VG1000 Series Flanged Ball Valves Catalog Page

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Description

Figure 1: VG1000 Series Ball Valve



The VG1000 Series Flanged Ball Valves are primarily designed to regulate the flow of hot water, chilled water, and 50/50 glycol solutions to the demand of a controller in HVAC systems. The valves come in sizes of 2-1/2 in., 3 in., 4 in., 5 in., and 6 in. These American Society of Mechanical Engineers (ASME) Class 150 flanged valves come in both two- and three-way configurations. Johnson Controls offers valve, linkage, and actuator assemblies for factory or field mounting with either spring return or non-spring return actuators.

Refer to the *VG1000 Series Flanged Ball Valves Product Bulletin (LIT-12011228)* for important product application information and single point of contact information.

Features

- Closeoff pressure rating: 100 psi for Two-Way Valves; 50 psi for Three-Way Valves — provides tight shutoff.
- 300 stainless steel ball and stem assembly — applies to systems with high-temperature water (0°F to 284°F [-18°C to 140°C]) or 25 psi saturated steam.
- 500:1 rangeability — provides accurate control under all load conditions.
- Amodel® flow characterizing disk — provides equal percentage flow characteristics for best temperature control; available in a wide array of Cv ranges to cover a broad variety of applications.
- Ethylene propylene diene monomer (EPDM) double o-ring stem seal — offers tested leak-free operation for 200,000 cycles in iron-oxide contaminated water.
- Graphite-reinforced Polytetrafluoroethylene (PTFE) seats — include 15% graphite-reinforced ball seals that last twice as long in iron-oxide contaminated water when compared to virgin Teflon® ball seats.
- PTFE thermal spacer — provides thermal isolation between the actuator and the valve.
- Seats backed with EPDM o-rings — maintain a constant seating force that compensates for expansion, contraction, and seat wear without increasing operating torque.
- Maintenance-free design — performs without failure in excess of 200,000 full stroke cycles in iron-oxide contaminated water.
- Available with factory-mounted VA9320 or M9220 series electric actuators — reduces field installation time and cost.
- Weather shields available for field installation — protect the actuator from corrosion, rain, freezing rain, sleet, and snow.

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.

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Selection charts

Table 1: Flanged stainless steel trim ball valves with non-spring return electric actuators

Valve	Size, in.	Cv	Characterizing disk	Closeoff PSIG	AC 24 V			
					Without switches		With two auxiliary switches	
					On/off (floating)	DC 0 to 10 V prop.	On/off (floating)	DC 0 to 10 V prop.
					M9124-AGA-2	M9124-GGA-3	M9124-AGC-2	M9124-GGC-2
Two-way – non spring return								
VG12A5GS	2-1/2	47	Yes	100	VG12A5GS+924AGA	VG12A5GS+924GGA	VG12A5GS+924AGC	VG12A5GS+924GGC
VG12A5KS			Yes		VG12A5KS+924AGA	VG12A5KS+924GGA	VG12A5KS+924AGC	VG12A5KS+924GGC
VG12A5GT		74	Yes		VG12A5GT+924AGA	VG12A5GT+924GGA	VG12A5GT+924AGC	VG12A5GT+924GGC
VG12A5KT			Yes		VG12A5KT+924AGA	VG12A5KT+924GGA	VG12A5KT+924AGC	VG12A5KT+924GGC
VG12A5GU		117	Yes		VG12A5GU+924AGA	VG12A5GU+924GGA	VG12A5GU+924AGC	VG12A5GU+924GGC
VG12A5KU			Yes		VG12A5KU+924AGA	VG12A5KU+924GGA	VG12A5KU+924AGC	VG12A5KU+924GGC
VG12A5HT	3	74	Yes	100	VG12A5HT+924AGA	VG12A5HT+924GGA	VG12A5HT+924AGC	VG12A5HT+924GGC
VG12A5LT			Yes		VG12A5LT+924AGA	VG12A5LT+924GGA	VG12A5LT+924AGC	VG12A5LT+924GGC
VG12A5HU		117	Yes		VG12A5HU+924AGA	VG12A5HU+924GGA	VG12A5HU+924AGC	VG12A5HU+924GGC
VG12A5LU			Yes		VG12A5LU+924AGA	VG12A5LU+924GGA	VG12A5LU+924AGC	VG12A5LU+924GGC
VG12A5HV		176	Yes		VG12A5HV+924AGA	VG12A5HV+924GGA	VG12A5HV+924AGC	VG12A5HV+924GGC
VG12A5LV			Yes		VG12A5LV+924AGA	VG12A5LV+924GGA	VG12A5LV+924AGC	VG12A5LV+924GGC
VG12A5HW		211	No		VG12A5HW+924AGA	VG12A5HW+924GGA	VG12A5HW+924AGC	VG12A5HW+924GGC
VG12A5LW			No		VG12A5LW+924AGA	VG12A5LW+924GGA	VG12A5LW+924AGC	VG12A5LW+924GGC
VG12A5JU	4	117	Yes	100	VG12A5JU+924AGA	VG12A5JU+924GGA	VG12A5JU+924AGC	VG12A5JU+924GGC
VG12A5JV		176	No		VG12A5JV+924AGA	VG12A5JV+924GGA	VG12A5JV+924AGC	VG12A5JV+924GGC
VG12A5MW		190	Yes		VG12A5MW +924AGA	VG12A5MW+924GGA	VG12A5MW +924AGC	VG12A5MW+924GGC
VG12A5NY	5	290	Yes		VG12A5NY+924AGA	VG12A5NY+924GGA	VG12A5NY+924AGC	VG12A5NY+924GGC
VG12A5PZ	6	350	No		VG12A5PZ+924AGA	VG12A5PZ+924GGA	VG12A5PZ+924AGC	VG12A5PZ+924GGC
Three-way - non spring return								
VG18A5GS	2-1/2	47/29	Yes	50	VG18A5GS+924AGA	VG18A5GS+924GGA	VG18A5GS+924AGC	VG18A5GS+924GGC
VG18A5KS			Yes		VG18A5KS+924AGA	VG18A5KS+924GGA	VG18A5KS+924AGC	VG18A5KS+924GGC
VG18A5GT		74/47	Yes		VG18A5GT+924AGA	VG18A5GT+924GGA	VG18A5GT+924AGC	VG18A5GT+924GGC
VG18A5KT			Yes		VG18A5KT+924AGA	VG18A5KT+924GGA	VG18A5KT+924AGC	VG18A5KT+924GGC
VG18A5GU		117/74	Yes		VG18A5GU+924AGA	VG18A5GU+924GGA	VG18A5GU+924AGC	VG18A5GU+924GGC
VG18A5KU			Yes		VG18A5KU+924AGA	VG18A5KU+924GGA	VG18A5KU+924AGC	VG18A5KU+924GGC
VG18A5HT	3	74/47	Yes	50	VG18A5HT+924AGA	VG18A5HT+924GGA	VG18A5HT+924AGC	VG18A5HT+924GGC
VG18A5LT			Yes		VG18A5LT+924AGA	VG18A5LT+924GGA	VG18A5LT+924AGC	VG18A5LT+924GGC
VG18A5HU		117/74	Yes		VG18A5HU+924AGA	VG18A5HU+924GGA	VG18A5HU+924AGC	VG18A5HU+924GGC
VG18A5LU			Yes		VG18A5LU+924AGA	VG18A5LU+924GGA	VG18A5LU+924AGC	VG18A5LU+924GGC
VG18A5HV		176/88	Yes		VG18A5HV+924AGA	VG18A5HV+924GGA	VG18A5HV+924AGC	VG18A5HV+924GGC
VG18A5LV			Yes		VG18A5LV+924AGA	VG18A5LV+924GGA	VG18A5LV+924AGC	VG18A5LV+924GGC
VG18A5HW		211/105	No		VG18A5HW+924AGA	VG18A5HW+924GGA	VG18A5HW+924AGC	VG18A5HW+924GGC
VG18A5LW			No		VG18A5LW+924AGA	VG18A5LW+924GGA	VG18A5LW+924AGC	VG18A5LW+924GGC
VG18A5JU	4	117/74	Yes	50	VG18A5JU+924AGA	VG18A5JU+924GGA	VG18A5JU+924AGC	VG18A5JU+924GGC
VG18A5JV		176/88	No		VG18A5JV+924AGA	VG18A5JV+924GGA	VG18A5JV+924AGC	VG18A5JV+924GGC
VG18A5MW		190/190	Yes		VG18A5MW +924AGA	VG18A5MW+924GGA	VG18A5MW +924AGC	VG18A5MW+924GGC
VG18A5NY	5	290/190	Yes		VG18A5NY+924AGA	VG18A5NY+924GGA	VG18A5NY+924AGC	VG18A5NY+924GGC
VG18A5PZ	6	350/180	No		VG18A5PZ+924AGA	VG18A5PZ+924GGA	VG18A5PZ+924AGC	VG18A5PZ+924GGC

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Table 2: Flanged stainless steel trim ball valves with non-spring return electric actuators

Valve	Size, in.	Cv	Characterizing disk	Closeoff PSIG	AC and DC 24 V	
					On/off, floating, and proportional	On/off, floating, and proportional
					Without switches	With two auxiliary switches
					VA9320-HGA-2 Actuator	VA9320-HGA-2 Actuator with M9300-2 Switch Kit
Two-way						
VG12A5GS	2-1/2	47	Yes	100	VG12A5GS+920HGA	VG12A5GS+920HGC
VG12A5KS			Yes		VG12A5KS+920HGA	VG12A5KS+920HGC
VG12A5GT		74	Yes		VG12A5GT+920HGA	VG12A5GT+920HGC
VG12A5KT			Yes		VG12A5KT+920HGA	VG12A5KT+920HGC
VG12A5GU		117	Yes		VG12A5GU+920HGA	VG12A5GU+920HGC
VG12A5KU			Yes		VG12A5KU+920HGA	VG12A5KU+920HGC
VG12A5HT	3	74	Yes	100	VG12A5HT+920HGA	VG12A5HT+920HGC
VG12A5LT			Yes		VG12A5LT+920HGA	VG12A5LT+920HGC
VG12A5HU		117	Yes		VG12A5HU+920HGA	VG12A5HU+920HGC
VG12A5LU			Yes		VG12A5LU+920HGA	VG12A5LU+920HGC
VG12A5HV		176	Yes		VG12A5HV+920HGA	VG12A5HV+920HGC
VG12A5LV			Yes		VG12A5LV+920HGA	VG12A5LV+920HGC
VG12A5HW		211	No		VG12A5HW+920HGA	VG12A5HW+920HGC
VG12A5LW			No		VG12A5LW+920HGA	VG12A5LW+920HGC
VG12A5JU	4	117	Yes	100	VG12A5JU+920HGA	VG12A5JU+920HGC
VG12A5JV		176	No		VG12A5JV+920HGA	VG12A5JV+920HGC
VG12A5MW		190	Yes		VG12A5MW+920HGA	VG12A5MW+920HGC
VG12A5NY	5	290	Yes		VG12A5NY+920HGA	VG12A5NY+920HGC
VG12A5PZ	6	350	No		VG12A5PZ+920HGA	VG12A5PZ+920HGC
Three-way						
VG18A5GS	2-1/2	47 / 29	Yes	50	VG18A5GS+920HGA	VG18A5GS+920HGC
VG18A5KS			Yes		VG18A5KS+920HGA	VG18A5KS+920HGC
VG18A5GT		74 / 47	Yes		VG18A5GT+920HGA	VG18A5GT+920HGC
VG18A5KT			Yes		VG18A5KT+920HGA	VG18A5KT+920HGC
VG18A5GU		117 / 74	Yes		VG18A5GU+920HGA	VG18A5GU+920HGC
VG18A5KU			Yes		VG18A5KU+920HGA	VG18A5KU+920HGC
VG18A5HT	3	74 / 47	Yes	50	VG18A5HT+920HGA	VG18A5HT+920HGC
VG18A5LT			Yes		VG18A5LT+920HGA	VG18A5LT+920HGC
VG18A5HU		117 / 74	Yes		VG18A5HU+920HGA	VG18A5HU+920HGC
VG18A5LU			Yes		VG18A5LU+920HGA	VG18A5LU+920HGC
VG18A5HV		176 / 88	Yes		VG18A5HV+920HGA	VG18A5HV+920HGC
VG18A5LV			Yes		VG18A5LV+920HGA	VG18A5LV+920HGC
VG18A5HW		211 / 105	No		VG18A5HW+920HGA	VG18A5HW+920HGC
VG18A5LW			No		VG18A5LW+920HGA	VG18A5LW+920HGC
VG18A5JU	4	117 / 74	Yes	50	VG18A5JU+920HGA	VG18A5JU+920HGC
VG18A5JV		176 / 88	No		VG18A5JV+920HGA	VG18A5JV+920HGC
VG18A5MW		190 / 190	Yes		VG18A5MW+920HGA	VG18A5MW+920HGC
VG18A5NY	5	290 / 190	Yes		VG18A5NY+920HGA	VG18A5NY+920HGC
VG18A5PZ	6	350 / 180	No		VG18A5PZ+920HGA	VG18A5PZ+920HGC

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Table 3: Flanged stainless steel trim ball valves with spring return electric actuators without switches

Valve	Size, in.	Cv	Characterizing disk	Closeoff PSIG	AC 24 V			AC 120 V
					Floating	DC 0 to 10 V Prop.	On/off	On/off
					M9220-AGA-3	M9220-GGA-3	M9220-BGA-3	M9220-BAA-3
Two-way – spring return – valve open (normally open) – without switches								
VG12A5GS	2-1/2	47	Yes	100	VG12A5GS+92NAGA	VG12A5GS+92NGGA	VG12A5GS+92NBGA	VG12A5GS+92NBAA
VG12A5KS			Yes		VG12A5KS+92NAGA	VG12A5KS+92NGGA	VG12A5KS+92NBGA	VG12A5KS+92NBAA
VG12A5GT		74	Yes		VG12A5GT+92NAGA	VG12A5GT+92NGGA	VG12A5GT+92NBGA	VG12A5GT+92NBAA
VG12A5KT			Yes		VG12A5KT+92NAGA	VG12A5KT+92NGGA	VG12A5KT+92NBGA	VG12A5KT+92NBAA
VG12A5GU		117	Yes		VG12A5GU+92NAGA	VG12A5GU+92NGGA	VG12A5GU+92NBGA	VG12A5GU+92NBAA
VG12A5KU			Yes		VG12A5KU+92NAGA	VG12A5KU+92NGGA	VG12A5KU+92NBGA	VG12A5KU+92NBAA
VG12A5HT	3	74	Yes	100	VG12A5HT+92NAGA	VG12A5HT+92NGGA	VG12A5HT+92NBGA	VG12A5HT+92NBAA
VG12A5LT			Yes		VG12A5LT+92NAGA	VG12A5LT+92NGGA	VG12A5LT+92NBGA	VG12A5LT+92NBAA
VG12A5HU		117	Yes		VG12A5HU+92NAGA	VG12A5HU+92NGGA	VG12A5HU+92NBGA	VG12A5HU+92NBAA
VG12A5LU			Yes		VG12A5LU+92NAGA	VG12A5LU+92NGGA	VG12A5LU+92NBGA	VG12A5LU+92NBAA
VG12A5HV		176	Yes		VG12A5HV+92NAGA	VG12A5HV+92NGGA	VG12A5HV+92NBGA	VG12A5HV+92NBAA
VG12A5LV			Yes		VG12A5LV+92NAGA	VG12A5LV+92NGGA	VG12A5LV+92NBGA	VG12A5LV+92NBAA
VG12A5HW		211	No		VG12A5HW +92NAGA	VG12A5HW+92NGGA	VG12A5HW +92NBGA	VG12A5HW+92NBAA
VG12A5LW			No		VG12A5LW+92NAGA	VG12A5LW+92NGGA	VG12A5LW+92NBGA	VG12A5LW+92NBAA
VG12A5JU	4	117	Yes	100	VG12A5JU+92NAGA	VG12A5JU+92NGGA	VG12A5JU+92NBGA	VG12A5JU+92NBAA
VG12A5JV		176	No		VG12A5JV+92NAGA	VG12A5JV+92NGGA	VG12A5JV+92NBGA	VG12A5JV+92NBAA
VG12A5MW		190	Yes		VG12A5MW +92NAGA	VG12A5MW +92NGGA	VG12A5MW +92NBGA	VG12A5MW +92NBAA
VG12A5NY	5	290	Yes		VG12A5NY+92NAGA	VG12A5NY+92NGGA	VG12A5NY+92NBGA	VG12A5NY+92NBAA
VG12A5PZ	6	350	No		VG12A5PZ+92NAGA	VG12A5PZ+92NGGA	VG12A5PZ+92NBGA	VG12A5PZ+92NBAA
Two-way – spring return – valve closed (normally closed) – without switches								
VG12A5GS	2-1/2	47	Yes	100	VG12A5GS+94NAGA	VG12A5GS+94NGGA	VG12A5GS+94NBGA	VG12A5GS+94NBAA
VG12A5KS			Yes		VG12A5KS+94NAGA	VG12A5KS+94NGGA	VG12A5KS+94NBGA	VG12A5KS+94NBAA
VG12A5GT		74	Yes		VG12A5GT+94NAGA	VG12A5GT+94NGGA	VG12A5GT+94NBGA	VG12A5GT+94NBAA
VG12A5KT			Yes		VG12A5KT+94NAGA	VG12A5KT+94NGGA	VG12A5KT+94NBGA	VG12A5KT+94NBAA
VG12A5GU		117	Yes		VG12A5GU+94NAGA	VG12A5GU+94NGGA	VG12A5GU+94NBGA	VG12A5GU+94NBAA
VG12A5KU			Yes		VG12A5KU+94NAGA	VG12A5KU+94NGGA	VG12A5KU+94NBGA	VG12A5KU+94NBAA
VG12A5HT	3	74	Yes	100	VG12A5HT+94NAGA	VG12A5HT+94NGGA	VG12A5HT+94NBGA	VG12A5HT+94NBAA
VG12A5LT			Yes		VG12A5LT+94NAGA	VG12A5LT+94NGGA	VG12A5LT+94NBGA	VG12A5LT+94NBAA
VG12A5HU		117	Yes		VG12A5HU+94NAGA	VG12A5HU+94NGGA	VG12A5HU+94NBGA	VG12A5HU+94NBAA
VG12A5LU			Yes		VG12A5LU+94NAGA	VG12A5LU+94NGGA	VG12A5LU+94NBGA	VG12A5LU+94NBAA
VG12A5HV		176	Yes		VG12A5HV+94NAGA	VG12A5HV+94NGGA	VG12A5HV+94NBGA	VG12A5HV+94NBAA
VG12A5LV			Yes		VG12A5LV+94NAGA	VG12A5LV+94NGGA	VG12A5LV+94NBGA	VG12A5LV+94NBAA
VG12A5HW		211	No		VG12A5HW +94NAGA	VG12A5HW+94NGGA	VG12A5HW +94NBGA	VG12A5HW+94NBAA
VG12A5LW			No		VG12A5LW+94NAGA	VG12A5LW+94NGGA	VG12A5LW+94NBGA	VG12A5LW+94NBAA
VG12A5JU	4	117	Yes	100	VG12A5JU+94NAGA	VG12A5JU+94NGGA	VG12A5JU+94NBGA	VG12A5JU+94NBAA
VG12A5JV		176	No		VG12A5JV+94NAGA	VG12A5JV+94NGGA	VG12A5JV+94NBGA	VG12A5JV+94NBAA
VG12A5MW		190	Yes		VG12A5MW +94NAGA	VG12A5MW +94NGGA	VG12A5MW +94NBGA	VG12A5MW +94NBAA
VG12A5NY	5	290	Yes		VG12A5NY+94NAGA	VG12A5NY+94NGGA	VG12A5NY+94NBGA	VG12A5NY+94NBAA
VG12A5PZ	6	350	No		VG12A5PZ+94NAGA	VG12A5PZ+94NGGA	VG12A5PZ+94NBGA	VG12A5PZ+94NBAA
Three-way – spring return counterclockwise – port A (coil) open to port AB (common) – without switches								

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Table 3: Flanged stainless steel trim ball valves with spring return electric actuators without switches

Valve	Size, in.	Cv	Characterizing disk	Closeoff PSIG	AC 24 V			AC 120 V
					Floating	DC 0 to 10 V Prop.	On/off	On/off
					M9220-AGA-3	M9220-GGA-3	M9220-BGA-3	M9220-BAA-3
VG18A5GS	2-1/2	47 / 29	Yes	50	VG18A5GS+92NAGA	VG18A5GS+92NGGA	VG18A5GS+92NBGA	VG18A5GS+92NBAA
VG18A5K			Yes		VG18A5KS+92NAGA	VG18A5KS+92NGGA	VG18A5KS+92NBGA	VG18A5KS+92NBAA
VG18A5GT		74 / 47	Yes		VG18A5GT+92NAGA	VG18A5GT+92NGGA	VG18A5GT+92NBGA	VG18A5GT+92NBAA
VG18A5KT			Yes		VG18A5KT+92NAGA	VG18A5KT+92NGGA	VG18A5KT+92NBGA	VG18A5KT+92NBAA
VG18A5GU		117 / 74	Yes		VG18A5GU+92NAGA	VG18A5GU+92NGGA	VG18A5GU+92NBGA	VG18A5GU+92NBAA
VG18A5KU			Yes		VG18A5KU+92NAGA	VG18A5KU+92NGGA	VG18A5KU+92NBGA	VG18A5KU+92NBAA
VG18A5HT	3	74 / 47	Yes	50	VG18A5HT+92NAGA	VG18A5HT+92NGGA	VG18A5HT+92NBGA	VG18A5HT+92NBAA
VG18A5LT			Yes		VG18A5LT+92NAGA	VG18A5LT+92NGGA	VG18A5LT+92NBGA	VG18A5LT+92NBAA
VG18A5HU		117 / 74	Yes		VG18A5HU+92NAGA	VG18A5HU+92NGGA	VG18A5HU+92NBGA	VG18A5HU+92NBAA
VG18A5LU			Yes		VG18A5LU+92NAGA	VG18A5LU+92NGGA	VG18A5LU+92NBGA	VG18A5LU+92NBAA
VG18A5HV		176 / 88	Yes		VG18A5HV+92NAGA	VG18A5HV+92NGGA	VG18A5HV+92NBGA	VG18A5HV+92NBAA
VG18A5LV			Yes		VG18A5LV+92NAGA	VG18A5LV+92NGGA	VG18A5LV+92NBGA	VG18A5LV+92NBAA
VG18A5HW		211 / 105	No		VG18A5HW +92NAGA	VG18A5HW+92NGGA	VG18A5HW +92NBGA	VG18A5HW+92NBAA
VG18A5LW			No		VG18A5LW+92NAGA	VG18A5LW+92NGGA	VG18A5LW+92NBGA	VG18A5LW+92NBAA
VG18A5JU	4	117 / 74	Yes	50	VG18A5JU+92NAGA	VG18A5JU+92NGGA	VG18A5JU+92NBGA	VG18A5JU+92NBAA
VG18A5JV		176 / 88	No		VG18A5JV+92NAGA	VG18A5JV+92NGGA	VG18A5JV+92NBGA	VG18A5JV+92NBAA
VG18A5MW		190 / 190	Yes		VG18A5MW +92NAGA	VG18A5MW +92NGGA	VG18A5MW +92NBGA	VG18A5MW +92NBAA
VG18A5NY	5	290 / 190	Yes		VG18A5NY+92NAGA	VG18A5NY+92NGGA	VG18A5NY+92NBGA	VG18A5NY+92NBAA
VG18A5PZ	6	350 / 180	No		VG18A5PZ+92NAGA	VG18A5PZ+92NGGA	VG18A5PZ+92NBGA	VG18A5PZ+92NBAA
Three-way – spring return clockwise – port B (bypass) open to port AB (common) – without switches								

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Table 3: Flanged stainless steel trim ball valves with spring return electric actuators without switches

Valve	Size, in.	Cv	Characterizing disk	Closeoff PSIG	AC 24 V			AC 120 V
					Floating	DC 0 to 10 V Prop.	On/off	On/off
					M9220-AGA-3	M9220-GGA-3	M9220-BGA-3	M9220-BAA-3
VG18A5GS	2-1/2	47 / 29	Yes	50	VG18A5GS+94NAGA	VG18A5GS+94NGGA	VG18A5GS+94NBGA	VG18A5GS+94NBAA
VG18A5KS			Yes		VG18A5KS+94NAGA	VG18A5KS+94NGGA	VG18A5KS+94NBGA	VG18A5KS+94NBAA
VG18A5GT		74 / 47	Yes		VG18A5GT+94NAGA	VG18A5GT+94NGGA	VG18A5GT+94NBGA	VG18A5GT+94NBAA
VG18A5KT			Yes		VG18A5KT+94NAGA	VG18A5KT+94NGGA	VG18A5KT+94NBGA	VG18A5KT+94NBAA
VG18A5GU		117 / 74	Yes		VG18A5GU+94NAGA	VG18A5GU+94NGGA	VG18A5GU+94NBGA	VG18A5GU+94NBAA
VG18A5KU			Yes		VG18A5KU+94NAGA	VG18A5KU+94NGGA	VG18A5KU+94NBGA	VG18A5KU+94NBAA
VG18A5HT	3	74 / 47	Yes	50	VG18A5HT+94NAGA	VG18A5HT+94NGGA	VG18A5HT+94NBGA	VG18A5HT+94NBAA
VG18A5LT			Yes		VG18A5LT+94NAGA	VG18A5LT+94NGGA	VG18A5LT+94NBGA	VG18A5LT+94NBAA
VG18A5HU		117 / 74	Yes		VG18A5HU+94NAGA	VG18A5HU+94NGGA	VG18A5HU+94NBGA	VG18A5HU+94NBAA
VG18A5LU			Yes		VG18A5LU+94NAGA	VG18A5LU+94NGGA	VG18A5LU+94NBGA	VG18A5LU+94NBAA
VG18A5HV		176 / 88	Yes		VG18A5HV+94NAGA	VG18A5HV+94NGGA	VG18A5HV+94NBGA	VG18A5HV+94NBAA
VG18A5LV			Yes		VG18A5LV+94NAGA	VG18A5LV+94NGGA	VG18A5LV+94NBGA	VG18A5LV+94NBAA
VG18A5HW		211 / 105	No		VG18A5HW +94NAGA	VG18A5HW+94NGGA	VG18A5HW +94NBGA	VG18A5HW+94NBAA
VG18A5LW			No		VG18A5LW+94NAGA	VG18A5LW+94NGGA	VG18A5LW+94NBGA	VG18A5LW+94NBAA
VG18A5JU	4	117 / 74	Yes	50	VG18A5JU+94NAGA	VG18A5JU+94NGGA	VG18A5JU+94NBGA	VG18A5JU+94NBAA
VG18A5JV		176 / 88	No		VG18A5JV+94NAGA	VG18A5JV+94NGGA	VG18A5JV+94NBGA	VG18A5JV+94NBAA
VG18A5MW		190/ 190	Yes		VG18A5MW +94NAGA	VG18A5MW +94NGGA	VG18A5MW +94NBGA	VG18A5MW +94NBAA
VG18A5NY	5	290 / 190	Yes		VG18A5NY+94NAGA	VG18A5NY+94NGGA	VG18A5NY+94NBGA	VG18A5NY+94NBAA
VG18A5PZ	6	350 / 180	No		VG18A5PZ+94NAGA	VG18A5PZ+94NGGA	VG18A5PZ+94NBGA	VG18A5PZ+94NBAA

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Table 4: Flanged stainless steel trim ball valves with spring return electric actuators with two switches

Valve	Size, in.	Cv	Characterizing disk	Closeoff PSIG	AC 24 V			AC 120 V
					Floating	DC 0 to 10 V Prop.	On/off	On/off
					M9220-AGC-3	M9220-GGC-3	M9220-BGC-3	M9220-BAC-3
Two-way – spring return – valve open (normally open) – with two auxiliary switches								
VG12A5GS	2-1/2	47	Yes	100	VG12A5GS +92NAGC	VG12A5GS+92NGGC	VG12A5GS+92NBGC	VG12A5GS+92NBAC
VG12A5KS			Yes		VG12A5KS +92NAGC	VG12A5KS+92NGGC	VG12A5KS+92NBGC	VG12A5KS+92NBAC
VG12A5GT		74	Yes		VG12A5GT +92NAGC	VG12A5GT+92NGGC	VG12A5GT+92NBGC	VG12A5GT+92NBAC
VG12A5KT			Yes		VG12A5KT +92NAGC	VG12A5KT+92NGGC	VG12A5KT+92NBGC	VG12A5KT+92NBAC
VG12A5GU		117	Yes		VG12A5GU +92NAGC	VG12A5GU+92NGGC	VG12A5GU +92NBGC	VG12A5GU+92NBAC
VG12A5KU			Yes		VG12A5KU +92NAGC	VG12A5KU+92NGGC	VG12A5KU+92NBGC	VG12A5KU+92NBAC
VG12A5HT	3	74	Yes	100	VG12A5HT +92NAGC	VG12A5HT+92NGGC	VG12A5HT+92NBGC	VG12A5HT+92NBAC
VG12A5LT			Yes		VG12A5LT +92NAGC	VG12A5LT+92NGGC	VG12A5LT+92NBGC	VG12A5LT+92NBAC
VG12A5HU		117	Yes		VG12A5HU +92NAGC	VG12A5HU+92NGGC	VG12A5HU +92NBGC	VG12A5HU+92NBAC
VG12A5LU			Yes		VG12A5LU +92NAGC	VG12A5LU+92NGGC	VG12A5LU+92NBGC	VG12A5LU+92NBAC
VG12A5HV		176	Yes		VG12A5HV +92NAGC	VG12A5HV+92NGGC	VG12A5HV+92NBGC	VG12A5HV+92NBAC
VG12A5LV			Yes		VG12A5LV +92NAGC	VG12A5LV+92NGGC	VG12A5LV+92NBGC	VG12A5LV+92NBAC
VG12A5HW		211	No		VG12A5HW +92NAGC	VG12A5HW +92NGGC	VG12A5HW +92NBGC	VG12A5HW+92NBAC
VG12A5LW			No		VG12A5LW +92NAGC	VG12A5LW+92NGGC	VG12A5LW +92NBGC	VG12A5LW+92NBAC
VG12A5JU	4	117	Yes	100	VG12A5JU +92NAGC	VG12A5JU+92NGGC	VG12A5JU+92NBGC	VG12A5JU+92NBAC
VG12A5JV		176	No		VG12A5JV+92NAGC	VG12A5JV+92NGGC	VG12A5JV+92NBGC	VG12A5JV+92NBAC
VG12A5MW		190	Yes		VG12A5MW +92NAGC	VG12A5MW +92NGGC	VG12A5MW +92NBGC	VG12A5MW+92NBAC
VG12A5NY	5	290	Yes		VG12A5NY +92NAGC	VG12A5NY+92NGGC	VG12A5NY+92NBGC	VG12A5NY+92NBAC
VG12A5PZ	6	350	No		VG12A5PZ +92NAGC	VG12A5PZ+92NGGC	VG12A5PZ+92NBGC	VG12A5PZ+92NBAC
Two-way – spring return – valve closed (normally closed) – with two auxiliary switches								

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Table 4: Flanged stainless steel trim ball valves with spring return electric actuators with two switches

Valve	Size, in.	Cv	Characterizing disk	Closeoff PSIG	AC 24 V			AC 120 V
					Floating	DC 0 to 10 V Prop.	On/off	On/off
					M9220-AGC-3	M9220-GGC-3	M9220-BGC-3	M9220-BAC-3
VG12A5GS	2-1/2	47	Yes	100	VG12A5GS +94NAGC	VG12A5GS+94NGGC	VG12A5GS+94NBGC	VG12A5GS+94NBAC
VG12A5KS			Yes		VG12A5KS +94NAGC	VG12A5KS+94NGGC	VG12A5KS+94NBGC	VG12A5KS+94NBAC
VG12A5GT		74	Yes		VG12A5GT +94NAGC	VG12A5GT+94NGGC	VG12A5GT+94NBGC	VG12A5GT+94NBAC
VG12A5KT			Yes		VG12A5KT +94NAGC	VG12A5KT+94NGGC	VG12A5KT+94NBGC	VG12A5KT+94NBAC
VG12A5GU		117	Yes		VG12A5GU +94NAGC	VG12A5GU+94NGGC	VG12A5GU +94NBGC	VG12A5GU+94NBAC
VG12A5KU			Yes		VG12A5KU +94NAGC	VG12A5KU +942NGGC	VG12A5KU+94NBGC	VG12A5KU+94NBAC
VG12A5HT	3	74	Yes	100	VG12A5HT +94NAGC	VG12A5HT+94NGGC	VG12A5HT+94NBGC	VG12A5HT+94NBAC
VG12A5LT			Yes		VG12A5LT +94NAGC	VG12A5LT+94NGGC	VG12A5LT+94NBGC	VG12A5LT+94NBAC
VG12A5HU		117	Yes		VG12A5HU +94NAGC	VG12A5HU+94NGGC	VG12A5HU +94NBGC	VG12A5HU+94NBAC
VG12A5LU			Yes		VG12A5LU +94NAGC	VG12A5LU+94NGGC	VG12A5LU+94NBGC	VG12A5LU+94NBAC
VG12A5HV		176	Yes		VG12A5HV +94NAGC	VG12A5HV+94NGGC	VG12A5HV+94NBGC	VG12A5HV+94NBAC
VG12A5LV			Yes		VG12A5LV +94NAGC	VG12A5LV+94NGGC	VG12A5LV+94NBGC	VG18A5LV+94NBAC
VG12A5HW		211	No		VG12A5HW +94NAGC	VG12A5HW +94NGGC	VG12A5HW +94NBGC	VG12A5HW+94NBAC
VG12A5LW			No		VG12A5LW +94NAGC	VG12A5LW+94NGGC	VG12A5LW +94NBGC	VG12A5LW+94NBAC
VG12A5JU	4	117	Yes	100	VG12A5JU +94NAGC	VG12A5JU+94NGGC	VG12A5JU+94NBGC	VG12A5JU+94NBAC
VG12A5JV		176	No		VG12A5JV+94NAGC	VG12A5JV+94NGGC	VG12A5JV+94NBGC	VG12A5JV+94NBAC
VG12A5MW		190	Yes		VG12A5MW +94NAGC	VG12A5MW +94NGGC	VG12A5MW +94NBGC	VG12A5MW+94NBAC
VG12A5NY	5	290	Yes		VG12A5NY +94NAGC	VG12A5NY+94NGGC	VG12A5NY+94NBGC	VG12A5NY+94NBAC
VG12A5PZ	6	350	No		VG12A5PZ +94NAGC	VG12A5PZ+94NGGC	VG12A5PZ+94NBGC	VG12A5PZ+94NBAC
Three-way – spring return counterclockwise – port A (coil) open to port AB (common) – with two auxiliary switches								

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Table 4: Flanged stainless steel trim ball valves with spring return electric actuators with two switches

Valve	Size, in.	Cv	Characterizing disk	Closeoff PSIG	AC 24 V			AC 120 V
					Floating	DC 0 to 10 V Prop.	On/off	On/off
					M9220-AGC-3	M9220-GGC-3	M9220-BGC-3	M9220-BAC-3
VG18A5GS	2-1/2	47 / 29	Yes	50	VG18A5GS +92NAGC	VG18A5GS+92NGGC	VG18A5GS+92NBGC	VG18A5GS+92NBAC
VG18A5KS			Yes		VG18A5KS +92NAGC	VG18A5KS+92NGGC	VG18A5KS+92NBGC	VG18A5KS+92NBAC
VG18A5GT		74 / 47	Yes		VG18A5GT +92NAGC	VG18A5GT+92NGGC	VG18A5GT+92NBGC	VG18A5GT+92NBAC
VG18A5KT			Yes		VG18A5KT +92NAGC	VG18A5KT+92NGGC	VG18A5KT+92NBGC	VG18A5KT+92NBAC
VG18A5GU		117 / 74	Yes		VG18A5GU +92NAGC	VG18A5GU+92NGGC	VG18A5GU +92NBGC	VG18A5GU+92NBAC
VG18A5KU			Yes		VG18A5KU +92NAGC	VG18A5KU+92NGGC	VG18A5KU+92NBGC	VG18A5KU+92NBAC
VG18A5HT	3	74 / 47	Yes	50	VG18A5HT +92NAGC	VG18A5HT+92NGGC	VG18A5HT+92NBGC	VG18A5HT+92NBAC
VG18A5LT			Yes		VG18A5LT +92NAGC	VG18A5LT+92NGGC	VG18A5LT+92NBGC	VG18A5LT+92NBAC
VG18A5HU		117 / 74	Yes		VG18A5HU +92NAGC	VG18A5HU+92NGGC	VG18A5HU +92NBGC	VG18A5HU+92NBAC
VG18A5LU			Yes		VG18A5LU +92NAGC	VG18A5LU+92NGGC	VG18A5LU+92NBGC	VG18A5LU+92NBAC
VG18A5HV		176 / 88	Yes		VG18A5HV +92NAGC	VG18A5HV+92NGGC	VG18A5HV+92NBGC	VG18A5HV+92NBAC
VG18A5LV			Yes		VG18A5LV +92NAGC	VG18A5LV+92NGGC	VG18A5LV+92NBGC	VG18A5LV+92NBAC
VG18A5HW		211 / 105	No		VG18A5HW +92NAGC	VG18A5HW +92NGGC	VG18A5HW +92NBGC	VG18A5HW+92NBAC
VG18A5LW			No		VG18A5LW +92NAGC	VG18A5LW+92NGGC	VG18A5LW +92NBGC	VG18A5LW+92NBAC
VG18A5JU	4	117 / 74	Yes	50	VG18A5JU +92NAGC	VG18A5JU+92NGGC	VG18A5JU+92NBGC	VG18A5JU+92NBAC
VG18A5JV		176 / 88	No		VG18A5JV+92NAGC	VG18A5JV+92NGGC	VG18A5JV+92NBGC	VG18A5JV+92NBAC
VG18A5MW		190 / 190	Yes		VG18A5MW +92NAGC	VG18A5MW +92NGGC	VG18A5MW +92NBGC	VG18A5MW+92NBAC
VG18A5NY	5	290 / 190	Yes		VG18A5NY +92NAGC	VG18A5NY+92NGGC	VG18A5NY+92NBGC	VG18A5NY+92NBAC
VG18A5PZ	6	350 / 180	No		VG18A5PZ +92NAGC	VG18A5PZ+92NGGC	VG18A5PZ+92NBGC	VG18A5PZ+92NBAC
Three-way – spring return clockwise – port B (bypass) open to port AB (common) – with two auxiliary switches								

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Table 4: Flanged stainless steel trim ball valves with spring return electric actuators with two switches

Valve	Size, in.	Cv	Characterizing disk	Closeoff PSIG	AC 24 V			AC 120 V
					Floating	DC 0 to 10 V Prop.	On/off	On/off
					M9220-AGC-3	M9220-GGC-3	M9220-BGC-3	M9220-BAC-3
VG18A5GS	2-1/2	47 / 29	Yes	50	VG18A5GS +94NAGC	VG18A5GS+94NGGC	VG18A5GS+94NBGC	VG18A5GS+94NBAC
VG18A5KS			Yes		VG18A5KS +94NAGC	VG18A5KS+94NGGC	VG18A5KS+94NBGC	VG18A5KS+94NBAC
VG18A5GT		74 / 47	Yes		VG18A5GT +94NAGC	VG18A5GT+94NGGC	VG18A5GT+94NBGC	VG18A5GT+94NBAC
VG18A5KT			Yes		VG18A5KT +94NAGC	VG18A5KT+94NGGC	VG18A5KT+94NBGC	VG18A5KT+94NBAC
VG18A5GU		117 / 74	Yes		VG18A5GU +94NAGC	VG18A5GU+94NGGC	VG18A5GU +94NBGC	VG18A5GU+94NBAC
VG18A5KU			Yes		VG18A5KU +94NAGC	VG18A5KU+94NGGC	VG18A5KU+94NBGC	VG18A5KU+94NBAC
VG18A5HT	3	74 / 47	Yes	50	VG18A5HT +94NAGC	VG18A5HT+94NGGC	VG18A5HT+94NBGC	VG18A5HT+94NBAC
VG18A5LT			Yes		VG18A5LT +94NAGC	VG18A5LT+94NGGC	VG18A5LT+94NBGC	VG18A5LT+94NBAC
VG18A5HU		117 / 74	Yes		VG18A5HU +94NAGC	VG18A5HU+94NGGC	VG18A5HU +94NBGC	VG18A5HU+94NBAC
VG18A5LU			Yes		VG18A5LU +94NAGC	VG18A5LU+94NGGC	VG18A5LU+94NBGC	VG18A5LU+94NBAC
VG18A5HV		176 / 88	Yes		VG18A5HV +94NAGC	VG18A5HV+94NGGC	VG18A5HV+94NBGC	VG18A5HV+94NBAC
VG18A5LV			Yes		VG18A5LV +94NAGC	VG18A5LV+94NGGC	VG18A5LV+94NBGC	VG18A5LV+94NBAC
VG18A5HW		211 / 105	No		VG18A5HW +94NAGC	VG18A5HW +94NGGC	VG18A5HW +94NBGC	VG18A5HW+94NBAC
VG18A5LW			No		VG18A5LW +94NAGC	VG18A5LW+94NGGC	VG18A5LW +94NBGC	VG18A5LW+94NBAC
VG18A5JU	4	117 / 74	Yes	50	VG18A5JU +94NAGC	VG18A5JU+94NGGC	VG18A5JU+94NBGC	VG18A5JU+94NBAC
VG18A5JV		176 / 88	No		VG18A5JV+94NAGC	VG18A5JV+94NGGC	VG18A5JV+94NBGC	VG18A5JV+94NBAC
VG18A5MW		190 / 190	Yes		VG18A5MW +94NAGC	VG18A5MW +94NGGC	VG18A5MW +94NBGC	VG18A5MW+94NBAC
VG18A5NY	5	290 / 190	Yes		VG18A5NY +94NAGC	VG18A5NY+94NGGC	VG18A5NY+94NBGC	VG18A5NY+94NBAC
VG18A5PZ	6	350 / 180	No		VG18A5PZ +94NAGC	VG18A5PZ+94NGGC	VG18A5PZ+94NBGC	VG18A5PZ+94NBAC

Technical specifications

VG1000 Series Flanged Ball Valves	
Service[1]	Hot water, chilled water, 50/50 Glycol solutions, and 25 psig (172 kPa) saturated steam for HVAC systems
Valve fluid temperature limits	0°F to 284°F (-18°C to 140°C)

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VG1000 Series Flanged Ball Valves		
Valve body pressure/ temperature rating	Water	ASME Class 150250 psi at -20°F to 100°F (29°C to 38°C) 235 psi at 200°F (93°C) 218 psi at 284°F (140°C)
	Steam	25 psig (172 kPa) saturated steam for HVAC systems
Maximum closeoff pressure	Two-way	100 psi (689 kPa)
	Three-way	50 psi (345 kPa)
Maximum recommended operating pressure drop		30 psi (207 kPa) for quiet service
Flow characteristics	Two-way	Equal percentage
	Three-way	Equal percentage flow characteristics of in-line port or linear percentage flow characteristics of angle port
Rangeability[2]		Greater than 500:1
Minimum ambient operating temperature	-4°F (-20°C)	VA9320 Series Non-Spring Return Actuators
	-40°F (-40°C)	M9220 Series Spring Return Actuators
Maximum ambient operating temperature[3]	122°F (50°C)	VA9320 Series Non-Spring Return Actuators
	131°F (55°C)	M9220 Series Spring Return Actuators
Leakage	Two- or three-way	0.01% of maximum flow, control port, ANSI/FCI 70-2, Class 4
	Three-way	1% of maximum flow, bypass port
End connections		ASME Class 150 Flange
Materials	Body	Brass
	Flanges	Ductile Iron
	Ball	300 Series Stainless Steel
	Stem	300 Series Stainless Steel
	Seats	Graphite reinforced PTFE with EPDM O-ring backing
	Stem seals	EPDM O-rings
	Flow control disk	Amodel AS-1145HS polyphthalamide resin
Compliance CE	Europe	CE Mark - Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the Pressure Equipment Directive (PED).

1 Refer to the VDI 2035 Guideline for proper water treatment.
2 Rangeability is defined as the ratio of maximum controllable flow to minimum controllable flow.
3 In steam applications, install the valve with the stem horizontal to the piping and wrap the valve and piping with insulation.

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

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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.

Single point of contact

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