Code No. LIT-1900469
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VG1000 Series

Sweat End Connection Stainless Steel 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 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.

VG1000 Series Sweat End Connection Valves

Selection Charts

VG1000 Sweat End Connection Valves, Stainless Steel 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	0 to 10 VDC Proportional
				VA9104-AGA-xS[2]	VA9104-IGA-xS[2]	VA9104-GGA-xS[2]
Two-Way						
VG1275AD	1/2	1.2[3]	200	VG1275AD+9T4AGA	VG1275AD+9T4IGA	VG1275AD+9T4GGA
VG1275AE		1.9[3]		VG1275AE+9T4AGA	VG1275AE+9T4IGA	VG1275AE+9T4GGA
VG1275AF		2.9[3]		VG1275AF+9T4AGA	VG1275AF+9T4IGA	VG1275AF+9T4GGA
VG1275AG		4.7[3]		VG1275AG+9T4AGA	VG1275AG+9T4IGA	VG1275AG+9T4GGA
VG1275AL		7.4[3]		VG1275AL+9T4AGA	VG1275AL+9T4IGA	VG1275AL+9T4GGA
VG1275AN		11.7		VG1275AN+9T4AGA	VG1275AN+9T4IGA	VG1275AN+9T4GGA
VG1275BG	3/4	4.7[3]	200	VG1275BG+9T4AGA	VG1275BG+9T4IGA	VG1275BG+9T4GGA
VG1275BL		7.4[3]		VG1275BL+9T4AGA	VG1275BL+9T4IGA	VG1275BL+9T4GGA
VG1275BN		11.7		VG1275BN+9T4AGA	VG1275BN+9T4IGA	VG1275BN+9T4GGA
VG1275CL	1	7.4[3]	200	VG1275CL+9T4AGA	VG1275CL+9T4IGA	VG1275CL+9T4GGA
VG1275CN		11.7[3]		VG1275CN+9T4AGA	VG1275CN+9T4IGA	VG1275CN+9T4GGA
VG1275CP		18.7		VG1275CP+9T4AGA	VG1275CP+9T4IGA	VG1275CP+9T4GGA

Sweat End Connection Stainless Steel Trim Ball Valves (Continued)

VG1000 Sweat End Connection Valves, Stainless Steel 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	0 to 10 VDC Proportional
				VA9104-AGA-xS[2]	VA9104-IGA-xS[2]	VA9104-GGA-xS[2]
Three-Way						
VG1875AD	1/2	1.2[3]	200	VG1875AD+9T4AGA	VG1875AD+9T4IGA	VG1875AD+9T4GGA
VG1875AE		1.9[3]		VG1875AE+9T4AGA	VG1875AE+9T4IGA	VG1875AE+9T4GGA
VG1875AF		2.9[3]		VG1875AF+9T4AGA	VG1875AF+9T4IGA	VG1875AF+9T4GGA
VG1875AG		4.7[3]		VG1875AG+9T4AGA	VG1875AG+9T4IGA	VG1875AG+9T4GGA
VG1875AL		7.4[3]		VG1875AL+9T4AGA	VG1875AL+9T4IGA	VG1875AL+9T4GGA
VG1875AN		11.7		VG1875AN+9T4AGA	VG1875AN+9T4IGA	VG1875AN+9T4GGA
VG1875BG	3/4	4.7[3]	200	VG1875BG+9T4AGA	VG1875BG+9T4IGA	VG1875BG+9T4GGA
VG1875BL		7.4[3]		VG1875BL+9T4AGA	VG1875BL+9T4IGA	VG1875BL+9T4GGA
VG1875BN		11.7		VG1875BN+9T4AGA	VG1875BN+9T4IGA	VG1875BN+9T4GGA
VG1875CL	1	7.4[3]	200	VG1875CL+9T4AGA	VG1875CL+9T4IGA	VG1875CL+9T4GGA
VG1875CN		11.7[3]		VG1875CN+9T4AGA	VG1875CN+9T4IGA	VG1875CN+9T4GGA
VG1875CP		18.7		VG1875CP+9T4AGA	VG1875CP+9T4IGA	VG1875CP+9T4GGA

1. 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).
2. Code numbers shown are for a VA9104-xGA-3S actuator with M3 screw terminals. To specify a 48-in. plenum-rated cable, change 9T4 to 9A4 in the code number for a VA9104-xGA-2S actuator. For example, VG1241AD+**9T4**AGA becomes VG1241AD+**9A4**AGA.
3. Cv has a characterizing disk.

VG1000 Sweat End Connection Valves, Stainless Steel Trim, Two-Way Spring Return Actuators

Valve	Size, in.	Cv	Closeoff psig	AC 24 V			AC 120 V
				Floating	0 to 10 VDC 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)							
VG1275AD	1/2	1.2[1]	200	VG1275AD+22TAGA	VG1275AD+22TGGA	VG1275AD+22TBGA	VG1275AD+22TBAA
VG1275AE		1.9[1]		VG1275AE+22TAGA	VG1275AE+22TGGA	VG1275AE+22TBGA	VG1275AE+22TBAA
VG1275AF		2.9[1]		VG1275AF+22TAGA	VG1275AF+22TGGA	VG1275AF+22TBGA	VG1275AF+22TBAA
VG1275AG		4.7[1]		VG1275AG+22TAGA	VG1275AG+22TGGA	VG1275AG+22TBGA	VG1275AG+22TBAA
VG1275AL		7.4[1]		VG1275AL+22TAGA	VG1275AL+22TGGA	VG1275AL+22TBGA	VG1275AL+22TBAA
VG1275AN		11.7		VG1275AN+22TAGA	VG1275AN+22TGGA	VG1275AN+22TBGA	VG1275AN+22TBAA
VG1275BG	3/4	4.7[1]	200	VG1275BG+22TAGA	VG1275BG+22TGGA	VG1275BG+22TBGA	VG1275BG+22TBAA
VG1275BL		7.4[1]		VG1275BL+22TAGA	VG1275BL+22TGGA	VG1275BL+22TBGA	VG1275BL+22TBAA
VG1275BN		11.7		VG1275BN+22TAGA	VG1275BN+22TGGA	VG1275BN+22TBGA	VG1275BN+22TBAA
VG1275CL	1	7.4[1]	200	VG1275CL+22TAGA	VG1275CL+22TGGA	VG1275CL+22TBGA	VG1275CL+22TBAA
VG1275CN		11.7[1]		VG1275CN+22TAGA	VG1275CN+22TGGA	VG1275CN+22TBGA	VG1275CN+22TBAA
VG1275CP		18.7		VG1275CP+22TAGA	VG1275CP+22TGGA	VG1275CP+22TBGA	VG1275CP+22TBAA
Two-Way Spring Return Valve Closed (Normally Closed)							
VG1275AD	1/2	1.2[1]	200	VG1275AD+24TAGA	VG1275AD+24TGGA	VG1275AD+24TBGA	VG1275AD+24TBAA
VG1275AE		1.9[1]		VG1275AE+24TAGA	VG1275AE+24TGGA	VG1275AE+24TBGA	VG1275AE+24TBAA
VG1275AF		2.9[1]		VG1275AF+24TAGA	VG1275AF+24TGGA	VG1275AF+24TBGA	VG1275AF+24TBAA
VG1275AG		4.7[1]		VG1275AG+24TAGA	VG1275AG+24TGGA	VG1275AG+24TBGA	VG1275AG+24TBAA
VG1275AL		7.4[1]		VG1275AL+24TAGA	VG1275AL+24TGGA	VG1275AL+24TBGA	VG1275AL+24TBAA
VG1275AN		11.7		VG1275AN+24TAGA	VG1275AN+24TGGA	VG1275AN+24TBGA	VG1275AN+24TBAA
VG1275BG	3/4	4.7[1]	200	VG1275BG+24TAGA	VG1275BG+24TGGA	VG1275BG+24TBGA	VG1275BG+24TBAA
VG1275BL		7.4[1]		VG1275BL+24TAGA	VG1275BL+24TGGA	VG1275BL+24TBGA	VG1275BL+24TBAA
VG1275BN		11.7		VG1275BN+24TAGA	VG1275BN+24TGGA	VG1275BN+24TBGA	VG1275BN+24TBAA
VG1275CL	1	7.4[1]	200	VG1275CL+24TAGA	VG1275CL+24TGGA	VG1275CL+24TBGA	VG1275CL+24TBAA
VG1275CN		11.7[1]		VG1275CN+24TAGA	VG1275CN+24TGGA	VG1275CN+24TBGA	VG1275CN+24TBAA
VG1275CP		18.7		VG1275CP+24TAGA	VG1275CP+24TGGA	VG1275CP+24TBGA	VG1275CP+24TBAA

1. Cv has a characterizing disk.

Sweat End Connection Stainless Steel Trim Ball Valves (Continued)

VG1000 Sweat End Connection Valves, Stainless Steel Trim, Three-Way Spring Return Actuators

Valve	Size, in.	Cv	Closeoff psig	AC 24 V			AC 120 V
				Floating	0 to 10 VDC 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							
VG1875AD	1/2	1.2[1]	200	VG1875AD+22TAGA	VG1875AD+22TGGA	VG1875AD+22TBGA	VG1875AD+22TBAA
VG1875AE		1.9[1]		VG1875AE+22TAGA	VG1875AE+22TGGA	VG1875AE+22TBGA	VG1875AE+22TBAA
VG1875AF		2.9[1]		VG1875AF+22TAGA	VG1875AF+22TGGA	VG1875AF+22TBGA	VG1875AF+22TBAA
VG1875AG		4.7[1]		VG1875AG+22TAGA	VG1875AG+22TGGA	VG1875AG+22TBGA	VG1875AG+22TBAA
VG1875AL		7.4[1]		VG1875AL+22TAGA	VG1875AL+22TGGA	VG1875AL+22TBGA	VG1875AL+22TBAA
VG1875AN		11.7		VG1875AN+22TAGA	VG1875AN+22TGGA	VG1875AN+22TBGA	VG1875AN+22TBAA
VG1875BG	3/4	4.7[1]	200	VG1875BG+22TAGA	VG1875BG+22TGGA	VG1875BG+22TBGA	VG1875BG+22TBAA
VG1875BL		7.4[1]		VG1875BL+22TAGA	VG1875BL+22TGGA	VG1875BL+22TBGA	VG1875BL+22TBAA
VG1875BN		11.7		VG1875BN+22TAGA	VG1875BN+22TGGA	VG1875BN+22TBGA	VG1875BN+22TBAA
VG1875CL	1	7.4[1]	200	VG1875CL+22TAGA	VG1875CL+22TGGA	VG1875CL+22TBGA	VG1875CL+22TBAA
VG1875CN		11.7[1]		VG1875CN+22TAGA	VG1875CN+22TGGA	VG1875CN+22TBGA	VG1875CN+22TBAA
VG1875CP		18.7		VG1875CP+22TAGA	VG1875CP+22TGGA	VG1875CP+22TBGA	VG1875CP+22TBAA
Three-Way Spring Return Clockwise, Port B (Bypass) Open							
VG1875AD	1/2	1.2[1]	200	VG1875AD+24TAGA	VG1875AD+24TGGA	VG1875AD+24TBGA	VG1875AD+24TBAA
VG1875AE		1.9[1]		VG1875AE+24TAGA	VG1875AE+24TGGA	VG1875AE+24TBGA	VG1875AE+24TBAA
VG1875AF		2.9[1]		VG1875AF+24TAGA	VG1875AF+24TGGA	VG1875AF+24TBGA	VG1875AF+24TBAA
VG1875AG		4.7[1]		VG1875AG+24TAGA	VG1875AG+24TGGA	VG1875AG+24TBGA	VG1875AG+24TBAA
VG1875AL		7.4[1]		VG1875AL+24TAGA	VG1875AL+24TGGA	VG1875AL+24TBGA	VG1875AL+24TBAA
VG1875AN		11.7		VG1875AN+24TAGA	VG1875AN+24TGGA	VG1875AN+24TBGA	VG1875AN+24TBAA
VG1875BG	3/4	4.7[1]	200	VG1875BG+24TAGA	VG1875BG+24TGGA	VG1875BG+24TBGA	VG1875BG+24TBAA
VG1875BL		7.4[1]		VG1875BL+24TAGA	VG1875BL+24TGGA	VG1875BL+24TBGA	VG1875BL+24TBAA
VG1875BN		11.7		VG1875BN+24TAGA	VG1875BN+24TGGA	VG1875BN+24TBGA	VG1875BN+24TBAA
VG1875CL	1	7.4[1]	200	VG1875CL+24TAGA	VG1875CL+24TGGA	VG1875CL+24TBGA	VG1875CL+24TBAA
VG1875CN		11.7[1]		VG1875CN+24TAGA	VG1875CN+24TGGA	VG1875CN+24TBGA	VG1875CN+24TBAA
VG1875CP		18.7		VG1875CP+24TAGA	VG1875CP+24TGGA	VG1875CP+24TBGA	VG1875CP+24TBAA

1. Cv has a characterizing disk.

Technical Specifications

VG1000 Series Sweat End Connection Stainless Steel Trim Ball Valves (Part 1 of 2)		
Service[1]		Hot Water, Chilled Water, and 50/50 Glycol Solutions for HVAC Systems
Fluid Temperature Limits		-22 to 212°F (-30 to 100°C)
Maximum Actuator Fluid Temperature Limit		212°F (100°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)
Rangeability[2]		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 Temperature[3] (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		Sweat: 1/2 to 1 in. (DN15 to DN25) Note: Use a low melting point solder.

Sweat End Connection Stainless Steel Trim Ball Valves (Continued)

VG1000 Series Sweat End Connection Stainless Steel Trim Ball Valves (Part 2 of 2)		
Materials	**Body**	Forged Brass
	Ball	300 Series Stainless Steel
	Blowout-proof Stem	300 Series Stainless Steel
	Seats	Graphite-Reinforced PTFE with Ethylene Propylene Diene Monomer (EPDM) O-Ring Backing
	Stem Seals	EPDM Double O-Rings
	Characterizing Disk	Amodel® AS-1145HS Polyphtalamide 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.