

VG1000 Series Flanged Ball Valves for Assembly in the Field

Description

The VG1000 Series Flanged Ball Valves are primarily designed to regulate the flow of hot water, chilled water, and 50/50 glycol solutions to the demand of a controller in HVAC systems. The valves come in sizes of 2-1/2 in., 3 in., 4 in., 5 in., and 6 in. These American Society of Mechanical Engineers (ASME) Class 150 flanged valves come in both two- and three-way configurations. Johnson Controls offers valve, linkage, and actuator assemblies for factory or field mounting with either spring return or non-spring return actuators.

Refer to the *VG1000 Series Flanged Ball Valve Product Bulletin (LIT-12011228)* for important product application information and single point of contact information.

Features

- Closeoff Pressure Rating: 100 psi for two-way valves; 50 psi for three-way valves—provides tight shutoff.
- 300 Stainless Steel Ball and Stem Assembly—applies to systems with high-temperature water (0°F to 284°F [-18°C to 140°C]) or 25 psi saturated steam.
- 500:1 Rangeability—provides accurate control under all load conditions.

- Amodel® Flow Characterizing Disk—provides equal percentage flow characteristics for best temperature control; available in a wide array of Cv ranges to cover a broad variety of applications.
- Ethylene Propylene Diene Monomer (EPDM) Double O-Ring Stem Seal—offers tested leak-free operation for 200,000 cycles in iron-oxide contaminated water.
- Graphite-Reinforced Polytetrafluoroethylene (PTFE) Seats—include 15% graphite-reinforced ball seals that last twice as long in iron-oxide contaminated water when compared to virgin Teflon® ball seats.
- PTFE Thermal Spacer—provides thermal isolation between the actuator and the valve.
- Seats Backed with EPDM O-Rings—maintain a constant seating force that compensates for expansion, contraction, and seat wear without increasing operating torque.
- Maintenance-Free Design—performs without failure in excess of 200,000 full stroke cycles in iron-oxide contaminated water.
- Available with Factory-Mounted VA9320 or M9220 Series Electric Actuators—reduces field installation time and cost.

VG1000 Series Ball Valves Shown with Field Mounted M9000 Series Actuators



- M9000-340 and M9000-343 Weather Shields Available for Field Installation—protect the actuator from corrosion, rain, freezing rain, sleet, and snow.

Repair Information

If the VG1000 Series Ball Valve fails to operate within its specifications, replace the valve body, actuator, or entire assembly. For replacement parts, contact the nearest Johnson Controls® representative.

WARNING

This product is made of copper alloy, which contains lead. The product is therefore not to be used on drinking water.

Selection Charts

Flanged Ball Valves (for Assembly in the Field)

Part Number		Size, in. (DN)	Closeoff psig		Control Disk	Control Port A	Control Port B			
Two-Way	Three-Way		Two-Way	Three-Way		Cv (Kv)	Cv (Kv)			
VG12A5GS	VG18A5GS	2-1/2 (DN65)	100	50	Yes	47 (40)	29 (25)			
VG12A5KS	VG18A5KS					74 (63)	47 (40)			
VG12A5GT	VG18A5GT					117 (100)	74 (63)			
VG12A5KT	VG18A5KT									
VG12A5GU	VG18A5GU									
VG12A5KU	VG18A5KU									
VG12A5HT	VG18A5HT	3 (DN80)	100	50	Yes	74 (63)	47 (40)			
VG12A5LT	VG18A5LT					117 (100)	74 (63)			
VG12A5HU	VG18A5HU					176 (150)	88 (75)			
VG12A5LU	VG18A5LU									
VG12A5HV	VG18A5HV									
VG12A5LV	VG18A5LV									
VG12A5HW	VG18A5HW						No	211 (180)	105 (90)	
VG12A5LW	VG18A5LW									
VG12A5JU	VG18A5JU				4 (DN100)	100	50	Yes	117 (100)	74 (63)
VG12A5JV	VG18A5JV							No	176 (150)	88 (75)
VG12A5MW	VG18A5MW	4 (DN100)	100	50	Yes	190 (164)	190 (164)			
VG12A5NY	VG18A5NY	5 (DN125)	100	50	Yes	290 (251)	190 (164)			
VG12A5PZ	VG18A5PZ	6 (DN150)	100	50	No	350 (302)	180 (156)			

WARNING: BRASS MAY CONTAIN LEAD

To fulfill our obligations towards Article 33, in accordance to the European REACH Regulation No 1907/2006 EC, we hereby inform you that this article contains the following Substances of Very High Concern mentioned on the Candidate list:

- Lead

VG1000 Series Flanged Ball Valves for Assembly in the Field (Continued)

Actuators and Linkages (for Assembly in the Field)

Spring Return	Control Type				Supply Voltage	SPDT Aux. Switches	Actuator Code	Switch Kit Code	Linkage Code	Optional Weather Shield
	on/off	floating	proportional 0(2)...10 V	proportional 0(4)...20 mA ¹						
Yes		X			24 VAC/VDC	0	M9220-AGA-3	-	M9000-519	M9000-340
		X				2	M9220-AGC-3			
	X				120 VAC	0	M9220-BAA-3			
	X					2	M9220-BAC-3			
	X				24 VAC/VDC	0	M9220-BGA-3			
	X					2	M9220-BGC-3			
				X	24 VAC/VDC	0	M9220-GGA-3			
				X		2	M9220-GGC-3			
No	X	X	X	X	100...240 VDC	0	M9320-AUA-2	-	-	M9000-343
	X	X	X	X		2	M9320-AUA-2	M9300-2		
	X	X	X	X	24 VAC/VDC	0	M9320-HGA-2	-		
	X	X	X	X		2	M9320-HGA-2	M9300-2		

¹ with field furnished 500 ohm resistor

Technical Specifications

VG1000 Series Flanged Ball Valves for Assembly in the Field		
Service¹		Hot water, chilled water, 50/50 Glycol solutions, and 25 psig (172 kPa) saturated steam for HVAC systems
Valve Fluid Temperature Limits		0°F to 284°F (-18°C to 140°C)
Valve Body Pressure/Temperature Rating	Water	ASME Class 150 250 psi at -20°F to 100°F (29°C to 38°C) 235 psi at 200°F (93°C) 218 psi at 284°F (140°C)
	Steam	25 psig (172 kPa) saturated steam for HVAC systems
Maximum Closeoff Pressure	Two-Way	100 psi (689 kPa)
	Three-Way	50 psi (345 kPa)
Maximum Recommended Operating Pressure Drop		30 psi (207 kPa)
Flow Characteristics	Two-Way	Equal percentage
	Three-Way	Equal percentage flow characteristics of in-line port or Linear percentage flow characteristics of angle port
Rangeability²		Greater than 500:1
Minimum Ambient Operating Temperature	-4°F (-20°C)	M9320 Series Non-Spring Return Actuators
	-40°F (-40°C)	M9220 Series Spring Return Actuators
Maximum Ambient Operating Temperature³	122°F (50°C)	M9320 Series Non-Spring Return Actuators
	131°F (55°C)	M9220 Series Spring Return Actuators
Leakage	Two- or Three-Way	0.01% of maximum flow, control port, ANSI/FCI 70-2, Class 4
	Three-Way	1% of maximum Flow, bypass port
End Connections		ASME Class 150 flange
Materials	Body	Brass
	Flanges	Ductile iron
	Ball	300 Series stainless steel
	Stem	300 Series stainless steel
	Seats	Graphite reinforced PTFE with EPDM O-Ring backing
	Stem Seals	EPDM O-Rings
	Flow Control Disk	Amodel AS-1145HS Polyphthalamide resin
Compliance	Europe	CE Mark - Johnson Controls, Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of the Pressure Equipment Directive (PED).

1. Refer to the VDI 2035 Guideline for proper water treatment.
2. Rangeability is defined as the ratio of maximum controllable flow to minimum controllable flow.
3. In steam applications, install the valve with the stem horizontal to the piping and wrap the valve and piping with insulation.

	WARNING	This product can expose you to chemicals including lead, which is known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov .
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