

Two-Way, Plated Brass Trim, NPT End Connection Ball Valves with Spring Return Electric Actuators with 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-way 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
- 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

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.



Two-Way, Spring Return, Plated Brass Ball and Stem Ball Valve Assemblies with End Switches

Selection Charts

Two-Way – Spring Return Valve Open – Normally Open with Switches¹

Valve	Size, in.	Cv	Closeoff psig	AC 24 V			AC 120 V
				Floating	DC 0 to 10 V Proportional	On/Off	On/Off
				VA2202-AGB-2 M9206-AGC-2 M9210-AGC-3	VA2202-GGB-2 M9206-GGC-2 M9210-GGC-3	VA2202-BGB-2 M9206-BGB-2S M9210-BGC-3	VA2202-BAB-2 M9206-BAB-2S M9210-BAC-3
VG1241AD	1/2	1.2 ²	200	VG1241AD+22TAGB	VG1241AD+22TGGB	VG1241AD+22TBGB	VG1241AD+22TBAB
VG1241AE		1.9 ²		VG1241AE+22TAGB	VG1241AE+22TGGB	VG1241AE+22TBGB	VG1241AE+22TBAB
VG1241AF		2.9 ²		VG1241AF+22TAGB	VG1241AF+22TGGB	VG1241AF+22TBGB	VG1241AF+22TBAB
VG1241AG		4.7 ²		VG1241AG+22TAGB	VG1241AG+22TGGB	VG1241AG+22TBGB	VG1241AG+22TBAB
VG1241AL		7.4 ²		VG1241AL+22TAGB	VG1241AL+22TGGB	VG1241AL+22TBGB	VG1241AL+22TBAB
VG1241AN		11.7		VG1241AN+22TAGB	VG1241AN+22TGGB	VG1241AN+22TBGB	VG1241AN+22TBAB
VG1241BG	3/4	4.7 ²	200	VG1241BG+22TAGB	VG1241BG+22TGGB	VG1241BG+22TBGB	VG1241BG+22TBAB
VG1241BL		7.4 ²		VG1241BL+22TAGB	VG1241BL+22TGGB	VG1241BL+22TBGB	VG1241BL+22TBAB
VG1241BN		11.7		VG1241BN+22TAGB	VG1241BN+22TGGB	VG1241BN+22TBGB	VG1241BN+22TBAB
VG1241CL	1	7.4 ²	200	VG1241CL+936AGC	VG1241CL+936GGC	VG1241CL+936BGB	VG1241CL+936BAB
VG1241CN		11.7 ²		VG1241CN+936AGC	VG1241CN+936GGC	VG1241CN+936BGB	VG1241CN+936BAB
VG1241CP		18.7		VG1241CP+936AGC	VG1241CP+936GGC	VG1241CP+936BGB	VG1241CP+936BAB
VG1241DN	1-1/4	11.7 ²	200	VG1241DN+936AGC	VG1241DN+936GGC	VG1241DN+936BGB	VG1241DN+936BAB
VG1241DP		18.7 ²		VG1241DP+936AGC	VG1241DP+936GGC	VG1241DP+936BGB	VG1241DP+936BAB
VG1241DR		29.2		VG1241DR+936AGC	VG1241DR+936GGC	VG1241DR+936BGB	VG1241DR+936BAB
VG1241EP	1-1/2	18.7 ²	200	VG1241EP+936AGC	VG1241EP+936GGC	VG1241EP+936BGB	VG1241EP+936BAB
VG1241ER		29.2 ²		VG1241ER+936AGC	VG1241ER+936GGC	VG1241ER+936BGB	VG1241ER+936BAB
VG1241ES		46.8		VG1241ES+936AGC	VG1241ES+936GGC	VG1241ES+936BGB	VG1241ES+936BAB
VG1241FR	2	29.2 ²	200	VG1241FR+92JAGC	VG1241FR+92JGGC	VG1241FR+92JBGC	VG1241FR+92JBAC
VG1241FS		46.8 ²		VG1241FS+92JAGC	VG1241FS+92JGGC	VG1241FS+92JBGC	VG1241FS+92JBAC
VG1241FT		73.7		VG1241FT+92JAGC	VG1241FT+92JGGC	VG1241FT+92JBGC	VG1241FT+92JBAC

1. VA2202-xxB and M9206-BxB have a single end switch. M9206-xGC and M9210-xGC have two end switches.

2. Cv has a characterizing disk.

WVG1000 Series Two-Way, Plated Brass Trim, NPT End Connection Ball Valves with Spring Return Electric Actuators with Switches (Continued)

Two-Way – Spring Return Valve Closed – Normally Closed with Switches¹

Valve	Size in.	Cv	Closeoff psig	AC 24 V			AC 120 V
				Floating	DC 0 to 10 V Proportional	On/Off	On/Off
				VA2202-AGB-2 M9206-AGC-2 M9210-AGC-3	VA2202-GGB-2 M9206-GGC-2 M9210-GGC-3	VA2202-BGB-2 M9206-BGB-2S M9210-BGC-3	VA2202-BAB-2 M9206-BAB-2S M9210-BAC-3
VG1241AD	1/2	1.2 ²	200	VG1241AD+24TAGB	VG1241AD+24TGGB	VG1241AD+24TBGB	VG1241AD+24TBAB
VG1241AE		1.9 ²		VG1241AE+24TAGB	VG1241AE+24TGGB	VG1241AE+24TBGB	VG1241AE+24TBAB
VG1241AF		2.9		VG1241AF+24TAGB	VG1241AF+24TGGB	VG1241AF+24TBGB	VG1241AF+24TBAB
VG1241AG		4.7		VG1241AG+24TAGB	VG1241AG+24TGGB	VG1241AG+24TBGB	VG1241AG+24TBAB
VG1241AL		7.4		VG1241AL+24TAGB	VG1241AL+24TGGB	VG1241AL+24TBGB	VG1241AL+24TBAB
VG1241AN		11.7		VG1241AN+24TAGB	VG1241AN+24TGGB	VG1241AN+24TBGB	VG1241AN+24TBAB
VG1241BG	3/4	4.7 ²	200	VG1241BG+24TAGB	VG1241BG+24TGGB	VG1241BG+24TBGB	VG1241BG+24TBAB
VG1241BL		7.4		VG1241BL+24TAGB	VG1241BL+24TGGB	VG1241BL+24TBGB	VG1241BL+24TBAB
VG1241BN		11.7		VG1241BN+24TAGB	VG1241BN+24TGGB	VG1241BN+24TBGB	VG1241BN+24TBAB
VG1241CL	1	7.4	200	VG1241CL+956AGC	VG1241CL+956GGC	VG1241CL+956BGB	VG1241CL+956BAB
VG1241CN		11.7 ²		VG1241CN+956AGC	VG1241CN+956GGC	VG1241CN+956BGB	VG1241CN+956BAB
VG1241CP		18.7		VG1241CP+956AGC	VG1241CP+956GGC	VG1241CP+956BGB	VG1241CP+956BAB
VG1241DN	1-1/4	11.7 ²	200	VG1241DN+956AGC	VG1241DN+956GGC	VG1241DN+956BGB	VG1241DN+956BAB
VG1241DP		18.7 ²		VG1241DP+956AGC	VG1241DP+956GGC	VG1241DP+956BGB	VG1241DP+956BAB
VG1241DR		29.2		VG1241DR+956AGC	VG1241DR+956GGC	VG1241DR+956BGB	VG1241DR+956BAB
VG1241EP	1-1/2	18.7 ²	200	VG1241EP+956AGC	VG1241EP+956GGC	VG1241EP+956BGB	VG1241EP+956BAB
VG1241ER		29.2 ²		VG1241ER+956AGC	VG1241ER+956GGC	VG1241ER+956BGB	VG1241ER+956BAB
VG1241ES		46.8		VG1241ES+956AGC	VG1241ES+956GGC	VG1241ES+956BGB	VG1241ES+956BAB
VG1241FR	2	29.2 ²	200	VG1241FR+94JAGC	VG1241FR+94JGGC	VG1241FR+94JBGC	VG1241FR+94JBAC
VG1241FS		46.8 ²		VG1241FS+94JAGC	VG1241FS+94JGGC	VG1241FS+94JBGC	VG1241FS+94JBAC
VG1241FT		73.7		VG1241FT+94JAGC	VG1241FT+94JGGC	VG1241FT+94JBGC	VG1241FT+94JBAC

1. VA2202-xxB and M9206-BxB have a single end switch. M9206-xGC and M9210-xGC have two end switches.

2. Cv has a characterizing disk.

WVG1000 Series Two-Way, Plated Brass Trim, NPT End Connection Ball Valves with Spring Return Electric Actuators with Switches (Continued)

Technical Specifications

VG1000 Series Two-Way, Plated Brass Trim Ball Valves with Spring Return Electric Actuators with Switches		
Service¹		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 (3,996 kPa) (PN40)
	Steam	15 psig (103 kPa) Saturated Steam
Maximum Closeoff Pressure		200 psig (1,378 kPa)
Maximum Recommended Operating Pressure Drop		Maximum Differential Pressure 50 psi: Valves with Characterized Flow Control Disk 30 psi: Quiet Service Ball Valves
Flow Characteristics	Two-Way	Equal Percentage
Rangeability²		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 Temperature³ (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 Polytetrafluoroethylene (PTFE) with Ethylene Propylene Diene Monomer (EPDM) O-Ring Backing
	Stem Seals	EPDM Double O-Rings
	Characterizing 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.