

Flowrite Globe Valves



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Valves

Compatible with piping line sizes ranging from 1/2 to 6-inch (Cv range 1.0 to 400), the Flowrite Globe Valves offer electronic and pneumatic valve actuators. Flowrite valves bodies and actuators feature a unique, direct-coupled design that requires no additional parts to connect the valve and the actuator for time and labor savings.

90 Years of Legendary Performance

Since 1934, Flowrite has been recognized as the best globe valve in the HVAC control market. The Flowrite Globe Valve is an excellent choice for small to large air handling units and for central plant applications.

Simple to Specify and Order

The direct-coupled connection provides flexibility and ease of installation. Specify the valve and actuator configuration to meet your specific requirements. In addition, you can select how you would like the components shipped – either as separate components or factory-assembled and tagged at no additional cost.

Save Time

Installation is simple. There is no linkage to assemble or adjust.

Flowrite Features

- Unique caged-plug design improves controllability and reduces noise
- Highest close off pressures in the industry – up to 250 PSI
- Low leakage 0.01% (ANSI Class IV)
- Greater than 100:1 rangeability
- Industry leading simplicity in serviceability





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SIEMENS

Two-way Globe Valves

1/2 to 2-inch Bronze Body

Normally Open or Normally Closed



Flowrite Two-way Globe Valve

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Valves

Description

Designed to work with either a pneumatic or electronic actuator with a 3/4-inch (20 mm) stroke, the Flowrite Two-way Globe Valves are available in ANSI Class 250 for Normally Closed or Normally Open action.

Features

- Direct-coupled bonnet
- Equal percentage or linear flow characteristics
- Brass or stainless steel trim
- Standard- or high-temperature packing
- Close-off up to 250 PSI
- Fully serviceable
- Greater than 100:1 rangeability
- Accepts any 3/4-inch stroke Flowrite pneumatic or electronic actuator
- ANSI Leakage Class IV (0.01% of Cv)
- Cartridge-type packing for easy service
- Orderable as a valve only or as a complete valve/actuator assembly

Applications

The Flowrite Two-way Globe Valves are recommended for water, low and high pressure steam, and glycol solutions up to 50 percent.

Specifications

Valve Size	1/2 to 2" (15 to 50 mm)
Body Style	Globe Style Control Valve
Seat Style	Single Seat, Metal to Metal
Action	Normally Closed (NC), Normally Open (NO)
Stem Travel (Stroke)	3/4" (20 mm)
Valve Body	ANSI Class 250
Materials	
Body	UNS CA 844 Bronze
Trim	Brass or Stainless Steel
Stem	Stainless Steel ASTM A582 Type 303
Packing	
Normal Duty	EPDM O-rings
Steam	PTFE V-rings and EPDM O-ring
Operating	
Controlled Medium	Saturated Steam, Water, Glycol Solutions up to 50%
Medium Temperature Range	
Normal Duty Packing	20° to 250°F (-7° to 120°C)
Steam Packing	337°F (170°C) Max.

Max. Recommended Differential Pressure for Modulating Service

Brass Trim	
Liquid	25 PSI (173 kPa)
Steam	15 PSI (103 kPa)
Stainless Steel Trim	
Liquid	50 PSI (345 kPa)
Steam	50 PSI (345 kPa)

Max. Inlet Pressure

Water	Refer to Flowrite Reference Section.
Steam	100 PSIG (690 kPa)

Rangeability >100:1

Close-off Ratings According to ANSI/FCI 70-2

Leakage Rate Class IV (0.01% of Cv)

Flow Characteristics Equal Percentage or Linear

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Valve Product Ordering

Normally Open/Normally Closed, Equal Percentage



Connection	Valve Size in. (mm)	Flow Rate Cv (Kvs)	Stroke (in.)	Normally Open Part No.	Normally Closed Part No.
Standard-Temperature Packing – 20° to 250°F (-7° to 120°C)					
Brass Trim					
Internal thread x Internal thread	1/2 (15)	1 (0.9)	3/4	599-03162	599-03180
	1/2 (15)	1.6 (1.4)	3/4	599-03163	599-03181
	1/2 (15)	2.5 (2.2)	3/4	599-03164	599-03182
	1/2 (15)	4 (3.4)	3/4	599-03165	599-03183
	3/4 (20)	6.3 (5.4)	3/4	599-03166	599-03184
	1 (25)	10 (8.6)	3/4	599-03167	599-03185
	1-1/4 (32)	16 (14)	3/4	599-03168	599-03186
	1-1/2 (40)	25 (22)	3/4	599-03169	599-03187
	2 (50)	40 (34)	3/4	599-03170	599-03188
Stainless Steel Trim					
Internal thread x Internal thread	1/2 (15)	1 (0.9)	3/4	599-03108	599-03126
	1/2 (15)	1.6 (1.4)	3/4	599-03109	599-03127
	1/2 (15)	2.5 (2.2)	3/4	599-03110	599-03128
	1/2 (15)	4 (3.4)	3/4	599-03111	599-03129
	3/4 (20)	6.3 (5.4)	3/4	599-03112	599-03130
	1 (25)	10 (8.6)	3/4	599-03113	599-03131
	1-1/4 (32)	16 (14)	3/4	599-03114	599-03132
	1-1/2 (40)	25 (22)	3/4	599-03115	599-03133
	2 (50)	40 (34)	3/4	599-03116	599-03134

Valve Product Ordering

Normally Open/Normally Closed, Linear, Stainless Steel Trim



Connection	Valve Size in. (mm)	Flow Rate Cv (Kvs)	Stroke (in.)	Normally Open Part No.	Normally Closed Part No.
Standard-Temperature Packing – 20° to 250°F (-7° to 120°C)					
Internal thread x Internal thread	1/2 (15)	1 (0.9)	3/4	599-03000	599-03018
	1/2 (15)	1.6 (1.4)	3/4	599-03001	599-03019
	1/2 (15)	2.5 (2.2)	3/4	599-03002	599-03020
	1/2 (15)	4 (3.4)	3/4	599-03003	599-03021
	3/4 (20)	6.3 (5.4)	3/4	599-03004	599-03022
	1 (25)	10 (8.6)	3/4	599-03005	599-03023
	1-1/4 (32)	16 (14)	3/4	599-03006	599-03024
	1-1/2 (40)	25 (22)	3/4	599-03007	599-03025
	2 (50)	40 (34)	3/4	599-03008	599-03026
High-Temperature Packing – 337°F (170°C)					
Internal thread x Internal thread	1/2 (15)	1 (0.9)	3/4	599-03054	599-03072
	1/2 (15)	1.6 (1.4)	3/4	599-03055	599-03073
	1/2 (15)	2.5 (2.2)	3/4	599-03056	599-03074
	1/2 (15)	4 (3.4)	3/4	599-03057	599-03075
	3/4 (20)	6.3 (5.4)	3/4	599-03058	599-03076
	1 (25)	10 (8.6)	3/4	599-03059	599-03077
	1-1/4 (32)	16 (14)	3/4	599-03060	599-03078
	1-1/2 (40)	25 (22)	3/4	599-03061	599-03079
	2 (50)	40 (34)	3/4	599-03062	599-03080

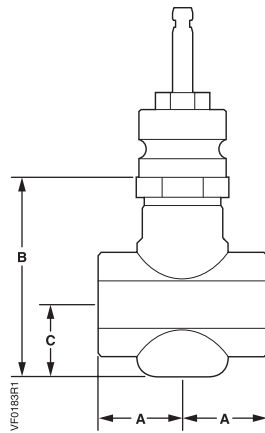
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Valves

Actuator Product Ordering

Description			Part No.	Actuator Prefix Code
 4"	Pneumatic	3-8 PSI (21-55 kPa)	599-01081	268
		5-10 PSI (34-69 kPa)	599-01082	—*
		10-15 PSI (69-103 kPa)	599-01083	270
 8"	Pneumatic	Normal Temp.	599-01050	277
		High-Temp.	599-01051	—*
 8"	Pneumatic w/ Positioner	Normal Temp. w/Positioner	599-01050 + 599-00426	283
		High-Temp. w/Positioner	599-01051 + 599-00426	—*
	Electro-Mechanical	Rack & Pinion 2P, Spring Return	599-03611	299
		Rack & Pinion, 0-10 Vdc, Spring Return	599-03609	298
		24 V, Floating 3P, Non-Spring Return	SAX81.03U	373
		24 V, 0-10 V, 4-20 mA, Non-Spring Return	SAX61.03U	371
	Electro-Hydraulic	24 V, Floating 3P, Spring Return	SKD82.51U	—*
		24 V, Floating 3P, Non-Spring Return	SKD82.50U	—*
		24 V, 0-10 V, 4-20 mA, Spring Return	SKD62U	274
		24 V, 0-10 V, 4-20 mA, Non-Spring Return	SKD60U	267
		24 V, 0-10 V, 4-20 mA, Spring Return	SKB62U	291

*Not available as an assembly. Valve and actuator sold separately and will have to be assembled in the field.



Internal NPT by Internal NPT (ITxIT)

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Valves

Valve Size	Dimensions			Weight
	A	B	C	
	Normally Open			
1/2" (15 mm)	1-7/16" (36 mm)	2-15/16" (74 mm)	1-1/4" (32 mm)	3 lb. (1.4 kg)
3/4" (20 mm)	1-11/16" (43 mm)	3-15/16" (99 mm)	1-7/16" (36 mm)	4 lb. (1.8 kg)
1" (25 mm)	2" (50 mm)	3-3/4" (96 mm)	1-1/4" (32 mm)	5 lb. (2.3 kg)
1-1/4" (32 mm)	2-1/2" (62 mm)	4-1/4" (109 mm)	2" (50 mm)	7 lb. (3.2 kg)
1-1/2" (40 mm)	2-9/16" (65 mm)	4-1/4" (109 mm)	2" (50 mm)	8 lb. (3.6 kg)
2" (50 mm)	3-1/8" (79 mm)	4-9/16" (116 mm)	2-1/4" (57 mm)	16 lb. (7.3 kg)
	Normally Closed			
1/2" (15 mm)	1-7/16" (36 mm)	3-13/16" (97 mm)	2-13/16" (55 mm)	3 lb. (1.4 kg)
3/4" (20 mm)	1-11/16" (43 mm)	3-13/16" (97 mm)	2-13/16" (55 mm)	4 lb. (1.8 kg)
1" (25 mm)	2" (50 mm)	3-13/16" (97 mm)	2-13/16" (55 mm)	5 lb. (2.3 kg)
1-1/4" (32 mm)	2-1/2" (62 mm)	3-13/16" (97 mm)	2-13/16" (55 mm)	7 lb. (3.2 kg)
1-1/2" (40 mm)	2-9/16" (65 mm)	3-7/8" (99 mm)	2-1/4" (58 mm)	8 lb. (3.6 kg)
2" (50 mm)	3-1/8" (79 mm)	4-1/2" (114 mm)	2-9/16" (65 mm)	16 lb. (7.3 kg)

Three-way Globe Valves

1/2 to 2-inch Bronze Body



Flowrite Three-way Globe Valve

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Valves

Description

Designed to work with either pneumatic or electronic actuators with a 3/4-inch (20 mm) stroke, the Flowrite Three-way Globe Valves are available in ANSI Class 250.

Features

- Direct-coupled, universal bonnet
- Equal percentage (NC port) and linear flow (NO port) characteristics
- Brass or stainless steel trim
- Accepts any 3/4-inch stroke Flowrite pneumatic or electronic actuator
- Greater than 100:1 rangeability
- ANSI Leakage Class IV (0.01% of Cv)
- Cartridge-type packing for easy service
- Orderable as a valve only or as a complete valve/actuator assembly

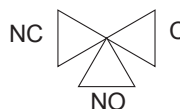
Applications

Flowrite Three-way Globe Valves are recommended for mixing applications. The upper port is closed in the normal stem up, failed position. The lower port is open in the stem up position.

This valve can also be used for throttling or bypass coil control application. However, a pump is recommended on the coil circuit to improve the heat transfer characteristic of the coil and for freeze protection.

To use this valve as a diverting valve, refer to Technical Instructions 155-185P25 for limitations or contact your local representative for more information.

Flow Characteristics



Equal percentage for NC/Linear for NO

Specifications

Valve Size 1/2 to 2" (15 to 50 mm)
Body StyleGlobe Style Control Valve
Seat StyleMetal to Metal
Action Three-way Mixing
Stem Travel (Stroke) 3/4" (20 mm)
Valve Body Rating ANSI Class 250
Material
 Body UNS CA 844 Bronze
 Trim Brass or Stainless Steel
 Stem Stainless Steel ASTM A582 Type 303
 Packing..... EPDM O-rings

Operating
 Controlled Medium Water, Glycol Solutions up to 50%
 Medium Temperature Range..... 20° to 250°F (-7° to 120°C)
Max. Recommended Differential Pressure for Modulating Service
 Brass Trim 25 PSI (173 kPa)
 Stainless Steel Trim 50 PSI (345 kPa)
Max. Inlet PressureRefer to the Flowrite Reference Section
Rangeability >100:1
Close-off Ratings According to ANSI/FCI 70-2
Leakage Rate Class IV (0.01% of Cv)

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Valves

Valve Product Ordering

Brass and Stainless Steel Trim



Connection	Valve Size in. (mm)	Flow Rate Cv (Kvs)	Stroke (in.)	Brass Trim Part No.	Stainless Steel Trim Part No.
Standard-Temperature Packing – 20° to 250°F (-7° to 120°C)					
Internal thread x Internal thread	1/2 (15)	1 (0.9)	3/4	599-03198	599-03144
	1/2 (15)	1.6 (1.4)	3/4	599-03199	599-03145
	1/2 (15)	2.5 (2.2)	3/4	599-03200	599-03146
	1/2 (15)	4 (3.4)	3/4	599-03201	599-03147
	3/4 (20)	6.3 (5.4)	3/4	599-03202	599-03148
	1 (25)	10 (8.6)	3/4	599-03203	599-03149
	1-1/4 (32)	16 (14)	3/4	599-03204	599-03150
	1-1/2 (40)	25 (22)	3/4	599-03205	599-03151
	2 (50)	40 (34)	3/4	599-03206	599-03152

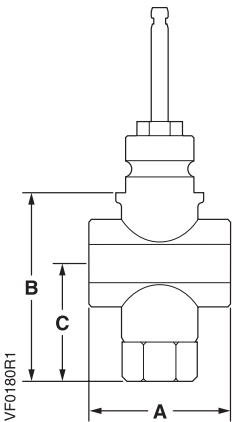
Actuator Product Ordering

Description			Part No.	Actuator Prefix Code
 4"	Pneumatic	3-8 PSI (21-55 kPa)	599-01081	268
		5-10 PSI (34-69 kPa)	599-01082	—*
		10-15 PSI (69 -103 kPa)	599-01083	270
 8"	Pneumatic	Normal Temp.	599-01050	277
		High-Temp.	599-01051	—*
 8"	Pneumatic w/ Positioner	Normal Temp. w/Positioner	599-01050 + 599-00426	283
		High-Temp. w/Positioner	599-01051 + 599-00426	—*
	Electro-Mechanical	Rack & Pinion 2P, Spring Return	599-03611	299
		Rack & Pinion, 0-10 Vdc, Spring Return	599-03609	298
		24 V, Floating 3P, Non-Spring Return	SAX81.03U	373
		24 V, 0-10 V, 4-20 mA, Non-Spring Return	SAX61.03U	371
	Electro-Hydraulic	24 V, Floating 3P, Spring Return	SKD82.51U	—*
		24 V, Floating 3P, Non-Spring Return	SKD82.50U	—*
		24 V, 0-10 V, 4-20 mA, Spring Return	SKD62U	274
		24 V, 0-10 V, 4-20 mA, Non-Spring Return	SKD60U	267
		24 V, 0-10 V, 4-20 mA, Spring Return	SKB62U	291

*Not available as an assembly. Valve and actuator sold separately and will have to be assembled in the field.

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Valves



Internal NPT by Internal NPT x Internal NPT
(ITxITxIT)

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Valves

Valve Size	Dimensions			Weight
	A	B	C	
1/2" (15 mm)	2-7/8" (72 mm)	4-5/16" (110 mm)	2-11/16" (68 mm)	3.0 lb. (1.4 kg)
3/4" (20 mm)	3-3/8" (85 mm)	4-5/16" (110 mm)	2-3/4" (69 mm)	4.0 lb. (1.8 kg)
1" (25 mm)	3-15/16" (100 mm)	4-1/2" (114 mm)	2-7/8" (72 mm)	5.0 lb. (2.3 kg)
1-1/4" (32 mm)	4-15/16" (125 mm)	4-5/8" (116 mm)	2-15/16" (74 mm)	7.0 lb. (3.2 kg)
1-1/2" (40 mm)	5-1/8" (130 mm)	4-5/8" (117 mm)	3" (76 mm)	9.0 lb. (4.1 kg)
2" (50 mm)	6-1/4" (158 mm)	5-1/8" (130 mm)	3-3/16" (81 mm)	13.0 lb. (5.9 kg)

Two-way Flanged Iron Globe Valves

2-1/2 to 6-inch

Normally Open or Normally Closed



Flowrite Two-Way Flanged Iron Valve

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Valves

Description

Designed to work with either pneumatic or electronic actuators, the Flowrite Two-way Valves are available in both ANSI Class 125 and 250 for normally closed or normally open action.

Features

- Valve flange face-to-face dimensions meet ANSI/ISA S75.03 standards
- Direct-coupled, universal bonnet
- Bronze or stainless-steel trim
- Standard- or high-temperature packing
- Close-off up to 250 PSI
- Fully serviceable
- Greater than 100:1 rangeability
- Equal percentage or linear flow characteristics
- 2-1/2 and 3-inch sizes available with 3/4-inch stroke only
- 4-, 5-, 6-inch are available with a 1-1/2-inch stroke
- ANSI Leakage Class IV (0.01% of Cv)
- Cartridge-type packing for easy service
- Orderable as a valve only or as a complete valve/actuator assembly

Applications

The Flowrite Two-way valves are recommended for water, steam, and glycol solutions up to 50 percent. Additional specifications include the following:

- Water inlet pressures up to ANSI 125 and ANSI 250 cast iron body rating
- Water modulating differential pressure up to 25 PSI (172 kPa) for bronze trim and 50 PSI (345 kPa) for stainless steel trim
- Steam inlet to 100 PSI with modulating differential pressure up to 50 PSI (345 kPa)

Specifications

Valve Size	2-1/2 to 6" (65 to 150 mm)
Body Style	Flanged
Seat Style	Single seat
Action	Normally Closed (NC); Normally Open (NO)
Valve Body Rating	ANSI Class 125 or 250
Stem Travel (Stroke)	
2-1/2 and 3"	3/4" (20 mm)
4, 5 and 6"	1-1/2" (40 mm)
Materials	
Body	Cast Iron ASTM A126 Class B
Trim	Bronze or Stainless Steel
Stem	Stainless Steel ASTM A582 Type 303
Packing	
Normal Duty Packing	EPDM O-rings
Steam Packing	PTFE V-rings and EPDM O-ring
Operating	
Controlled Medium	Saturated Steam, Water, Glycol Solutions up to 50%
Medium Temperature Range	
Normal Duty Packing	20° to 250°F (-7° to 120°C)
Steam Packing	337°F (170°C) max.

Max. Inlet Pressure	
Water	Refer to Flowrite Reference Section
Steam	100 psig (690 kPa)
Max. Recommended Differential Pressure for Modulating Service	
Bronze Trim	
Liquid	25 PSI (173 kPa)
Steam	15 PSI (103 kPa)
Stainless Steel Trim	
Liquid	50 PSI (345 kPa)
Steam	50 PSI (345 kPa)
Rangeability	>100:1
Close-off Ratings	According to ANSI/FCI 70-2
Close-off Pressure	Refer to the Flowrite Reference Section.
Leakage Rate	Class IV (0.01% of Cv)
Flow Characteristics	Equal Percentage or Linear
Dimensions	
Face-to-face	ANSI/ISA S75.03

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Valves

Valve Product Ordering

Normally Open/Normally Closed, Equal Percentage



Valve Size in. (mm)		Flow Rate Cv (Kvs)		Stroke (in.)		ANSI Class 125		ANSI Class 250	
						Normally Open Part No.	Normally Closed Part No.	Normally Open Part No.	Normally Closed Part No.
Standard-Temperature Packing – 20° to 250°F (-7° to 120°C)									
Bronze									
2-1/2	(65)	63	(54)	3/4	599-05980	599-05990	599-05940	599-05950	
3	(80)	100	(86)	3/4	599-05981	599-05991	599-05941	599-05951	
4	(100)	160	(140)	1-1/2	599-05982	599-05992	599-05942	599-05952	
5	(125)	250	(215)	1-1/2	599-05983	599-05993	599-05943	599-05953	
6	(150)	400	(340)	1-1/2	599-05984	599-05994	599-05944	599-05954	
Stainless Steel									
2-1/2	(65)	63	(54)	3/4	599-05960	599-05970	599-05920	599-05930	
3	(80)	100	(86)	3/4	599-05961	599-05971	599-05921	599-05931	
4	(100)	160	(140)	1-1/2	599-05962	599-05972	599-05922	599-05932	
5	(125)	250	(215)	1-1/2	599-05963	599-05973	599-05923	599-05933	
6	(150)	400	(340)	1-1/2	599-05964	599-05974	599-05924	599-05934	

Valve Product Ordering

Normally Open/Normally Closed, Linear, Stainless Steel



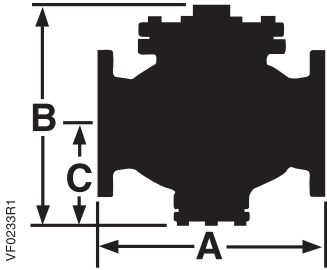
Valve Size in. (mm)	Flow Rate Cv (Kvs)	Stroke (in.)	ANSI Class 125		ANSI Class 250	
			Normally Open Part No.	Normally Closed Part No.	Normally Open Part No.	Normally Closed Part No.
Standard-Temperature Packing – 20° to 250°F (-7° to 120°C)						
2-1/2 (65)	63 (54)	3/4	599-06060	599-06070	599-06140	599-06150
3 (80)	100 (86)	3/4	599-06061	599-06071	599-06141	599-06151
4 (100)	160 (140)	1-1/2	599-06062	599-06072	599-06142	599-06152
5 (125)	250 (215)	1-1/2	599-06063	599-06073	599-06143	599-06153
6 (150)	400 (340)	1-1/2	599-06064	599-06074	599-06144	599-06154
High-Temperature Packing – 337°F (170°C)						
2-1/2 (65)	63 (54)	3/4	599-06040	599-06050	599-06120	599-06130
3 (80)	100 (86)	3/4	599-06041	599-06051	599-06121	599-06131
4 (100)	160 (140)	1-1/2	599-06042	599-06052	599-06122	599-06132
5 (125)	250 (215)	1-1/2	599-06043	599-06053	599-06123	599-06133
6 (150)	400 (340)	1-1/2	599-06044	599-06054	599-06124	599-06134

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Actuator Product Ordering

Description			Part No.	Actuator Prefix Code
 8"	Pneumatic	20 mm Stroke/Normal Temp.	599-01050	277
		20 mm Stroke/Hi-Temp.	599-01051	—*
 12"	Pneumatic	20 mm Stroke	599-01010	—*
		40 mm Stroke	599-01000	281
 8"	Pneumatic w/ Positioner	20 mm Stroke/Normal Temp.	599-01050 + 599-00426	283
		20 mm Stroke/Hi-Temp.	599-01051 + 599-00426	—*
 12"	Pneumatic w/ Positioner	20 mm Stroke	599-01010 + 599-00423	—*
		40 mm Stroke	599-01000 + 599-00423	287
	Electro-Hydraulic	20 mm Stroke		
		24 V, Floating 3P, Spring Return	SKD82.51U	—*
		24 V, Floating 3P, Spring Return	SKB82.51U	—*
		24 V, Floating 3P, Non-Spring Return	SKD82.50U	—*
		24 V, 0-10 V, 4-20 mA, Non-Spring Return	SKD60U	267
		24 V, 0-10 V, 4-20 mA, Spring Return	SKD62U	274
		24 V, 0-10 V, 4-20 mA, Spring Return	SKB62U	291
		40 mm Stroke		
		24 V, Floating 3P, Spring Return	SKC82.61U	—*
		24 V, Floating 3P, Non-Spring Return	SKC82.60U	—*
		24 V, 0-10 V, 4-20 mA, Spring Return	SKC62U	294

*Not available as an assembly. Valve and actuator sold separately and will have to be assembled in the field.



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Valves

Valve Size	ANSI Class 125				ANSI Class 250			
	Dimensions			Weight	Dimensions			Weight
	A	B	C		A	B	C	
	Normally Open							
2-1/2" (65 mm)	10-7/8" (276 mm)	11" (281 mm)	4-7/8" (123 mm)	60 lb. (27 kg)	11-1/2" (292 mm)	11" (281 mm)	4-7/8" (123 mm)	76 lb. (34 kg)
3" (80 mm)	11-3/4" (299 mm)	12-1/4" (312 mm)	5-5/16" (135 mm)	76 lb. (34 kg)	12-1/2" (318 mm)	12-1/4" (312 mm)	5-5/16" (135 mm)	99 lb. (45 kg)
4" (100 mm)	13-7/8" (352 mm)	13-9/16" (345 mm)	6-5/16" (160 mm)	124 lb. (56 kg)	14-1/2" (368 mm)	13-5/8" (344.7 mm)	6-5/16" (160 mm)	160 lb. (73 kg)
5" (125 mm)	15-3/4" (400 mm)	15-3/16" (385 mm)	7" (177 mm)	155 lb. (70 kg)	16-5/8" (422 mm)	15-3/16" (385 mm)	7" (177 mm)	208 lb. (94 kg)
6" (150 mm)	17-3/4" (451 mm)	16-3/4" (426 mm)	7-7/8" (200 mm)	212 lb. (96 kg)	18-5/8" (473 mm)	16-3/4" (426 mm)	7-7/8" (200 mm)	302 lb. (137 kg)
	Normally Closed							
2-1/2" (65 mm)	10-7/8" (276 mm)	10-5/8" (269 mm)	4-7/8" (125 mm)	58 lb. (26 kg)	11-1/2" (292 mm)	11" (279 mm)	5-3/8" (135 mm)	74 lb. (34 kg)
3" (80 mm)	11-3/4" (299 mm)	11-15/16" (303 mm)	5-5/8" (142 mm)	75 lb. (34 kg)	12-1/2" (318 mm)	12-7/16" (315 mm)	6" (154 mm)	98 lb. (44 kg)
4" (100 mm)	13-7/8" (352 mm)	13-15/16" (354 mm)	6-5/8" (168 mm)	123 lb. (56 kg)	14-1/2" (368 mm)	14-3/8" (364 mm)	7" (178 mm)	159 lb. (72 kg)
5" (125 mm)	15-3/4" (400 mm)	15-1/4" (338 mm)	7-1/2" (185 mm)	153 lb. (69 kg)	16-5/8" (422 mm)	15-3/4" (399 mm)	7-3/4" (196 mm)	207 lb. (94 kg)
6" (150 mm)	17-3/4" (451 mm)	17-1/16" (433 mm)	8-3/16" (207 mm)	209 lb. (95 kg)	18-5/8" (473 mm)	17-1/2" (444 mm)	8-5/8" (218 mm)	299 lb. (136 kg)

High Pressure Close-off Two-Way Flanged Iron Globe Valves

2-1/2 to 6-inch

Normally Open or Normally Closed



Flowrite Two-Way Flanged Iron High Pressure Close-off

A-183

Valves

Description

The Flowrite 599 Series high pressure close-off, two-way flanged iron body globe valves, are designed to work with either pneumatic or SK Series electro-hydraulic actuators with 3/4-inch (20 mm) or 1-1/2-inch (40 mm) stroke. They are available in both ANSI Class 125 and 250 for normally open or normally closed action.

Applications

Typical applications include control of hot or chilled water; or water-glycol solutions up to 50%.

Features

- Universal bonnet, for direct-coupled actuators
- Equal percentage flow characteristic
- Stainless-steel trim and stem
- Metal-to-metal seat
- 200 PSI close-off for all line sizes
- ANSI Class IV leakage ($\leq 0.01\%$ of Cv)
- Greater than 100:1 rangeability
- EPDM O-ring packing
- Cartridge-type packing for easy service
- Orderable as a valve only or as a complete valve/actuator assembly



Specifications

Valve Size2-1/2 to 6" (65 to 150 mm)
Body StyleCast Iron ASTM A126 Class B
Seat StyleMetal to Metal
ActionNormally Open (NO) or Normally Closed (NC)
Valve Body RatingANSI Class 125 or 250
Stem Travel
 2-1/2 and 3" 3/4" (20 mm) Stroke
 4, 5 and 6" 1-1/2" (40 mm) Stroke
Materials
 BodyCast Iron ASTM A126 Class B
 TrimStainless Steel
 StemStainless Steel ASTM A582 Type 303
Packing
 Normal Duty Packing EPDM O-ring
Operating
 Controlled Medium Water, Glycol Solutions to 50%

Medium Temperature Range 20° to 250°F (-7° to 120°C)
Max. Inlet Pressure
 WaterRefer to Flowrite Reference Section
Max. Recommended Differential Pressure for Modulating Service
 Stainless Steel Trim
 Liquid 50 psig (345 kPa)
Rangeability >100:1
Close-off Ratings According to ANSI/FCI 70-2
Close-off Pressure 200 psig
Leakage Rate Class IV ($\leq 0.01\%$ of Cv)
Dimensions
 Face-to-Face ANSI/ISA S75.03

A-184

Valve Product Ordering

Normally Open/Normally Closed, Equal Percentage

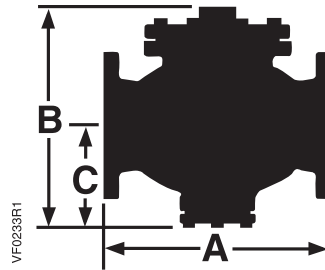


Valve Size in. (mm)		Flow Rate Cv (Kvs)	Stroke (in.)	ANSI Class 125		ANSI Class 250		
				Normally Open Part No.	Normally Closed Part No.	Normally Open Part No.	Normally Closed Part No.	
Standard-Temperature Packing – 20° to 250°F (-7° to 120°C)								
2-1/2	(65)	63	(54)	3/4	599-06610	599-06615	599-06620	599-06625
3	(80)	100	(86)	3/4	599-06611	599-06616	599-06621	599-06626
4	(100)	160	(140)	1-1/2	599-06612	599-06617	599-06622	599-06627
5	(125)	250	(215)	1-1/2	599-06613	599-06618	599-06623	599-06628
6	(150)	400	(340)	1-1/2	599-06614	599-06619	599-06624	599-06629

Actuator Product Ordering

Description			Part No.	Actuator Prefix Code
 8"	Pneumatic w/ Positioner	20 mm Stroke	599-01050 + 599-00426	283
 12"	Pneumatic w/ Positioner	40 mm Stroke	599-01000 + 599-00423	287
	Electro-Hydraulic	24 V, 0-10 V, 4-20 mA, 3/4" Stroke Spring Return	SKD62U	274
		24 V, 0-10 V, 4-20 mA, 1-1/2" Stroke Spring Return	SKC62U	294

Dimensions and Weights



Valve Size	ANSI Class 125				ANSI Class 250			
	Dimensions			Weight	Dimensions			Weight
	A	B	C		A	B	C	
	Normally Open							
2-1/2" (65 mm)	10-7/8" (276 mm)	11" (281 mm)	4-7/8" (123 mm)	62 lb. (28 kg)	11-1/2" (292 mm)	11" (281 mm)	4-7/8" (123 mm)	78 lb. (36 kg)
3" (80 mm)	11-3/4" (299 mm)	12-1/4" (312 mm)	5-5/16" (135 mm)	79 lb. (36 kg)	12-1/2" (318 mm)	12-1/4" (312 mm)	5-5/16" (135 mm)	102 lb. (46 kg)
4" (100 mm)	13-7/8" (352 mm)	13-9/16" (345 mm)	6-5/16" (160 mm)	129 lb. (58 kg)	14-1/2" (368 mm)	13-5/8" (344.7 mm)	6-5/16" (160 mm)	165 lb. (75 kg)
5" (125 mm)	15-3/4" (400 mm)	15-3/16" (385 mm)	7" (177 mm)	172 lb. (73 kg)	16-5/8" (422 mm)	15-3/16" (385 mm)	7" (177 mm)	215 lb. (97 kg)
6" (150 mm)	17-3/4" (451 mm)	16-3/4" (426 mm)	7-7/8" (200 mm)	222 lb. (111 kg)	18-5/8" (473 mm)	16-3/4" (426 mm)	7-7/8" (200 mm)	312 lb. (142 kg)
	Normally Closed							
2-1/2" (65 mm)	10-7/8" (276 mm)	10-5/8" (269 mm)	4-7/8" (125 mm)	60 lb. (27 kg)	11-1/2" (292 mm)	11" (279 mm)	5-3/8" (135 mm)	76 lb. (35 kg)
3" (80 mm)	11-3/4" (299 mm)	11-15/16" (303 mm)	5-5/8" (142 mm)	78 lb. (36 kg)	12-1/2" (318 mm)	12-7/16" (315 mm)	6" (154 mm)	101 lb. (46 kg)
4" (100 mm)	13-7/8" (352 mm)	13-15/16" (354 mm)	6-5/8" (168 mm)	128 lb. (58 kg)	14-1/2" (368 mm)	14-3/8" (364 mm)	7" (178 mm)	164 lb. (74 kg)
5" (125 mm)	15-3/4" (400 mm)	15-1/4" (338 mm)	7-1/2" (185 mm)	160 lb. (72 kg)	16-5/8" (422 mm)	15-3/4" (399 mm)	7-3/4" (196 mm)	214 lb. (97 kg)
6" (150 mm)	17-3/4" (451 mm)	17-1/16" (433 mm)	8-3/16" (207 mm)	219 lb. (100 kg)	18-5/8" (473 mm)	17-1/2" (444 mm)	8-5/8" (218 mm)	309 lb. (141 kg)

A-185

Valves



A-186

We're **happy** to assist you

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SIEMENS

Three-way Flanged Iron Globe Valves

2-1/2 to 6-inch



Flowrite Three-way Flanged Iron Globe Valve

A-187

Valves

Description

Designed to work with either a pneumatic or electronic Flowrite actuator, the Flowrite Three-way Globe Valves are available in both ANSI Class 125 and 250.

Features

- Valve flange face-to-face dimensions meet ANSI/ISA S75.03 standards
- Direct-coupled, universal bonnet
- Equal percentage (NC port) and linear (NO port) flow characteristics
- Bronze or stainless steel trim
- Greater than 100:1 rangeability
- 2-1/2 to 3-inch are available with a 3/4-inch stroke
- 4-, 5-, and 6-inch are available with a 1-1/2-inch stroke
- ANSI Leakage Class IV (0.01% of Cv)
- Cartridge-type packing for easy service

Option

- Service flange for easy removal of stem and plug through bottom port

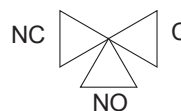
Applications

The Flowrite Three-way Globe Valves are recommended for water and glycol solutions up to 50 percent. Additional specifications include the following:

- Water inlet pressures up to ANSI 125 and ANSI 250 cast-iron body rating
- Water modulating differential pressure up to 25 PSI (172 kPa) for bronze trim and 50 PSI (345 kPa) for stainless steel trim

To use this valve as a diverting valve, refer to Technical Instructions 155-160P25 for limitations or contact your local representative for more information.

Flow Characteristics



Equal percentage for NC/Linear for NO

Specifications

Valve Size 2-1/2 to 6"
Body Style Flanged
Action Three-way Water Mix
Stem Travel
 2-1/2 and 3" 3/4" (20 mm)
 4, 5 and 6" 1-1/2" (40 mm)
Valve Body Rating ANSI Class 125 or 250
Materials
 Body Cast Iron, ASTM A 126 Class B
 Trim Bronze or Stainless Steel
 Stem Stainless Steel, ASTM A582 Type 303
Packing
 Liquid Service to 250°F (120°C) EPDM O-rings

Operating
 Controlled Medium Water, Glycol Solutions up to 50%
 Medium Temperature Range 20° to 250°F (-7° to 120°C)
Max. Recommended Differential Pressure for Modulating Service
 Bronze Trim 25 psig (173 kPa)
 Stainless Steel Trim 50 psig (345 kPa)
Flow Characteristics
 Upper Port Equal Percentage
 Lower Port Linear
Rangeability >100:1

A-188

Valve Product Ordering

Bronze Trim



Valve Size in. (mm)	Flow Rate Cv (Kvs)	Stroke	Valve Body		Service Flange		
			ANSI Class 125	ANSI Class 250	ANSI Class 125	ANSI Class 250	
Standard-Temperature Packing – 20° to 250°F (-7° to 120°C)							
2-1/2 (65)	63 (54)	3/4	599-06160	599-06170	599-05011	599-05016	
3 (80)	100 (86)	3/4	599-06161	599-06171	599-05012	599-05017	
4 (100)	160 (140)	1-1/2	599-06162	599-06172	599-05013	599-05018	
5 (125)	250 (215)	1-1/2	599-06163	599-06173	599-05014	599-05019	
6 (150)	400 (340)	1-1/2	599-06164	599-06174	599-05015	599-05020	

Ordering Note:
 Service Flange is sold separately.

Stainless Steel Trim



Valve Size in. (mm)	Flow Rate Cv (Kvs)	Stroke	Valve Body		Service Flange		
			ANSI Class 125	ANSI Class 250	ANSI Class 125	ANSI Class 250	
Standard-Temperature Packing – 20° to 250°F (-7° to 120°C)							
2-1/2 (65)	63 (54)	3/4	599-06165	599-06175	599-05011	599-05016	
3 (80)	100 (86)	3/4	599-06166	599-06176	599-05012	599-05017	
4 (100)	160 (140)	1-1/2	599-06167	599-06177	599-05013	599-05018	
5 (125)	250 (215)	1-1/2	599-06168	599-06178	599-05014	599-05019	
6 (150)	400 (340)	1-1/2	599-06169	599-06179	599-05015	599-05020	

Ordering Note:
 Service Flange is sold separately.

Actuator Product Ordering

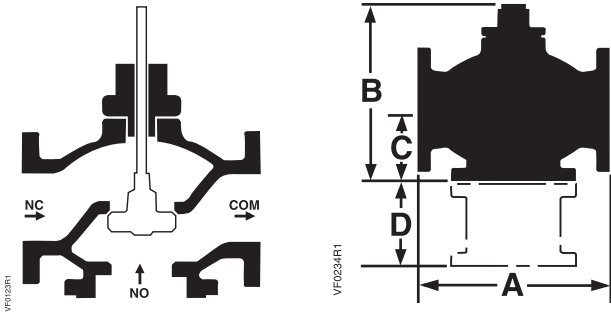
Description			Part No.	Actuator Prefix Code
 8"	Pneumatic	20 mm Stroke/Normal Temp.	599-01050	277
		20 mm Stroke/Hi-Temp.	599-01051	—*
 12"	Pneumatic	20 mm Stroke	599-01010	—*
		40 mm Stroke	599-01000	281
 8"	Pneumatic w/ Positioner	20 mm Stroke/Normal Temp.	599-01050 + 599-00426	283
		20 mm Stroke/Hi-Temp.	599-01051 + 599-00426	—*
 12"	Pneumatic w/ Positioner	20 mm Stroke	599-01010 + 599-00423	—*
		40 mm Stroke	599-01000 + 599-00423	287
	Electro-Hydraulic	20 mm Stroke		
		24 V, Floating 3P, Spring Return	SKD82.51U	—*
		24 V, Floating 3P, Spring Return	SKB82.51U	—*
		24 V, Floating 3P, Non-Spring Return	SKD82.50U	—*
		24 V, 0-10 V, 4-20 mA, Non-Spring Return	SKD60U	267
		24 V, 0-10 V, 4-20 mA, Spring Return	SKD62U	274
		24 V, 0-10 V, 4-20 mA, Spring Return	SKB62U	291
		40 mm Stroke		
		24 V, Floating 3P, Spring Return	SKC82.61U	—*
		24 V, Floating 3P, Non-Spring Return	SKC82.60U	—*
		24 V, 0-10 V, 4-20 mA, Spring Return	SKC62U	294

*Not available as an assembly. Valve and actuator sold separately and will have to be assembled in the field.

A-189

Valves

Dimensions and Weights



A-190

Valves

Valve Size	Dimensions					Weight	
	A		B	C	D		
	ANSI Class 125	ANSI Class 250			Service Flange	ANSI Class 125	ANSI Class 250
2-1/2" (65 mm)	10-7/8" (276.4 mm)	11-1/2" (292 mm)	9-3/8" (239.2 mm)	3-3/4" (95 mm)	6.5" (165 mm)	50 lb. (23 kg)	63 lb. (29 kg)
3" (80 mm)	11-3/4" (298.5 mm)	12-1/2" (318 mm)	10-3/4" (272 mm)	4-3/8" (111 mm)	7" (178 mm)	65 lb. (30 kg)	82 lb. (37 kg)
4" (100 mm)	13-7/8" (352.4 mm)	14-1/2" (368 mm)	12-1/2" (317.8 mm)	5-1/8" (131.6 mm)	7.5" (191 mm)	110 lb. (50 kg)	134 lb. (61 kg)
5" (125 mm)	15-3/4" (400 mm)	16-5/8" (422 mm)	13-3/4" (349.2 mm)	5-3/4" (146.2 mm)	8.5" (216 mm)	136 lb. (62 kg)	176 lb. (80 kg)
6" (150 mm)	17-3/4" (451 mm)	18-5/8" (473 mm)	15-1/2" (393 mm)	6-5/8" (167 mm)	9.5" (241 mm)	141 lb. (64 kg)	258 lb. (117 kg)

Pneumatic 4-inch Valve Actuator



Flowrite 4-inch Pneumatic Valve Actuator

A-191

Valves

Description

Designed for use with the threaded Flowrite valves, the Flowrite 4-inch Pneumatic Valve Actuator has a 3/4-inch (20 mm) stroke and is available in three spring ranges.

Features

- Three spring ranges
 - 3 to 8 PSI
 - 5 to 10 PSI
 - 10 to 15 PSI
- Visual position indication
- 3/4-inch (20 mm) stroke
- Large diaphragm area for control accuracy
- Easy installation and removal
- Rugged, all-metal housing

Applications

The Flowrite 4-inch Pneumatic Valve Actuator is designed to be used with the threaded Flowrite valves in liquid and steam service applications.

Actuator Specifications

Effective Diaphragm Area	11 in. ² (71 cm ²)
Diaphragm Material	Silicone
Nominal Stroke	3/4" (20 mm)
Max. Diaphragm Pressure	35 psig (241 kPa)

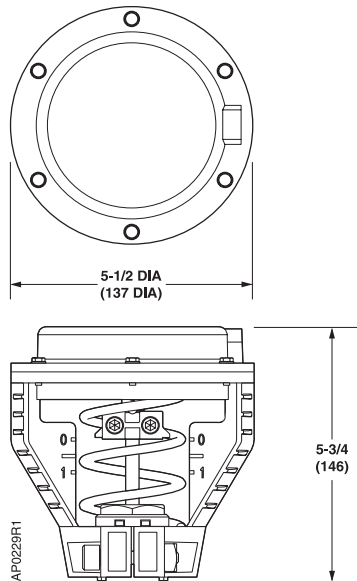
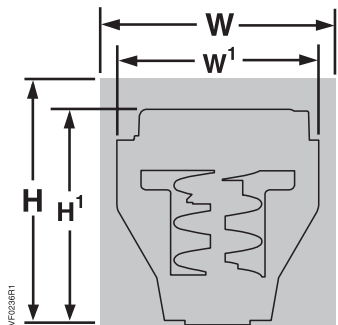
Air Connection	1/8" NPT
Ambient Operating and Storage Temperature	0° to 225°F (-18° to 107°C)
Mounting Location	NEMA 1 (Interior Only)

Actuator Product Ordering

Nominal Spring Range	Part No.	Actuator Prefix Code
3 to 8 PSI (21 to 55 kPa)	599-01081	268
5 to 10 PSI (34 to 69 kPa)	599-01082	—*
10 to 15 PSI (69 to 103 kPa)	599-01083	270

*Not available as an assembly. Valve and actuator sold separately and will have to be assembled in the field.

Dimensions



Dimensions shown in inches (mm)

Actuator	Height of Actuator H'	Service Height H	Width/Diameter of Actuator W'	Service Width W
4" (100 mm)	5-3/4" (146 mm)	14" (350 mm)	5-1/2" (134 mm) Dia.	18" (450 mm)

Table Notes:
Service height and width are the recommended dimensions to allow access to the product.

Pneumatic 8-inch Valve Actuator



Flowrite 8-inch Pneumatic Valve Actuator

A-193

Valves

Description

Designed for use with Flowrite valves, the Flowrite 8-inch Pneumatic Valve Actuator has a 3/4-inch (20 mm) stroke and is available with two diaphragm options for normal duty and high-temperature service.

Features

- Completely enclosed actuator housing protects the diaphragm, spring, and start point adjuster
- A positioning relay is available factory-mounted on valve and actuator assemblies or as an accessory
- Field-adjustable start point for sequencing and calibration
- Easy-to-install
- Legendary Flowrite performance

Option

- High-temperature model

Applications

The Flowrite 8-inch Pneumatic Valve Actuator is designed to be used with the Flowrite valves in liquid and steam service applications.

8-inch Pneumatic Actuator Specifications

Effective Diaphragm Area 28 in.² (180 cm²)

Diaphragm Material

Standard Buna-N
High Temp Silicone

Temperature Range

Normal Duty Service 25° to 300°F (-4° to 149°C)
High-Temperature Service 25° to 366°F (-4° to 186°C)

Nominal Spring Range

Fixed Span Standard 5 psig (34 kPa)
Fixed Span High Temp 10 psig (69 kPa)
Adjustable Start Point 3 to 10 psig (21 to 69 kPa)
Factory Setting Standard 3 to 8 psig (21 to 55 kPa)
Factory Setting High Temp 10 to 20 psig (69 to 138 kPa)

Nominal Stroke 3/4" (20 mm)

Max. Diaphragm Pressure 35 psig (241 kPa)

Air Connection 1/8" NPT

Ambient Operating and

Storage Temperature 35° to 180°F (2° to 85°C)

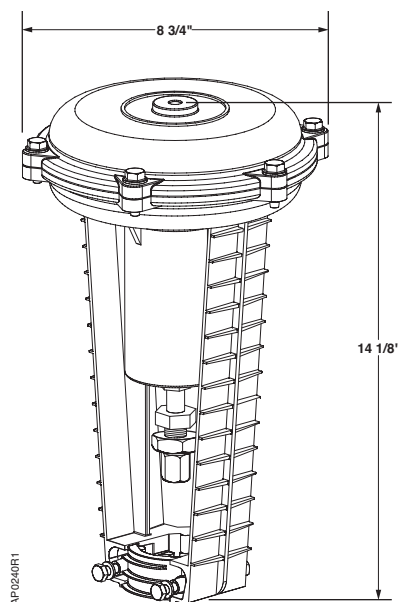
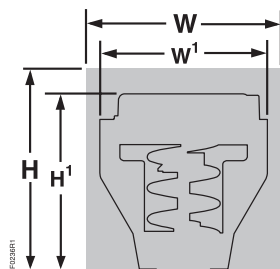
Mounting Location NEMA 1 (Interior Only)

Product Ordering

Description	Span	Part No.	Actuator Prefix Code
Normal Duty			
Actuator	5 PSI	599-01050	277
Actuator and positioner		599-01050 + 599-00426	283
High-Temperature			
Actuator	10 PSI	599-01051	—*
Actuator and positioner		599-01051 + 599-00426	—*

*Not available as an assembly. Valve and actuator sold separately and will have to be assembled in the field.

Dimensions



Actuator	Height of Actuator H ¹	Service Height H	Width/Diameter of Actuator W ¹	Service Width W
8" (171 mm)	14-1/8" (359 mm)	26" (660 mm)	8-3/4" (222 mm) Dia.	21" (450 mm)

Table Notes:

Service height and width are the recommended dimensions to allow access to the product.

Pneumatic 12-inch Valve Actuator



Flowrite 12-inch Pneumatic Valve Actuator

A-195

Valves

Description

Designed for use with Flowrite valves, the Flowrite 12-inch Pneumatic Valve Actuator is available with two stem strokes, 3/4-inch (20 mm) stroke and 1-1/2-inch (40 mm).

Features

- Completely enclosed actuator housing protects the diaphragm, springs, and start point adjuster
- A positioning relay is available factory-mounted on valve and actuator assemblies or as an accessory
- Field-adjustable start point for sequencing and calibration
- Easy-to-install

Applications

The Flowrite 12-inch Pneumatic Valve Actuator is designed to be used with Flowrite valves in liquid and steam service applications.



Specifications

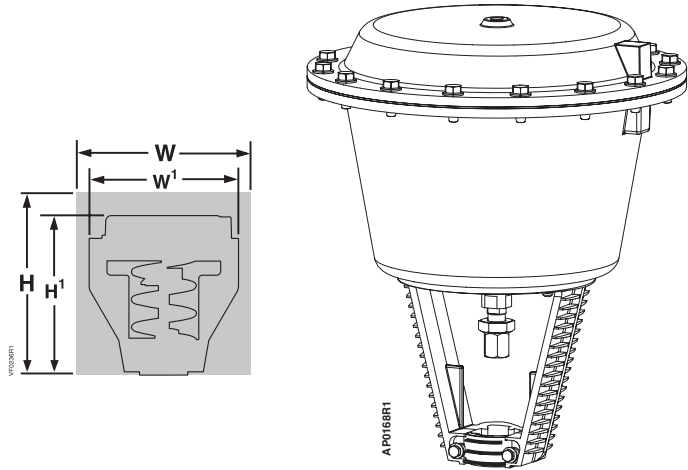
Effective Diaphragm Area	90 in. ² (580 cm ²)	Max. Diaphragm Pressure	35 psig (241 kPa)
Diaphragm Material	Buna-N	Air Connection	1/4" NPT
Nominal Spring Range		Medium Temperature	25° to 366°F (-4° to 186°C)
Fixed Span	5 psig (34 kPa)	Ambient Operating and Storage Temperature	35° to 180°F (2° to 85°C)
Adjustable Start Point	3 to 10 psig (21 to 69 kPa)	Mounting Location	NEMA 1 (Interior Only)
Factory Setting	3 to 8 psig (21 to 55 kPa)		
Nominal Stroke	3/4 or 1-1/2" (20 or 40 mm)		

Product Ordering

Description	Part No.	Actuator Prefix Code
3/4" Stroke		
Actuator	599-01010	—*
Actuator and positioner	599-01010 + 599-00423	—*
1-1/2" Stroke		
Actuator	599-01000	281
Actuator and positioner	599-01000 + 599-00423	287

*Not available as an assembly. Valve and actuator sold separately and will have to be assembled in the field.

Dimensions



Actuator	Height of Actuator H'	Service Height H	Width/Diameter of Actuator W'	Service Width W
12" (305 mm)	17-7/8" (454 mm)	30" (762 mm)	15-1/8" (384 mm) Dia.	27" (686 mm)

Table Notes:

Service height and width are the recommended dimensions to allow access to the product.

SAX Valve Actuator

24 Vac, Floating or Proportional Control

Floating, 0 to 10 Vdc or 4 to 20 mA

Non-Spring Return



Flowrite SAX Valve Actuator

A-197

Valves

Description

Designed for use with Flowrite valves with a 3/4-inch (20 mm) stroke. The Flowrite SAX Electronic Actuator requires either a 24 Vac or 24 Vdc supply, and receives a 0 to 10 Vdc or 4 to 20 mA control signal to proportionally control the valve or a floating control signal to provide floating control of the valve.

Applications

The Flowrite SAX Electronic Valve Actuator is designed to be used with the Flowrite and other valves in liquid and low pressure steam service applications. They are ideal for installations requiring quick response and excellent resolution.

Features

- 24 Vac/dc operating voltage
- Proportional or floating (3P) control
- Direct-coupled installation requires no special tools or adjustments
- Manual override
- Overload and stall protection
- Visual stroke indication
- Non-spring return (fail-in-place)
- 180 lb (800N) nominal force
- Automatic stroke calibration on SAX61.03U
- LED status on SAX61.03U
- Electronic stroke indication on SAX61.03U
- Maintenance-free
- Optional functions with auxiliary switches, potentiometer (SAX81.03U), function module (SAX61.03U), and stem heater



Siemens offers a 5-year warranty on valves and actuators.

Specifications

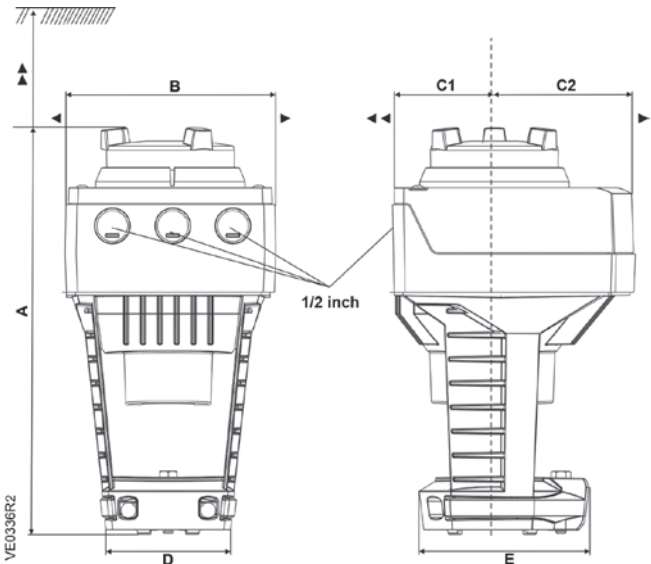
Operating Voltage	24 Vac $\pm 20\%$, 24 Vdc $+20\%/-15\%$
Frequency	45-65 Hz
Power Consumption (SAX61.03U)	8 VA
Power Consumption (SAX81.03U)	5 VA
Control Signals (SAX61.03U)	
Control Input (Y)	
Voltage.....	0 to 10 Vdc
Current.....	4-20 mA
Control Input (Z)	
Resistance.....	0-1000 Ohm
Position Feedback Output (U).....	0 to 10 Vdc
Control Signal (SAX81.03U)	3-Position (Floating)
Function	
Nominal Stroke	3/4" (20 mm)
Run Time	30 sec.
Nominal Force	180 lb. (800 N)

Agency Approvals	UL 873 CSA C22.2 No. 24-93
Operating and Storage Temperature	
Operating Temperature	23° to 131°F (-5° to 55°C)
Storage Temperature	5° to 131°F (-15° to 55°C)
Transport Temperature	-13° to 158°F (-25° to 70°C)
Ambient Humidity	5 to 90% RH, Non-condensing
Media Temperature	Up to 266°F (130°C)
Conduit Opening	1/2" NPSM
Mounting Location	NEMA 1 (Interior Only)

Product Ordering

Description	Part No.	Actuator Prefix Code
24 Vac Proportional, Non-Spring Return	SAX61.03U	371
Floating 3P, Non-Spring Return	SAX81.03U	373

Dimensions



Dimensions shown in inches (mm)

A	B	C	C1	C2	D	E	►	►►
9.5 (242)	5 (125)	6 (150)	2.7 (68)	3.3 (82)	3 (80)	4 (100)	4 (100)	8 (200)

Electro-Mechanical Rack and Pinion Actuator

24 Vac, Proportional or On/Off Control

0 to 10 Vdc or 2-position

Spring Return



Flowrite Electro-Mechanical
Rack and Pinion

A-199

Valves

Description

The Flowrite Electronic Rack and Pinion is designed for use with 1/2- to 2-inch Flowrite two- and three-way valves with a 3/4-inch stroke. A linkage fastens the actuator and the valve body together and transforms the rotary movement of the actuator output shaft to the linear motion required to position the valve.

Applications

The Flowrite Valves and Valve Actuators are used to control water and glycol solutions to 50 percent in small to large air handling units and central plant applications.

Features

- Brushless DC motor technology with stall protection
- Bi-directional fail-safe spring return
- All metal housing
- UL and C-UL listed
- Spring return to fail-safe position



Siemens offers a
5-year warranty
on valves and
actuators.

Specifications

Power Supply

Operating Voltage 24 Vac, +20%, -15%
Frequency 50/60 Hz

Power Consumption

599-03609 assembly
(with GCA161.1U actuator) 9 VA running, 5 VA holding
599-03611 assembly
(with GCA121.1U actuator) 8 VA running, 3 VA holding

Equipment Rating Class 2, in accordance with UL/CSA

Control Signal (599-03609 assembly with GCA161.1U actuator)

Input Signal

Voltage Input 0 to 10 Vdc (max. 35 Vdc)
Input Resistance 100K Ohms
Current Input 4 to 20 mA
Input Resistance 500 Ohms

Position Output Feedback Signal 0 to 10 Vdc, ± 1 mA maximum

Mounting

Nominal Angle of Rotation 90°
Maximum Angular Rotation 95°
Noise Level <45 dBA (running)
Enclosure NEMA 2 in vertical to horizontal 90

Ambient Operating Temperature -25° to 130° F (-32° to 55°C)

Storage and Transport Temperature -25° to 158° F (-32° to 70°C)

Ambient Humidity 95% RH, non-condensing

Agency Certification UL 873

C-UL certified to Canadian Standard C22.2 No. 24-93

Pre-connected Cable 18 AWG, 3 ft. (0.9 m)

Product Ordering

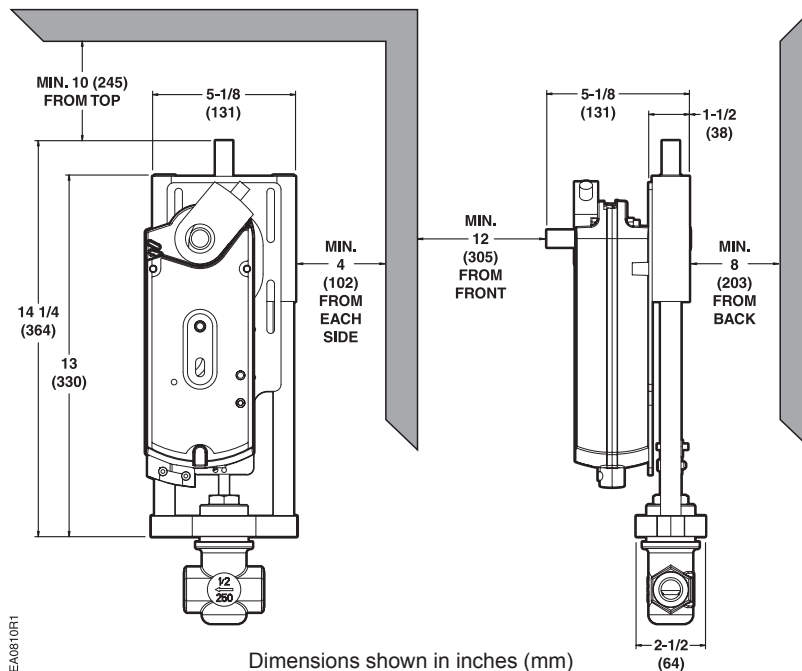
Description	Part No.	Actuator Prefix Code
0 to 10 Vdc, Spring Return	599-03609	298
2-position, Spring Return	599-03611	299
Bracket Only	599-03610	—

Table Notes:

The linkage, Actuator, and Flowrite Valve are available as an assembly. Refer to: *TB 249, Flowrite Valve and Actuator Assembly Selection Technical Bulletin*, 155-304P25 for details and product numbers.

Dimensions

Normal Duty Application as Shipped from Factory



SKD Valve Actuator

24 Vac, Proportional Control

0 to 10 Vdc or 4 to 20 mA

Spring Return or Non-Spring Return



Flowrite SKD Valve Actuator

A-201

Valves

Description

Designed for use with the Flowrite and other standard valves with a 3/4" (20 mm) stroke, the Flowrite SKD Electronic Valve Actuator receives a 0 to 10 Vdc or 4 to 20 mA control signal to proportionally control the valve. The spring return actuators are available with standard or advanced functionality.

Applications

The Flowrite SKD Electronic Valve Actuator requires a 24 Vac supply and is designed to be used with Flowrite and other standard valves in liquid and steam service applications.

Features

Standard Features

Part nos. with U suffix have these standard features:

- Direct-coupled installation requires no special tools or adjustments
- Visual and electronic stroke indication
- Die-cast aluminum housing
- 250 lb. (1150 N) nominal force
- 0 to 10 Vdc or 4 to 20 mA
- Integral position feedback
- Manual override
- Spring return or non-spring return
- Maintenance-free

Advanced Features (Spring Return only)

Part nos. with UA suffix have standard features, plus these advanced features:

- Adjustable start and span
- Stroke limit control
- Selectable operation direction (direct or reverse acting)
- Choice of linear or equal percentage flow characteristics
- Designed to be used with other manufacturer's valves with the appropriate Universal Valve Retrofit Kit



Specifications

Operating Voltage	24 Vac ±20%
Frequency	50/60 Hz
Power Consumption.....	17 VA (12 W)
Control Signals	
Control Input (Y)	
Voltage.....	0 to 10 Vdc
Current.....	4 to 20 mA
Control Input (R)	
Resistance.....	0 to 1000 Ohms
Voltage.....	0 to 1.6 V
Position Feedback Output (U)	
Voltage.....	0 to 10 Vdc
Max. Current.....	0.5 mA max.
Position Feedback Output (U)	
Current.....	4 to 20 mA
Max. Impedance.....	250 Ohms

Function	
Nominal Stroke	3/4" (20 mm)
Run Time with Control Operation (Full Stroke)	
Pushing Stroke, 0 to 100%	30 sec.
Pulling Stroke, 100 to 0%	15 sec.
Nominal Force	
NC and 3-way Upper	
Stroke.....	0%
Force.....	225 lbs. (1000 N)
NO and 3-way By Pass	
Stroke.....	100%
Force.....	258 lbs. (1150 N)
Agency Approvals	UL 873, cUL, CSA C22.2 No. 24-93, CE N474
Operating	
Ambient Temperature	5° to 130°F (-15° to 55°C)
Media Temperature	14° to 300°F (-10° to 150°C)
Conduit Opening	1/2" NPSM
Housing	NEMA 1 (Interior Only)

A-202

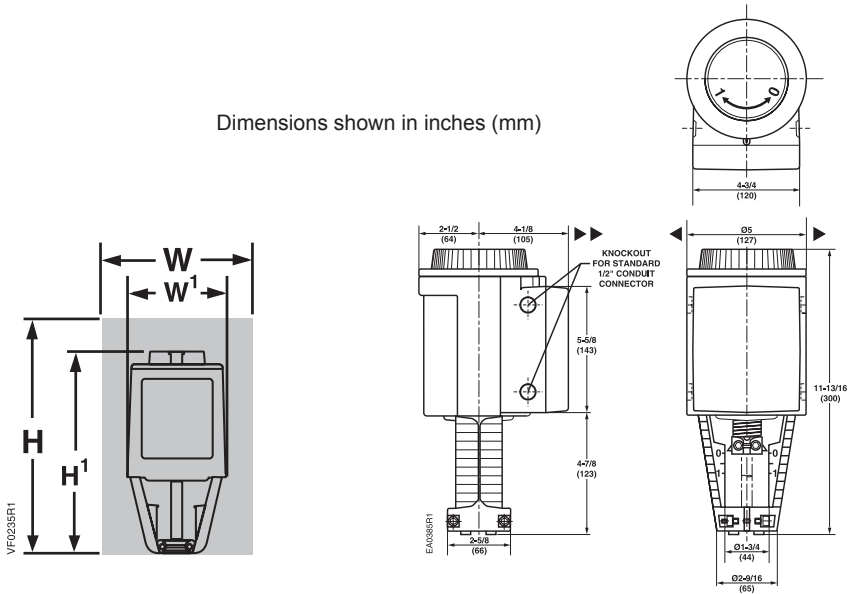
Product Ordering

Description	Part No.	Actuator Prefix Code
24 Vac, Proportional Control, Non-Spring Return	SKD60U	267
24 Vac, Proportional Control, Spring Return	SKD62U	274
24 Vac, Proportional Control with Advanced Features, Spring Return	SKD62UA	—

Ordering Note:
The SKD62UA can be used with other manufacturer's valves with the appropriate Universal Valve Linkage Kit.

Dimensions

Dimensions shown in inches (mm)



Height of Actuator H¹	Service Height H	Width/Diameter of Actuator W¹	Service Width W
11-13/16" (300 mm)	19-3/4" (430 mm)	6-5/8" (170 mm) Width	14-1/2" (360 mm)

Table Notes:
Service height and width are the recommended dimensions to allow access to the product.

SKD Valve Actuator

*24 Vac, Floating (3 Position) Control
Spring Return or Non-Spring Return*



Flowrite SKD Valve Actuator

A-203

Valves

Description

Designed for use with Flowrite and other standard valves with a 3/4-inch (20 mm) stroke, the Flowrite SKD Electronic Valve Actuator requires 24 Vac supply to provide floating control of a valve.

Applications

The Flowrite SKD Electronic Valve Actuator with 24 Vac, floating control is designed to be used with Flowrite and other standard valves in liquid and steam service applications.

Features

- Direct-coupled installation requires no special tools or adjustments
- Visual stroke indication
- Die-cast aluminum housing
- 250 lb. (1150 N) nominal force
- Position feedback with optional potentiometer
- Manual override
- Spring return available for fail-safe position
- Maintenance-free



Siemens offers a 5-year warranty on valves and actuators.

Specifications

Operating Voltage	24 Vac ±20%
Frequency	50/60 Hz
Power Consumption	
SKD82.50U	13 VA (8 W)
SKD82.51U	18 VA (11 W)
Control Signal	3 Position (Floating)
Function	
Nominal Stroke	3/4" (20 mm)
Run Time with Control Operation (Full Stroke)	
Power Stroke, 0 to 100% @ 60 Hz	120 sec.
Return Stroke, 100 to 0% @ 60 Hz	120 sec.
Spring Return (SKD 82.51U Only)	8 sec.

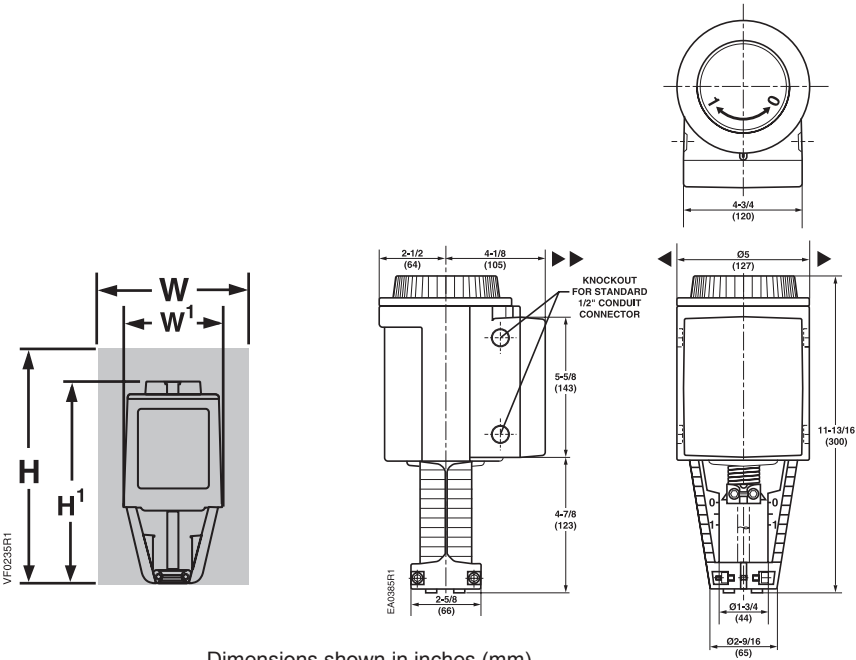
Nominal Force	
NC and 3-way Upper	
Stroke	0%
Force	225 lbs. (1000 N)
NO and 3-way By Pass	
Stroke	100%
Force	258 lbs. (1150 N)
Agency Approvals	UL 873, CSA C22.2 No. 24-93
Operating	
Ambient Temperature	5° to 130°F (-15° to 55°C)
Media Temperature	14° to 300°F (-10° to 150°C)
Conduit Opening	1/2" NPSM
Mounting Location	NEMA 1 (Interior Only)

Product Ordering

Description	Part No.	Actuator Prefix Code
Spring Return	SKD82.51U	—*
Non-Spring Return	SKD82.50U	—*

*Not available as an assembly. Valve and actuator sold separately and will have to be assembled in the field.

Dimensions



Dimensions shown in inches (mm)

Height of Actuator H ¹	Service Height H	Width/Diameter of Actuator W ¹	Service Width W
11-13/16" (300 mm)	19-3/4" (430 mm)	6-5/8" (170 mm) Width	14-1/2" (360 mm)

Table Notes:
Service height and width are the recommended dimensions to allow access to the product.

SKB/SKC Valve Actuator

24 Vac, Proportional Control

0 to 10 Vdc or 4 to 20 mA

Spring Return



Flowrite SKB/SKC Valve Actuator

A-205

Valves

Description

Designed for use with Flowrite and other standard valves with a 3/4-inch and 1-1/2-inch (20 and 40 mm) strokes, the Flowrite SKB/SKC Electronic Valve Actuator receives a 0 to 10 Vdc or 4 to 20 mA control signal to proportionally control the valve. The actuators are available with standard or advanced functionality.

Applications

The Flowrite SKB/SKC Electronic Valve Actuator with proportional control is designed to be used with Flowrite and other standard valves with a 3/4-inch and 1-1/2-inch (20 and 40 mm) strokes in liquid and steam service applications.

Features

Standard Models

Part nos. with U suffix have these standard features:

- Direct-coupled installation requires no special tools or adjustments
- Visual and electronic stroke indication
- Die-cast aluminum housing
- Highest close-off in the industry
- 3/4-inch stroke (SKB)
- 1-1/2-inch stroke (SKC)
- 1000 lb. (4400 N) nominal force
- Manual override
- Spring return to fail safe position
- Maintenance-free

Advanced Feature Models

Part nos. with UA suffix have standard features, plus these advanced features:

- Adjustable start and span
- Stroke limit control
- Selectable operation direction (direct or reverse acting)
- Choice of linear or equal percentage flow characteristics
- Designed to be used with other manufacturer's valves with the appropriate Universal Valve Retrofit Kit



Specifications

Nominal Stroke

SKB62U/UA.....	3/4" (20 mm)
SKC62U/UA.....	1-1/2" (40 mm)

Operating Voltage 24 Vac $\pm$ 20%

Frequency 50/60 Hz

Power Consumption

SKB62U/UA.....	17 VA (12 W)
SKC62U/UA.....	28 VA (20 W)

Control Signals

Control Input (Y)	
Signal.....	0 to 10 Vdc or 4-20 mA
Max Impedance	
0 to 10 Vdc.....	100K Ohm
4 to 20 mA.....	250 Ohm
Control Input (Z)	
Resistance.....	0 to 1000 Ohms
Voltage.....	0 to 1.6 V

Feedback Output (U)

Signal..... 0 to 10 Vdc or 4 to 20 mA

Local Impedance

0 to 10 Vdc >500K Ohm
4 to 20 mA <500 Ohm

Run Time with Control Operation (full stroke)

Pushing.....	120 sec.
Pulling with Spring	
SKB62U.....	10 sec.
SKC62U.....	20 sec.

Conduit Opening 1/2" NPSM

Nominal Force

NC and 3-way Upper	
Stroke.....	0%
Force.....	640 lbs. (2800 N)
NO and 3-way By Pass	
Stroke.....	100%
Force.....	1000 lbs. (4400 N)

Agency Approvals UL 873, cUL, CSA C22.2 No. 24-93, CE N474

Enclosure NEMA 1 (Interior Only)

Operating

Ambient Temperature.....	5° to 130°F (-15° to 55°C)
Media Temperature.....	14° to 428°F (-10° to 220°C)

Mounting Location NEMA 1 (Interior Only)

Product Ordering

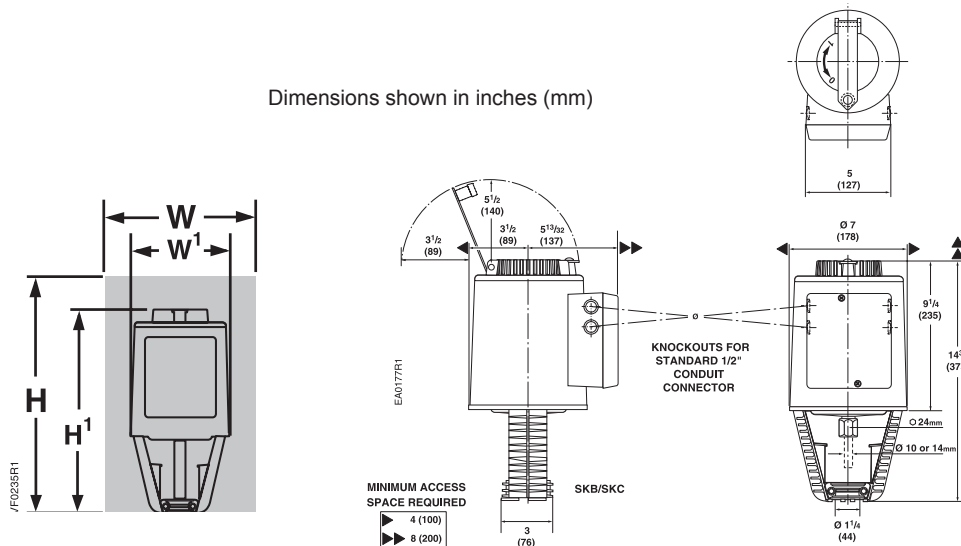
Description	Part No.	Actuator Prefix Code
3/4" Stroke		
Standard Features	SKB62U	291
Advanced Features	SKB62UA	—
1-1/2" Stroke		
Standard Features	SKC62U	294
Advanced Features	SKC62UA	—

Ordering Note:

The SKB/UA can be used with other manufacturer's valves with the appropriate Universal Valve Linkage Kit.

Dimensions

Dimensions shown in inches (mm)



Height of Actuator H'	Service Height H	Width/Diameter of Actuator W'	Service Width W
14-3/4" (375 mm)	22-3/4" (578 mm)	7" (178 mm) Width x 8-15/16" (226 mm) Depth	25" (635 mm)

Table Notes:

Service height and width are the recommended dimensions to allow access to the product.

SKB/SKC Valve Actuator

24 Vac, Floating Control

Spring Return or Non-Spring Return



Flowrite SKB/SKC Valve Actuator

A-207

Valves

Description

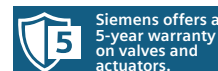
Designed for use with Flowrite and other standard valves with 3/4-inch and 1-1/2-inch (20 mm and 40 mm) strokes, the Flowrite SKB/C Electronic Valve Actuator requires a 24 Vac supply to provide floating control of a valve.

Applications

The Flowrite SKB/SKC Electronic Valve Actuator with floating control is to be used with Flowrite and other standard valves with a 3/4-inch and 1-1/2-inch (20 mm and 40 mm) strokes in liquid and steam service applications.

Features

- Direct-coupled installation requires no special tools or adjustments
- Visual stroke indication
- Die-cast aluminum housing
- Manual override
- Spring return or non-spring return
- Maintenance-free
- 1000 lb. (4400 N) nominal force



Specifications

Operating Voltage	24 Vac ±20%
Frequency	50/60 Hz
Power Consumption	
SKB82.51U.....	18 VA (11W)
SKC82.60U.....	19 VA (16W)
SKC82.61U.....	24 VA (18W)
Control Signal	Floating
Nominal Stroke	
SKB.....	3/4" (20 mm)
SKC.....	1-1/2" (40 mm)

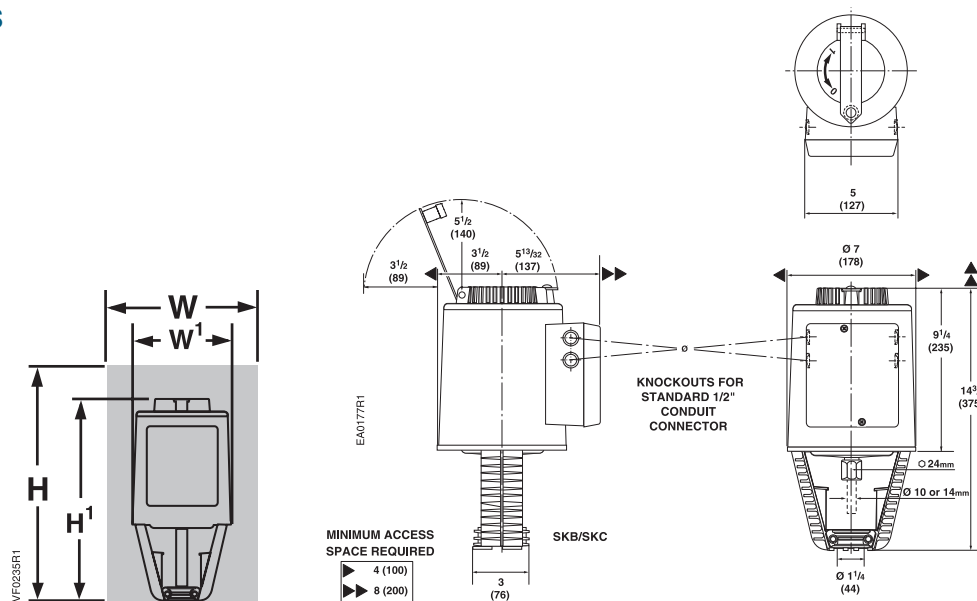
Run Time with Control Operation (full stroke)	120 sec. Pushing and Pulling
Spring Return Time (on power failure)	
SKB82.51U	10 sec.
SKC82.61U	18 sec.
Nominal Force	
NC and 3-way Upper	
Stroke	0%
Force	610 lbs. (2684 N)
NO and 3-way By Pass	
Stroke	100%
Force	1000 lbs. (4400 N)
Agency Approvals	UL 873, CSA C22.2 No. 24-93
Enclosure	NEMA 1 (Interior Only)
Operating	
Ambient Temperature	5° to 130°F (-15° to 55°C)
Media Temperature	14° to 300°F (-10° to 150°C)
Mounting Location	NEMA 1 (Interior Only)

Product Ordering

Stroke	Part No.	Actuator Prefix Code
Spring Return		
3/4" (20 mm)	SKB82.51U	—*
1-1/2" (40 mm)	SKC82.61U	—*
Non-Spring Return		
1-1/2" (40 mm)	SKC82.60U	—*

*Not available as an assembly. Valve and actuator sold separately and will have to be assembled in the field.

Dimensions



Dimensions shown in inches (mm)

Height of Actuator H ¹	Service Height H	Width/Diameter of Actuator W ¹	Service Width W
14-3/4" (375 mm)	22-3/4" (578 mm)	7" (178 mm) Width x 8-15/16" (226 mm) Depth	25" (635 mm)

Table Notes:

Service height and width are the recommended dimensions to allow access to the product.