

# Two-Way, Manually Operated, High-Pressure, High-Temperature Butterfly Valve Assemblies

## Description

VF Series Two-Way, Manually Operated, High-Pressure, High-Temperature Butterfly Valve Assemblies are specifically designed for a wide range of HVAC applications, including two-position and modulating/throttling control of hot water, chilled water, condenser water, and steam. Refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves for Steam Service Application Note (LIT 977321)* for more information on steam applications. These lug-style valves offer bidirectional shutoff at full-rated American National Standards Institute (ANSI) Class 150 and 300 operating pressures, increasing the range of applications—particularly in high-rise building HVAC control applications. ANSI Class 150 and 300 models are also suitable for steam applications.

Refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves Product Bulletin (LIT-977208)* for important product application information.

## Features

- compatible with all types of ANSI 150/300 slip-on and weld-neck flanges
- high-pressure, high-temperature design
- bidirectional shutoff, dead-end service
- live-loaded seat design with fully encased O-ring
- double offset stem design
- broad range of compact pre-assembled actuators available
- direct actuator-to-stem mounting



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## Repair Information

If the VF Series Butterfly Valve Assembly fails to operate within its specifications, refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves Product Bulletin (LIT-977208)* for a list of repair parts available.

## Selection Chart

Valve Code Number	Actuator			Ten-Position Manual Handle	Gear-Operated Manual Hand Wheel
	Size, in.	Cv at 90°	Closeoff Pressure, psig		
<b>Two-Way, Manually Operated — ANSI Class 300 Flanges<sup>1</sup></b>					
VFM-025ZE	2-1/2	160	550	VFM-025ZE-000M	VFM-025ZE-000G
VFM-030ZE	3	185		VFM-030ZE-000M	VFM-030ZE-000G
VFM-040ZE	4	375		VFM-040ZE-000M	VFM-040ZE-000G
VFM-050ZE	5	790		VFM-050ZE-000M	VFM-050ZE-000G
VFM-060ZE	6	1,000		VFM-060ZE-000M	VFM-060ZE-000G
VFM-080ZE	8	2,000			VFM-080ZE-000G
VFM-100ZE	10	2,650			VFM-100ZE-000G
VFM-120ZE	12	4,000			VFM-120ZE-000G
VFM-140ZE	14	4,100			VFM-140ZE-000G
<b>Two-Way, Manually Operated — ANSI Class 150 Flanges<sup>2</sup></b>					
VFM-025VE	2-1/2	160	240	VFM-025VE-000M	VFM-025VE-000G
VFM-030VE	3	185		VFM-030VE-000M	VFM-030VE-000G
VFM-040VE	4	375		VFM-040VE-000M	VFM-040VE-000G
VFM-050VE	5	790		VFM-050VE-000M	VFM-050VE-000G
VFM-060VE	6	1,350		VFM-060VE-000M	VFM-060VE-000G
VFM-080VE	8	2,800			VFM-080VE-000G
VFM-100VE	10	4,300			VFM-100VE-000G
VFM-120VE	12	6,650			VFM-120VE-000G
VFM-140VE	14	7,650			VFM-140VE-000G

1. Maximum closeoff pressure for ANSI Class 300 valves is 740 psig (5,102.1 kPa) for fluid temperatures below 100°F (37.8°C), and 550 psig (3,790 kPa) for fluid temperatures at 250°F (121.1°C). Maximum steam pressure is 150 psig (1,034.2 kPa) for on/off service, and 50 psig (344.8 kPa) for proportional service.
2. Maximum closeoff pressure for ANSI Class 150 valves is 285 psig (1,965 kPa) for fluid temperatures below 100°F (37.8°C), and 240 psig (1,654.8 kPa) for fluid temperatures at 250°F (121.1°C). Maximum steam pressure is 150 psig (1,034.2 kPa) for on/off service, and 50 psig (344.8 kPa) for proportional service.

## Two-Way, Manually Operated, High-Pressure, High-Temperature Butterfly Valve Assemblies (Continued)

### Technical Specifications

Two-Way, Manually Operated, High-Pressure, High-Temperature Butterfly Valve Assemblies <sup>1</sup>		
<b>Service</b>		Hot, Chilled, or Condenser Water, and Steam <sup>2</sup>
<b>Body Styles and Sizes</b>		Two-Way, 2-1/2 through 14 in., Fully Lugged <sup>3</sup>
<b>Fluid Temperature Limits</b>		-20 to 500°F (-29 to 260°C)
<b>Maximum Closeoff Pressure</b>	2-1/2 through 14 in. ANSI Class 300 Valves (Type Z)	550 psig (3,790 kPa) at 250°F (121°C) Fluid Temperature, Bidirectional <sup>3, 4</sup>
		550 psig (3,790 kPa) at 250°F (121°C) Fluid Temperature, Dead-End Service <sup>3, 4, 5</sup>
<b>Materials</b>	<b>Body</b>	Carbon Steel, ASTM A216 GR WCB/A516 GR 70
	<b>Disc</b>	Stainless Steel, ASTM A 351 GR CF8M
	<b>Seat Assembly</b>	RTFE with Silicone Rubber O-Ring
	<b>Seat Retainer</b>	Carbon Steel, ASTM A516 GR 70
	<b>Stem</b>	17-4 PH Stainless Steel, ASTM A564-Type 630
<b>Ambient Storage Temperature Limits</b>		-20 to 150°F (-29 to 66°C); Preferably 40 to 85°F (4 to 29°C)

1. Refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves Product Bulletin (LIT-977208)* for actuator specifications.
2. Types **V** and **Z** valves are rated for 150 psig (1,034 kPa) saturated steam at 366°F (186°C) for two-position applications, and 50 psig (345 kPa) saturated steam at 297°F (147°C) for modulating applications. Refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves for Steam Service Application Note (LIT-977321)* for more information.
3. For 18 in. or larger ANSI Class 150 valves and 16 in. or larger ANSI Class 300 valves, consult the local Johnson Controls® office.
4. The preferred orientation of the seat retainer in dead-end service is against the flange.
5. For pressures between 550 and 740 psig (3,790 and 5,099 kPa), consult the local Johnson Controls office.