

### APPLICATION

The V-42000 series valve assembly is designed to control water and glycol solutions. The electric actuator requires a 24 Vac supply and receives a floating control signal to control the 7/32 in. (5.5 mm) nominal stroke valve. By removing the cap from the bottom by-pass port (III), this valve assembly is converted to a three-way valve.

### ACTUATOR SPECIFICATIONS

**Operating Voltage:** 24 Vac, -20 to +5%.

**Frequency:** 50 to 60 hz, voltage tolerance at 50 hz -20 to +10%.

**Power Consumption:** 1.3 VA.

**Running Time:**

At 60 Hz, 125s.

At 50 Hz, 150s.

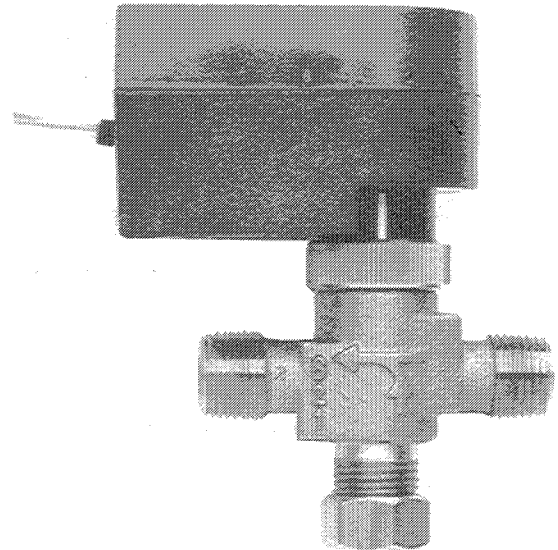
**Nominal Stroke:** 7/32 in. (5.5 mm).

**Ambient Temperature:**

Operating, 32 to 122 °F (0 to 50 °C).

Shipping and Storage, -13 to 149 °F (-25 to 65 °C).

**Weight:** See Figure-5.



### VALVE BODY SPECIFICATIONS

**Body Style:** Globe screwed.

**Line Size/Capacity:** See Tables-1 and 2.

**Medium:** Water, glycol to 50%.

**Body:** Bronze.

**Trim:** Stainless steel.

**Body Rating:** Class 125 (PN 16).

**Packing:** Double O-ring.

**Rangeability:**

1/2 in. 50:1.

3/4 in. 100:1.

**Flow Characteristics:** Equal percentage (II to I) Linear (III to I).

**Leakage Rate:** 0.02% of Cv.

**Maximum Medium Temperature:** 41 to 230 °F (5 to 110 °C).

**Maximum Operating Pressure:** 232 psig (1600kPa).

**Maximum Pressure for Modulating Service:** 58 psig (400 kPa).

**Close-off Pressure:** See Table-1.

**Weight:** See Figure-5.

**Dimensions:** See Figure-5.

**Table-1 Specifications.**

Valve Assembly	Nominal Valve Size in. (mm)	Cv (Kvs)	Close-off psig (kPa)	Maximum $\Delta P^a$ psig (kpa)	External Thread on Valve Body
V-42102	1/2 (15)	0.47 (0.4)	58 (400)	58 (400)	1/2" NPT
V-42112	1/2 (15)	0.74 (0.63)	58 (400)	58 (400)	1/2" NPT
V-42122	1/2 (15)	1.17 (1)	58 (400)	58 (400)	1/2" NPT
V-42132	3/4 (20)	1.87 (1.6)	58 (400)	58 (400)	3/4" NPT
V-42142	3/4 (20)	2.92 (2.5)	58 (400)	58 (400)	3/4" NPT

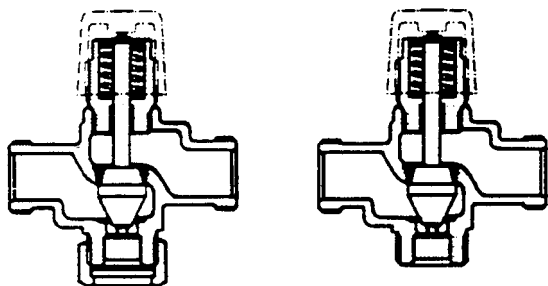
<sup>a</sup> Maximum  $\Delta P$  = maximum recommended differential pressure for modulating service.

**Table-2 Maximum Water Capacity - U.S. Gallons Per Minute**

Valve Assembly	Pressure Differential psi											
	CV1	2	4	6	8	10	15	20	25	30	40	50
V-42102	0.47	0.66	0.94	1.15	1.33	1.49	1.82	2.10	2.35	2.57	2.97	3.32
V-42112	0.74	1.05	1.48	1.81	2.09	2.34	2.87	3.31	3.70	4.05	4.68	5.23
V-42122	1.17	1.65	2.34	2.87	3.31	3.70	4.53	5.23	5.85	6.41	7.40	8.27
V-42132	1.87	2.64	3.74	4.58	5.29	5.91	7.24	8.36	9.35	10.24	11.83	13.22
V-42142	2.93	4.14	5.86	7.18	8.29	9.27	11.35	13.10	14.65	16.05	18.53	20.72

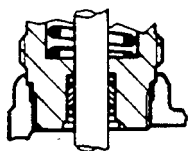
**OPERATION**

A 24 Vac control signal to the Y1 control input opens the valve.  
 A 24 Vac control signal to Y2 control input closes the valve.  
 With no control voltage, the actuator and valve maintain position.



Two-Port Valve

Three-Port Valve



Valve Gland with Double O-Ring and Dirt Trap on Water Side

Figure-1 Valve Construction.

**APPLICATIONS**

**Two-Port Valves**

Arrow on valve indicates the direction of flow. Direction of flow is always from II (A) to I (AB).

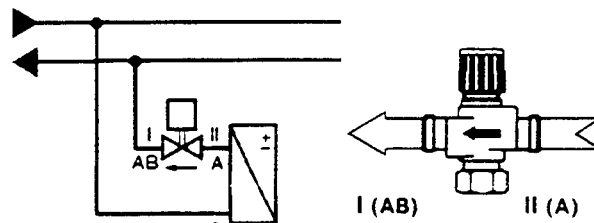


Figure-2 Direction of Flow with Two-Port Valve.

**Three-Port Valves**

These valves must always be used as mixing valves. Arrow on valve indicates the direction of flow. Direction of flow is from II (A) and III (B) to I (AB).

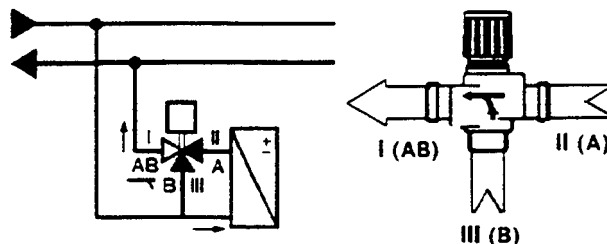


Figure-3 Direction of Flow with Three-Port Valve.

## INSTALLATION

Valve assembly should be mounted in the return.

Match the direction of flow with the symbol cast on the valve body.

Minimum clearance above the actuator is 4 in. (100 mm).

Valve and actuator come with mounting instructions.

The assembly can be mounted in any position except with the actuator beneath the valve.

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**Caution:** Clean or filter piping system so that it is free of dirt and foreign particles before commissioning valves.

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## WIRING

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**Warning:** On valve actuator wiring code, "G" is HOT, not ground.

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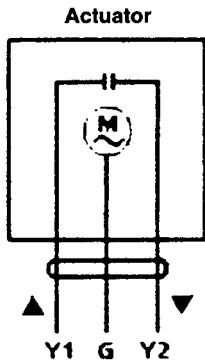
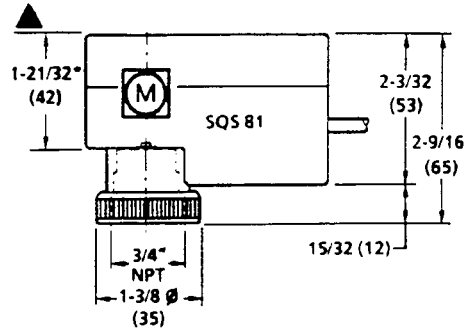


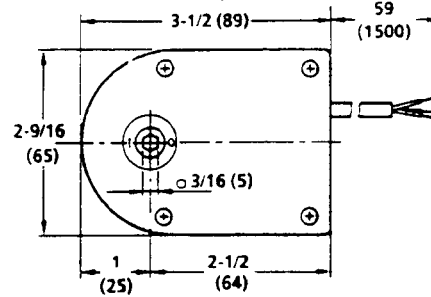
Figure-4 Wiring Diagram.

Table-3 Wiring Cables.

Actuator Designation	Position	Wire Color
Y1	Open	Black
Y2	Close	Red
G	Common	White (Clear)



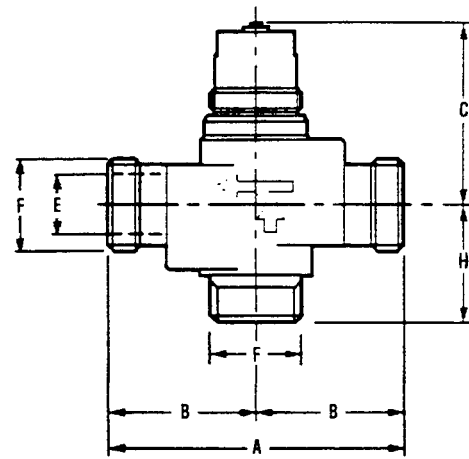
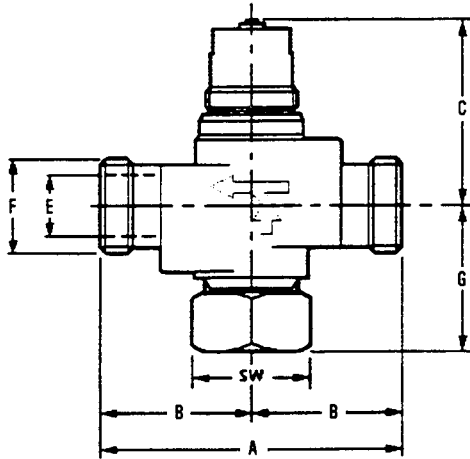
\* HEIGHT FROM TOP OF VALVE  
MINIMUM CLEARANCE 4 (100)



**VALVE ASSEMBLY HEIGHT**

Valve Size in. (mm)	2-Way in. (mm)	3-Way in. (mm)
1/2 (15)	5-3/16 (131)	4-15/16 (124)
3/4 (20)	5-9/16 (141)	5-5/16 (134)

**DIMENSIONS IN INCHES  
MILLIMETERS IN PARENTHESES**



Valve	Cv	A	B	C	E	F	G	SW	H	Weight of Assembly lb. (kg)
V-42102	0.47	3-5/16 (84)	1-11/16 (42)	1-7/8 (47)	7/16 (11.5)	1/2" NPT	1-11/16 (42)	15/16 (24)	1-3/8 (35)	1.4 (0.64)
V-42112	0.74	3-5/16 (84)	1-11/16 (42)	1-7/8 (47)	7/16 (11.5)	1/2" NPT	1-11/16 (42)	15/16 (24)	1-3/8 (35)	1.4 (0.64)
V-42122	1.17	3-5/16 (84)	1-11/16 (42)	1-7/8 (47)	7/16 (11.5)	1/2" NPT	1-11/16 (42)	15/16 (24)	1-3/8 (35)	1.4 (0.64)
V-42132	1.87	4 (101)	2 (50.5)	2 (51)	11/16 (17)	3/4" NPT	1-7/8 (48)	1-3/16 (30)	1-5/8 (41)	2.55 (1.16)
V-42142	2.92	4 (101)	2 (50.5)	2 (51)	11/16 (17)	3/4" NPT	1-7/8 (48)	1-3/16 (30)	1-5/8 (41)	2.55 (1.16)

Figure-5 Dimensions.

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Schneider Electric  
1354 Clifford Avenue  
P.O. Box 2940  
Loves Park, IL 61132-2940  
[www.schneider-electric.com/buildings](http://www.schneider-electric.com/buildings)

