

# VG1000 Series Press 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 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 VA9203 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.
- Press End Connections — designed to work with RIDGID® pressing tools, reducing installation costs.



VG1000 Series Press End Connection Valves

⚠ WARNING

This product can expose you to chemicals including lead, which is known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## Selection Charts

### VG1000 Press End Connection Valves, Stainless Steel Trim, Non-Spring-Return Actuators with M3 Screw Terminal

Valve Code Number	Size, in.	Cv (Control Port) / Cv (Bypass Port)	Closeoff psig	AC 24 V		
				On/Off (Floating) without Timeout <sup>1</sup>	On/Off (Floating) with Timeout	0 to 10 VDC Proportional
				VA9104-AGA-3S <sup>2</sup>	VA9104-IGA-3S <sup>2</sup>	VA9104-GGA-3S <sup>2</sup>
<b>Two-Way</b>						
VG1295AD	1/2	1.2 <sup>3</sup>	200	VG1295AD+9T4AGA	VG1295AD+9T4IGA	VG1295AD+9T4GGA
VG1295AE		1.9 <sup>3</sup>		VG1295AE+9T4AGA	VG1295AE+9T4IGA	VG1295AE+9T4GGA
VG1295AF		2.9 <sup>3</sup>		VG1295AF+9T4AGA	VG1295AF+9T4IGA	VG1295AF+9T4GGA
VG1295AG		4.7 <sup>3</sup>		VG1295AG+9T4AGA	VG1295AG+9T4IGA	VG1295AG+9T4GGA
VG1295AL		7.4 <sup>3</sup>		VG1295AL+9T4AGA	VG1295AL+9T4IGA	VG1295AL+9T4GGA
VG1295AN		11.7		VG1295AN+9T4AGA	VG1295AN+9T4IGA	VG1295AN+9T4GGA
VG1295BG	3/4	4.7 <sup>3</sup>	200	VG1295BG+9T4AGA	VG1295BG+9T4IGA	VG1295BG+9T4GGA
VG1295BL		7.4 <sup>3</sup>		VG1295BL+9T4AGA	VG1295BL+9T4IGA	VG1295BL+9T4GGA
VG1295BN		11.7		VG1295BN+9T4AGA	VG1295BN+9T4IGA	VG1295BN+9T4GGA
VG1295CL	1	7.4 <sup>3</sup>	200	VG1295CL+9T4AGA	VG1295CL+9T4IGA	VG1295CL+9T4GGA
VG1295CN		11.7 <sup>3</sup>		VG1295CN+9T4AGA	VG1295CN+9T4IGA	VG1295CN+9T4GGA
VG1295CP		18.7		VG1295CP+9T4AGA	VG1295CP+9T4IGA	VG1295CP+9T4GGA
<b>Three-Way</b>						
VG1895AD	1/2	1.2 <sup>3</sup>	200	VG1895AD+9T4AGA	VG1895AD+9T4IGA	VG1895AD+9T4GGA
VG1895AE		1.9 <sup>3</sup>		VG1895AE+9T4AGA	VG1895AE+9T4IGA	VG1895AE+9T4GGA
VG1895AF		2.9 <sup>3</sup>		VG1895AF+9T4AGA	VG1895AF+9T4IGA	VG1895AF+9T4GGA
VG1895AG		4.7 <sup>3</sup>		VG1895AG+9T4AGA	VG1895AG+9T4IGA	VG1895AG+9T4GGA
VG1895AL		7.4 <sup>3</sup>		VG1895AL+9T4AGA	VG1895AL+9T4IGA	VG1895AL+9T4GGA
VG1895AN		11.7		VG1895AN+9T4AGA	VG1895AN+9T4IGA	VG1895AN+9T4GGA
VG1895BG	3/4	4.7 <sup>3</sup>	200	VG1895BG+9T4AGA	VG1895BG+9T4IGA	VG1895BG+9T4GGA
VG1895BL		7.4 <sup>3</sup>		VG1895BL+9T4AGA	VG1895BL+9T4IGA	VG1895BL+9T4GGA
VG1895BN		11.7		VG1895BN+9T4AGA	VG1895BN+9T4IGA	VG1895BN+9T4GGA
VG1895CL	1	7.4 <sup>3</sup>	200	VG1895CL+9T4AGA	VG1895CL+9T4IGA	VG1895CL+9T4GGA
VG1895CN		11.7 <sup>3</sup>		VG1895CN+9T4AGA	VG1895CN+9T4IGA	VG1895CN+9T4GGA
VG1895CP		18.7		VG1895CP+9T4AGA	VG1895CP+9T4IGA	VG1895CP+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+9T4AGA becomes VG1241AD+9A4AGA.
3. Valve has a characterizing disk.

## VG1000 Series Press End Connection Stainless Steel Trim Ball Valves (Continued)

### VG1000 Press End Connection Valves, Stainless Steel Trim, Spring-Return Actuators

Valve Code Number	Size, in.	Cv (Control Port) / Cv (Bypass Port)	Closeoff psig	AC 24 V			AC 120 V
				Floating	0 to 10 VDC Proportional	On/Off	On/Off
				VA9203-AGA-2Z	VA9203-GGA-2Z	VA9203-BGA-2	VA-9203-BUA-2
<b>Two-Way Spring Return Valve Open (Normally Open)</b>							
VG1295AD	1/2	1.2 <sup>1</sup>	200	VG1295AD+923AGA	VG1295AD+923GGA	VG1295AD+923BGA	VG1295AD+923BUA
VG1295AE		1.9 <sup>1</sup>		VG1295AE+923AGA	VG1295AE+923GGA	VG1295AE+923BGA	VG1295AE+923BUA
VG1295AF		2.9 <sup>1</sup>		VG1295AF+923AGA	VG1295AF+923GGA	VG1295AF+923BGA	VG1295AF+923BUA
VG1295AG		4.7 <sup>1</sup>		VG1295AG+923AGA	VG1295AG+923GGA	VG1295AG+923BGA	VG1295AG+923BUA
VG1295AL		7.4 <sup>1</sup>		VG1295AL+923AGA	VG1295AL+923GGA	VG1295AL+923BGA	VG1295AL+923BUA
VG1295AN		11.7		VG1295AN+923AGA	VG1295AN+923GGA	VG1295AN+923BGA	VG1295AN+923BUA
VG1295BG	3/4	4.7 <sup>1</sup>	200	VG1295BG+22TAGA	VG1295BG+923GGA	VG1295BG+923BGA	VG1295BG+923BUA
VG1295BL		7.4 <sup>1</sup>		VG1295BL+923AGA	VG1295BL+923GGA	VG1295BL+923BGA	VG1295BL+923BUA
VG1295BN		11.7		VG1295BN+923AGA	VG1295BN+923GGA	VG1295BN+923BGA	VG1295BN+923BUA
VG1295CL	1	7.4 <sup>1</sup>	200	VG1295CL+923AGA	VG1295CL+923GGA	VG1295CL+923BGA	VG1295CL+923BUA
VG1295CN		11.7 <sup>1</sup>		VG1295CN+923AGA	VG1295CN+923GGA	VG1295CN+923BGA	VG1295CN+923BUA
VG1295CP		18.7		VG1295CP+923AGA	VG1295CP+923GGA	VG1295CP+923BGA	VG1295CP+923BUA
<b>Two-Way Spring Return Valve Closed (Normally Closed)</b>							
VG1295AD	1/2	1.2 <sup>1</sup>	200	VG1295AD+943AGA	VG1295AD+943GGA	VG1295AD+943BGA	VG1295AD+943BUA
VG1295AE		1.9 <sup>1</sup>		VG1295AE+943AGA	VG1295AE+943GGA	VG1295AE+943BGA	VG1295AE+943BUA
VG1295AF		2.9 <sup>1</sup>		VG1295AF+943AGA	VG1295AF+943GGA	VG1295AF+943BGA	VG1295AF+943BUA
VG1295AG		4.7 <sup>1</sup>		VG1295AG+943AGA	VG1295AG+943GGA	VG1295AG+943BGA	VG1295AG+943BUA
VG1295AL		7.4 <sup>1</sup>		VG1295AL+943AGA	VG1295AL+943GGA	VG1295AL+943BGA	VG1295AL+943BUA
VG1295AN		11.7		VG1295AN+943AGA	VG1295AN+943GGA	VG1295AN+943BGA	VG1295AN+943BUA
VG1295BG	3/4	4.7 <sup>1</sup>	200	VG1295BG+943AGA	VG1295BG+943GGA	VG1295BG+943BGA	VG1295BG+943BUA
VG1295BL		7.4 <sup>1</sup>		VG1295BL+943AGA	VG1295BL+943GGA	VG1295BL+943BGA	VG1295BL+943BUA
VG1295BN		11.7		VG1295BN+943AGA	VG1295BN+943GGA	VG1295BN+943BGA	VG1295BN+943BUA
VG1295CL	1	7.4 <sup>1</sup>	200	VG1295CL+943AGA	VG1295CL+943GGA	VG1295CL+943BGA	VG1295CL+943BUA
VG1295CN		11.7 <sup>1</sup>		VG1295CN+943AGA	VG1295CN+943GGA	VG1295CN+943BGA	VG1295CN+943BUA
VG1295CP		18.7		VG1295CP+943AGA	VG1295CP+943GGA	VG1295CP+943BGA	VG1295CP+943BUA

1. Valve has a characterizing disk.

### Three-Way Spring-Return Actuators (Part 1 of 2)

Valve Code Number	Size, in.	Cv (Control Port) / Cv (Bypass Port)	Closeoff psig	AC 24 V			AC 85-264V
				Floating	0 to 10 VDC Proportional	On/Off	On/Off
				VA9203-AGA-2Z	VA9203-GGA-2Z	VA9203-BGA-2	VA9203-BUA-2
<b>Three-Way Spring Return Counterclockwise, Port A (Coil) Open</b>							
VG1895AD	1/2	1.2 <sup>1</sup>	200	VG1895AD+923AGA	VG1895AD+923GGA	VG1895AD+923BGA	VG1895AD+923BUA
VG1895AE		1.9 <sup>1</sup>		VG1895AE+923AGA	VG1895AE+923GGA	VG1895AE+923BGA	VG1895AE+923BUA
VG1895AF		2.9 <sup>1</sup>		VG1895AF+923AGA	VG1895AF+923GGA	VG1895AF+923BGA	VG1895AF+923BUA
VG1895AG		4.7 <sup>1</sup>		VG1895AG+923AGA	VG1895AG+923GGA	VG1895AG+923BGA	VG1895AG+923BUA
VG1895AL		7.4 <sup>1</sup>		VG1895AL+923AGA	VG1895AL+923GGA	VG1895AL+923BGA	VG1895AL+923BUA
VG1895AN		11.7		VG1895AN+923AGA	VG1895AN+923GGA	VG1895AN+923BGA	VG1895AN+923BUA
VG1895BG	3/4	4.7 <sup>1</sup>	200	VG1895BG+923AGA	VG1895BG+923GGA	VG1895BG+923BGA	VG1895BG+923BUA
VG1895BL		7.4 <sup>1</sup>		VG1895BL+923AGA	VG1895BL+923GGA	VG1895BL+923BGA	VG1895BL+923BUA
VG1895BN		11.7		VG1895BN+923AGA	VG1895BN+923GGA	VG1895BN+923BGA	VG1895BN+923BUA
VG1895CL	1	7.4 <sup>1</sup>	200	VG1895CL+923AGA	VG1895CL+923GGA	VG1895CL+923BGA	VG1895CL+923BUA
VG1895CN		11.7 <sup>1</sup>		VG1895CN+923AGA	VG1895CN+923GGA	VG1895CN+923BGA	VG1895CN+923BUA
VG1895CP		18.7		VG1895CP+923AGA	VG1895CP+923GGA	VG1895CP+923BGA	VG1895CP+923BUA



**WARNING** This product is made of copper alloy, which contains lead. The product is therefore not to be used on drinking water.

## VG1000 Series Press End Connection Stainless Steel Trim Ball Valves (Continued)

### Three-Way Spring-Return Actuators (Part 2 of 2)

Valve Code Number	Size, in.	Cv (Control Port) / Cv (Bypass Port)	Closeoff psig	AC 24 V			AC 85-264V
				Floating	0 to 10 VDC Proportional	On/Off	On/Off
				VA9203-AGA-2Z	VA9203-GGA-2Z	VA9203-BGA-2	VA9203-BUA-2
<b>Three-Way Spring Return Clockwise, Port B (Bypass) Open</b>							
VG1895AD	1/2	1.2 <sup>1</sup>	200	VG1895AD+943AGA	VG1895AD+943GGA	VG1895AD+943BGA	VG1895AD+943BUA
VG1895AE		1.9 <sup>1</sup>		VG1895AE+943AGA	VG1895AE+943GGA	VG1895AE+943BGA	VG1895AE+943BUA
VG1895AF		2.9 <sup>1</sup>		VG1895AF+943AGA	VG1895AF+943GGA	VG1895AF+943BGA	VG1895AF+943BUA
VG1895AG		4.7 <sup>1</sup>		VG1895AG+943AGA	VG1895AG+943GGA	VG1895AG+943BGA	VG1895AG+943BUA
VG1895AL		7.4 <sup>1</sup>		VG1895AL+943AGA	VG1895AL+943GGA	VG1895AL+943BGA	VG1895AL+943BUA
VG1895AN		11.7		VG1895AN+943AGA	VG1895AN+943GGA	VG1895AN+943BGA	VG1895AN+943BUA
VG1895BG	3/4	4.7 <sup>1</sup>	200	VG1895BG+943AGA	VG1895BG+943GGA	VG1895BG+943BGA	VG1895BG+943BUA
VG1895BL		7.4 <sup>1</sup>		VG1895BL+943AGA	VG1895BL+943GGA	VG1895BL+943BGA	VG1895BL+943BUA
VG1895BN		11.7		VG1895BN+943AGA	VG1895BN+943GGA	VG1895BN+943BGA	VG1895BN+943BUA
VG1895CL	1	7.4 <sup>1</sup>	200	VG1895CL+943AGA	VG1895CL+943GGA	VG1895CL+943BGA	VG1895CL+943BUA
VG1895CN		11.7 <sup>1</sup>		VG1895CN+943AGA	VG1895CN+943GGA	VG1895CN+943BGA	VG1895CN+943BUA
VG1895CP		18.7		VG1895CP+943AGA	VG1895CP+943GGA	VG1895CP+943BGA	VG1895CP+943BUA

1. Valve has a characterizing disk.

### Accessories and Repair Parts

Linkage	Replacement Description
M9000-551	Ball Valve Linkage Kit with Handle for M9104 Series Actuators
M9000-560	Ball Valve Linkage Kit for M9203 Series Actuators

### Technical Specifications

VG1000 Series Press End Connection Stainless Steel Trim Ball Valves		
Service <sup>1</sup>	Hot Water, Chilled Water, and 50/50 Glycol Solutions for HVAC Systems	
Fluid Temperature Limits	-22°F to 212°F (-30°C to 100°C)	
Valve Body Pressure Rating	300 psig, PN40	
Maximum Closeoff Pressure	200 psid (1,378 kPa)	
Maximum Recommended Operating Pressure Drop	50 psi (340 kPa)	
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 <sup>2</sup>	Greater than 500:1	
Minimum Ambient Operating Temperature	With VA9203 Series Spring-Return Actuators	-22°F (-30°C)
	With VA9104 Series Non-Spring-Return Actuators	-4°F (-20°C)
Maximum Ambient Operating Temperature	With VA9203 Series Spring-Return Actuators	140°F (60°C)
	With 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. Sizes) Press End Connections are Designed to Work with RIDGID Pressing Tools.	
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 Polyphthalamide Resin

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

2. Rangeability is defined as the ratio of maximum controllable flow to minimum controllable flow.

#### WARNING: BRASS MAY CONTAIN LEAD

To fulfill our obligations towards Article 33, in accordance to the European REACH Regulation No 1907/2006 EC, we hereby inform you that this article contains the following Substances of Very High Concern mentioned on the Candidate list:

- Lead

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 shall not be liable for damages resulting from misapplication or misuse of its products. © 2018 Johnson Controls. [www.johnsoncontrols.com](http://www.johnsoncontrols.com)