448)	—	10 (68)	21 (144)
	5 (125)	42 (289)	—	—	—
	6 (150)	29 (199)	—	—	—

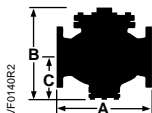
### Typical Specifications

Automatic control valves shall have flanged connections, 2-1/2 through 6 inch (65 through 150 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.

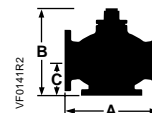
Valve shall be ANSI Leakage Class IV (0.01% of Cv). Valves shall have a 100:1 rangeability or better.

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



Action	Line Size In. (mm)	A	B	C	Weight lbs. (kg)
NC	2-1/2 (65)	11-1/2 (292)	11 (279)	5-3/8 (135)	120 (55)
	3 (80)	12-1/2 (318)	12-7/16 (315)	6 (154)	136 (62)
	4 (100)	14-1/2 (368)	14/3/8 (364)	7 (178)	184 (84)
	5 (125)	16-5/8 (422)	15-3/4 (399)	7-3/4 (196)	221 (101)
	6 (150)	18-5/8 (473)	17-1/2 (444)	8-5/8 (218)	275 (125)
NO	2-1/2 (65)	11-1/2 (292)	11 (281)	4-7/8 (123)	121 (55)
	3 (80)	12-1/2 (318)	12-1/4 (312)	5-5/16 (136)	139 (63)
	4 (100)	14-1/2 (368)	13-5/8 (345)	6-5/16 (160)	183 (83)
	5 (125)	16-5/8 (422)	15-3/16 (385)	7 (177)	222 (101)
	6 (150)	18-5/8 (473)	16-3/4 (426)	7-7/8 (200)	277 (126)

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



Line Size In. (mm)	A	B	C	Weight lbs. (kg)
2-1/2 (65)	11-1/2 (292)	9-3/8 (239)	3-3/4 (95)	117 (53)
3 (80)	12-1/2 (318)	10-3/4 (272)	4-3/8 (111)	132 (60)
4 (100)	14-1/2 (368)	12-1/2 (318)	5-1/8 (132)	174 (79)
5 (125)	16-5/8 (422)	13-3/4 (349)	5-3/4 (146)	215 (99)
6 (150)	18-5/8 (473)	15-1/2 (393)	6-5/8 (167)	261 (119)

For complete technical details on valves with a linear characteristic and stainless steel trim, see *Flowrite™ VF 599 Series Two-way Valves Technical Instructions*, Document No. 155-159P25 or *Flowrite™ VF 599 Series Three-way Valves Technical Instructions*, Document No. 155-160P25.

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