

M9000 Electrically Actuated, Standard-Pressure, Standard-Temperature, Two-Way Butterfly Valves (without Weather Shield)

Description

VF Series M9000 Electrically Actuated, Standard-Pressure, Standard-Temperature, Two-Way Butterfly Valves are specifically designed for a wide range of 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 2 through 6 in. non-spring return, and 2 through 5 in. spring return. M9000 electrically actuated, non-weather shield models feature an integral handle for manual positioning of the valve, independent of a power supply.

Refer to the *VF Series Standard-Pressure, Standard-Temperature Butterfly Valves Product Bulletin (LIT-977205P)* for important product application information.

Features

- low seating/unseating torques
- bubble-tight shutoff
- broad range of pre-assembled actuators
- compatible with all types of American National Standards Institute (ANSI) 125/150 slip-on and weld-neck flanges
- high-integrity components
- 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 VF Series Butterfly Valve fails to operate within its specifications, refer to the *VF Series Standard-Pressure, Standard-Temperature Butterfly Valves Product Bulletin (LIT-977205P)* for a list of repair parts available.



Two-Way Valve with M9000 Series Spring-Return Electric Actuator (without Weather Shield)



Two-Way Valve with M9000 Series Non-Spring-Return Electric Actuator (without Weather Shield)

Butterfly Valves and Actuators

Selection Chart

M9000 Electrically Actuated, Standard-Pressure, Standard-Temperature, Two-Way Butterfly Valves (without Weather Shield) (Part 1 of 2)

Valve Code Number	Size, in.	Cv at 90°	Cv at 70°	Closeoff Pressure, psig ¹	Two-Way Butterfly Valves (without Weather Shield)			
					Two-Way — Spring Return			
					Spring Open		Spring Closed	
					Floating Control			
					M9220-AGA-3 without End Switches		M9220-AGC-3 with Two End Switches	
VFN020HB	2	144	84	175	VFN020HB+92NAGA	VFC020HB+94NAGA	VFN020HB+92NAGC	VFC020HB+94NAGC
VFN025HB	2-1/2	282	163	175	VFN025HB+92NAGA	VFC025HB+94NAGA	VFN025HB+92NAGC	VFC025HB+94NAGC
VFN030HB	3	461	267	175	VFN030HB+92NAGA	VFC030HB+94NAGA	VFN030HB+92NAGC	VFC030HB+94NAGC
VFN040LB	4	841	496	50	VFN040LB+92NAGA	VFC040LB+94NAGA	VFN040LB+92NAGC	VFC040LB+94NAGC
VFN040HB	4	841	496	175	VFN040HB292NAGA ²	VFC040HB294NAGA ²	VFN040HB292NAGC ²	VFC040HB294NAGC ²
VFN050LB	5	1376	775	50	VFN050LB292NAGA ²	VFC050LB294NAGA ²	VFN050LB292NAGC ²	VFC050LB294NAGC ²
					On/Off			
					M9220-BGA-3 without End Switches		M9220-BGC-3 with Two End Switches	
VFN020HB	2	144	84	175	VFN020HB+92NBGA	VFC020HB+94NBGA	VFN020HB+92NBGC	VFC020HB+94NBGC
VFN025HB	2-1/2	282	163	175	VFN025HB+92NBGA	VFC025HB+94NBGA	VFN025HB+92NBGC	VFC025HB+94NBGC
VFN030HB	3	461	267	175	VFN030HB+92NBGA	VFC030HB+94NBGA	VFN030HB+92NBGC	VFC030HB+94NBGC
VFN040LB	4	841	496	50	VFN040LB+92NBGA	VFC040LB+94NBGA	VFN040LB+92NBGC	VFC040LB+94NBGC
VFN040HB	4	841	496	175	VFN040HB292NBGA ²	VFC040HB294NBGA ²	VFN040HB292NBGC ²	VFC040HB294NBGC ²
VFN050LB	5	1376	775	50	VFN050LB292NBGA ²	VFC050LB294NBGA ²	VFN050LB292NBGC ²	VFC050LB294NBGC ²

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products. © 2014 Johnson Controls, Inc.

M9000 Electrically Actuated, Standard-Pressure, Standard-Temperature, Two-Way Butterfly Valves (without Weather Shield) (Continued)

M9000 Electrically Actuated, Standard-Pressure, Standard-Temperature, Two-Way Butterfly Valves (without Weather Shield)
(Part 2 of 2)

Valve Code Number	Size, in.	Cv at 90°	Cv at 70°	Closeoff Pressure, psig ¹	Two-Way Butterfly Valves (without Weather Shield)			
					0 to 10 VDC Proportional Control			
					M9220-GGA-3 without End Switches		M9220-GGC-3 with Two End Switches	
VFN020HB	2	144	84	175	VFN020HB+92NGGA	VFC020HB+94NGGA	VFN020HB+92NGGC	VFC020HB+94NGGC
VFN025HB	2-1/2	282	163	175	VFN025HB+92NGGA	VFC025HB+94NGGA	VFN025HB+92NGGC	VFC025HB+94NGGC
VFN030HB	3	461	267	175	VFN030HB+92NGGA	VFC030HB+94NGGA	VFN030HB+92NGGC	VFC030HB+94NGGC
VFN040LB	4	841	496	50	VFN040LB+92NGGA	VFC040LB+94NGGA	VFN040LB+92NGGC	VFC040LB+94NGGC
VFN040HB	4	841	496	175	VFN040HB292NGGA ²	VFC040HB294NGGA ²	VFN040HB292NGGC ²	VFC040HB294NGGC ²
VFN050LB	5	1376	775	50	VFN050LB292NGGA ²	VFC050LB294NGGA ²	VFN050LB292NGGC ²	VFC050LB294NGGC ²
					Two-Way — Non-Spring Return			
					On/Off (Floating) Control		0 to 10 VDC Proportional Control	
					M91xx-AGA-2 without Switches	M91xx-AGC-2 with Two Switches	M91xx-GGA-2 without Switches	M91xx-GGC-2 with Two Switches
VFN020HB	2	144	84	175	VFN020HB+916AGA	VFN020HB+916AGC	VFN020HB+916GGA	VFN020HB+916GGC
VFN025HB	2-1/2	282	163	175	VFN025HB+916AGA	VFN025HB+916AGC	VFN025HB+916GGA	VFN025HB+916GGC
VFN030HB	3	461	267	175	VFN030HB+916AGA	VFN030HB+916AGC	VFN030HB+916GGA	VFN030HB+916GGC
VFN040HB	4	841	496	175	VFN040HB+924AGA	VFN040HB+924AGC	VFN040HB+924GGA	VFN040HB+924GGC
VFN050LB	5	1376	775	50	VFN050LB+924AGA	VFN050LB+924AGC	VFN050LB+924GGA	VFN050LB+924GGC
VFN050HB	5	1376	775	175	VFN050HB2924AGA ²	VFN050HB2924AGC ²	VFN050HB2924GGA ²	VFN050HB2924GGC ²
VFN060LB	6	1850	1025	50	VFN060LB2924AGA ²	VFN060LB2924AGC ²	VFN060LB2924GGA ²	VFN060LB2924GGC ²

1. Valves rated for 175 psig closeoff have 75 psig maximum dead-end service rating. Valves rated for 50 psig closeoff are not rated for dead-end service.
2. Valve assemblies have two actuators mounted in tandem.

Technical Specifications

M9000 Electrically Actuated, Standard-Pressure, Standard-Temperature, Two-Way Butterfly Valves (without Weather Shield)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, 2 through 6 in., Fully Lugged	
Fluid Temperature Limits	-40°F to 250°F (-40°C to 121°C)	
Body Pressure Rating	175 psig	
Maximum Fluid Velocity	30 ft/second (9 m/second)	
Rangeability	Refer to the <i>VF Series Standard-Pressure, Standard-Temperature Butterfly Valves Product Bulletin (LIT-977205P)</i> .	
Leakage	Bubble Tight	
Flow Characteristics	Modified Equal Percentage	
Materials	Body	Cast Iron ASTM A126 Class B
	Tee (Three-Way Valves Only)	Cast Iron
	Disc	Ductile Iron, Nylon 11 Coated, ASTM A536 Gr 65-45-12
	Seat	Ethylene Propylene Diene Monomer (EPDM)
	Stem	416 Stainless Steel
Ambient Temperature Limits	Storage	-20 to 150°F (-29 to 66°C), Preferably 40 to 85 F (4 to 29°C)
	Operating	Spring-Return Actuator: -40 to 131°F (-40 to 55°C) Non-Spring-Return Actuator: -4 to 122°F (-20 to 50°C)

1. Refer to the *VF Series Standard-Pressure, Standard-Temperature Butterfly Valves Product Bulletin (LIT-977205P)* for actuator specifications.