

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



Description

The Flowrite 599 Series two-way and three-way flanged iron bodies are designed to work with a Flowrite Series actuator with a 3/4-inch (20 mm) stroke or 1-1/2 inch (40 mm) stroke. They are available in ANSI Class 250 for normally open, normally closed or three way action.

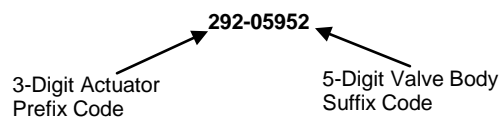
Typical applications include control of hot or chilled water, 50% water-glycol solutions, or steam.

Features

- ANSI Class IV leakage ($\leq 0.01\%$ of Cv).
- Two-way normally open and normally closed configurations.
- Cartridge-type packing.
- Two-way equal-percentage flow characteristic valves with either bronze or stainless steel trim.
- Two-way linear flow characteristic valves with stainless steel trim.
- Three-way valves with either bronze or stainless steel trim.
- High temperature packing available on two-way linear valves.

Product Numbers

Use the product numbers in the tables to order the valve and 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.



Typical Specifications

Automatic control valves shall have flanged connections, 2-1/2-inch through 6-inch (65 mm through 150 mm) sizes, and shall be ANSI Class 250 rated to withstand the pressures and temperatures encountered.

Valves shall have metal-to-metal seats, stainless steel stems, and double (EPDM) O-rings, or Teflon® V-rings with single O-ring packing.

Valve shall be ANSI leakage Class IV (0.01% of Cv).

Valves shall have a 100:1 rangeability or better

Technical Data

Valve Size	2-1/2 to 6-inch (65 to 150 mm)
Body	Flanged style, cast iron ASTM A126 Class B, ANSI Class 250
Trim	Bronze or stainless steel
Stem	Stainless steel ASTM A582 Type 303
Stem Travel:	
2-1/2 and 3-inch	3/4-inch (20 mm) stroke
4-, 5-, and 6-inch	1-1/2 inch (40 mm) stroke
Seat	Metal-to-metal
Packing:	
Normal duty	Double EPDM O-rings
Steam packing	Teflon® V-rings/EPDM O-ring
Close-off Ratings	According to ANSI/FCI 70-2 See Table 3
Controlled Medium	Water, steam and 50% water-glycol solutions
Medium Temperature:	
Normal duty	20°F to 250°F (-7°C to 120°C)
Steam Packing	337°F (110°C) maximum
Maximum Recommended Differential Pressure for Modulating Service	

Media	Bronze Trim	SS Trim
Liquid	25 psi (173 kPa)	50 psi (345 kPa)
Steam	15 psi (103 kPa)	50 psi (345 kPa)

Rangeability	>100:1
Leakage Rate	Class IV (0.01% of Cv)
Flow Characteristics	Equal percentage or linear
Mounting	NEMA 1 (interior only)

NOTE: To keep this document short, only two-way valves, equal percentage flow characteristics, bronze trim, and all three-way valves with bronze trim are shown.

For complete selection tables, see *Flowrite™ 599 Series 2-1/2 to 6-Inch Valve, Two-Way & Three-Way, and Actuator Assembly Selection* (155-776).

Table 1. Flowrite ANSI 250 Valve and Electronic Actuator Assemblies with Bronze Trim and Normal Duty Packing.









Action		Valve Size, Inch (mm)	Cv (Kvs)	Stroke	Electro-Hydraulic- 24 Vac														
					Non-spring Return					Spring Return									
																			
					Floating			0-10 Vdc 4-20 mA		Floating			0 to 10 Vdc, 4 to 20 mA						
					SKD82.50U	SKB82.50U	SKC82.60U	SKD60U	SKD82.51U	SKB82.51U	SKC82.61U	SKD62U	SKB62U	SKC62U					
					Actuator Prefix Codes														
275		290		293		267		276		289		292		274		291		294	
Normally Open	599-05940	2-1/2 (65)	63 (54)	3/4 (20)	275-05940	290-05940	—	267-05940	276-05940	289-05940	—	274-05940	291-05940	—					
	599-05941	3 (80)	100 (86)	3/4 (20)	275-05941	290-05941	—	267-05941	276-05941	289-05941	—	274-05941	291-05941	—					
	599-05942	4 (100)	160 (140)	1-1/2 (40)	—	—	293-05942	—	—	—	292-05942	—	—	294-05942					
	599-05943	5 (125)	250 (215)	1-1/2 (40)	—	—	293-05943	—	—	—	292-05943	—	—	294-05943					
	599-05944	6 (150)	400 (340)	1-1/2 (40)	—	—	293-05984	—	—	—	292-05944	—	—	294-05944					
Normally Closed	599-05950	2-1/2 (65)	63 (54)	3/4 (20)	275-05950	290-05950	—	267-05950	276-05950	289-05950	—	274-05950	291-05950	—					
	599-05951	3 (80)	100 (86)	3/4 (20)	275-05951	290-05951	—	267-05951	276-05951	289-05951	—	274-05951	291-05951	—					
	599-05952	4 (100)	160 (140)	1-1/2 (40)	—	—	293-05952	—	—	—	292-05952	—	—	294-05952					
	599-05953	5 (125)	250 (215)	1-1/2 (40)	—	—	293-05953	—	—	—	292-05953	—	—	294-05953					
	599-05954	6 (150)	400 (340)	1-1/2 (40)	—	—	293-05954	—	—	—	292-05954	—	—	294-05954					
3-Way	599-06170	2-1/2 (65)	63 (54)	3/4 (20)	275-06170	290-06170	—	267-06170	276-06170	289-06170	—	274-06170	291-06170	—					
	599-06171	3 (80)	100 (86)	3/4 (20)	275-06171	290-06171	—	267-06171	276-06171	289-06171	—	274-06171	291-06171	—					
	599-06172	4 (100)	160 (140)	1-1/2 (40)	—	—	293-06172	—	—	—	292-06172	—	—	294-06172					
	599-06173	5 (125)	250 (215)	1-1/2 (40)	—	—	293-06173	—	—	—	292-06173	—	—	294-06173					
	599-06174	6 (150)	400 (340)	1-1/2 (40)	—	—	293-06174	—	—	—	292-06174	—	—	294-06174					

Table 2. Flowrite™ ANSI 250 Valve and Pneumatic Actuator Assemblies with Bronze Trim and Normal Duty Packing.







Action		Valve Size, Inch (mm)	Cv (Kvs)	Stroke	20mm		40 mm	20 mm	40 mm					
					Without Positioner				With Positioners					
														
					8-Inch		12-Inch		8-Inch		12-Inch			
					599-01050		599-01010		599-01000		599-01050+ 599-00426		599-01010+ 599-00423	
					Actuator Prefix Codes									
					277		279		281		283		285	
Normally Open	599-05940	2-1/2 (65)	63 (54)	3/4 (20)	277-05940	279-05940	—	283-05940	285-05940	—				
	599-05941	3 (80)	100 (86)	3/4 (20)	277-05941	279-05941	—	283-05941	285-05941	—				
	599-05942	4 (100)	160 (140)	1-1/2 (40)	—	—	281-05942	—	—	287-05942				
	599-05943	5 (125)	250 (215)	1-1/2 (40)	—	—	281-05943	—	—	287-05943				
	599-05944	6 (150)	400 (340)	1-1/2 (40)	—	—	281-05944	—	—	287-05944				
Normally Closed	599-05950	2-1/2 (65)	63 (54)	3/4 (20)	277-05950	279-05950	—	283-05950	285-05950	—				
	599-05951	3 (80)	100 (86)	3/4 (20)	277-05951	279-05951	—	283-05951	285-05951	—				
	599-05952	4 (100)	160 (140)	1-1/2 (40)	—	—	281-05952	—	—	287-05952				
	599-05953	5 (125)	250 (215)	1-1/2 (40)	—	—	281-05953	—	—	287-05953				
	599-05954	6 (150)	400 (340)	1-1/2 (40)	—	—	281-05954	—	—	287-05954				
3-way	599-06170	2-1/2 (65)	63 (54)	3/4 (20)	277-06170	279-06170	—	283-06170	285-06170	—				
	599-06171	3 (80)	100 (86)	3/4 (20)	277-06171	279-06171	—	283-06171	285-06171	—				
	599-06172	4 (100)	160 (140)	1-1/2 (40)	—	—	281-06172	—	—	287-06172				
	599-06173	5 (125)	250 (215)	1-1/2 (40)	—	—	281-06173	—	—	287-06173				
	599-06174	6 (150)	400 (340)	1-1/2 (40)	—	—	281-06174	—	—	287-06174				

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

Action	Valve Size Inch (mm)	Electro Hydraulic Actuator		Pneumatic Actuator, Spring Range					
		SKB/C	SKD	3 to 8 psi				10 to 15 psi	
				8-Inch		12-Inch		8-Inch	12-Inch
				15 psi	30 psi	15 psi	30 psi	0 psi	15 psi
NO, Lower Port	2-1/2 (65)	153 (518)	38 (262)	31 (213)	100 (689)	95 (655)	250 (1724)	—	—
	3 (80)	101 (342)	25 (172)	20 (138)	66 (444)	63 (434)	200 (1378)	—	—
	4 (100)	65 (448)	—	—	—	40 (275)	129 (889)	—	—
	5 (125)	42 (289)	—	—	—	26 (179)	82 (565)	—	—
	6 (150)	29 (199)	—	—	—	18 (124)	57 (393)	—	—
NC, Upper Port	2-1/2 (65)	97 (668)	34 (234)	—	—	—	—	36 (248)	114 (786)
	3 (80)	63 (434)	22 (152)	—	—	—	—	23 (158)	74 (610)
	4 (100)	39 (268)	—	—	—	—	—	—	46 (317)
	5 (125)	25 (172)	—	—	—	—	—	—	29 (199)
	6 (150)	17 (117)	—	—	—	—	—	—	20 (137)

Table 4. Two-Way Valve Dimensions.

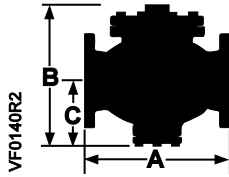
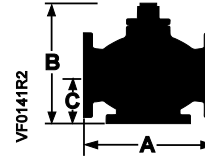


Table 5. Three-Way Valve Dimensions.



Action	Valve Size In. (mm)	A	B	C	Weight lbs. (kg)
NO	2-1/2 (65)	11-1/2 (292)	11 (281)	4-7/8 (123)	76 (34)
	3 (80)	12-1/2 (318)	12-1/4 (312)	5-5/16 (136)	99 (45)
	4 (100)	14-1/2 (368)	13-5/8 (345)	6-5/16 (160)	160 (73)
	5 (125)	16-5/8 (422)	15-3/16 (385)	7 (177)	208 (94)
	6 (150)	18-5/8 (473)	16-3/4 (426)	7-7/8 (200)	302 (137)
NC	2-1/2 (65)	11-1/2 (292)	11 (279)	5-3/8 (135)	74 (34)
	3 (80)	12-1/2 (318)	12-7/16 (315)	6 (154)	98 (44)
	4 (100)	14-1/2 (368)	14/3/8 (364)	7 (178)	159 (72)
	5 (125)	16-5/8 (422)	15-3/4 (399)	7-3/4 (196)	207 (94)
	6 (150)	18-5/8 (473)	17-1/2 (444)	8-5/8 (218)	299 (136)

Valve Size In. (mm)	A	B	C	Weight lbs. (kg)
2-1/2 (65)	—	—	—	—
3 (80)	—	—	—	—
4 (100)	—	—	—	—
5 (125)	—	—	—	—
6 (150)	—	—	—	—
2-1/2 (65)	11-1/2 (292)	9-3/8 (239)	3-3/4 (95)	63 (29)
3 (80)	12-1/2 (318)	10-3/4 (272)	4-3/8 (111)	82 (37)
4 (100)	14-1/2 (368)	12-1/2 (318)	5-1/8 (132)	134 (61)
5 (125)	16-5/8 (422)	13-3/4 (349)	5-3/4 (146)	176 (80)
6 (150)	18-5/8 (473)	15-1/2 (393)	6-5/8 (167)	258 (117)

For complete technical details on valves with linear characteristics 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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