

# Two-Way, Industrial-Grade, Non-Spring-Return, V-909x Series High-Pressure Pneumatically Actuated, High-Pressure, High-Temperature Butterfly Valve Assemblies

## Description

VF Series Two-Way, Industrial-Grade, Non-Spring-Return, V-909x Series High-Pressure Pneumatically Actuated, 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

## 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.



**Two-Way, Industrial-Grade, Non-Spring-Return, V-909x Series High-Pressure Pneumatically Actuated, High-Pressure, High-Temperature Butterfly Valve Assemblies**

## Selection Chart

Valve Code Number	Actuator				On/Off <sup>1</sup>	Proportional (with Positioner)
	Size, in.	Cv at 90°	Cv at 70°	Closeoff Pressure, psig		
<b>Two-Way, Normally Closed — ANSI Class 300 Flanges<sup>2</sup></b>						
VFC-025ZE	2-1/2	160	100	550	VFC-025ZE-030C	VFC-025ZE-030B
VFC-030ZE	3	185	155		VFC-030ZE-030C	VFC-030ZE-030B
VFC-040ZE	4	375	315		VFC-040ZE-040C	VFC-040ZE-040B
VFC-050ZE	5	790	500		VFC-050ZE-042C	VFC-050ZE-042B
VFC-060ZE	6	1,000	710		VFC-060ZE-050C	VFC-060ZE-050B
VFC-080ZE	8	2,000	1,360		VFC-080ZE-060C	VFC-080ZE-060B
VFC-100ZE	10	2,650	1,740		VFC-100ZE-070C	VFC-100ZE-070B
VFC-120ZE	12	4,000	2,500		VFC-120ZE-070C	VFC-120ZE-070B
VFC-140ZE	14	4,100	2,600		VFC-140ZE-080C	VFC-140ZE-080B
<b>Two-Way, Normally Closed — ANSI Class 150 Flanges<sup>3</sup></b>						
VFC-025VE	2-1/2	160	100	240	VFC-025VE-030C	VFC-025VE-030B
VFC-030VE	3	185	155		VFC-030VE-030C	VFC-030VE-030B
VFC-040VE	4	375	315		VFC-040VE-030C	VFC-040VE-030B
VFC-050VE	5	790	500		VFC-050VE-042C	VFC-050VE-042B
VFC-060VE	6	1,350	750		VFC-060VE-042C	VFC-060VE-042B
VFC-080VE	8	2,800	1,590		VFC-080VE-050C	VFC-080VE-050B
VFC-100VE	10	4,300	2,430		VFC-100VE-060C	VFC-100VE-060B
VFC-120VE	12	6,650	3,750		VFC-120VE-070C	VFC-120VE-070B
VFC-140VE	14	7,650	4,300		VFC-140VE-070C	VFC-140VE-070B
VFC-160VE	16	9,800	5,510		VFC-160VE-080C	VFC-160VE-080B

1. On/off assemblies come with 120 VAC solenoid valve and speed controls. If a 24 VAC solenoid is desired, change the **C** at the end of the code number to an **E**.
2. 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.
3. 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, Industrial-Grade, Non-Spring-Return, V-909x Series High-Pressure Pneumatically Actuated, High-Pressure, High-Temperature Butterfly Valve Assemblies (Continued)

### Technical Specifications

Two-Way, Industrial-Grade, Non-Spring-Return, V-909x Series High-Pressure Pneumatically Actuated, 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 16 in., Fully Lugged <sup>3</sup>
<b>Fluid Temperature Limits</b>		-20 to 500°F (-29 to 260°C)
<b>Maximum Closeoff Pressure</b>	<b>2-1/2 through 16 in. ANSI Class 150 Valves (Type V)</b>	240 psig (1,654 kPa) at 250°F (121°C) Fluid Temperature, Bidirectional <sup>3</sup>  240 psig (1,654 kPa) at 250°F (121°C) Fluid Temperature, Dead-End Service <sup>3, 4</sup>
	<b>2-1/2 through 14 in. ANSI Class 300 Valves (Type Z)</b>	550 psig (3,790 kPa) at 250°F (121°C) Fluid Temperature, Bidirectional <sup>3, 5</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>Disk</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.