

# VG1000 Series Sweat End Connection Plated Brass Trim Ball Valves

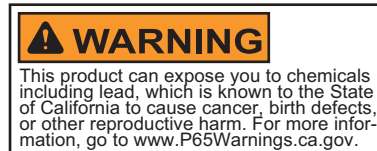
## Description

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 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.



VG1000 Series Sweat End Connection Valves

## Selection Charts

### VG1000 Sweat End Connection Valves, Brass 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 | DC 0 to 10 V Proportional  |
|                   |           |                                      |               | VA9104-AGA-3S <sup>2</sup>                     | VA9104-IGA-3S <sup>2</sup>     | VA9104-GGA-3S <sup>2</sup> |
| Two-Way           |           |                                      |               |                                                |                                |                            |
| VG1271AD          | 1/2       | 1.2 <sup>3</sup>                     | 200           | VG1271AD+9T4AGA                                | VG1271AD+9T4IGA                | VG1271AD+9T4GGA            |
| VG1271AE          |           | 1.9 <sup>3</sup>                     |               | VG1271AE+9T4AGA                                | VG1271AE+9T4IGA                | VG1271AE+9T4GGA            |
| VG1271AF          |           | 2.9 <sup>3</sup>                     |               | VG1271AF+9T4AGA                                | VG1271AF+9T4IGA                | VG1271AF+9T4GGA            |
| VG1271AG          |           | 4.7 <sup>3</sup>                     |               | VG1271AG+9T4AGA                                | VG1271AG+9T4IGA                | VG1271AG+9T4GGA            |
| VG1271AL          |           | 7.4 <sup>3</sup>                     |               | VG1271AL+9T4AGA                                | VG1271AL+9T4IGA                | VG1271AL+9T4GGA            |
| VG1271AN          |           | 11.7                                 |               | VG1271AN+9T4AGA                                | VG1271AN+9T4IGA                | VG1271AN+9T4GGA            |
| VG1271BG          | 3/4       | 4.7 <sup>3</sup>                     | 200           | VG1271BG+9T4AGA                                | VG1271BG+9T4IGA                | VG1271BG+9T4GGA            |
| VG1271BL          |           | 7.4 <sup>3</sup>                     |               | VG1271BL+9T4AGA                                | VG1271BL+9T4IGA                | VG1271BL+9T4GGA            |
| VG1271BN          |           | 11.7                                 |               | VG1271BN+9T4AGA                                | VG1271BN+9T4IGA                | VG1271BN+9T4GGA            |
| VG1271CL          | 1         | 7.4 <sup>3</sup>                     | 200           | VG1271CL+9T4AGA                                | VG1271CL+9T4IGA                | VG1271CL+9T4GGA            |
| VG1271CN          |           | 11.7 <sup>3</sup>                    |               | VG1271CN+9T4AGA                                | VG1271CN+9T4IGA                | VG1271CN+9T4GGA            |
| VG1271CP          |           | 18.7                                 |               | VG1271CP+9T4AGA                                | VG1271CP+9T4IGA                | VG1271CP+9T4GGA            |
| Three-Way         |           |                                      |               |                                                |                                |                            |
| VG1871AD          | 1/2       | 1.2 <sup>3</sup>                     | 200           | VG1871AD+9T4AGA                                | VG1871AD+9T4IGA                | VG1871AD+9T4GGA            |
| VG1871AE          |           | 1.9 <sup>3</sup>                     |               | VG1871AE+9T4AGA                                | VG1871AE+9T4IGA                | VG1871AE+9T4GGA            |
| VG1871AF          |           | 2.9 <sup>3</sup>                     |               | VG1871AF+9T4AGA                                | VG1871AF+9T4IGA                | VG1871AF+9T4GGA            |
| VG1871AG          |           | 4.7 <sup>3</sup>                     |               | VG1871AG+9T4AGA                                | VG1871AG+9T4IGA                | VG1871AG+9T4GGA            |
| VG1871AL          |           | 7.4 <sup>3</sup>                     |               | VG1871AL+9T4AGA                                | VG1871AL+9T4IGA                | VG1871AL+9T4GGA            |
| VG1871AN          |           | 11.7                                 |               | VG1871AN+9T4AGA                                | VG1871AN+9T4IGA                | VG1871AN+9T4GGA            |
| VG1871BG          | 3/4       | 4.7 <sup>3</sup>                     | 200           | VG1871BG+9T4AGA                                | VG1871BG+9T4IGA                | VG1871BG+9T4GGA            |
| VG1871BL          |           | 7.4 <sup>3</sup>                     |               | VG1871BL+9T4AGA                                | VG1871BL+9T4IGA                | VG1871BL+9T4GGA            |
| VG1871BN          |           | 11.7                                 |               | VG1871BN+9T4AGA                                | VG1871BN+9T4IGA                | VG1871BN+9T4GGA            |
| VG1871CL          | 1         | 7.4 <sup>3</sup>                     | 200           | VG1871CL+9T4AGA                                | VG1871CL+9T4IGA                | VG1871CL+9T4GGA            |
| VG1871CN          |           | 11.7 <sup>3</sup>                    |               | VG1871CN+9T4AGA                                | VG1871CN+9T4IGA                | VG1871CN+9T4GGA            |
| VG1871CP          |           | 18.7                                 |               | VG1871CP+9T4AGA                                | VG1871CP+9T4IGA                | VG1871CP+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 the 9T4 to 9A4 in the code number for a VA9104-xGA-2S actuator. Example: VG1241AD+9T4AGA becomes VG1241AD+9A4AGA.
3. Valve has a characterizing disk.

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)

## VG1000 Series Sweat End Connection Plated Brass Trim Ball Valves (Continued)

### VG1000 Sweat End Connection Valves, Brass Trim, Spring-Return Actuators (Part 1 of 2)

| Valve Code Number                                            | Size, in. | Cv (Control Port) / Cv (Bypass Port) | Closeoff psig | AC 24 V         |                           |                 | AC 120 V        |
|--------------------------------------------------------------|-----------|--------------------------------------|---------------|-----------------|---------------------------|-----------------|-----------------|
|                                                              |           |                                      |               | Floating        | DC 0 to 10 V Proportional | On/Off          | On/Off          |
|                                                              |           |                                      |               | VA9203-AGA-2Z   | VA9203-GGA-2Z             | VA9203-BGA-2    | VA9203-BUA-2    |
| Two-Way Spring Return Valve Open (Normally Open)             |           |                                      |               |                 |                           |                 |                 |
| VG1271AD                                                     | 1/2       | 1.2 <sup>1</sup>                     | 200           | VG1271AD+923AGA | VG1271AD+923GGA           | VG1271AD+923BGA | VG1271AD+923BUA |
| VG1271AE                                                     |           | 1.9 <sup>1</sup>                     |               | VG1271AE+923AGA | VG1271AE+923GGA           | VG1271AE+923BGA | VG1271AE+923BUA |
| VG1271AF                                                     |           | 2.9 <sup>1</sup>                     |               | VG1271AF+923AGA | VG1271AF+923GGA           | VG1271AF+923BGA | VG1271AF+923BUA |
| VG1271AG                                                     |           | 4.7 <sup>1</sup>                     |               | VG1271AG+923AGA | VG1271AG+923GGA           | VG1271AG+923BGA | VG1271AG+923BUA |
| VG1271AL                                                     |           | 7.4 <sup>1</sup>                     |               | VG1271AL+923AGA | VG1271AL+923GGA           | VG1271AL+923BGA | VG1271AL+923BUA |
| VG1271AN                                                     |           | 11.7                                 |               | VG1271AN+923AGA | VG1271AN+923GGA           | VG1271AN+923BGA | VG1271AN+923BUA |
| VG1271BG                                                     | 3/4       | 4.7 <sup>1</sup>                     | 200           | VG1271BG+923AGA | VG1271BG+923GGA           | VG1271BG+923BGA | VG1271BG+923BUA |
| VG1271BL                                                     |           | 7.4 <sup>1</sup>                     |               | VG1271BL+923AGA | VG1271BL+923GGA           | VG1271BL+923BGA | VG1271BL+923BUA |
| VG1271BN                                                     |           | 11.7                                 |               | VG1271BN+923AGA | VG1271BN+923GGA           | VG1271BN+923BGA | VG1271BN+923BUA |
| VG1271CL                                                     | 1         | 7.4 <sup>1</sup>                     | 200           | VG1271CL+923AGA | VG1271CL+923GGA           | VG1271CL+923BGA | VG1271CL+923BUA |
| VG1271CN                                                     |           | 11.7 <sup>1</sup>                    |               | VG1271CN+923AGA | VG1271CN+923GGA           | VG1271CN+923BGA | VG1271CN+923BUA |
| VG1271CP                                                     |           | 18.7                                 |               | VG1271CP+923AGA | VG1271CP+923GGA           | VG1271CP+923BGA | VG1271CP+923BUA |
| Two-Way Spring Return Valve Closed (Normally Closed)         |           |                                      |               |                 |                           |                 |                 |
| VG1271AD                                                     | 1/2       | 1.2 <sup>1</sup>                     | 200           | VG1271AD+943AGA | VG1271AD+943GGA           | VG1271AD+943BGA | VG1271AD+943BUA |
| VG1271AE                                                     |           | 1.9 <sup>1</sup>                     |               | VG1271AE+943AGA | VG1271AE+943GGA           | VG1271AE+943BGA | VG1271AE+943BUA |
| VG1271AF                                                     |           | 2.9 <sup>1</sup>                     |               | VG1271AF+943AGA | VG1271AF+943GGA           | VG1271AF+943BGA | VG1271AF+943BUA |
| VG1271AG                                                     |           | 4.7 <sup>1</sup>                     |               | VG1271AG+943AGA | VG1271AG+943GGA           | VG1271AG+943BGA | VG1271AG+943BUA |
| VG1271AL                                                     |           | 7.4 <sup>1</sup>                     |               | VG1271AL+943AGA | VG1271AL+943GGA           | VG1271AL+943BGA | VG1271AL+943BUA |
| VG1271AN                                                     |           | 11.7                                 |               | VG1271AN+943AGA | VG1271AN+943GGA           | VG1271AN+943BGA | VG1271AN+943BUA |
| VG1271BG                                                     | 3/4       | 4.7 <sup>1</sup>                     | 200           | VG1271BG+943AGA | VG1271BG+943GGA           | VG1271BG+943BGA | VG1271BG+943BUA |
| VG1271BL                                                     |           | 7.4 <sup>1</sup>                     |               | VG1271BL+943AGA | VG1271BL+943GGA           | VG1271BL+943BGA | VG1271BL+943BUA |
| VG1271BN                                                     |           | 11.7                                 |               | VG1271BN+943AGA | VG1271BN+943GGA           | VG1271BN+943BGA | VG1271BN+943BUA |
| VG1271CL                                                     | 1         | 7.4 <sup>1</sup>                     | 200           | VG1271CL+943AGA | VG1271CL+943GGA           | VG1271CL+943BGA | VG1271CL+943BUA |
| VG1271CN                                                     |           | 11.7 <sup>1</sup>                    |               | VG1271CN+943AGA | VG1271CN+943GGA           | VG1271CN+943BGA | VG1271CN+943BUA |
| VG1271CP                                                     |           | 18.7                                 |               | VG1271CP+943AGA | VG1271CP+943GGA           | VG1271CP+943BGA | VG1271CP+943BUA |
| Three-Way Spring Return Counterclockwise, Port A (Coil) Open |           |                                      |               |                 |                           |                 |                 |
| VG1871AD                                                     | 1/2       | 1.2 <sup>1</sup>                     | 200           | VG1871AD+923AGA | VG1871AD+923GGA           | VG1871AD+923BGA | VG1871AD+923BUA |
| VG1871AE                                                     |           | 1.9 <sup>1</sup>                     |               | VG1871AE+923AGA | VG1871AE+923GGA           | VG1871AE+923BGA | VG1871AE+923BUA |
| VG1871AF                                                     |           | 2.9 <sup>1</sup>                     |               | VG1871AF+923AGA | VG1871AF+923GGA           | VG1871AF+923BGA | VG1871AF+923BUA |
| VG1871AG                                                     |           | 4.7 <sup>1</sup>                     |               | VG1871AG+923AGA | VG1871AG+923GGA           | VG1871AG+923BGA | VG1871AG+923BUA |
| VG1871AL                                                     |           | 7.4 <sup>1</sup>                     |               | VG1871AL+923AGA | VG1871AL+923GGA           | VG1871AL+923BGA | VG1871AL+923BUA |
| VG1871AN                                                     |           | 11.7                                 |               | VG1871AN+923AGA | VG1871AN+923GGA           | VG1871AN+923BGA | VG1871AN+923BUA |
| VG1871BG                                                     | 3/4       | 4.7 <sup>1</sup>                     | 200           | VG1871BG+923AGA | VG1871BG+923GGA           | VG1871BG+923BGA | VG1871BG+923BUA |
| VG1871BL                                                     |           | 7.4 <sup>1</sup>                     |               | VG1871BL+923AGA | VG1871BL+923GGA           | VG1871BL+923BGA | VG1871BL+923BUA |
| VG1871BN                                                     |           | 11.7                                 |               | VG1871BN+923AGA | VG1871BN+923GGA           | VG1871BN+923BGA | VG1871BN+923BUA |
| VG1871CL                                                     | 1         | 7.4 <sup>1</sup>                     | 200           | VG1871CL+923AGA | VG1871CL+923GGA           | VG1871CL+923BGA | VG1871CL+923BUA |
| VG1871CN                                                     |           | 11.7 <sup>1</sup>                    |               | VG1871CN+923AGA | VG1871CN+923GGA           | VG1871CN+923BGA | VG1871CN+923BUA |
| VG1871CP                                                     |           | 18.7                                 |               | VG1871CP+923AGA | VG1871CP+923GGA           | VG1871CP+923BGA | VG1871CP+923BUA |



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

### 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

## VG1000 Series Sweat End Connection Plated Brass Trim Ball Valves (Continued)

### VG1000 Sweat End Connection Valves, Brass Trim, Spring-Return Actuators (Part 2 of 2)

| Valve Code Number                                       | Size, in. | Cv (Control Port) / Cv (Bypass Port) | Closeoff psig | AC 24 V         |                           |                 | AC 120 V        |
|---------------------------------------------------------|-----------|--------------------------------------|---------------|-----------------|---------------------------|-----------------|-----------------|
|                                                         |           |                                      |               | Floating        | DC 0 to 10 V Proportional | On/Off          | On/Off          |
|                                                         |           |                                      |               | VA9203-AGA-2Z   | VA9203-GGA-2Z             | VA9203-BGA-2    | VA9203-BUA-2    |
| Three-Way Spring Return Clockwise, Port B (Bypass) Open |           |                                      |               |                 |                           |                 |                 |
| VG1871AD                                                | 1/2       | 1.2 <sup>1</sup>                     | 200           | VG1871AD+943AGA | VG1871AD+943GGA           | VG1871AD+943BGA | VG1871AD+943BUA |
| VG1871AE                                                |           | 1.9 <sup>1</sup>                     |               | VG1871AE+943AGA | VG1871AE+943GGA           | VG1871AE+943BGA | VG1871AE+943BUA |
| VG1871AF                                                |           | 2.9 <sup>1</sup>                     |               | VG1871AF+943AGA | VG1871AF+943GGA           | VG1871AF+943BGA | VG1871AF+943BUA |
| VG1871AG                                                |           | 4.7 <sup>1</sup>                     |               | VG1871AG+943AGA | VG1871AG+943GGA           | VG1871AG+943BGA | VG1871AG+943BUA |
| VG1871AL                                                |           | 7.4 <sup>1</sup>                     |               | VG1871AL+943AGA | VG1871AL+943GGA           | VG1871AL+943BGA | VG1871AL+943BUA |
| VG1871AN                                                |           | 11.7                                 |               | VG1871AN+943AGA | VG1871AN+943GGA           | VG1871AN+943BGA | VG1871AN+943BUA |
| VG1871BG                                                | 3/4       | 4.7 <sup>1</sup>                     | 200           | VG1871BG+943AGA | VG1871BG+943GGA           | VG1871BG+943BGA | VG1871BG+943BUA |
| VG1871BL                                                |           | 7.4 <sup>1</sup>                     |               | VG1871BL+943AGA | VG1871BL+943GGA           | VG1871BL+943BGA | VG1871BL+943BUA |
| VG1871BN                                                |           | 11.7                                 |               | VG1871BN+943AGA | VG1871BN+943GGA           | VG1871BN+943BGA | VG1871BN+943BUA |
| VG1871CL                                                | 1         | 7.4 <sup>1</sup>                     | 200           | VG1871CL+943AGA | VG1871CL+943GGA           | VG1871CL+943BGA | VG1871CL+943BUA |
| VG1871CN                                                |           | 11.7 <sup>1</sup>                    |               | VG1871CN+943AGA | VG1871CN+943GGA           | VG1871CN+943BGA | VG1871CN+943BUA |
| VG1871CP                                                |           | 18.7                                 |               | VG1871CP+943AGA | VG1871CP+943GGA           | VG1871CP+943BGA | VG1871CP+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 Sweat End Connection Plated Brass Trim Ball Valves |                                                |                                                                                                                                 |
|------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Service <sup>1</sup>                                             |                                                | Hot Water, Chilled Water, and 50/50 Glycol Solutions for HVAC Systems                                                           |
| Fluid Temperature Limits                                         |                                                | 23°F to 203°F (-5°C to 95°C)                                                                                                    |
| Valve Body Pressure Rating                                       |                                                | 300 psig, PN40                                                                                                                  |
| Maximum Closeoff Pressure                                        |                                                | 200 psid (1,378 kPa)                                                                                                            |
| Maximum Recommended Operating Pressure Drop                      |                                                | 50 psid (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     | 122°F (50°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                                                  |                                                | Sweat<br>Note: Use a Low Melting Point Solder.                                                                                  |
| 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.