

VG1000 Series

Press End Connection Plated Brass Trim Ball Valves

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 1 in. (DN15 through DN25), this family of two- and three-way forged brass valves is factory or field mounted to Johnson Controls® VA9104 Series Non-Spring Return and VA2202 Series Spring Return Electric Actuators for on/off, floating, or proportional control. When supplied with an actuator, the actuator is not mounted to the valve to allow access to the end connections.

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

Features

- forged brass body — provides 300 psig static pressure rating
- Graphite Reinforced Polytetrafluoroethylene (PTFE) seats — include 15% graphite-reinforced ball seats, 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
- press end connections — designed to work with RIDGID® pressing tools, reducing installation costs



VG1000 Series Press End Connection Valves

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

VG1000 Press End Connection Valves, Plated Brass Trim, Non-Spring Return Actuators (Part 1 of 2)

Valve	Size, in.	Cv	Closeoff psig	AC 24 V		
				On/Off (Floating) without Timeout ¹	On/Off (Floating) with Timeout	DC 0 to 10 V Proportional
				VA9104-AGA-xS ²	VA9104-IGA-xS ²	VA9104-GGA-xS ²
Two-Way						
VG1291AD	1/2	1.2 ³	200	VG1291AD+9T4AGA	VG1291AD+9T4IGA	VG1291AD+9T4GGA
VG1291AE		1.9 ³		VG1291AE+9T4AGA	VG1291AE+9T4IGA	VG1291AE+9T4GGA
VG1291AF		2.9 ³		VG1291AF+9T4AGA	VG1291AF+9T4IGA	VG1291AF+9T4GGA
VG1291AG		4.7 ³		VG1291AG+9T4AGA	VG1291AG+9T4IGA	VG1291AG+9T4GGA
VG1291AL		7.4 ³		VG1291AL+9T4AGA	VG1291AL+9T4IGA	VG1291AL+9T4GGA
VG1291AN		11.7		VG1291AN+9T4AGA	VG1291AN+9T4IGA	VG1291AN+9T4GGA
VG1291BG	3/4	4.7 ³	200	VG1291BG+9T4AGA	VG1291BG+9T4IGA	VG1291BG+9T4GGA
VG1291BL		7.4 ³		VG1291BL+9T4AGA	VG1291BL+9T4IGA	VG1291BL+9T4GGA
VG1291BN		11.7		VG1291BN+9T4AGA	VG1291BN+9T4IGA	VG1291BN+9T4GGA
VG1291CL	1	7.4 ³	200	VG1291CL+9T4AGA	VG1291CL+9T4IGA	VG1291CL+9T4GGA
VG1291CN		11.7 ³		VG1291CN+9T4AGA	VG1291CN+9T4IGA	VG1291CN+9T4GGA
VG1291CP		18.7		VG1291CP+9T4AGA	VG1291CP+9T4IGA	VG1291CP+9T4GGA

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products. © 2008 Johnson Controls, Inc. www.johnsoncontrols.com



Press End Connection Plated Brass Trim Ball Valves (Continued)

VG1000 Press End Connection Valves, Plated Brass Trim, Non-Spring Return Actuators (Part 2 of 2)

Valve	Size, in.	Cv	Closeoff psig	AC 24 V		
				On/Off (Floating) without Timeout ¹	On/Off (Floating) with Timeout	DC 0 to 10 V Proportional
				VA9104-AGA-xS ²	VA9104-IGA-xS ²	VA9104-GGA-xS ²
Three-Way						
VG1891AD	1/2	1.2 ³	200	VG1891AD+9T4AGA	VG1891AD+9T4IGA	VG1891AD+9T4GGA
VG1891AE		1.9 ³		VG1891AE+9T4AGA	VG1891AE+9T4IGA	VG1891AE+9T4GGA
VG1891AF		2.9 ³		VG1891AF+9T4AGA	VG1891AF+9T4IGA	VG1891AF+9T4GGA
VG1891AG		4.7 ³		VG1891AG+9T4AGA	VG1891AG+9T4IGA	VG1891AG+9T4GGA
VG1891AL		7.4 ³		VG1891AL+9T4AGA	VG1891AL+9T4IGA	VG1891AL+9T4GGA
VG1891AN		11.7		VG1891AN+9T4AGA	VG1891AN+9T4IGA	VG1891AN+9T4GGA
VG1891BG	3/4	4.7 ³	200	VG1891BG+9T4AGA	VG1891BG+9T4IGA	VG1891BG+9T4GGA
VG1891BL		7.4 ³		VG1891BL+9T4AGA	VG1891BL+9T4IGA	VG1891BL+9T4GGA
VG1891BN		11.7		VG1891BN+9T4AGA	VG1891BN+9T4IGA	VG1891BN+9T4GGA
VG1891CL	1	7.4 ³	200	VG1891CL+9T4AGA	VG1891CL+9T4IGA	VG1891CL+9T4GGA
VG1891CN		11.7 ³		VG1891CN+9T4AGA	VG1891CN+9T4IGA	VG1891CN+9T4GGA
VG1891CP		18.7		VG1891CP+9T4AGA	VG1891CP+9T4IGA	VG1891CP+9T4GGA

- To avoid excessive wear or drive time on the motor for the AGx models, use a controller or software that provides a timeout function to remove the signal at the end of rotation (stall).
- Code numbers shown are for a VA9104-xGA-3S actuator with M3 screw terminals. To specify a 48-in. plenum-rated cable, change the 9T4 to 9A4 in the code number for a VA9104-xGA-2S actuator. Example: VG1241AD+9T4AGA becomes VG1241AD+9A4AGA.
- Cv has a characterizing disk.

VG1000 Press End Connection Valves, Plated Brass Trim, Two-Way Spring Return Actuators

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	VA2202-GGA-2	VA2202-BGA-2	VA2202-BAA-2
Two-Way Spring Return Valve Open (Normally Open)							
VG1291AD	1/2	1.2 ¹	200	VG1291AD+22TAGA	VG1291AD+22TGGGA	VG1291AD+22TBGA	VG1291AD+22TBAA
VG1291AE		1.9 ¹		VG1291AE+22TAGA	VG1291AE+22TGGGA	VG1291AE+22TBGA	VG1291AE+22TBAA
VG1291AF		2.9 ¹		VG1291AF+22TAGA	VG1291AF+22TGGGA	VG1291AF+22TBGA	VG1291AF+22TBAA
VG1291AG		4.7 ¹		VG1291AG+22TAGA	VG1291AG+22TGGGA	VG1291AG+22TBGA	VG1291AG+22TBAA
VG1291AL		7.4 ¹		VG1291AL+22TAGA	VG1291AL+22TGGGA	VG1291AL+22TBGA	VG1291AL+22TBAA
VG1291AN		11.7		VG1291AN+22TAGA	VG1291AN+22TGGGA	VG1291AN+22TBGA	VG1291AN+22TBAA
VG1291BG	3/4	4.7 ¹	200	VG1291BG+22TAGA	VG1291BG+22TGGGA	VG1291BG+22TBGA	VG1291BG+22TBAA
VG1291BL		7.4 ¹		VG1291BL+22TAGA	VG1291BL+22TGGGA	VG1291BL+22TBGA	VG1291BL+22TBAA
VG1291BN		11.7		VG1291BN+22TAGA	VG1291BN+22TGGGA	VG1291BN+22TBGA	VG1291BN+22TBAA
VG1291CL	1	7.4 ¹	200	VG1291CL+22TAGA	VG1291CL+22TGGGA	VG1291CL+22TBGA	VG1291CL+22TBAA
VG1291CN		11.7 ¹		VG1291CN+22TAGA	VG1291CN+22TGGGA	VG1291CN+22TBGA	VG1291CN+22TBAA
VG1291CP		18.7		VG1291CP+22TAGA	VG1291CP+22TGGGA	VG1291CP+22TBGA	VG1291CP+22TBAA
Two-Way Spring Return Valve Closed (Normally Closed)							
VG1291AD	1/2	1.2 ¹	200	VG1291AD+24TAGA	VG1291AD+24TGGGA	VG1291AD+24TBGA	VG1291AD+24TBAA
VG1291AE		1.9 ¹		VG1291AE+24TAGA	VG1291AE+24TGGGA	VG1291AE+24TBGA	VG1291AE+24TBAA
VG1291AF		2.9 ¹		VG1291AF+24TAGA	VG1291AF+24TGGGA	VG1291AF+24TBGA	VG1291AF+24TBAA
VG1291AG		4.7 ¹		VG1291AG+24TAGA	VG1291AG+24TGGGA	VG1291AG+24TBGA	VG1291AG+24TBAA
VG1291AL		7.4 ¹		VG1291AL+24TAGA	VG1291AL+24TGGGA	VG1291AL+24TBGA	VG1291AL+24TBAA
VG1291AN		11.7		VG1291AN+24TAGA	VG1291AN+24TGGGA	VG1291AN+24TBGA	VG1291AN+24TBAA
VG1291BG	3/4	4.7 ¹	200	VG1291BG+24TAGA	VG1291BG+24TGGGA	VG1291BG+24TBGA	VG1291BG+24TBAA
VG1291BL		7.4 ¹		VG1291BL+24TAGA	VG1291BL+24TGGGA	VG1291BL+24TBGA	VG1291BL+24TBAA
VG1291BN		11.7		VG1291BN+24TAGA	VG1291BN+24TGGGA	VG1291BN+24TBGA	VG1291BN+24TBAA
VG1291CL	1	7.4 ¹	200	VG1291CL+24TAGA	VG1291CL+24TGGGA	VG1291CL+24TBGA	VG1291CL+24TBAA
VG1291CN		11.7 ¹		VG1291CN+24TAGA	VG1291CN+24TGGGA	VG1291CN+24TBGA	VG1291CN+24TBAA
VG1291CP		18.7		VG1291CP+24TAGA	VG1291CP+24TGGGA	VG1291CP+24TBGA	VG1291CP+24TBAA

- Cv has a characterizing disk.



Press End Connection Plated Brass Trim Ball Valves (Continued)

VG1000 Press End Connection Valves, Plated Brass Trim, Three-Way Spring Return Actuators

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	VA2202-GGA-2	VA2202-BGA-2	VA2202-BAA-2
Three-Way Spring Return Counterclockwise, Port A (Coil) Open							
VG1891AD	1/2	1.2 ¹	200	VG1891AD+22TAGA	VG1891AD+22TGGGA	VG1891AD+22TBGA	VG1891AD+22TBAA
VG1891AE		1.9 ¹		VG1891AE+22TAGA	VG1891AE+22TGGGA	VG1891AE+22TBGA	VG1891AE+22TBAA
VG1891AF		2.9 ¹		VG1891AF+22TAGA	VG1891AF+22TGGGA	VG1891AF+22TBGA	VG1891AF+22TBAA
VG1891AG		4.7 ¹		VG1891AG+22TAGA	VG1891AG+22TGGGA	VG1891AG+22TBGA	VG1891AG+22TBAA
VG1891AL		7.4 ¹		VG1891AL+22TAGA	VG1891AL+22TGGGA	VG1891AL+22TBGA	VG1891AL+22TBAA
VG1891AN		11.7		VG1891AN+22TAGA	VG1891AN+22TGGGA	VG1891AN+22TBGA	VG1891AN+22TBAA
VG1891BG	3/4	4.7 ¹	200	VG1891BG+22TAGA	VG1891BG+22TGGGA	VG1891BG+22TBGA	VG1891BG+22TBAA
VG1891BL		7.4 ¹		VG1891BL+22TAGA	VG1891BL+22TGGGA	VG1891BL+22TBGA	VG1891BL+22TBAA
VG1891BN		11.7		VG1891BN+22TAGA	VG1891BN+22TGGGA	VG1891BN+22TBGA	VG1891BN+22TBAA
VG1891CL	1	7.4 ¹	200	VG1891CL+22TAGA	VG1891CL+22TGGGA	VG1891CL+22TBGA	VG1891CL+22TBAA
VG1891CN		11.7 ¹		VG1891CN+22TAGA	VG1891CN+22TGGGA	VG1891CN+22TBGA	VG1891CN+22TBAA
VG1891CP		18.7		VG1891CP+22TAGA	VG1891CP+22TGGGA	VG1891CP+22TBGA	VG1891CP+22TBAA
Three-Way Spring Return Clockwise, Port B (Bypass) Open							
VG1891AD	1/2	1.2 ¹	200	VG1891AD+24TAGA	VG1891AD+24TGGGA	VG1891AD+24TBGA	VG1891AD+24TBAA
VG1891AE		1.9 ¹		VG1891AE+24TAGA	VG1891AE+24TGGGA	VG1891AE+24TBGA	VG1891AE+24TBAA
VG1891AF		2.9 ¹		VG1891AF+24TAGA	VG1891AF+24TGGGA	VG1891AF+24TBGA	VG1891AF+24TBAA
VG1891AG		4.7 ¹		VG1891AG+24TAGA	VG1891AG+24TGGGA	VG1891AG+24TBGA	VG1891AG+24TBAA
VG1891AL		7.4 ¹		VG1891AL+24TAGA	VG1891AL+24TGGGA	VG1891AL+24TBGA	VG1891AL+24TBAA
VG1891AN		11.7		VG1891AN+24TAGA	VG1891AN+24TGGGA	VG1891AN+24TBGA	VG1891AN+24TBAA
VG1891BG	3/4	4.7 ¹	200	VG1891BG+24TAGA	VG1891BG+24TGGGA	VG1891BG+24TBGA	VG1891BG+24TBAA
VG1891BL		7.4 ¹		VG1891BL+24TAGA	VG1891BL+24TGGGA	VG1891BL+24TBGA	VG1891BL+24TBAA
VG1891BN		11.7		VG1891BN+24TAGA	VG1891BN+24TGGGA	VG1891BN+24TBGA	VG1891BN+24TBAA
VG1891CL	1	7.4 ¹	200	VG1891CL+24TAGA	VG1891CL+24TGGGA	VG1891CL+24TBGA	VG1891CL+24TBAA
VG1891CN		11.7 ¹		VG1891CN+24TAGA	VG1891CN+24TGGGA	VG1891CN+24TBGA	VG1891CN+24TBAA
VG1891CP		18.7		VG1891CP+24TAGA	VG1891CP+24TGGGA	VG1891CP+24TBGA	VG1891CP+24TBAA

1. Cv has a characterizing disk.

Press End Connection Plated Brass Trim Ball Valves (Continued)

Technical Specifications

VG1000 Series Press End Connection Plated Brass Trim Ball Valves		
Service¹	Hot Water, Chilled Water, and 50/50 Glycol Solutions for HVAC Systems	
Fluid Temperature Limits	23 to 203°F (-5 to 95°C)	
Maximum Actuator Fluid Temperature Limit	203°F (95°C)	
Valve Body Pressure Rating	300 psig (2,067 kPa)	
Maximum Closeoff Pressure	200 psig (1,378 kPa)	
Maximum Recommended Operating Pressure Drop	Valves with Characterized Flow Control Disk	50 psi
	Quiet Service Ball Valves	30 psi
Flow Characteristics	Two-Way	Equal Percentage
	Three-Way	Equal Percentage Flow Characteristics on the In-Line Port A (Coil) and Linear Flow Characteristics of the Angle Port B (Bypass)
Rangeability²	Greater than 500:1	
Minimum Ambient Operating Temperature	VA2202 Series Spring Return Actuators	-22°F (-30°C)
	VA9104 Series Non-Spring Return Actuators	-4°F (-20°C)
Maximum Ambient Operating Temperature³ (Limited by the Actuator)	VA2202 Series Spring Return Actuators	122°F (50°C)
	VA9104 Series Non-Spring Return Actuators	140°F (60°C)
Leakage	0.01% of Maximum Flow per ANSI/FCI 70-2, Class 4	
End Connections	Press (ProPress® Compatible, 1/2 through 1 in.) Press End Connections are designed to work with RIDGID pressing tools.	
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 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.