

M9000 Electrically Actuated Standard-Pressure, Standard-Temperature Two-Way Butterfly Valves With Weather Shield

Description

VF Series M9000 Electrically Actuated Standard-Pressure, Standard-Temperature Butterfly Valves are designed specifically for a wide range of Heating, Ventilating, and Air Conditioning (HVAC) applications including two-position and modulating control of hot, chilled, or condenser water, and 50/50 glycol solutions. These valves are also bidirectional, allowing positive shutoff with the flow in either direction. Two-way configurations are available in sizes from 2 through 6 inch.

Refer to the *VF Series M9000 Electrically and D-3000 Pneumatically Actuated Standard-Pressure, Standard-Temperature Butterfly Valves Product Bulletin (LIT-977202)* for important product application information.

Features

- low seating/unseating torques
- bubble-tight shutoff
- pre-assembled actuators
- compatible with all types of ANSI 125/150 slip-on and weld-neck flanges
- M9000 electric actuators available with or without a rugged, factory-installed weather shield
- M9000 electric actuators available with or without end switches

Repair Information

If the M9000 Electrically Actuated Standard-Pressure, Standard-Temperature Two-Way Butterfly Valve fails to operate within its specifications, refer to the *VF Series M9000 Electrically and D-3000 Pneumatically Actuated Standard-Pressure, Standard-Temperature Butterfly Valves Product Bulletin (LIT-977202)* for a list of repair parts available.



Two-Way Valve with M9000 Series Electric Actuator (With Weather Shield)

Selection Charts

On/Off (Floating) Control Two-Way Valves with M9000 Series Non-Spring Return Electric Actuators (With Weather Shield)

Size, in.	Cv at 90°	Cv at 70°	Closeoff Pressure (psig) ¹	M91xx-AGA-2 without End Switches	M91xx-AGC-2 with Two End Switches
2	159	105	200	VF5231AA+916AGA	VF5231AA+916AGC
2-1/2	266	156	200	VF5231BA+916AGA	VF5231BA+916AGC
3	457	240	200	VF5231CA+916AGA	VF5231CA+916AGC
4	860	423	200	VF5231DA+924AGA	VF5231DA+924AGC
5	1320	656	50	VF5231EA+924AGA	VF5231EA+924AGC
5	1320	656	200	VF5231EA2924AGA ²	VF5231EA2924AGC ²
6	2020	941	100	VF5231FA2924AGA ²	VF5231FA2924AGC ²

1. All valves are rated for dead-end service. Valves rated at 200 psig closeoff have 150 psig maximum dead-end service rating.
2. Valve assemblies have two actuators mounted in tandem.

0 to 10 VDC Proportional Control Two-Way Valves with M9000 Series Non-Spring Return Electric Actuators (With Weather Shield)

Size, in.	Cv at 90°	Cv at 70°	Closeoff Pressure (psig) ¹	M91xx-GGA-2 without End Switches	M91xx-GGC-2 with Two End Switches
2	159	105	200	VF5231AA+916GGA	VF5231AA+916GGC
2-1/2	266	156	200	VF5231BA+916GGA	VF5231BA+916GGC
3	457	240	200	VF5231CA+916GGA	VF5231CA+916GGC
4	860	423	200	VF5231DA+924GGA	VF5231DA+924GGC
5	1320	656	50	VF5231EA+924GGA	VF5231EA+924GGC
5	1320	656	200	VF5231EA2924GGA ²	VF5231EA2924GGC ²
6	2020	941	100	VF5231FA2924GGA ²	VF5231FA2924GGC ²

1. All valves are rated for dead-end service. Valves rated at 200 psig closeoff have 150 psig maximum dead-end service rating.
2. Valve assemblies have two actuators mounted in tandem.

VF Series M9000 Electrically Actuated Standard-Pressure, Standard-Temperature Two-Way Butterfly Valves With Weather Shield (Continued)

Floating Control Two-Way Valves with M9000 Series Spring Return Electric Actuator (With Weather Shield)

Size, in.	Cv at 90°	Cv at 70°	Closeoff Pressure (psig) ¹	M9220-AGA-3 without End Switches		M9220-AGC-3 with Two End Switches	
				Spring Open	Spring Closed	Spring Open	Spring Closed
2	159	105	200	VF5231AA+92NAGA	VF5431AA+94NAGA	VF5231AA+92NAGC	VF5431AA+94NAGC
2-1/2	266	156	200	VF5231BA+92NAGA	VF5431BA+94NAGA	VF5231BA+92NAGC	VF5431BA+94NAGC
3	457	240	200	VF5231CA+92NAGA	VF5431CA+94NAGA	VF5231CA+92NAGC	VF5431CA+94NAGC
4	860	423	50	VF5231DA+92NAGA	VF5431DA+94NAGA	VF5231DA+92NAGC	VF5431DA+94NAGC
4	860	423	200	VF5231DA292NAGA ²	VF5431DA294NAGA ²	VF5231DA292NAGC ²	VF5431DA294NAGC ²
5	1320	656	100	VF5231EA292NAGA ²	VF5431EA294NAGA ²	VF5231EA292NAGC ²	VF5431EA294NAGC ²

- All valves are rated for dead-end service. Valves rated at 200 psig closeoff have 150 psig maximum dead-end service rating.
- Valve assemblies have two actuators mounted in tandem.

On/Off Control Two-Way Valves with M9000 Series Spring Return Electric Actuator (With Weather Shield)

Size, in.	Cv at 90°	Cv at 70°	Closeoff Pressure (psig) ¹	M9220-BGA-3 without End Switches		M9220-BGC-3 with Two End Switches	
				Spring Open	Spring Closed	Spring Open	Spring Closed
2	159	105	200	VF5231AA+92NBGA	VF5431AA+94NBGA	VF5231AA+92NBGC	VF5431AA+94NBGC
2-1/2	266	156	200	VF5231BA+92NBGA	VF5431BA+94NBGA	VF5231BA+92NBGC	VF5431BA+94NBGC
3	457	240	200	VF5231CA+92NBGA	VF5431CA+94NBGA	VF5231CA+92NBGC	VF5431CA+94NBGC
4	860	423	50	VF5231DA+92NBGA	VF5431DA+94NBGA	VF5231DA+92NBGC	VF5431DA+94NBGC
4	860	423	200	VF5231DA292NBGA ²	VF5431DA294NBGA ²	VF5231DA292NBGC ²	VF5431DA294NBGC ²
5	1320	656	100	VF5231EA292NBGA ²	VF5431EA294NBGA ²	VF5231EA292NBGC ²	VF5431EA294NBGC ²

- All valves are rated for dead-end service. Valves rated at 200 psig closeoff have 150 psig maximum dead-end service rating.
- Valve assemblies have two actuators mounted in tandem.

0 to 10 VDC Proportional Control Two-Way Valves with M9000 Series Spring Return Electric Actuator (With Weather Shield)

Size, in.	Cv at 90°	Cv at 70°	Closeoff Pressure (psig) ¹	M9220-GGA-3 without End Switches		M9220-GGC-3 with Two End Switches	
				Spring Open	Spring Closed	Spring Open	Spring Closed
2	159	105	200	VF5231AA+92NGGA	VF5431AA+94NGGA	VF5231AA+92NGGC	VF5431AA+94NGGC
2-1/2	266	156	200	VF5231BA+92NGGA	VF5431BA+94NGGA	VF5231BA+92NGGC	VF5431BA+94NGGC
3	457	240	200	VF5231CA+92NGGA	VF5431CA+94NGGA	VF5231CA+92NGGC	VF5431CA+94NGGC
4	860	423	50	VF5231DA+92NGGA	VF5431DA+94NGGA	VF5231DA+92NGGC	VF5431DA+94NGGC
4	860	423	200	VF5231DA292NGGA ²	VF5431DA294NGGA ²	VF5231DA292NGGC ²	VF5431DA294NGGC ²
5	1320	656	100	VF5231EA292NGGA ²	VF5431EA294NGGA ²	VF5231EA292NGGC ²	VF5431EA294NGGC ²

- All valves are rated for dead-end service. Valves rated at 200 psig closeoff have 150 psig maximum dead-end service rating.
- Valve assemblies have two actuators mounted in tandem.

Technical Specifications

VF Series M9000 Electrically Actuated Standard-Pressure, Standard-Temperature Butterfly Valves ¹		
Service	Hot, Chilled, or Condenser Water, and 50/50 Glycol Solutions (Not Designed for Use in Steam Applications)	
Body Styles and Sizes	Two-Way and Three-Way, 2 through 10 in., Fully Lugged	
Fluid Temperature Limits	-30 to 250°F (-34 to 121°C)	
Maximum Fluid Velocity	30 ft/Second (9 m/Second)	
Rangeability	80:1 Minimum	
Leakage	Bubble Tight, Bidirectional Shutoff Rated for Dead-End Service (Uni-Directional); Inlet Must Face Pressure	
Flow Characteristics	Modified Equal Percentage	
Materials	Body	Cast Iron, ASTM A126 CL B
	Tee (Three-Way Valves Only)	Cast Iron
	Disk	Aluminum Bronze, ASTM B148
	Seal and Liner	Ethylene Propylene Diene Monomer (EPDM)
	Stem	416 Stainless Steel
Ambient Temperature Limits	Bearings	Reinforced Polytetrafluoroethylene (RPTFE)
	Storage	-20 to 150°F (-29 to 66°C); Preferably 40 to 85°F (4 to 29°C)
Weather Shield Rating	Operating	Spring Return Actuator (M9220 Series): -40 to 131°F (-40 to 55°C) Non-Spring Return Actuator (M91xx Series): -4 to 122°F (-20 to 50°C)
		NEMA 4

- Refer to the appropriate actuator product bulletin for actuator specifications.