VG1000 Series Sweat End Connection Stainless Steel Trim Ball Valves

2021-02-11

LIT-1900469

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 with sweat end connections 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 for brazing.

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.

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
M9000-561	Thermal barrier for VA9104 and VA9203 Series Actuators

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Selection charts

Table 1: VG1000 sweat 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)	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							
VG1275AA	1/2	0.3	Yes	200	VG1275AA+9T4AGA	-	VG1275AA+9T4GGA
VG1275AB		0.5	Yes		VG1275AB+9T4AGA	-	VG1275AB+9T4GGA
VG1275AC		0.8	Yes		VG1275AB+9T4AGA	-	VG1275AC+9T4GGA
VG1275AD		1.2	Yes		VG1275AD+9T4AGA	VG1275AD+9T4IGA	VG1275AD+9T4GGA
VG1275AE		1.9	Yes		VG1275AE+9T4AGA	VG1275AE+9T4IGA	VG1275AE+9T4GGA
VG1275AF		2.9	Yes		VG1275AF+9T4AGA	VG1275AF+9T4IGA	VG1275AF+9T4GGA
VG1275AG		4.7	Yes		VG1275AG+9T4AGA	VG1275AG+9T4IGA	VG1275AG+9T4GGA
VG1275AL		7.4	Yes		VG1275AL+9T4AGA	VG1275AL+9T4IGA	VG1275AL+9T4GGA
VG1275AN		11.7	No		VG1275AN+9T4AGA	VG1275AN+9T4IGA	VG1275AN+9T4GGA
VG1275BG	3/4	4.7	Yes	200	VG1275BG+9T4AGA	VG1275BG+9T4IGA	VG1275BG+9T4GGA
VG1275BL		7.4	Yes		VG1275BL+9T4AGA	VG1275BL+9T4IGA	VG1275BL+9T4GGA
VG1275BN		11.7	No		VG1275BN+9T4AGA	VG1275BN+9T4IGA	VG1275BN+9T4GGA
VG1275CL	1	7.4	Yes	200	VG1275CL+9T4AGA	VG1275CL+9T4IGA	VG1275CL+9T4GGA
VG1275CN		11.7	Yes		VG1275CN+9T4AGA	VG1275CN+9T4IGA	VG1275CN+9T4GGA
VG1275CP		18.7	No		VG1275CP+9T4AGA	VG1275CP+9T4IGA	VG1275CP+9T4GGA
Three-way							
VG1875AA	1/2	0.3 / 0.2	Yes	200	VG1875AA+9T4AGA	-	VG1875AA+9T4GGA
VG1875AB		0.5 / 0.3	Yes		VG1875AB+9T4AGA	-	VG1875AB+9T4GGA
VG1875AC		0.8 / 0.4	Yes		VG1875AC+9T4AGA	-	VG1875AC+9T4GGA
VG1875AD		1.2 / 0.7	Yes		VG1875AD+9T4AGA	VG1875AD+9T4IGA	VG1875AD+9T4GGA
VG1875AE		1.9 / 1.2	Yes		VG1875AE+9T4AGA	VG1875AE+9T4IGA	VG1875AE+9T4GGA
VG1875AF		2.9 / 1.9	Yes		VG1875AF+9T4AGA	VG1875AF+9T4IGA	VG1875AF+9T4GGA
VG1875AG		4.7 / 2.9	Yes		VG1875AG+9T4AGA	VG1875AG+9T4IGA	VG1875AG+9T4GGA
VG1875AL		7.4 / 4.7	Yes		VG1875AL+9T4AGA	VG1875AL+9T4IGA	VG1875AL+9T4GGA
VG1875AN		11.7 / 5.8	No		VG1875AN+9T4AGA	VG1875AN+9T4IGA	VG1875AN+9T4GGA
VG1875BG	3/4	4.7 / 2.9	Yes	200	VG1875BG+9T4AGA	VG1875BG+9T4IGA	VG1875BG+9T4GGA
VG1875BL		7.4 / 4.7	Yes		VG1875BL+9T4AGA	VG1875BL+9T4IGA	VG1875BL+9T4GGA
VG1875BN		11.7 / 5.8	No		VG1875BN+9T4AGA	VG1875BN+9T4IGA	VG1875BN+9T4GGA
VG1875CL	1	7.4 / 4.7	Yes	200	VG1875CL+9T4AGA	VG1875CL+9T4IGA	VG1875CL+9T4GGA
VG1875CN		11.7 / 7.4	Yes		VG1875CN+9T4AGA	VG1875CN+9T4IGA	VG1875CN+9T4GGA
VG1875CP		18.7 / 9.4	No		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 120-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.

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

Valve code number	Size, in.	Cv (Control port) / Cv (Bypass port)	Characterizing Disk	Closeoff psig	AC 24 V			AC 85-264 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)								
VG1275AA	1/2	0.3	Yes	200	VG1275AA+923AGA	VG1275AA +923GGA	VG1275AA+923BGA	-
VG1275AB		0.5	Yes		VG1275AB+923AGA	VG1275AB +923GGA	VG1275AB+923BGA	-
VG1275AC		0.8	Yes		VG1275AC+923AGA	VG1275AC +923GGA	VG1275AC+923BGA	-
VG1275AD		1.2	Yes		VG1275AD+923AGA	VG1275AD +923GGA	VG1275AD+923BGA	VG1275AD+923BUA
VG1275AE		1.9	Yes		VG1275AE+923AGA	VG1275AE +923GGA	VG1275AE+923BGA	VG1275AE+923BUA
VG1275AF		2.9	Yes		VG1275AF+923AGA	VG1275AF +923GGA	VG1275AF+923BGA	VG1275AF+923BUA
VG1275AG		4.7	Yes		VG1275AG+923AGA	VG1275AG +923GGA	VG1275AG+923BGA	VG1275AG+923BUA
VG1275AL		7.4	Yes		VG1275AL+923AGA	VG1275AL +923GGA	VG1275AL+923BGA	VG1275AL+923BUA
VG1275AN		11.7	No		VG1275AN+923AGA	VG1275AN +923GGA	VG1275AN+923BGA	VG1275AN+923BUA
VG1275BG	3/4	4.7	Yes	200	VG1275BG+923AGA	VG1275BG +923GGA	VG1275BG+923BGA	VG1275BG+923BUA
VG1275BL		7.4	Yes		VG1275BL+923AGA	VG1275BL +923GGA	VG1275BL+923BGA	VG1275BL+923BUA
VG1275BN		11.7	No		VG1275BN+923AGA	VG1275BN +923GGA	VG1275BN+923BGA	VG1275BN+923BUA
VG1275CL	1	7.4	Yes	200	VG1275CL+923AGA	VG1275CL +923GGA	VG1275CL+923BGA	VG1275CL+923BUA
VG1275CN		11.7	Yes		VG1275CN+923AGA	VG1275CN +923GGA	VG1275CN+923BGA	VG1275CN+923BUA
VG1275CP		18.7	No		VG1275CP+923AGA	VG1275CP +923GGA	VG1275CP+923BGA	VG1275CP+923BUA
Two-way spring return valve closed (normally closed)								

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

Valve code number	Size, in.	Cv (Control port) / Cv (Bypass port)	Characterizing Disk	Closeoff psig	AC 24 V			AC 85-264 V
					Floating	DC 0 to 10 V Proportional	On/off	On/off
					VA9203-AGA-2Z	VA9203-GGA-2Z	VA9203-BGA-2	VA9203-BUA-2
VG1275AA	1/2	0.3	Yes	200	VG1275AA+943AGA	VG1275AA +943GGA	VG1275AA+943BGA	-
VG1275AB		0.5	Yes		VG1275AB+943AGA	VG1275AB +943GGA	VG1275AB+943BGA	-
VG1275AC		0.8	Yes		VG1275AC+943AGA	VG1275AC +943GGA	VG1275AC+943BGA	-
VG1275AD		1.2	Yes		VG1275AD+943AGA	VG1275AD +943GGA	VG1275AD+943BGA	VG1275AD+943BUA
VG1275AE		1.9	Yes		VG1275AE+943AGA	VG1275AE +943GGA	VG1275AE+943BGA	VG1275AE+943BUA
VG1275AF		2.9	Yes		VG1275AF+943AGA	VG1275AF +943GGA	VG1275AF+943BGA	VG1275AF+943BUA
VG1275AG		4.7	Yes		VG1275AG+943AGA	VG1275AG +943GGA	VG1275AG+943BGA	VG1275AG+943BUA
VG1275AL		7.4	Yes		VG1275AL+943AGA	VG1275AL +943GGA	VG1275AL+943BGA	VG1275AL+943BUA
VG1275AN		11.7	No		VG1275AN+943AGA	VG1275AN +943GGA	VG1275AN+943BGA	VG1275AN+943BUA
VG1275BG	3/4	4.7	Yes	200	VG1275BG+943AGA	VG1275BG +943GGA	VG1275BG+943BGA	VG1275BG+943BUA
VG1275BL		7.4	Yes		VG1275BL+943AGA	VG1275BL +943GGA	VG1275BL+943BGA	VG1275BL+943BUA
VG1275BN		11.7	No		VG1275BN+943AGA	VG1275BN +943GGA	VG1275BN+943BGA	VG1275BN+943BUA
VG1275CL	1	7.4	Yes	200	VG1275CL+943AGA	VG1275CL +943GGA	VG1275CL+943BGA	VG1275CL+943BUA
VG1275CN		11.7	Yes		VG1275CN+943AGA	VG1275CN +943GGA	VG1275CN+943BGA	VG1275CN+943BUA
VG1275CP		18.7	No		VG1275CP+943AGA	VG1275CP +943GGA	VG1275CP+943BGA	VG1275CP+943BUA
Three-way spring return counterclockwise, Port A (coil) open								

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

Valve code number	Size, in.	Cv (Control port) / Cv (Bypass port)	Characterizing Disk	Closeoff psig	AC 24 V			AC 85-264 V
					Floating	DC 0 to 10 V Proportional	On/off	On/off
					VA9203-AGA-2Z	VA9203-GGA-2Z	VA9203-BGA-2	VA9203-BUA-2
VG1875AA	1/2	0.3 / 0.2	Yes	200	VG1875AA+923AGA	VG1875AA +923GGA	VG1875AA+923BGA	-
VG1875AB		0.5 0.3	Yes		VG1875AB+923AGA	VG1875AB +923GGA	VG1875AB+923BGA	-
VG1875AC		0.8 /0.4	Yes		VG1875AD+923AGA	VG1875AD +923GGA	VG1875AD+923BGA	-
VG1875AD		1.2 / 0.7	Yes		VG1875AD+923AGA	VG1875AD +923GGA	VG1875AD+923BGA	VG1875AD+923BUA
VG1875AE		1.9 / 1.2	Yes		VG1875AE+923AGA	VG1875AE +923GGA	VG1875AE+923BGA	VG1875AE+923BUA
VG1875AF		2.9 / 1.9	Yes		VG1875AF+923AGA	VG1875AF +923GGA	VG1875AF+923BGA	VG1875AF+923BUA
VG1875AG		4.7 / 2.9	Yes		VG1875AG+923AGA	VG1875AG +923GGA	VG1875AG+923BGA	VG1875AG+923BUA
VG1875AL		7.4 / 4.7	Yes		VG1875AL+923AGA	VG1875AL +923GGA	VG1875AL+923BGA	VG1875AL+923BUA
VG1875AN		11.7 / 5.8	No		VG1875AN+923AGA	VG1875AN +923GGA	VG1875AN+923BGA	VG1875AN+923BUA
VG1875BG	3/4	4.7 / 2.9	Yes	200	VG1875BG+923AGA	VG1875BG +923GGA	VG1875BG+923BGA	VG1875BG+923BUA
VG1875BL		7.4 / 4.7	Yes		VG1875BL+923AGA	VG1875BL +923GGA	VG1875BL+923BGA	VG1875BL+923BUA
VG1875BN		11.7 / 5.8	No		VG1875BN+923AGA	VG1875BN +923GGA	VG1875BN+923BGA	VG1875BN+923BUA
VG1875CL	1	7.4 / 4.7	Yes	200	VG1875CL+923AGA	VG1875CL +923GGA	VG1875CL+923BGA	VG1875CL+923BUA
VG1875CN		11.7 / 7.4	Yes		VG1875CN+923AGA	VG1875CN +923GGA	VG1875CN+923BGA	VG1875CN+923BUA
VG1875CP		18.7 / 9.4	No		VG1875CP+923AGA	VG1875CP +923GGA	VG1875CP+923BGA	VG1875CP+923BUA
Three-way spring return clockwise, Port B (bypass) open								

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

Valve code number	Size, in.	Cv (Control port) / Cv (Bypass port)	Characterizing Disk	Closeoff psig	AC 24 V			AC 85-264 V
					Floating	DC 0 to 10 V Proportional	On/off	On/off
					VA9203-AGA-2Z	VA9203-GGA-2Z	VA9203-BGA-2	VA9203-BUA-2
VG1875AA	1/2	0.3 / 0.2	Yes	200	VG1875AA+943AGA	VG1875AA +943GGA	VG1875AA+943BGA	-
VG1875AB		0.5 / 0.3	Yes		VG1875AB+943AGA	VG1875AB +943GGA	VG1875AB+943BGA	-
VG1875AC		0.8 / 0.4	Yes		VG1875AC+943AGA	VG1875AC +943GGA	VG1875AC+943BGA	-
VG1875AD		1.2 / 0.7	Yes		VG1875AD+943AGA	VG1875AD +943GGA	VG1875AD+943BGA	VG1875AD+943BUA
VG1875AE		1.9 / 1.2	Yes		VG1875AE+943AGA	VG1875AE +943GGA	VG1875AE+943BGA	VG1875AE+943BUA
VG1875AF		2.9 / 1.9	Yes		VG1875AF+943AGA	VG1875AF +943GGA	VG1875AF+943BGA	VG1875AF+943BUA
VG1875AG		4.7 / 2.9	Yes		VG1875AG+943AGA	VG1875AG +943GGA	VG1875AG+943BGA	VG1875AG+943BUA
VG1875AL		7.4 / 4.7	Yes		VG1875AL+943AGA	VG1875AL +943GGA	VG1875AL+943BGA	VG1875AL+943BUA
VG1875AN		11.7 / 5.8	No		VG1875AN+943AGA	VG1875AN +943GGA	VG1875AN+943BGA	VG1875AN+943BUA
VG1875BG	3/4	4.7 / 2.9	Yes	200	VG1875BG+943AGA	VG1875BG +943GGA	VG1875BG+943BGA	VG1875BG+943BUA
VG1875BL		7.4 / 4.7	Yes		VG1875BL+943AGA	VG1875BL +943GGA	VG1875BL+943BGA	VG1875BL+943BUA
VG1875BN		11.7 / 5.8	No		VG1875BN+943AGA	VG1875BN +943GGA	VG1875BN+943BGA	VG1875BN+943BUA
VG1875CL	1	7.4 / 4.7	Yes	200	VG1875CL+943AGA	VG1875CL +943GGA	VG1875CL+943BGA	VG1875CL+943BUA
VG1875CN		11.7 / 7.4	Yes		VG1875CN+943AGA	VG1875CN +943GGA	VG1875CN+943BGA	VG1875CN+943BUA
VG1875CP		18.7 / 9.4	No		VG1875CP+943AGA	VG1875CP +943GGA	VG1875CP+943BGA	VG1875CP+943BUA

Technical specifications

VG1000 Series Sweat End Connection Stainless Steel Trim Ball Valves		
Service[1]		Hot water, chilled water, and 50/50 glycol solutions for HVAC systems
Fluid temperature limits, without M9000-561 Thermal Barrier		-22°F to 212°F (-30°C to 100°C)
Fluid temperature limits, with M9000-561 Thermal Barrier		-22°F to 284°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[2]		Greater than 500:1

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VG1000 Series Sweat End Connection Stainless Steel Trim Ball Valves		
Minimum ambient operating temperature	**With VA9203 Series Spring-Return Actuators**	-22°F (-30°C)
	With M9104 Series Non-Spring-Return Actuators	-4°F (-20°C)
Maximum ambient operating temperature (limited by the actuator)	**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		Sweat ⓘ **Note:** Use a low melting point solder.
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 the VDI 2035 Guideline.
2 Rangeability is defined as the ratio of maximum controllable flow to minimum controllable flow.

⚠ WARNING

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

⚠ 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

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

Product warranty

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

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Single point of contact

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