VG1000 Series

LIT-1900417

Flanged Ball Valves for Assembly in the Field

Description

VG1000 Series Flanged Ball Valves are designed to regulate the flow of chilled water, hot water, or 25 pounds per square inch gauge (psi) saturated steam in Heating, Ventilating, and Air Conditioning (HVAC) systems. The two-way valves come in 2-1/2, 3, and 4 in. (DN65, DN80, and DN100) sizes, with American Society of Mechanical Engineers (ASME) Class 150 flanges. 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 Valves Product Bulletin (LIT-12011228)* for important product application information.

Features

- 100 psi closeoff pressure rating provides tight shutoff
- 300 stainless steel ball and stem assembly applies to systems with high temperature water (0 to 284°F [-18 to 140°C]) or 25 psi saturated steam
- 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 M9124 or M9220 Series Electric Actuator to reduce field installation time and cost
- M9000-330 and M9000-340 weathershields available for field installation — protects the actuator from corrosion, rain, freezing rain, sleet and snow

VG1000 Flanged Ball Valve for Assembly in the Field

Repair Information

If the VG1000 Series Flanged Ball Valve fails to operate within its specifications, replace the unit. For a replacement valve, contact the nearest Johnson Controls® representative.

Selection Charts:

Available Flanged Ball Valves (for Field Assembly)

Valve	Size, in (mm)	Closeoff psig	Control Disk	Control Port A, Cv (Kv)
VG12A5GS	2-1/2 (DN65)	100	Yes	47 (40)
VG12A5GT				74 (63)
VG12A5GU				117 (100)
VG12A5HT	3 (DN80)	100	Yes	74 (63)
VG12A5HU				117 (100)
VG12A5HV				176 (150)
VG12A5HW			No	211 (180)
VG12A5JU	4 (DN100)	100	Yes	117 (100)
VG12A5JV			No	176 (150)

Available Actuators and Linkages (for Field Assembly)

Control Type	Spring Return	Switches	Actuator	Linkage	Optional Weathershield
AC 24 V On/Off (Floating Control)	No	No	M9124-AGA-2	M9000-518	M9000-330
AC 24 V On/Off (Floating Control)		Two	M9124-AGC-2		
DC 0 (2) to 10 V Proportional Control		No	M9124-GGA-2		
DC 0 (2) to 10 V Proportional Control		Two	M9124-GGC-2		
AC 24 V Three-Wire Floating Control	Yes	No	M9220-AGA-3	M9000-519	M9000-340
AC 24 V Three-Wire Floating Control		Two	M9220-AGC-3		
AC 120 V On/Off Control		No	M9220-BAA-3		
AC 120 V On/Off Control		Two	M9220-BAC-3		
AC 24 V On/Off Control		No	M9220-BGA-3		
AC 24 V On/Off Control		Two	M9220-BGC-3		
DC 0 (2) to 10 V Proportional Control		No	M9220-GGA-3		
DC 0 (2) to 10 V Proportional Control		Two	M9220-GGC-3		

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

Technical Specifications

VG1000 Series Flanged Ball Valves for Assembly in the Field		
Service[1]		Hot Water, Chilled Water, 50/50 Glycol Solutions, and 25 psig (172 kPa) Saturated Steam for HVAC Systems
Valve Fluid Temperature Limits		0 to 284°F (-18 to 140°C)
Valve Body Pressure/Temperature Rating	**Water**	ASME Class 150, at: 250 psi -20 to 100°F (29 to 38°C); 235 psi 200°F(93°C); 218 psi 284°F(140°C)
	Steam	25 psig (172 kPa) Saturated Steam for HVAC Systems
Maximum Closeoff Pressure		100 psi (689 kPa)
Maximum Recommended Operating Pressure Drop		30 psi (207 kPa) for quiet service
Flow Characteristics	**Two-Way**	Equal Percentage
Rangeability[2]		Greater than 500:1
Leakage		0.01% of Maximum Flow per ANSI/FCI 70-2, Class 4
End Connections		ASME Class 150 Flange
Minimum Ambient Operating Temperature	**-4°F (-20°C)**	M9124 Series Non-Spring Return Actuators
	-40°F (-40°C)	M9220 Series Spring Return Actuators
Maximum Ambient Operating Temperature[3]	**122°F (50°C)**	M9124 Series Non-Spring Return Actuators
	131°F (55°C)	M9220 Series Spring Return Actuators
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

1. Refer to VDI 2035 Standard for recommended 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.