

**VG1205 / VG1805**  
**2- and 3-way Control Valves with Stainless Steel Ball**

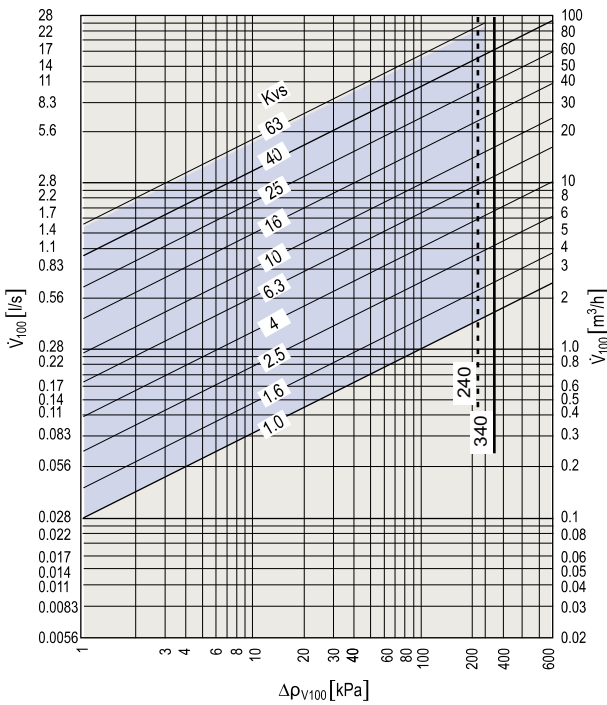
**Application**

The VG1000 series ball valves are used for the water control of air treatment systems in ventilation and air conditioning units as well as heating system.

They are operated by direct or remote mounted Spring Return and Non Spring Return actuators of Johnson Controls.

**Ordering Codes**

See tables of valve actuator assemblies



**Legend**

- $\Delta p_{max}$  = Maximum permitted differential pressure for a long service life
- - -  $\Delta p_{max}$  = For low-noise operation.
- $\Delta p_{V100}$  = Pressure difference with ball valve fully open.
- $V_{100}$  = Nominal flow rate with  $\Delta p_{V100}$

**Formula kvs for water**

$$k_{vs} = \sqrt{\frac{V_{100}}{\frac{\Delta p_{V100}}{100}}}$$

$k_{vs}$	[m <sup>3</sup> /h]
$V_{100}$	[m <sup>3</sup> /h]
$\Delta p_{V100}$	[kPa]

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**Assemblies of valves with PROPORTIONAL ACTUATORS**

Spring return function	---		■				
Supply voltage	24 VAC						
Torque	4 Nm	8 Nm	3 Nm	8 Nm			
Running time	72 s	30 s	90 sec	170 sec			
Spring return time Power off	---		16 sec	22 sec			
Control signal	VDC	0 - 10 / 2 - 10					
	mA	0 - 20 / 4 - 20					
Switches	---	2 x SPDT	---	1 x SPDT			
Feedback	VDC	0 - 10 / 2 - 10					
Actuator code	VA9104-GGA-1S	M9108-GGA-5	M9108-GGC-5	VA9203-GGA-1Z	VA9203-GGB-1Z	VA9208-GGA-1	VA9208-GGC-1
Linkage code	---	M9000-525-5		---			
Ordering code suffix for assemblies	+5A4GGA +6A4GGA*	+5A8GGA	+5A8GGC	Spring Opens Configuration:			
				+533GGA +633GGA*	+533GGB +633GGB*	+538GGA +638GGA*	+538GGC +638GGC*
				Spring Close Configuration:			
				+553GGA +653GGA*	+553GGB +653GGB*	+558GGA +658GGA*	+558GGC +658GGC*

\*: M9000-561 Thermal Barrier Included

**Ordering Codes**

Valve code*	Body size	Kvs (Control Port)	Kvs (Bypass Port)**	Disc	Valid combinations of valves, linkages and actuators							
VG1x05AD	DN15	1.0	0.63	■	■	■	■	■	■	---	---	
VG1x05AE		1.6	1.0		■	■	■	■	■	---	---	
VG1x05AF		2.5	1.6		■	■	■	■	■	---	---	
VG1x05AG		4.0	2.5		■	■	■	■	■	---	---	
VG1x05AL		6.3	4.0		■	■	■	■	■	---	---	
VG1x05AN		10	5.0		---	■	■	■	■	■	---	---
VG1x05BL	DN20	6.3	4.0	■	■	■	■	■	■	---	---	
VG1x05BN		10	5.0	---	■	■	■	■	■	---	---	
VG1x05CN	DN25	10	6.3	■	■	■	■	■	■	---	---	
VG1x05CP		16	8.0	---	■	■	■	■	■	---	---	
VG1x05DP	DN32	16	10.0	■	---	■	■	---	---	■	■	
VG1x05DR		25	12.5	---	---	■	■	---	---	■	■	
VG1x05ER	DN40	25	16	■	---	■	■	---	---	■	■	
VG1x05ES		40	20	---	---	■	■	---	---	■	■	
VG1x05FS	DN50	40	25.0	■	---	■	■	---	---	■	■	
VG1x05FT		63	31.5	---	---	■	■	---	---	■	■	

Note \*: x = 2 2-way  
x = 8 3-way

Note \*\*: only 3-way valves

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**Assemblies of valves with FLOATING and ON/OFF ACTUATORS**

Spring return function	---					■			
Supply voltage	24 VAC		230 VAC			24 VAC			
Torque	4 Nm	8 Nm			3 Nm	8 Nm			
Running time	72 s	30 s			90 s	150 s			
Spring return time Power off	---					16 s	22 s		
Control signal	Floating with time-out & ON/OFF					Floating & ON/OFF			
Switches	---	2 x SPDT	---	2 x SPDT	---	1 x SPDT	---	2 x SPDT	
Feedback	---								
Actuator code	VA9104-IGA-1S	M9108-AGA-5	M9108-AGC-5	M9108-ADA-5	M9108-ADC-5	VA9203-AGA-1Z	VA9203-AGB-1Z	VA9208-AGA-1	VA9208-AGC-1
Linkage code	---	M9000-525-5				---			
Ordering code suffix for assemblies	+5A4IGA +6A4IGA*	+5A8AGA	+5A8AGC	+5A8ADA	+5A8ADC	Spring Opens Configuration:			
						+533AGA +633AGA*	+533AGB +633AGB*	+538AGA +638AGA*	+538AGC +638AGC*
						Spring Close Configuration:			
						+553AGA +653AGA*	+553AGB +653AGB*	+558AGA +658AGA*	+558AGC +658AGC*

\*: M9000-561 Thermal Barrier Included

**Ordering Codes**

Valve code*	Body size	Kvs (Control Port)	Kvs (Bypass Port) **	Disc	Valid combinations of valves, linkages and actuators								
VG1x05AD	DN15	1.0	0.63	■	■	■	■	■	■	■	■	---	---
VG1x05AE		1.6	1.0		■	■	■	■	■	■	■	---	---
VG1x05AF		2.5	1.6		■	■	■	■	■	■	■	---	---
VG1x05AG		4.0	2.5		■	■	■	■	■	■	■	---	---
VG1x05AL		6.3	4.0		■	■	■	■	■	■	■	---	---
VG1x05AN		10	5.0		---	■	■	■	■	■	■	■	---
VG1x05BL	DN20	6.3	4.0	■	■	■	■	■	■	■	■	---	---
VG1x05BN		10	5.0	---	■	■	■	■	■	■	■	---	---
VG1x05CN	DN25	10	6.3	■	■	■	■	■	■	■	■	---	---
VG1x05CP		16	8.0	---	■	■	■	■	■	■	■	---	---
VG1x05DP	DN32	16	10.0	■	---	■	■	■	■	---	---	■	■
VG1x05DR		25	12.5	---	---	■	■	■	■	---	---	■	■
VG1x05ER	DN40	25	16	■	---	■	■	■	■	---	---	■	■
VG1x05ES		40	20	---	---	■	■	■	■	---	---	■	■
VG1x05FS	DN50	40	25.0	■	---	■	■	■	■	---	---	■	■
VG1x05FT		63	31.5	---	---	■	■	■	■	---	---	■	■

Note \*: x = 2 2-way  
x = 8 3-way

Note \*\*: only 3-way valves

**VG1205 / VG1805**  
2- and 3-way Control Valves with Stainless Steel Ball

**Assemblies of valves with ON/OFF ACTUATORS**

Spring return function	■							
Supply voltage	24 V AC/DC				100...240 V AC		230 VA	
Torque	3 Nm		8 Nm		3 Nm		8 Nm	
Running time	60 s		60 s		60 s		60 s	
Spring return time Power off	22 s		21 s		22 s		21 s	
Control signal	ON/OFF							
Switches	---	1 x SPDT	---	2 x SPDT	---	1 x SPDT	---	2 x SPDT
Feedback	---							
Actuator code	VA9203-BGA-1	VA9203-BGB-1	VA9208-BGA-1	VA9208-BGC-1	VA9203-BUA-1	VA9203-BUB-1	VA9208-BDA-1	VA9208-BDC-1
Linkage code	---							
Ordering code suffix for assemblies	Spring Opens Configuration:							
	+533BGA +633BGA*	+533BGB +633BGB*	+538BGA +638BGA*	+538BGC +638BGC*	+533BUA +633BUA*	+533BUB +633BUB*	+538BDA +638BDA*	+538BDC +638BDC*
	Spring Close Configuration:							
	+553BGA +653BGA*	+553BGB +653BGB*	+558BGA +658BGA*	+558BGC +658BGC*	+553BUA +653BUA*	+553BUB +653BUB*	+558BDA +658BDA*	+558BDC +658BDC*

\*: M9000-561 Thermal Barrier Included

**Ordering Codes**

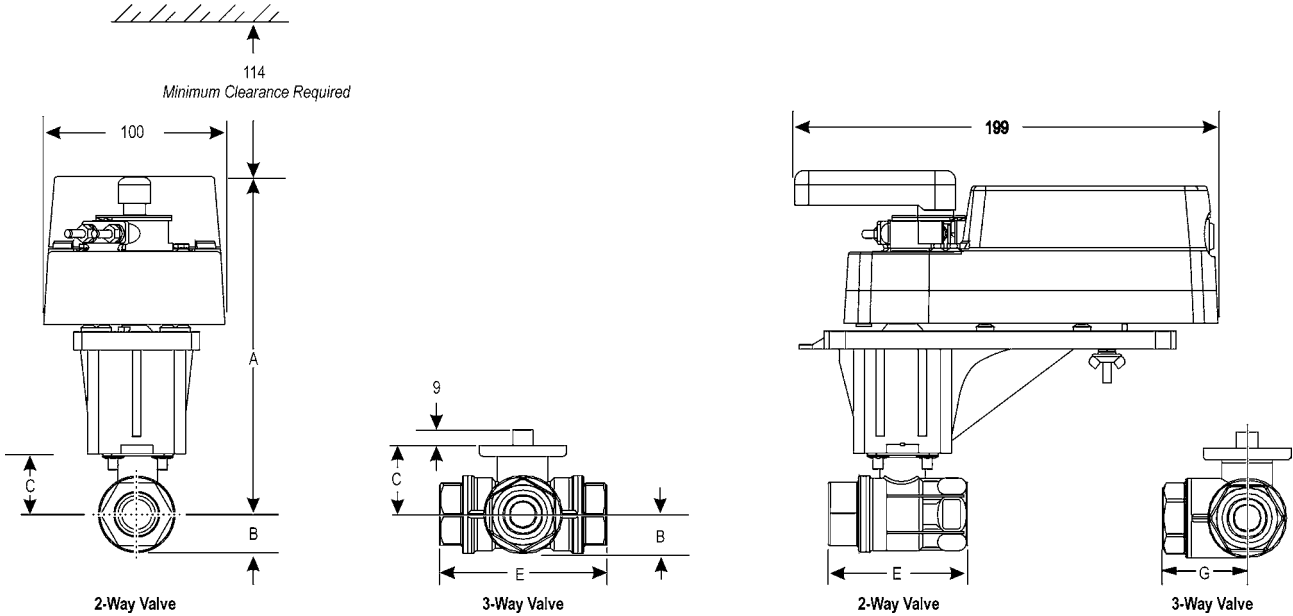
Valve code*	Body size	Kvs (Control Port)	Kvs (Bypass Port)**	Disc	Valid combinations of valves, linkages and actuators							
VG1x05AD	DN15	1.0	0.63	■	■	■	---	---	■	■	---	---
VG1x05AE		1.6	1.0		■	■	---	---	■	■	---	---
VG1x05AF		2.5	1.6		■	■	---	---	■	■	---	---
VG1x05AG		4.0	2.5		■	■	---	---	■	■	---	---
VG1x05AL		6.3	4.0		■	■	---	---	■	■	---	---
VG1x05AN		10	5.0		---	■	■	---	---	■	■	---
VG1x05BL	DN20	6.3	4.0	■	■	■	---	---	■	■	---	---
VG1x05BN		10	5.0	---	■	■	---	---	■	■	---	---
VG1x05CN	DN25	10	6.3	■	■	■	---	---	■	■	---	---
VG1x05CP		16	8.0	---	■	■	---	---	■	■	---	---
VG1x05DP	DN32	16	10.0	■	---	---	■	■	---	---	■	■
VG1x05DR		25	12.5	---	---	---	■	■	---	---	■	■
VG1x05ER	DN40	25	16	■	---	---	■	■	---	---	■	■
VG1x05ES		40	20	---	---	---	■	■	---	---	■	■
VG1x05FS	DN50	40	25.0	■	---	---	■	■	---	---	■	■
VG1x05FT		63	31.5	---	---	---	■	■	---	---	■	■

Note \*: x = 2 2-way  
x = 8 3-way

Note \*\*: only 3-way valves

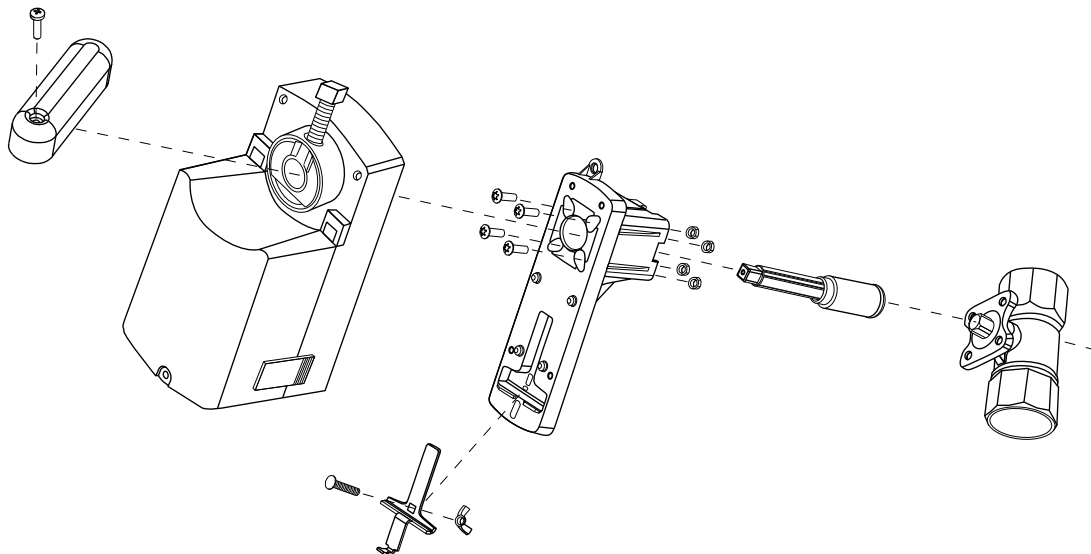
**VG1205 / VG1805**  
**2- and 3-way Control Valves with Stainless Steel Ball**

**Non-Spring Return M9108 Actuated VG1000 Series Ball Valve with M9000-525-5 Linkage, Dimensions in mm**



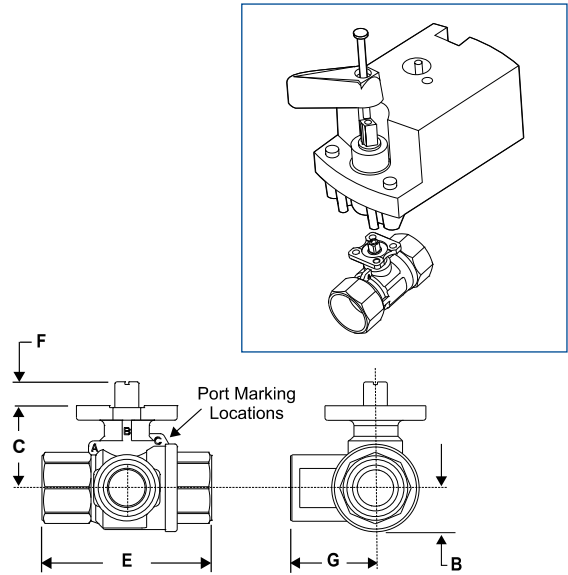
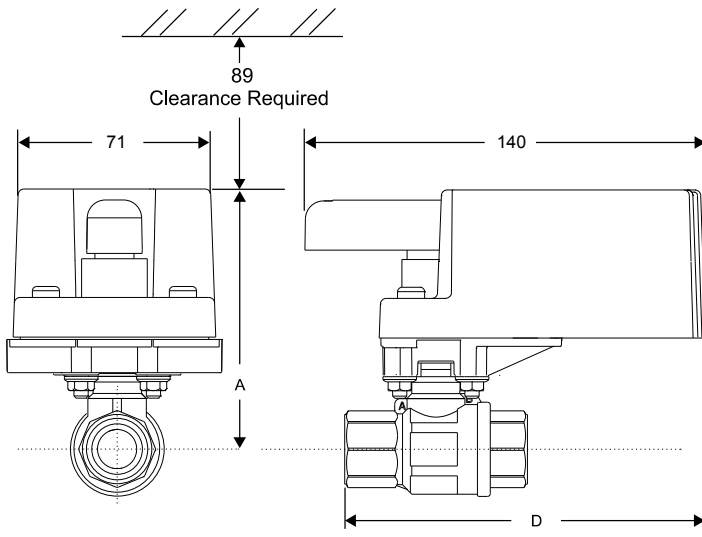
Valve Size, DN	A	B	C	E	G*
DN15	160	17	31	67	33
DN20	160	17	31	75	38
DN25	161	19	33	92	46
DN32	173	26	44	109	54
DN40	177	29	48	119	59
DN50	182	37	53	139	74

\* for 3-way valves only



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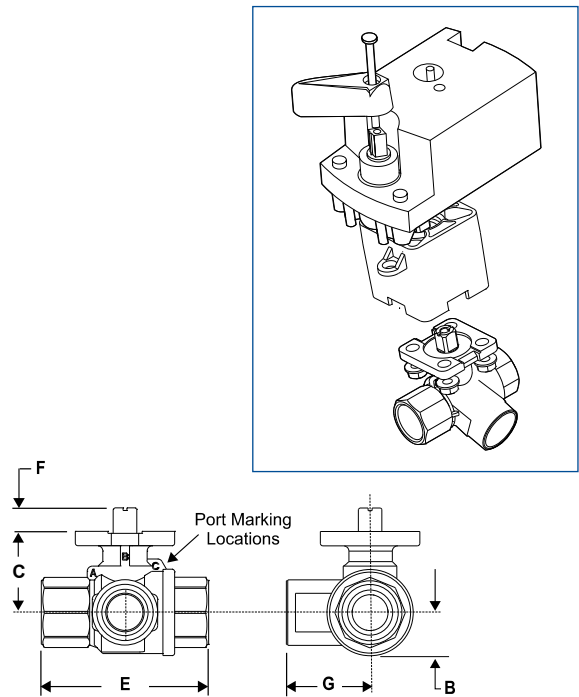
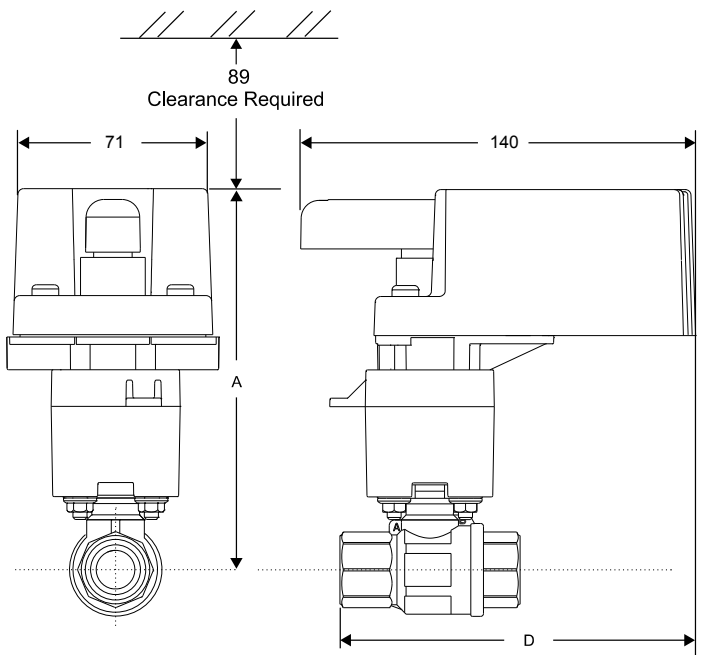
**Non-Spring Return VA9104 Actuated VG1000 Series Ball Valve Linkage, Dimensions in mm**



Valve Size, DN	A	B	C	D	E	F	G*
DN15	98	17	31	129	67	9	33
DN20	98	17	31	133	75	9	38
DN25	100	19	33	141	92	9	46

\* for 3-way valves only

**Non-Spring Return VA9104 Actuated VG1000 Series Ball Valve with M9000-561 Thermal Barrier, Dimensions in mm**

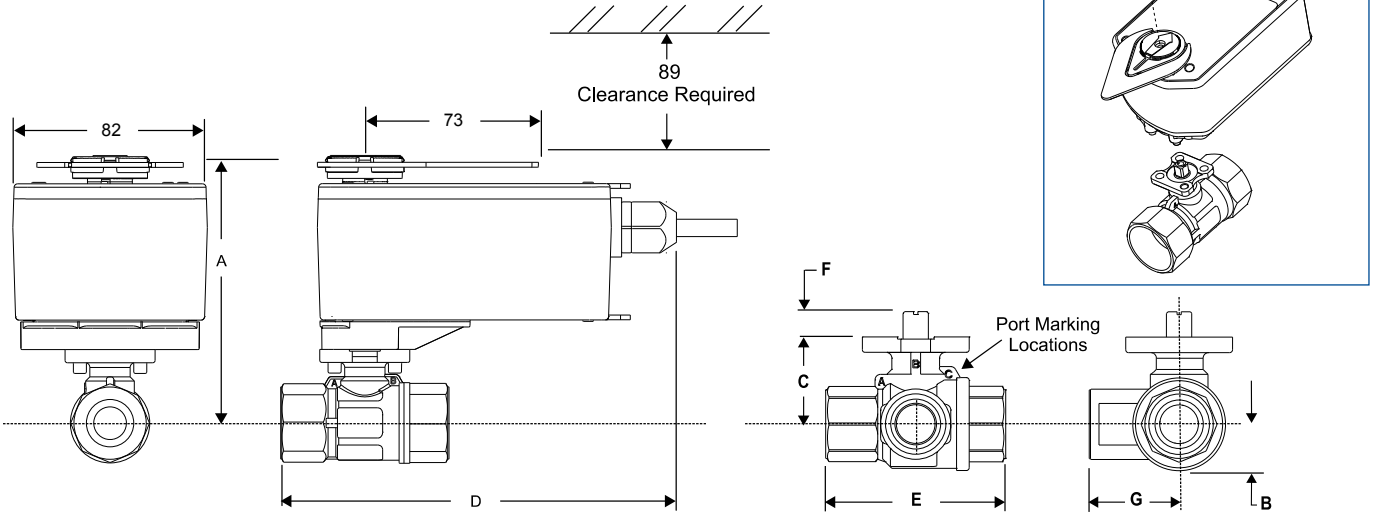


Valve Size, DN	A	B	C	D	E	F	G*
DN15	133	17	31	129	67	9	33
DN20	133	17	31	133	75	9	38
DN25	135	19	33	141	92	9	46

\* for 3-way valves only

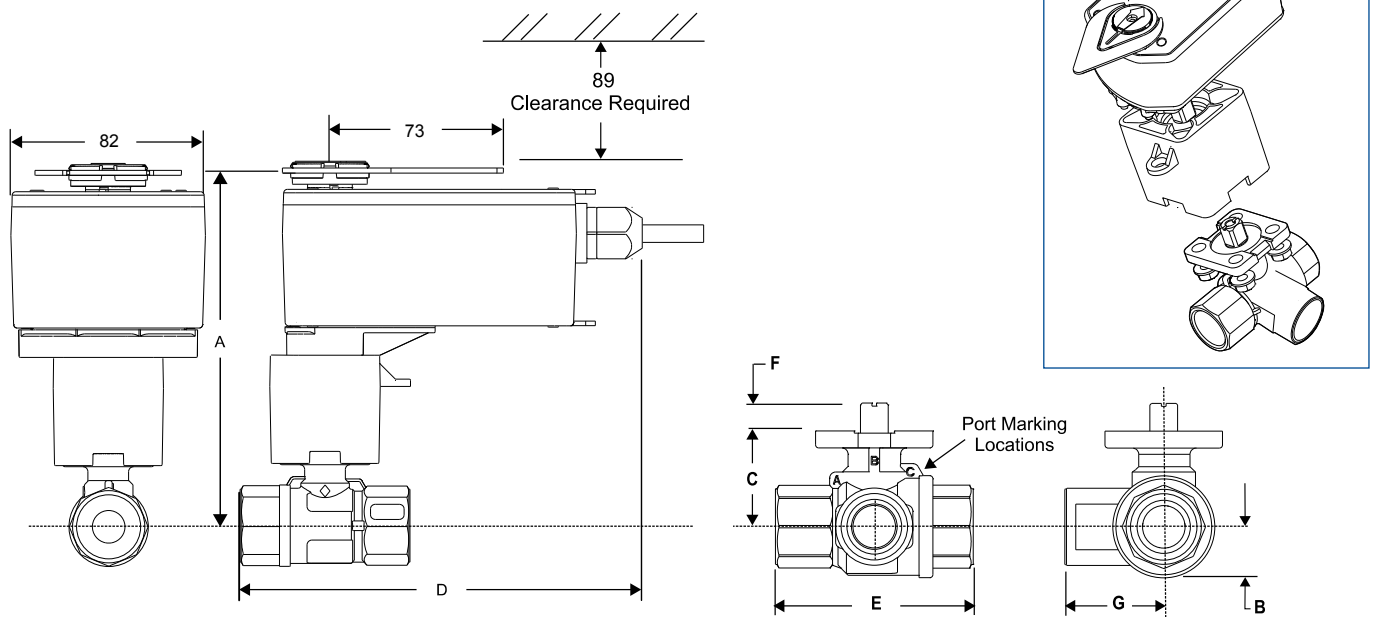
**VG1205 / VG1805**  
2- and 3-way Control Valves with Stainless Steel Ball

**Spring Return VA9203 Actuated VG1205 and VG1805 Series Ball Valve, Dimensions in mm**



Valve Size, mm (DN)	A	B	C	D	E	F	G
DN15	117	17	31	167	67	9	33
DN20	117	17	31	171	75	9	38
DN25	119	19	33	180	92	9	46

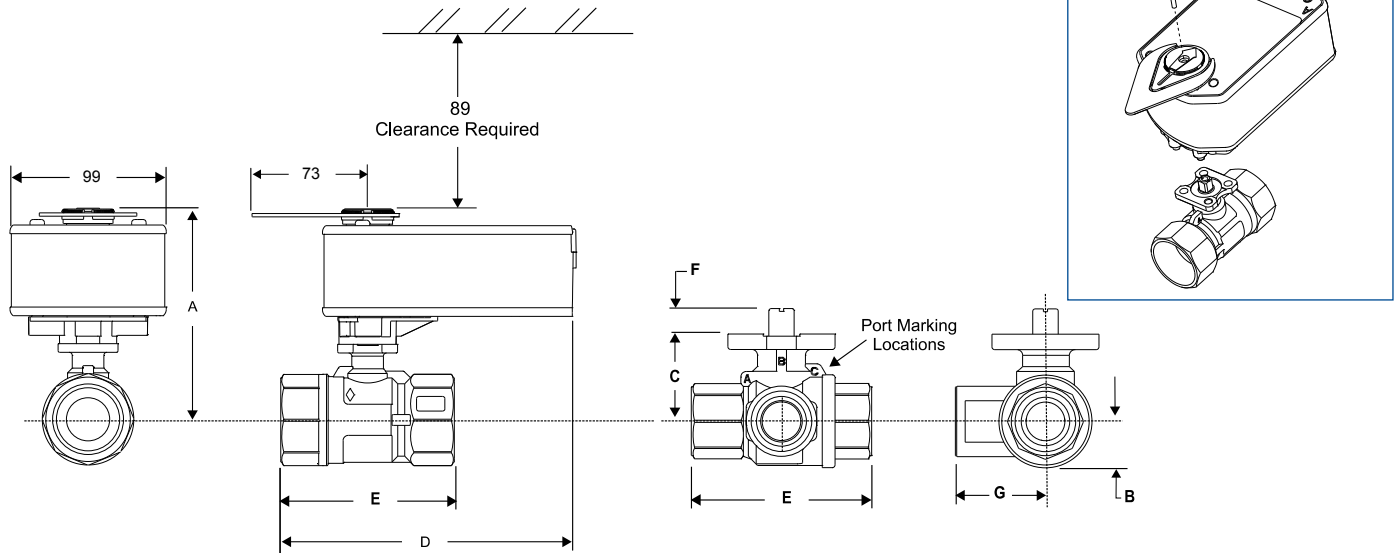
**Spring Return VA9203 Actuated VG1205 and VG1805 Series Ball Valve with Thermal Barrier, Dimensions in mm**



Valve Size, mm (DN)	A	B	C	D	E	F	G
DN15	152	17	31	167	67	9	33
DN20	152	17	31	171	75	9	38
DN25	154	19	33	180	92	9	46

**VG1205 / VG1805**  
**2- and 3-way Control Valves with Stainless Steel Ball**

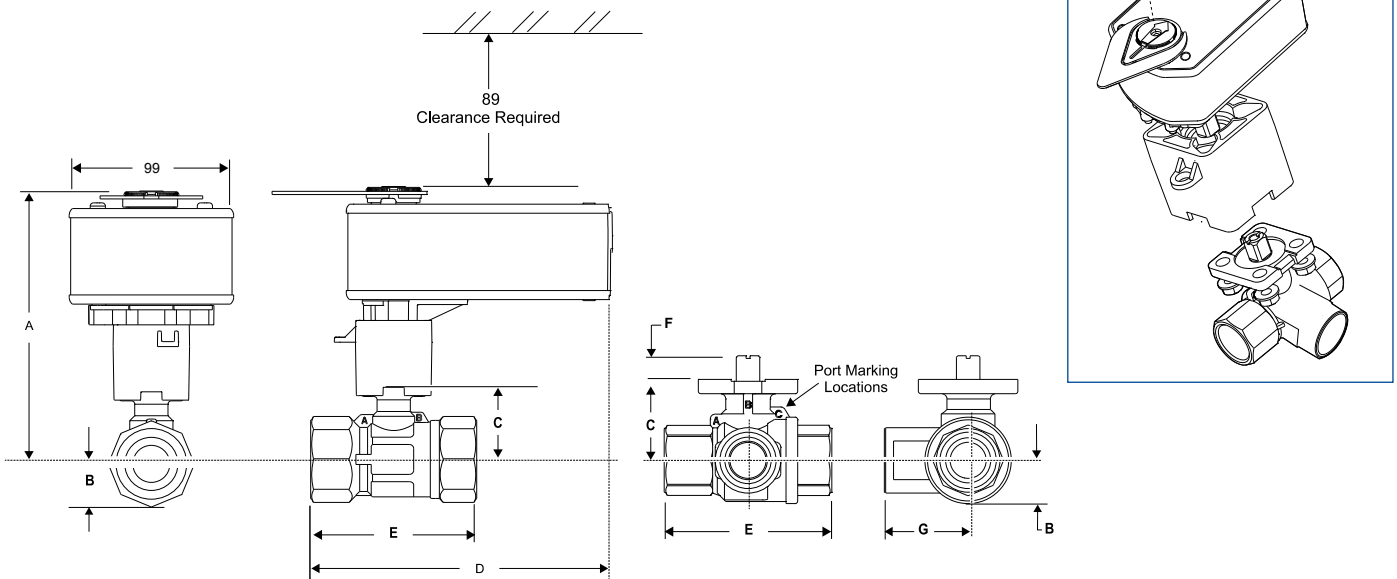
**Spring Return VA9208 Actuated VG1205 and VG1805 Series Ball Valve, Dimensions in mm**



Valve Size, mm (DN)	Valve Style*	A	B	C	D	E	F	G*
DN32	All	195	26	44	184	109	9	54
DN40	All	200	29	48	189	119	9	59
DN50	2-Way	204	37	53	195	139	9	74

\* for 3-way valves only

**Spring Return VA9208 Actuated VG1205 and VG1805 Series Ball Valve with Thermal Barrier, Dimensions in mm**




Valve Size, mm (DN)	Valve Style*	A	B	C	D	E	F	G*
DN32	All	235	26	44	184	109	9	54
DN40	All	240	29	48	189	119	9	59
DN50	2-Way	244	37	53	195	139	9	74

\* for 3-way valves only



**VG1205 / VG1805**  
**2- and 3-way Control Valves with Stainless Steel Ball**
**Technical Specifications**

Product	VG1205	VG1805
Valve Type	2-way	3-way mixing*
Service	Hot and cold water: -30...140 °C with 8 Nm Non Spring Return -30...95 °C with 4 Nm Non Spring Return (140 °C with M9000-561 Thermal Barrier) -30...100 °C with 3 Nm and 8 Nm Spring Return (140 °C with M9000-561 Thermal Barrier)  Water with glycol to max 50% volume  Steam to max 103kPa at 121 °C with 8 Nm Non Spring Return Steam to max 103kPa at 121 °C with 4 Nm NSR, 3 Nm and 8 Nm Spring Return with Thermal Barrier	
Body pressure rating	PN40	
Close-off pressure $\Delta p_s$	1380 kPa	
Differenzial pressure $\Delta p_{max}$	600 kPa at 2-way valves without flow disk 340 kPa for all the others 240 kPa for low noise operation	
Flow characteristics	Equal percentage in 2-way valve Equal percentage in 3-way valve (control port) Linear in 3-way valve in bypass	
Leakage rate	< 0.01% from the Kvs, < 1% for bypass port	
Rangeability	> 500 : 1 (EN60534-2-4)	
Material	<ul style="list-style-type: none"> <li>- <b>Body device</b> Forged brass body</li> <li>- <b>Ball</b> Stainless Steel</li> <li>- <b>Stem</b> Stainless Steel</li> <li>- <b>Valve seat</b> PTFE with graphite part and EPDM O-ring</li> <li>- <b>Spindle gasket</b> 2 x EPDM O-ring</li> <li>- <b>Flow characterisation disk</b> AMODEL® AS 1145HS</li> </ul>	
End Connections	British Standard Pipe Parallel (BSPP) - (Rp, ISO 7/1)	
 Compliance	Johnson Controls, Inc., declares that these products are in compliance with the essential requirements and other relevant provisions of the PED (Pressure Equipment Directive) 97/23/EC, Category II for Fluid Group 1. Notified Body Code: 0036	

\* The valve without flow disc can also be used as diverting.

**Building Efficiency**

Headquarters: Milwaukee, Wisconsin, USA  
 Branch Offices: Principal Cities World-wide

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