SIEMENS

Technical Instructions

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VVG Series

Two-way Valves, Normally Closed



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Description

The VVG two-way valves control the flow of water or glycol solutions. They have a 7/32-inch (5.5 mm) nominal stroke and are compatible with SAS Series actuators.

Features

- External (male) metric threaded connections.
- Reduced seat diameter produces reduced C_V (K_{VS}) in 1/2-inch valve bodies.
- Double O-ring packing with Teflon® wiper.

Application

Use the VVG as a control and shutoff valve in small to medium HVAC installations for hot water and chilled water applications. Use in closed circuits only.

NOTE: This valve is not designed for steam applications. See *Specifications* for details.

Product Numbers and Ordering Information

Order the valve and actuator separately.

Table 1. Product Information.

Nominal Valve Size Inches (mm)	Cv (Kvs)	Valve Product Number	Spring and Non-Spring Return		
			Range-Ability	Close-Off psig (kPa) with SAS Actuators	Max Δ P * psig (kPa)
1/2 (15)	0.47 (0.4)	VVG44.15-0.4	50	232 (1600)	58 (400)
1/2 (15)	1.17 (1)	VVG44.15-1		123 (850)	
1/2 (15)	1.87 (1.6)	VVG44.15-1.6	100	123 (850)	
1/2 (15)	2.92 (2.5)	VVG44.15-2.5		58 (400)	
1/2 (15)	4.68 (4)	VVG44.15-4		58 (400)	
3/4 (20)	7.37 (6.3)	VVG44.20-6.3		116 (800)	
1 (25)	11.7 (10)	VVG44.25-10		585 (400)	43.5(300)
1-1/4 (32)	18.7 (16)	VVG44.32-16		32 (225)	29 (200)
1-1/2 (40)	29 (25)	VVG44.40-25		14.5(100)	14.5(100)

Max Δ P * = Maximum recommended differential pressure for modulating service.

Accessories

Table 2. NPT Union Kits (One Union per Kit).

698-047	1/2-inch Female NPT Union Kit
698-048	3/4-inch Female NPT Union Kit
698-049	1-inch Female NPT Union Kit
698-050	1-1/4-inch Female NPT Union Kit
698-051	1-1/2-inch Female NPT Union Kit

Specifications

Composition	Body Style	Globe
	Body	Bronze
	Connections	External (male), metric-threaded. See *Dimensions*.
	Trim	
	1/2-inch and 3/4-inch	Stainless Steel
	1-inch to 1-1/2 inch	Bronze
	Packing	Double O-ring
	Body Rating	ANSI 125 (PN 16)
Operating Conditions	Line Size/Capacity	See Table 1 and Table 3.
	Medium	Water, glycol to 50%
	Rangeability	See Table 1.
	Flow Characteristics	Linear
	Leakage Rate	0.02% of Cv
	Medium Temperature	36 to 248°F (2 to 120°C)
	Maximum Inlet Pressure	232 psig (1600 kPa)
	Maximum Pressure Differential for Modulating Service	See Table 1.
	Close-Off Pressure with SAS actuators	See Table 1.
Physical Characteristics	Weight	See Figure 3.
	Dimensions	See Figure 3.

Table 3. Maximum Water Capacity — US Gallons per Minute.

Valve	Pressure Differential (psi)												
	1 / Cv	Kvs	2	4	6	8	10	15	20	25	30	40	50
1/2 (15)	0.47	(0.4)	0.66	0.94	1.15	1.32	1.48	1.81	2.09	12.34	2.56	2.96	3.31
1/2 (15)	1.17	(1.0)	1.65	2.34	2.87	3.31	3.70	4.53	5.23	5.85	6.41	7.40	8.27
1/2 (15)	1.87	(1.6)	2.65	3.74	4.59	5.29	5.92	7.25	8.37	9.36	10.25	11.84	13.24
1/2 (15)	2.92	(2.5)	4.14	5.85	7.16	8.27	9.25	11.33	13.08	14.63	16.02	18.50	20.68
1/2 (15)	4.68	(4.0)	6.62	9.36	11.46	13.24	14.80	18.13	20.93	23.40	25.63	29.60	33.09
3/4 (20)	7.37	(6.3)	10.42	14.74	18.06	20.85	23.31	28.55	32.96	36.86	40.37	46.62	—
1 (25)	11.7	(10)	16.55	23.40	28.66	33.09	37.0	45.31	52.32	58.5	64.08	—	—
1-1/4 (32)	18.7	(16)	26.47	37.44	45.85	52.95	59.2	72.5	—	—	—	—	—
1-1/2 (40)	29	(25)	41	58	71	82	91	112	—	—	—	—	—

Warning/Caution Notations

WARNING:	⚠	Personal injury or loss of life may occur if you do not perform a procedure as specified.
CAUTION:	⚠	Equipment damage may occur if you do not follow procedure as specified.

Operation

The arrow on the valve indicates the direction of flow. The direction of flow is always from II (A) to I (AB). See Figure 1.

⚠ **CAUTION:**

Removing the bottom cap will not convert the two-way valve into a three-way valve.

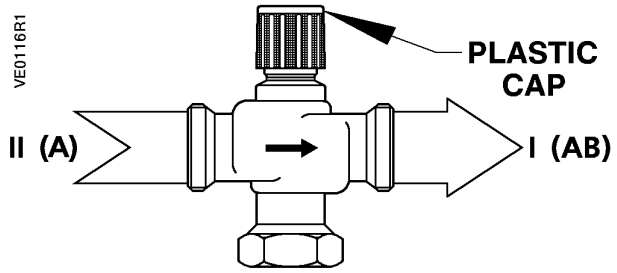


Figure 1. VVG Valve Direction of Flow.

An electronic motor actuator positions the valve. A continuous 0 to 10 Vdc signal controls the actuator.

The valve provides a linear flow characteristic.

Installation

- The valve assembly can be installed in the supply or return line.

NOTE: For hot water installations, it is recommended to place the valve in the return line because the temperature is lower.

- Match the direction of flow with the symbol cast on the valve body. See Figure 1.
- Allow 8 inches (200 mm) of clearance for installation and service.
- Mount the assembly in any position except with the actuator beneath the valve. See Figure 2 for allowable mounting positions.
- Before installing the actuator, use a protective plastic cap (Figure 1) to manually position the valve. The plastic cap opens up to 80% flow from II (A) to I (AB). The valve cannot be fully opened using the plastic cap.

NOTE: Do not discard the plastic cap. It may be needed during troubleshooting or for emergency valve operation.

Installation, Continued

CAUTION:

Dirt in the piping system can cause valve problems. Before starting up and troubleshooting the valve, make certain that the piping system is free of dirt and foreign particles. It is recommended that a filter is placed upstream of the valve.

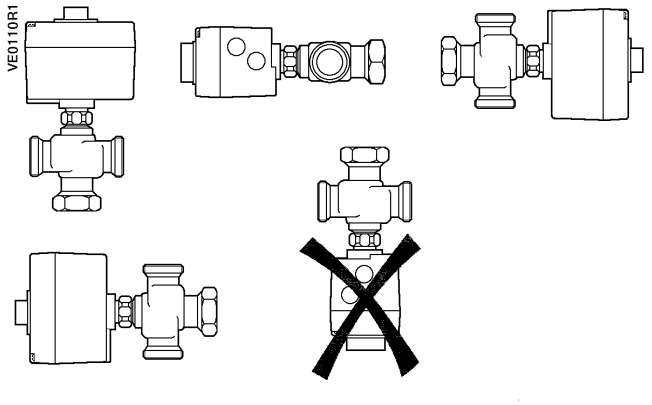


Figure 2. Mounting Positions.

Service

If the valve is inoperative, replace it.

WARNING:
To avoid personal injury, do *not* attempt to repair the valve.

Dimensions

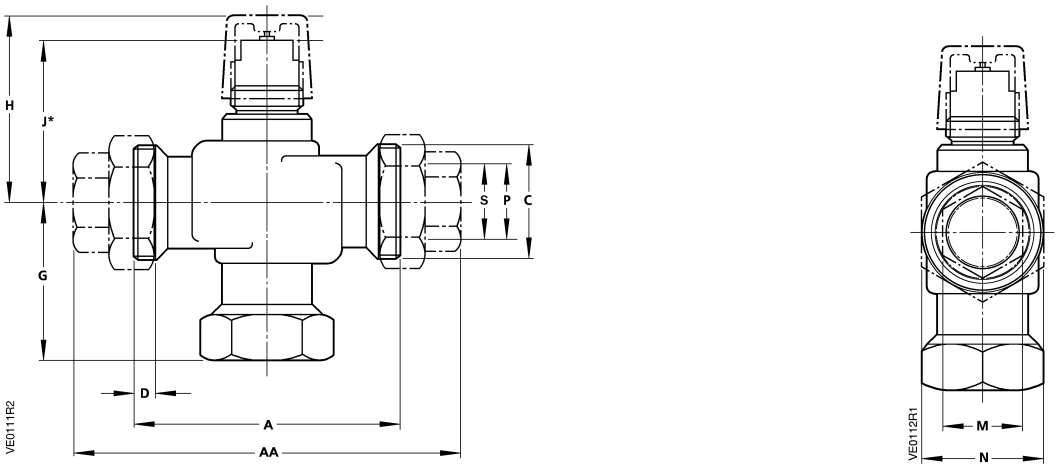


Figure 3. Dimensions for VVG Series Valves.

Nominal Valve Size in (mm)	A	AA	C Metric Thread	D	G	H	J	M	N	P NPT for Union	Valve Weight lbs. (kg)
1/2 (15)	3-15/16 (100)	5-13/16 (148)	G 1”	11/32 (8.5)	2-9/32 (58)	2-1/2 (63)	2-3/32 (53)	1 (25)	1-5/8 (41)	1/2-in	1.3 (0.6)
3/4 (20)	3-15/16 (100)	5-29/32 (150)	G 1-1/4”	3/8 (9)	2-5/16 (59)	3-1/16 (78)	2-11/16 (68)	1-1/4 (32)	1-31/32 (50)	3/4-in	2.2 (1)
1 (25)	4-5/32 (105)	6-5/16 (160)	G 1-1/2”	3/8 (9)	2-15/32 (62.5)	3-3/16 (81)	2-25/32 (71)	1-1/2 (38)	2-5/32 (55)	1-in	3.1 (1.4)
1-1/4 (32)	4-5/32 (105)	6-11/16 (170)	G 2”	7/16 (11)	2-1/2 (63.5)	3-7/16 (87.5)	3-1/16 (77.5)	1-7/8 (47)	2-3/4 (70)	1-1/4-in	4.3 (1.95)
1-1/2 (40)	5-1/8 (130)	7-13/16 (198)	G 2-1/2”	7/16 (11)	3 (76)	3-9/16 (90.5)	3-1/16 (80.5)	2-3/32 (53)	2-31/32 (75)	1-1/2-in	6 (2.75)

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