VG1000 Series Two-Way, Plated Brass Trim, NPT End Connections Ball Valves with Spring Return Electric Actuators without Switches

Description

VG1000 Series Ball Valves are designed to regulate the flow of hot or chilled water and, for some models, low pressure steam in response to the demand of a controller in Heating, Ventilating, and Air Conditioning (HVAC) systems. Available in sizes 1/2 through 2 in. (DN15 through DN50), this family of two- and three-way forged brass valves is factory or field mounted to Johnson Controls® VA9104, M9106, M9109, and M9100 Series Non-Spring Return and VA2202, M9206, and M9210 Series Spring Return Electric Actuators for on/off, floating, or proportional control.

Refer to the *VG1000 Series Forged Brass Ball Valves Product Bulletin (LIT-977132)* for important product application information.

Features

- forged brass body — provides 580 psig static pressure rating
- chrome-plated brass ball and stem assembly standard — handles both chilled water and hot water applications with a fluid temperature range of 23 to 203°F (-5 to 95°C)
- graphite-reinforced Polytetrafluoroethylene (PTFE) seats — include 15% graphite-reinforced ball seals, providing better wear resistance
- 500:1 rangeability — provides accurate control under all load conditions
- maintenance-free design — performs without failure in excess of 200,000 full stroke cycles in iron-oxide contaminated water

VG1000 Series Two-Way, Spring Return, Plated Brass Ball and Stem Ball Valve Assemblies without End Switches

Repair Information

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

Selection Charts

Two-Way – Spring Return Valve Open

Valve	Size, in.	Cv	Closeoff psig	AC 24 V			AC 120 V
				Floating	DC 0 to 10 V Proportional	On/Off	On/Off
				VA2202-AGA-2 M9206-AGA-2S M9210-AGA-3	VA2202-GGA-2 M9206-GGA-2S M9210-GGA-3	VA2202-BGA-2 M9206-BGA-2S M9210-BGA-3	VA2202-BAA-2 M9206-BAA-2S M9210-BAA-3
VG1241AD	1/2	1.2[1]	200	VG1241AD+22TAGA	VG1241AD+22TGGA	VG1241AD+22TBGA	VG1241AD+22TBAA
VG1241AE		1.9[1]		VG1241AE+22TAGA	VG1241AE+22TGGA	VG1241AE+22TBGA	VG1241AE+22TBAA
VG1241AF		2.9[1]		VG1241AF+22TAGA	VG1241AF+22TGGA	VG1241AF+22TBGA	VG1241AF+22TBAA
VG1241AG		4.7[1]		VG1241AG+22TAGA	VG1241AG+22TGGA	VG1241AG+22TBGA	VG1241AG+22TBAA
VG1241AL		7.4[1]		VG1241AL+22TAGA	VG1241AL+22TGGA	VG1241AL+22TBGA	VG1241AL+22TBAA
VG1241AN		11.7		VG1241AN+22TAGA	VG1241AN+22TGGA	VG1241AN+22TBGA	VG1241AN+22TBAA
VG1241BG	3/4	4.7[1]	200	VG1241BG+22TAGA	VG1241BG+22TGGA	VG1241BG+22TBGA	VG1241BG+22TBAA
VG1241BL		7.4[1]		VG1241BL+22TAGA	VG1241BL+22TGGA	VG1241BL+22TBGA	VG1241BL+22TBAA
VG1241BN		11.7		VG1241BN+22TAGA	VG1241BN+22TGGA	VG1241BN+22TBGA	VG1241BN+22TBAA
VG1241CL	1	7.4[1]	200	VG1241CL+22TAGA	VG1241CL+22TGGA	VG1241CL+22TBGA	VG1241CL+22TBAA
VG1241CN		11.7[1]		VG1241CN+22TAGA	VG1241CN+22TGGA	VG1241CN+22TBGA	VG1241CN+22TBAA
VG1241CP		18.7		VG1241CP+22TAGA	VG1241CP+22TGGA	VG1241CP+22TBGA	VG1241CP+22TBAA
VG1241DN	1-1/4	11.7[1]	200	VG1241DN+936AGA	VG1241DN+936GGA	VG1241DN+936BGA	VG1241DN+936BAA
VG1241DP		18.7[1]		VG1241DP+936AGA	VG1241DP+936GGA	VG1241DP+936BGA	VG1241DP+936BAA
VG1241DR		29.2		VG1241DR+936AGA	VG1241DR+936GGA	VG1241DR+936BGA	VG1241DR+936BAA
VG1241EP	1-1/2	18.7[1]	200	VG1241EP+936AGA	VG1241EP+936GGA	VG1241EP+936BGA	VG1241EP+936BAA
VG1241ER		29.2[1]		VG1241ER+936AGA	VG1241ER+936GGA	VG1241ER+936BGA	VG1241ER+936BAA
VG1241ES		46.8		VG1241ES+936AGA	VG1241ES+936GGA	VG1241ES+936BGA	VG1241ES+936BAA
VG1241FR	2	29.2[1]	200	VG1241FR+92JAGA	VG1241FR+92JGGA	VG1241FR+92JBGA	VG1241FR+92JBAA
VG1241FS		46.8[1]		VG1241FS+92JAGA	VG1241FS+92JGGA	VG1241FS+92JBGA	VG1241FS+92JBAA
VG1241FT		73.7		VG1241FT+92JAGA	VG1241FT+92JGGA	VG1241FT+92JBGA	VG1241FT+92JBAA

1. Cv has a characterizing disk.

VG1000 Series Two-Way, Plated Brass Trim, NPT End Connections Ball Valves with Spring Return Electric Actuators without Switches (Continued)

Two-Way – Spring Return Valve Closed

Valve	Size, in.	Cv	Closeoff psig	AC 24 V			AC 120 V
				Floating	DC 0 to 10 V Proportional	On/Off	On/Off
				VA2202-AGA-2 M9206-AGA-2S M9210-AGA-3	VA2202-GGA-2 M9206-GGA-2S M9210-GGA-3	VA2202-BGA-2 M9206-BGA-2S M9210-BGA-3	VA2202-BAA-2 M9206-BAA-2S M9210-BAA-3
VG1241AD	1/2	1.2[1]	200	VG1241AD+24TAGA	VG1241AD+24TGGA	VG1241AD+24TBGA	VG1241AD+24TBAA
VG1241AE		1.9[1]		VG1241AE+24TAGA	VG1241AE+24TGGA	VG1241AE+24TBGA	VG1241AE+24TBAA
VG1241AF		2.9[1]		VG1241AF+24TAGA	VG1241AF+24TGGA	VG1241AF+24TBGA	VG1241AF+24TBAA
VG1241AG		4.7[1]		VG1241AG+24TAGA	VG1241AG+24TGGA	VG1241AG+24TBGA	VG1241AG+24TBAA
VG1241AL		7.4[1]		VG1241AL+24TAGA	VG1241AL+24TGGA	VG1241AL+24TBGA	VG1241AL+24TBAA
VG1241AN		11.7		VG1241AN+24TAGA	VG1241AN+24TGGA	VG1241AN+24TBGA	VG1241AN+24TBAA
VG1241BG	3/4	4.7[1]	200	VG1241BG+24TAGA	VG1241BG+24TGGA	VG1241BG+24TBGA	VG1241BG+24TBAA
VG1241BL		7.4[1]		VG1241BL+24TAGA	VG1241BL+24TGGA	VG1241BL+24TBGA	VG1241BL+24TBAA
VG1241BN		11.7		VG1241BN+24TAGA	VG1241BN+24TGGA	VG1241BN+24TBGA	VG1241BN+24TBAA
VG1241CL	1	7.4[1]	200	VG1241CL+24TAGA	VG1241CL+24TGGA	VG1241CL+24TBGA	VG1241CL+24TBAA
VG1241CN		11.7[1]		VG1241CN+24TAGA	VG1241CN+24TGGA	VG1241CN+24TBGA	VG1241CN+24TBAA
VG1241CP		18.7		VG1241CP+24TAGA	VG1241CP+24TGGA	VG1241CP+24TBGA	VG1241CP+24TBAA
VG1241DN	1-1/4	11.7[1]	200	VG1241DN+956AGA	VG1241DN+956GGA	VG1241DN+956BGA	VG1241DN+956BAA
VG1241DP		18.7[1]		VG1241DP+956AGA	VG1241DP+956GGA	VG1241DP+956BGA	VG1241DP+956BAA
VG1241DR		29.2		VG1241DR+956AGA	VG1241DR+956GGA	VG1241DR+956BGA	VG1241DR+956BAA
VG1241EP	1-1/2	18.7[1]	200	VG1241EP+956AGA	VG1241EP+956GGA	VG1241EP+956BGA	VG1241EP+956BAA
VG1241ER		29.2[1]		VG1241ER+956AGA	VG1241ER+956GGA	VG1241ER+956BGA	VG1241ER+956BAA
VG1241ES		46.8		VG1241ES+956AGA	VG1241ES+956GGA	VG1241ES+956BGA	VG1241ES+956BAA
VG1241FR	2	29.2[1]	200	VG1241FR+94JAGA	VG1241FR+94JGGA	VG1241FR+946JBGA	VG1241FR+94JBAA
VG1241FS		46.8[1]		VG1241FS+94JAGA	VG1241FS+94JGGA	VG1241FS+946JBGA	VG1241FS+94JBAA
VG1241FT		73.7		VG1241FT+94JAGA	VG1241FT+94JGGA	VG1241FT+946JBGA	VG1241FT+94JBAA

1. Cv has a characterizing disk.

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VG1000 Series Two-Way, Plated Brass Trim, NPT End Connections Ball Valves with Spring Return Electric Actuators without Switches (Continued)

Technical Specifications

VG1000 Series Two-Way, Plated Brass Trim Ball Valves with Spring Return Electric Actuators without Switches		
Service[1]		Hot Water, Chilled Water, 50/50 Glycol Solutions, and 15 psig (103 kPa) Saturated Steam for HVAC Systems
Fluid Temperature Limits	**Water**	23 to 203°F (-5 to 95°C)
	Steam	Not Rated for Steam Service
Valve Body Pressure Rating	**Water**	580 psig (3,999 kPa) (PN40)
	Steam	15 psig (103 kPa) Saturated Steam
Maximum Closeoff Pressure		200 psig (1,378 kPa)
Maximum Recommended Operating Pressure Drop		50 psi Maximum Differential Pressure for Valves with Characterized Flow Control Disk and 30 psi Maximum for Quiet Service Ball Valves
Flow Characteristics	**Two-Way**	Equal Percentage
Rangeability[2]		Greater than 500:1
Minimum Ambient Operating Temperature	**-25°F (-32°C)**	M9206 Series Spring Return Actuators
	-22°F (-30°C)	VA2202 and M2202 Series Spring Return Actuators
	-40°F (-40°C)	M9210 Series Spring Return Actuators
Maximum Ambient Operating Temperature[3] **(Limited by the Actuator and Linkage)**	**Direct Mount**	122°F (50°C): VA2202 Series Spring Return Actuators
	M2000-500 Linkage	122°F (50°C): M2202 Series Spring Return Actuators
	M9000-520 Linkage	140°F (60°C): M9206 Series Spring Return Actuators
	M9000-51x Series Linkage	131°F (55°C): M9210 Series Spring Return Actuators
Leakage		0.01% of Maximum Flow per ANSI/FCI 70-2, Class 4
End Connections		National Pipe Thread (NPT)
Materials	**Body**	Forged Brass
	Ball	Chrome Plated Brass
	Blowout-Proof Stem	Nickel Plated Brass
	Seats	Graphite-Reinforced PTFE with Ethylene Propylene Diene Monomer (EPDM) O-Ring Backing
	Stem Seals	EPDM Double O-Rings
	Characterizing Disk	Amodel® AS-1145HS Polyphthalamide Resin

1. Proper water treatment is recommended; refer to the VDI 2035 Standard.
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.