

# VG1000 Series Two-Way, Plated Brass Trim, NPT End Connections Ball Valves with Non-Spring Return Electric Actuators

## 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 2 in. (DN15 through DN50), this family of two- and three-way forged brass valves is factory or field mounted to Johnson Controls® VA9104 and VA9300 Series Non-Spring Return and VA9203 and VA9208 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.
- 200 psi Closeoff Pressure Rating — provides tight shutoff.

- Graphite-Reinforced Polytetrafluoroethylene (PTFE) Seats — include 15% graphite-reinforced ball seals, providing better wear resistance.
- Chrome-Plated Brass Ball and Stem Assembly Standard — handles both chilled and hot water applications with a fluid temperature range of 23°F to 203°F (-5°C to 95°C).
- 500:1 Rangeability — provides accurate control under all load conditions.

## Repair Information

If the VG1000 Series Ball Valve fails to operate within its specifications, replace the valve body, actuator, or entire assembly. For replacement parts, contact the nearest Johnson Controls representative.



**VG1000 Series Two-Way Non-Spring Return Plated Brass Ball and Stem Ball Valve Assemblies**



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



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

### Two-Way Plated Brass Trim Valves, Non-Spring Return, VA9104 Series Electric Actuators without Switches

Fluid Temperatures: 23°F to 203°F (-5°C to 95°C) Not Rated for Steam Service				AC 24 V		
Valve	Size, in.	Cv	Closeoff psig	On/Off and/or Floating without Timeout <sup>1</sup>	On/Off and/or Floating with Timeout	DC 0 to 10 V Proportional
<b>Actuators with M3 Screw Terminals</b>				<b>VA9104-AGA-3S</b>	<b>VA9104-IGA-3S</b>	<b>VA9104-GGA-3S</b>
VG1241AD	1/2	1.2 <sup>2</sup>	200	VG1241AD+9T4AGA	VG1241AD+9T4IGA	VG1241AD+9T4GGA
VG1241AE		1.9 <sup>2</sup>		VG1241AE+9T4AGA	VG1241AE+9T4IGA	VG1241AE+9T4GGA
VG1241AF		2.9 <sup>2</sup>		VG1241AF+9T4AGA	VG1241AF+9T4IGA	VG1241AF+9T4GGA
VG1241AG		4.7 <sup>2</sup>		VG1241AG+9T4AGA	VG1241AG+9T4IGA	VG1241AG+9T4GGA
VG1241AL		7.4 <sup>2</sup>		VG1241AL+9T4AGA	VG1241AL+9T4IGA	VG1241AL+9T4GGA
VG1241AN		11.7		VG1241AN+9T4AGA	VG1241AN+9T4IGA	VG1241AN+9T4GGA
VG1241BG	3/4	4.7 <sup>2</sup>	200	VG1241BG+9T4AGA	VG1241BG+9T4IGA	VG1241BG+9T4GGA
VG1241BL		7.4 <sup>2</sup>		VG1241BL+9T4AGA	VG1241BL+9T4IGA	VG1241BL+9T4GGA
VG1241BN		11.7		VG1241BN+9T4AGA	VG1241BN+9T4IGA	VG1241BN+9T4GGA
VG1241CL	1	7.4 <sup>2</sup>	200	VG1241CL+9T4AGA	VG1241CL+9T4IGA	VG1241CL+9T4GGA
VG1241CN		11.7 <sup>2</sup>		VG1241CN+9T4AGA	VG1241CN+9T4IGA	VG1241CN+9T4GGA
VG1241CP		18.7		VG1241CP+9T4AGA	VG1241CP+9T4IGA	VG1241CP+9T4GGA
<b>Actuators with 120 in. (3.05 m) 18 AWG Plenum Cable</b>				<b>VA9104-AGA-2S</b>	<b>VA9104-IGA-2S</b>	<b>VA9104-GGA-2S</b>
VG1241AD	1/2	1.2 <sup>2</sup>	200	VG1241AD+9A4AGA	VG1241AD+9A4IGA	VG1241AD+9A4GGA
VG1241AE		1.9 <sup>2</sup>		VG1241AE+9A4AGA	VG1241AE+9A4IGA	VG1241AE+9A4GGA
VG1241AF		2.9 <sup>2</sup>		VG1241AF+9A4AGA	VG1241AF+9A4IGA	VG1241AF+9A4GGA
VG1241AG		4.7 <sup>2</sup>		VG1241AG+9A4AGA	VG1241AG+9A4IGA	VG1241AG+9A4GGA
VG1241AL		7.4 <sup>2</sup>		VG1241AL+9A4AGA	VG1241AL+9A4IGA	VG1241AL+9A4GGA
VG1241AN		11.7		VG1241AN+9A4AGA	VG1241AN+9A4IGA	VG1241AN+9A4GGA
VG1241BG	3/4	4.7 <sup>2</sup>	200	VG1241BG+9A4AGA	VG1241BG+9A4IGA	VG1241BG+9A4GGA
VG1241BL		7.4 <sup>2</sup>		VG1241BL+9A4AGA	VG1241BL+9A4IGA	VG1241BL+9A4GGA
VG1241BN		11.7		VG1241BN+9A4AGA	VG1241BN+9A4IGA	VG1241BN+9A4GGA
VG1241CL	1	7.4 <sup>2</sup>	200	VG1241CL+9A4AGA	VG1241CL+9A4IGA	VG1241CL+9A4GGA
VG1241CN		11.7 <sup>2</sup>		VG1241CN+9A4AGA	VG1241CN+9A4IGA	VG1241CN+9A4GGA
VG1241CP		18.7		VG1241CP+9A4AGA	VG1241CP+9A4IGA	VG1241CP+9A4GGA

1. To avoid excessive wear or drive time on the motor for the AGA models, use a controller or software that provides a timeout function to remove the signal at the end of rotation (stall).
2. Valve has a characterizing disk.



## VG1000 Series Two-Way, Plated Brass Trim, NPT End Connections Ball Valves with Non-Spring Return Electric Actuators (Continued)

Two-Way Plated Brass Trim Ball Valves, Non-Spring Return, VA9300 Series Electric Actuators For Fluid Temperatures to 203°F

Fluid Temperature: 23°F to 203°F (-5°C to 95°C) Not Rated for Steam Service				AC/DC 24 V		
				On/Off with Timeout	Floating with Timeout	DC 0(2) to 10 V Proportional
<b>Valve</b>	<b>Size, in.</b>	<b>Cv</b>	<b>Closeoff psi</b>	<b>Actuators without Switches</b>		
				<b>VA9310-HGA-2</b>		
VG1241DN	1-1/4	11.7 <sup>1</sup>	200	VG1241DN+910HGA		
VG1241DP		18.7 <sup>1</sup>		VG1241DP+910HGA		
VG1241DR		29.2		VG1241DR+910HGA		
VG1241EP	1-1/2	18.7 <sup>1</sup>	200	VG1241EP+910HGA		
VG1241ER		29.2 <sup>1</sup>		VG1241ER+910HGA		
VG1241ES		46.8		VG1241ES+910HGA		
VG1241FR	2	29.2 <sup>1</sup>	200	VG1241FR+910HGA		
VG1241FS		46.8 <sup>1</sup>		VG1241FS+910HGA		
VG1241FT		73.7		VG1241FT+910HGA		
<b>Valve</b>	<b>Size, in.</b>	<b>Cv</b>	<b>Closeoff psi</b>	<b>Actuators With Two Switches</b>		
				<b>VA9300 actuator with M9300-2 Switch Kit<sup>2</sup></b>		
VG1241AD	1/2	1.2 <sup>1</sup>	200	VG1241AD+910HGC		
VG1241AE		1.9 <sup>1</sup>		VG1241AE+910HGC		
VG1241AF		2.9 <sup>1</sup>		VG1241AF+910HGC		
VG1241AG		4.7 <sup>1</sup>		VG1241AG+910HGC		
VG1241AL		7.4 <sup>1</sup>		VG1241AL+910HGC		
VG1241AN		11.7		VG1241AN+910HGC		
VG1241BG	3/4	4.7 <sup>1</sup>	200	VG1241BG+910HGC		
VG1241BL		7.4 <sup>1</sup>		VG1241BL+910HGC		
VG1241BN		11.7		VG1241BN+910HGC		
VG1241CL	1	7.4 <sup>1</sup>	200	VG1241CL+910HGC		
VG1241CN		11.7 <sup>1</sup>		VG1241CN+910HGC		
VG1241CP		18.7		VG1241CP+910HGC		
VG1241DN	1-1/4	11.7 <sup>1</sup>	200	VG1241DN+910HGC		
VG1241DP		18.7 <sup>1</sup>		VG1241DP+910HGC		
VG1241DR		29.2		VG1241DR+910HGC		
VG1241EP	1-1/2	18.7 <sup>1</sup>	200	VG1241EP+910HGC		
VG1241ER		29.2 <sup>1</sup>		VG1241ER+910HGC		
VG1241ES		46.8		VG1241ES+910HGC		
VG1241FR	2	29.2 <sup>1</sup>	200	VG1241FR+910HGC		
VG1241FS		46.8 <sup>1</sup>		VG1241FS+910HGC		
VG1241FT		73.7		VG1241FT+910HGC		

1. Valve has a characterizing disk.

2. For field mounting order VA9310-HGA-2 and the M9300-2 Switch Kit separately.

## VG1000 Series Two-Way, Plated Brass Trim, NPT End Connections Ball Valves with Non-Spring Return Electric Actuators (Continued)

### Technical Specifications

VG1000 Series Two-Way, Plated Brass Trim, NPT End Connections Ball Valves with Non-Spring Return Electric Actuators		
Service <sup>1</sup>		Hot Water, Chilled Water, or 50/50 Glycol Solutions for HVAC Systems
Valve Fluid Temperature Limits	Water	23°F to 203°F (-5°C to 95°C)
	Steam	Not Rated for Steam Service
Maximum Fluid Temperature Limit	203°F (95°C)	VA9104 Series Non-Spring Return Actuators VA9300 Series Non-Spring Return Actuators
Valve Body Pressure Rating	Water	580 psig (4,000 kPa) at 203°F (95°C) (PN40)
	Steam	Not Rated for Steam Service
Maximum Closeoff Pressure		200 psid (1,378 kPa)
Maximum Recommended Operating Pressure Drop		50 psid (340 kPa)
Flow Characteristics	Two-Way	Equal Percentage
Rangeability <sup>2</sup>		Greater than 500:1
Minimum Ambient Operating Temperature	-4°F (-20°C)	VA9104 Series Non-Spring Return Actuators
	-22°F (-30°C)	VA9300 Series Non-Spring Return Actuators
Maximum Ambient Operating Temperature	140°F (60°C)	VA9104 Series Non-Spring Return Actuators VA9300 Series Non-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 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