VG1000 Series Sweat End Connection Plated Brass Trim Ball Valves Catalog Page

2021-02-11 LIT-1900470

Description

Figure 1: VG1000 Series Ball Valve



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 per cent 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.

Johnson Controls

Selection charts

Table 1: 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)	Characterizing Disk	Closeoff psig	AC 24 V		
					On/off (floating) without timeout[1]	On/off (floating) with timeout	DC 0 to 10 V proportional
					VA9104-AGA-3S[2]	VA9104-IGA-3S[2]	VA9104-GGA-3S[2]
Two-way							
VG1271AA	1/2	0.3	Yes	200	VG1271AA+9T4AGA	VG1271AA+9T4IGA	VG1271AA+9T4GGA
VG1271AB		0.5	Yes		VG1271AB+9T4AGA	VG1271AB+9T4IGA	VG1271AB+9T4GGA
VG1271AC		0.8	Yes		VG1271AC+9T4AGA	VG1271AC+9T4IGA	VG1271AC+9T4GGA
VG1271AD		1.2	Yes		VG1271AD+9T4AGA	VG1271AD+9T4IGA	VG1271AD+9T4GGA
VG1271AE		1.9	Yes		VG1271AE+9T4AGA	VG1271AE+9T4IGA	VG1271AE+9T4GGA
VG1271AF		2.9	Yes		VG1271AF+9T4AGA	VG1271AF+9T4IGA	VG1271AF+9T4GGA
VG1271AG		4.7	Yes		VG1271AG+9T4AGA	VG1271AG+9T4IGA	VG1271AG+9T4GGA
VG1271AL		7.4	Yes		VG1271AL+9T4AGA	VG1271AL+9T4IGA	VG1271AL+9T4GGA
VG1271AN		11.7	No		VG1271AN+9T4AGA	VG1271AN+9T4IGA	VG1271AN+9T4GGA
VG1271BG	3/4	4.7	Yes	200	VG1271BG+9T4AGA	VG1271BG+9T4IGA	VG1271BG+9T4GGA
VG1271BL		7.4	Yes		VG1271BL+9T4AGA	VG1271BL+9T4IGA	VG1271BL+9T4GGA
VG1271BN		11.7	No		VG1271BN+9T4AGA	VG1271BN+9T4IGA	VG1271BN+9T4GGA
VG1271CL	1	7.4	Yes	200	VG1271CL+9T4AGA	VG1271CL+9T4IGA	VG1271CL+9T4GGA
VG1271CN		11.7	Yes		VG1271CN+9T4AGA	VG1271CN+9T4IGA	VG1271CN+9T4GGA
VG1271CP		18.7	No		VG1271CP+9T4AGA	VG1271CP+9T4IGA	VG1271CP+9T4GGA
Three-way							
VG1871AD	1/2	1.2	Yes	200	VG1871AD+9T4AGA	VG1871AD+9T4IGA	VG1871AD+9T4GGA
VG1871AE		1.9	Yes		VG1871AE+9T4AGA	VG1871AE+9T4IGA	VG1871AE+9T4GGA
VG1871AF		2.9	Yes		VG1871AF+9T4AGA	VG1871AF+9T4IGA	VG1871AF+9T4GGA
VG1871AG		4.7	Yes		VG1871AG+9T4AGA	VG1871AG+9T4IGA	VG1871AG+9T4GGA
VG1871AL		7.4	Yes		VG1871AL+9T4AGA	VG1871AL+9T4IGA	VG1871AL+9T4GGA
VG1871AN		11.7	No		VG1871AN+9T4AGA	VG1871AN+9T4IGA	VG1871AN+9T4GGA
VG1871BG	3/4	4.7	Yes	200	VG1871BG+9T4AGA	VG1871BG+9T4IGA	VG1871BG+9T4GGA
VG1871BL		7.4	Yes		VG1871BL+9T4AGA	VG1871BL+9T4IGA	VG1871BL+9T4GGA
VG1871BN		11.7	No		VG1871BN+9T4AGA	VG1871BN+9T4IGA	VG1871BN+9T4GGA
VG1871CL	1	7.4	Yes	200	VG1871CL+9T4AGA	VG1871CL+9T4IGA	VG1871CL+9T4GGA
VG1871CN		11.7	Yes		VG1871CN+9T4AGA	VG1871CN+9T4IGA	VG1871CN+9T4GGA
VG1871CP		18.7	No		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.

Johnson Controls

Table 2: VG1000 sweat end connection valves, brass trim, spring-return actuators

Valve code number	Size, in.	Cv (control port) / Cv (bypass port)	Characterizing Disk	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)								
VG1271AA	1/2	0.3	Yes	200	VG1271AA+923AGA	VG1271AA +923GGA	VG1271AA+923BGA	-
VG1271AB		0.5	Yes		VG1271AB+923AGA	VG1271AB +923GGA	VG1271AB+923BGA	-
VG1271AC		0.8	Yes		VG1271AC+923AGA	VG1271AC +923GGA	VG1271AC+923BGA	-
VG1271AD		1.2	Yes		VG1271AD+923AGA	VG1271AD +923GGA	VG1271AD+923BGA	VG1271AD+923BUA
VG1271AE		1.9	Yes		VG1271AE+923AGA	VG1271AE +923GGA	VG1271AE+923BGA	VG1271AE+923BUA
VG1271AF		2.9	Yes		VG1271AF+923AGA	VG1271AF +923GGA	VG1271AF+923BGA	VG1271AF+923BUA
VG1271AG		4.7	Yes		VG1271AG+923AGA	VG1271AG +923GGA	VG1271AG+923BGA	VG1271AG+923BUA
VG1271AL		7.4	Yes		VG1271AL+923AGA	VG1271AL +923GGA	VG1271AL+923BGA	VG1271AL+923BUA
VG1271AN		11.7	No		VG1271AN+923AGA	VG1271AN +923GGA	VG1271AN+923BGA	VG1271AN+923BUA
VG1271BG	3/4	4.7	Yes	200	VG1271BG+923AGA	VG1271BG +923GGA	VG1271BG+923BGA	VG1271BG+923BUA
VG1271BL		7.4	Yes		VG1271BL+923AGA	VG1271BL +923GGA	VG1271BL+923BGA	VG1271BL+923BUA
VG1271BN		11.7	No		VG1271BN+923AGA	VG1271BN +923GGA	VG1271BN+923BGA	VG1271BN+923BUA
VG1271CL	1	7.4	Yes	200	VG1271CL+923AGA	VG1271CL +923GGA	VG1271CL+923BGA	VG1271CL+923BUA
VG1271CN		11.7	Yes		VG1271CN+923AGA	VG1271CN +923GGA	VG1271CN+923BGA	VG1271CN+923BUA
VG1271CP		18.7	No		VG1271CP+923AGA	VG1271CP +923GGA	VG1271CP+923BGA	VG1271CP+923BUA
Two-way spring return valve closed (normally closed)								

Johnson Controls

Table 2: VG1000 sweat end connection valves, brass trim, spring-return actuators

Valve code number	Size, in.	Cv (control port) / Cv (bypass port)	Characterizing Disk	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
VG1271AA	1/2	0.3	Yes	200	VG1271AD+943AGA	VG1271AD +943GGA	VG1271AD+943BGA	-
VG1271AB		0.5	Yes		VG1271AD+943AGA	VG1271AD +943GGA	VG1271AD+943BGA	-
VG1271AC		0.8	Yes		VG1271AD+943AGA	VG1271AD +943GGA	VG1271AD+943BGA	-
VG1271AD		1.2	Yes		VG1271AD+943AGA	VG1271AD +943GGA	VG1271AD+943BGA	VG1271AD+943BUA
VG1271AE		1.9	Yes		VG1271AE+943AGA	VG1271AE +943GGA	VG1271AE+943BGA	VG1271AE+943BUA
VG1271AF		2.9	Yes		VG1271AF+943AGA	VG1271AF +943GGA	VG1271AF+943BGA	VG1271AF+943BUA
VG1271AG		4.7	Yes		VG1271AG+943AGA	VG1271AG +943GGA	VG1271AG+943BGA	VG1271AG+943BUA
VG1271AL		7.4	Yes		VG1271AL+943AGA	VG1271AL +943GGA	VG1271AL+943BGA	VG1271AL+943BUA
VG1271AN		11.7	No		VG1271AN+943AGA	VG1271AN +943GGA	VG1271AN+943BGA	VG1271AN+943BUA
VG1271BG	3/4	4.7	Yes	200	VG1271BG+943AGA	VG1271BG +943GGA	VG1271BG+943BGA	VG1271BG+943BUA
VG1271BL		7.4	Yes		VG1271BL+943AGA	VG1271BL +943GGA	VG1271BL+943BGA	VG1271BL+943BUA
VG1271BN		11.7	No		VG1271BN+943AGA	VG1271BN +943GGA	VG1271BN+943BGA	VG1271BN+943BUA
VG1271CL	1	7.4	Yes	200	VG1271CL+943AGA	VG1271CL +943GGA	VG1271CL+943BGA	VG1271CL+943BUA
VG1271CN		11.7	Yes		VG1271CN+943AGA	VG1271CN +943GGA	VG1271CN+943BGA	VG1271CN+943BUA
VG1271CP		18.7	No		VG1271CP+943AGA	VG1271CP +943GGA	VG1271CP+943BGA	VG1271CP+943BUA
Three-way spring return counterclockwise, port A (coil) open								

Johnson Controls

Table 2: VG1000 sweat end connection valves, brass trim, spring-return actuators

Valve code number	Size, in.	Cv (control port) / Cv (bypass port)	Characterizing Disk	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
VG1871AA	1/2	0.3	Yes	200	VG1871AA+923AGA	VG1871AA +923GGA	VG1871AA+923BGA	-
VG1871AB		0.5	Yes		VG1871AB+923AGA	VG1871AB +923GGA	VG1871AB+923BGA	-
VG1871AC		0.8	Yes		VG1871AC+923AGA	VG1871AC +923GGA	VG1871AC+923BGA	-
VG1871AD		1.2	Yes		VG1871AD+923AGA	VG1871AD +923GGA	VG1871AD+923BGA	VG1871AD+923BUA
VG1871AE		1.9	Yes		VG1871AE+923AGA	VG1871AE +923GGA	VG1871AE+923BGA	VG1871AE+923BUA
VG1871AF		2.9	Yes		VG1871AF+923AGA	VG1871AF +923GGA	VG1871AF+923BGA	VG1871AF+923BUA
VG1871AG		4.7	Yes		VG1871AG+923AGA	VG1871AG +923GGA	VG1871AG+923BGA	VG1871AG+923BUA
VG1871AL		7.4	Yes		VG1871AL+923AGA	VG1871AL +923GGA	VG1871AL+923BGA	VG1871AL+923BUA
VG1871AN		11.7	No		VG1871AN+923AGA	VG1871AN +923GGA	VG1871AN+923BGA	VG1871AN+923BUA
VG1871BG	3/4	4.7	Yes	200	VG1871BG+923AGA	VG1871BG +923GGA	VG1871BG+923BGA	VG1871BG+923BUA
VG1871BL		7.4	Yes		VG1871BL+923AGA	VG1871BL +923GGA	VG1871BL+923BGA	VG1871BL+923BUA
VG1871BN		11.7	No		VG1871BN+923AGA	VG1871BN +923GGA	VG1871BN+923BGA	VG1871BN+923BUA
VG1871CL	1	7.4	Yes	200	VG1871CL+923AGA	VG1871CL +923GGA	VG1871CL+923BGA	VG1871CL+923BUA
VG1871CN		11.7	Yes		VG1871CN+923AGA	VG1871CN +923GGA	VG1871CN+923BGA	VG1871CN+923BUA
VG1871CP		18.7	No		VG1871CP+923AGA	VG1871CP +923GGA	VG1871CP+923BGA	VG1871CP+923BUA
Three-way spring return clockwise, port B (bypass) open								

Johnson Controls

Table 2: VG1000 sweat end connection valves, brass trim, spring-return actuators

Valve code number	Size, in.	Cv (control port) / Cv (bypass port)	Characterizing Disk	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
VG1871AA	1/2	0.3	Yes	200	VG1871AA+943AGA	VG1871AA +943GGA	VG1871AA+943BGA	-
VG1871AB		0.5	Yes		VG1871AB+943AGA	VG1871AB +943GGA	VG1871AB+943BGA	-
VG1871AC		0.8	Yes		VG1871AC+943AGA	VG1871AC +943GGA	VG1871AC+943BGA	-
VG1871AD		1.2	Yes		VG1871AD+943AGA	VG1871AD +943GGA	VG1871AD+943BGA	VG1871AD+943BUA
VG1871AE		1.9	Yes		VG1871AE+943AGA	VG1871AE +943GGA	VG1871AE+943BGA	VG1871AE+943BUA
VG1871AF		2.9	Yes		VG1871AF+943AGA	VG1871AF +943GGA	VG1871AF+943BGA	VG1871AF+943BUA
VG1871AG		4.7	Yes		VG1871AG+943AGA	VG1871AG +943GGA	VG1871AG+943BGA	VG1871AG+943BUA
VG1871AL		7.4	Yes		VG1871AL+943AGA	VG1871AL +943GGA	VG1871AL+943BGA	VG1871AL+943BUA
VG1871AN		11.7	No		VG1871AN+943AGA	VG1871AN +943GGA	VG1871AN+943BGA	VG1871AN+943BUA
VG1871BG	3/4	4.7	Yes	200	VG1871BG+943AGA	VG1871BG +943GGA	VG1871BG+943BGA	VG1871BG+943BUA
VG1871BL		7.4	Yes		VG1871BL+943AGA	VG1871BL +943GGA	VG1871BL+943BGA	VG1871BL+943BUA
VG1871BN		11.7	No		VG1871BN+943AGA	VG1871BN +943GGA	VG1871BN+943BGA	VG1871BN+943BUA
VG1871CL	1	7.4	Yes	200	VG1871CL+943AGA	VG1871CL +943GGA	VG1871CL+943BGA	VG1871CL+943BUA
VG1871CN		11.7	Yes		VG1871CN+943AGA	VG1871CN +943GGA	VG1871CN+943BGA	VG1871CN+943BUA
VG1871CP		18.7	No		VG1871CP+943AGA	VG1871CP +943GGA	VG1871CP+943BGA	VG1871CP+943BUA

Accessories and repair parts

Linkage	Replacement description
M9000-560	Ball valve linkage kit for M9203 Series actuators

Technical specifications

VG1000 Series Sweat End Connection Plated Brass Trim Ball Valves	
Service[1]	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)

Johnson Controls

VG1000 Series Sweat End Connection Plated Brass Trim Ball Valves		
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	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 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 Polyphtalamide 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

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.

WARNING

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

WARNING

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

Patents

Patents: https://jcipat.com

Johnson Controls

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Single point of contact

APAC	Europe	NA/SA
JOHNSON CONTROLS	JOHNSON CONTROLS	JOHNSON CONTROLS
C/O CONTROLS PRODUCT MANAGEMENT	VOLTAWEG 20	507 E MICHIGAN ST
NO. 32 CHANGJIANG RD NEW DISTRICT	6101 XK ECHT	MILWAUKEE WI 53202
WUXI JIANGSU PROVINCE 214028	THE NETHERLANDS	USA
CHINA		

© 2021 Johnson Controls. All rights reserved. All specifications and other information shown were current as of document revision and are subject to change without notice.
www.johnsoncontrols.com