

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

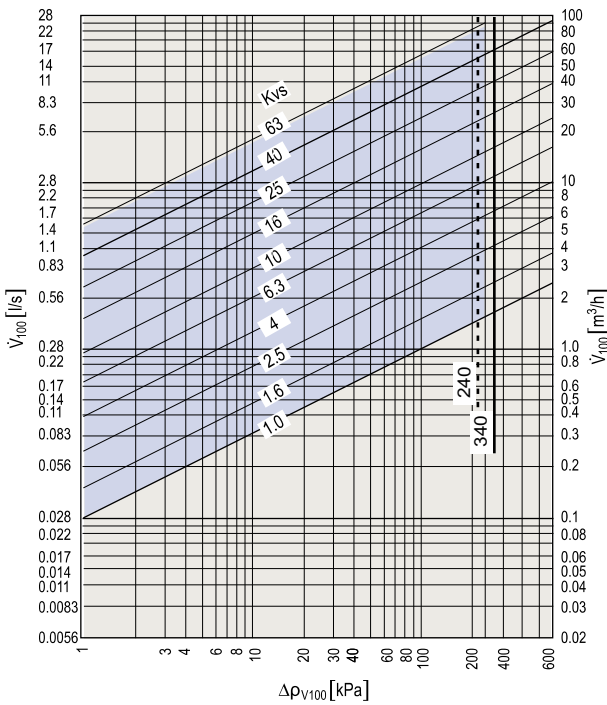
Application

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

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

Formula kvs for water

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

k_{vs}	[m ³ /h]
V_{100}	[m ³ /h]
Δp_{V100}	[kPa]

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Assemblies of valves with PROPORTIONAL ACTUATORS

Spring return function	---		■				
Supply voltage	24 VAC						
Torque	4 Nm	8 Nm	6 Nm	16 Nm			
Running time	72 s	30 s	25 - 40 s	90 - 120 s			
Spring return time Power off	---		35 s (max 70 s)	10 s			
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		0 - 10			
Close-off pressure	1380 kPa						
Actuator code	VA9104-GGA-1S	M9108-GGA-5	M9108-GGC-5	M9206-GGA-5S	M9206-GGB-5S	M9216-HGA-1	M9216-HGC-1
Linkage code	---	M9000-525-5		M9000-520-5		M9000-510-5	
Ordering code suffix for assemblies	+5A4GGA	+5A8GGA	+5A8GGC	+536GGA (Spring Opens) +556GGA (Spring Closes)	+536GGB (Spring Opens) +556GGB (Spring Closes)	+526HGA (Spring Opens) +546HGA (Spring Closes)	+526HGC (Spring Opens) +546HGC (Spring Closes)

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			6 Nm		16 Nm		
Running time	72 s		30 s			60 - 90 s		90 - 120 s		
Spring return time Power off	---						35 s (max 70 s)		10 s	
Control signal	Floating	Floating with time-out ON/OFF				Floating				
Switches	---		2 x SPDT	---		2 x SPDT	---	1 x SPDT	---	2 x SPDT
Feedback	---									
Close-off pressure	1380 kPa									
Actuator code	VA9104-AGA-1S	VA9104-IGA-1S	M9108-AGA-5	M9108-AGC-5	M9108-ADA-5	M9108-ADC-5	M9206-AGA-5S	M9206-AGB-5S	M9216-AGA-1	M9216-AGC-1
Linkage code			M9000-525-5				M9000-520-5		M9000-510-5	
Ordering code suffix for assemblies	+5A4 AGA	+5A4 IGA	+5A8 AGA	+5A8 AGC	+5A8 ADA	+5A8 ADC	+536 AGA (Spring Opens) +556 AGA (Spring Closes)	+536 AGB (Spring Opens) +556 AGB (Spring Closes)	+526 AGA (Spring Opens) +546 AGA (Spring Closes)	+526 AGC (Spring Opens) +546 AGC (Spring Closes)

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 ON/OFF ACTUATORS

Spring return function	■							
Supply voltage	24 VAC				230 VAC			
Torque	6 Nm		16 Nm		6 Nm		16 Nm	
Running time	10 - 40 s		90 - 120 s		10 - 40 s		90 - 120 s	
Spring return time Power off	30 s ±20%		10 s		30 s ±20%		10 s	
Control signal	ON/OFF							
Switches	---	1 x SPDT	---	2 x SPDT	---	1 x SPDT	---	2 x SPDT
Feedback	---							
Close-off pressure	1380 kPa							
Actuator code	M9206- BGA-5S	M9206- BGB-5S	M9216- BGA-1	M9216- BGC-1	M9206- BDA-5S	M9206- BDB-5S	M9216- BDA-1	M9216- BDC-1
Linkage code	M9000-520-5		M9000-510-5		M9000-520-5		M9000-510-5	
Ordering code suffix for assemblies	+536 BGA (Spring Opens) +556 BGA (Spring Closes)	+536 BGB (Spring Opens) +556 BGB (Spring Closes)	+526 BGA (Spring Opens) +546 BGA (Spring Closes)	+526 BGC (Spring Opens) +526 BGC (Spring Closes)	+536 BDA (Spring Opens) +556 BDA (Spring Closes)	+536 BDB (Spring Opens) +556 BDB (Spring Closes)	+526 BDA (Spring Opens) +546 BDA (Spring Closes)	+526 BDC (Spring Opens) +546 BDC (Spring Closes)

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 **:

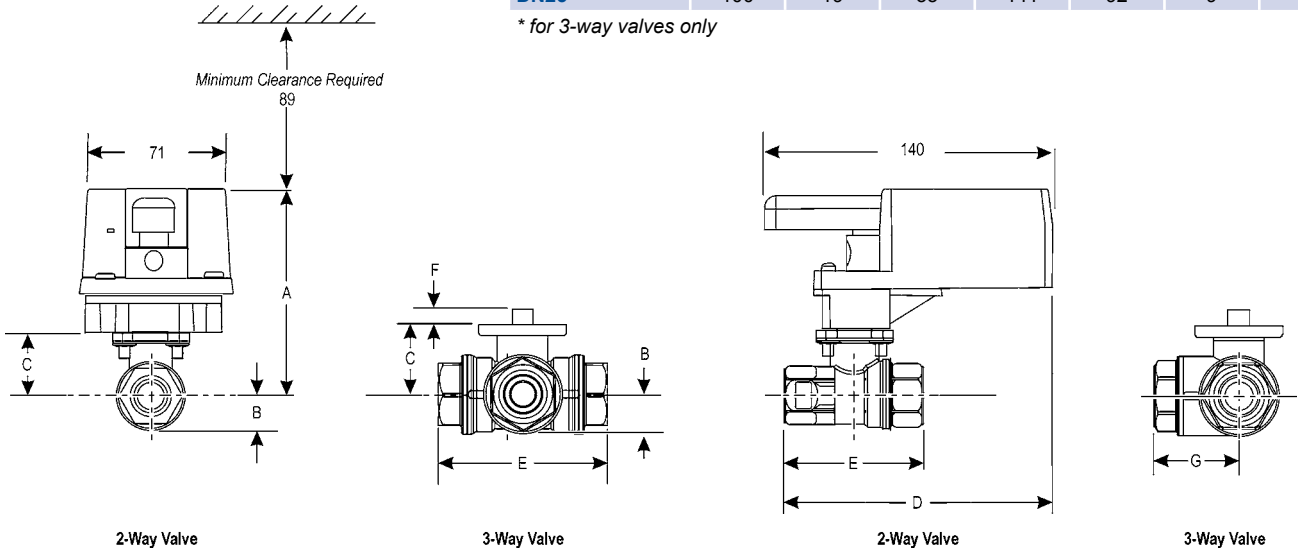
only 3-way valves

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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

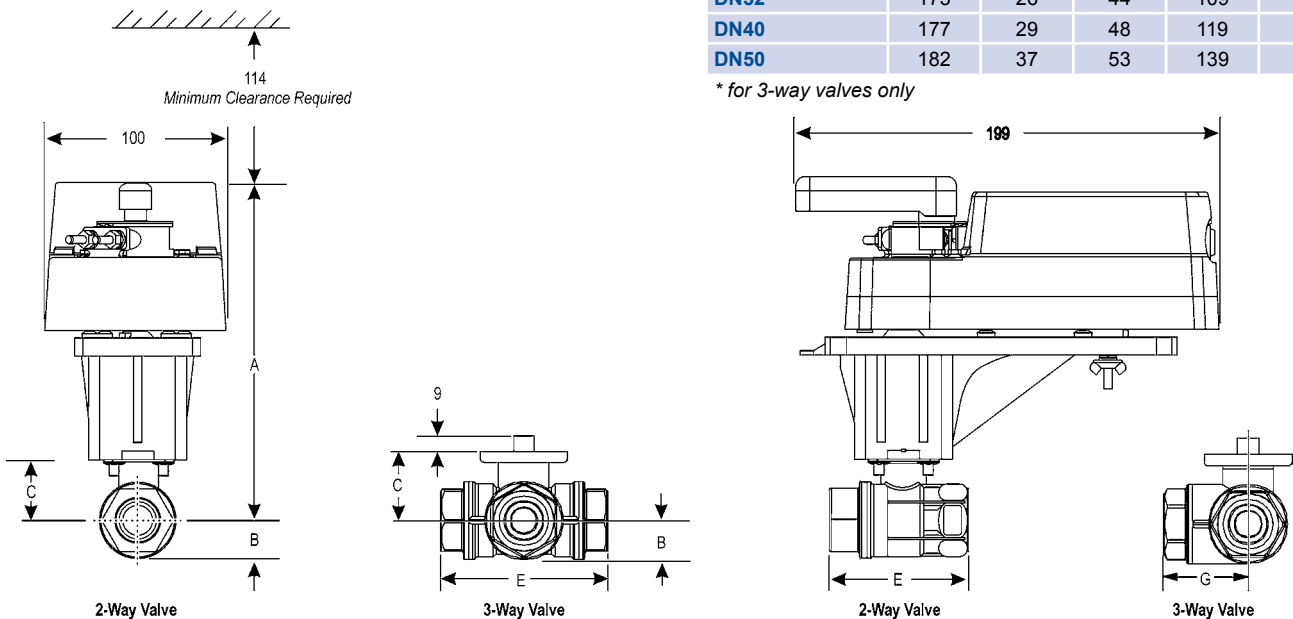
* for 3-way valves only



Non-Spring Return 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

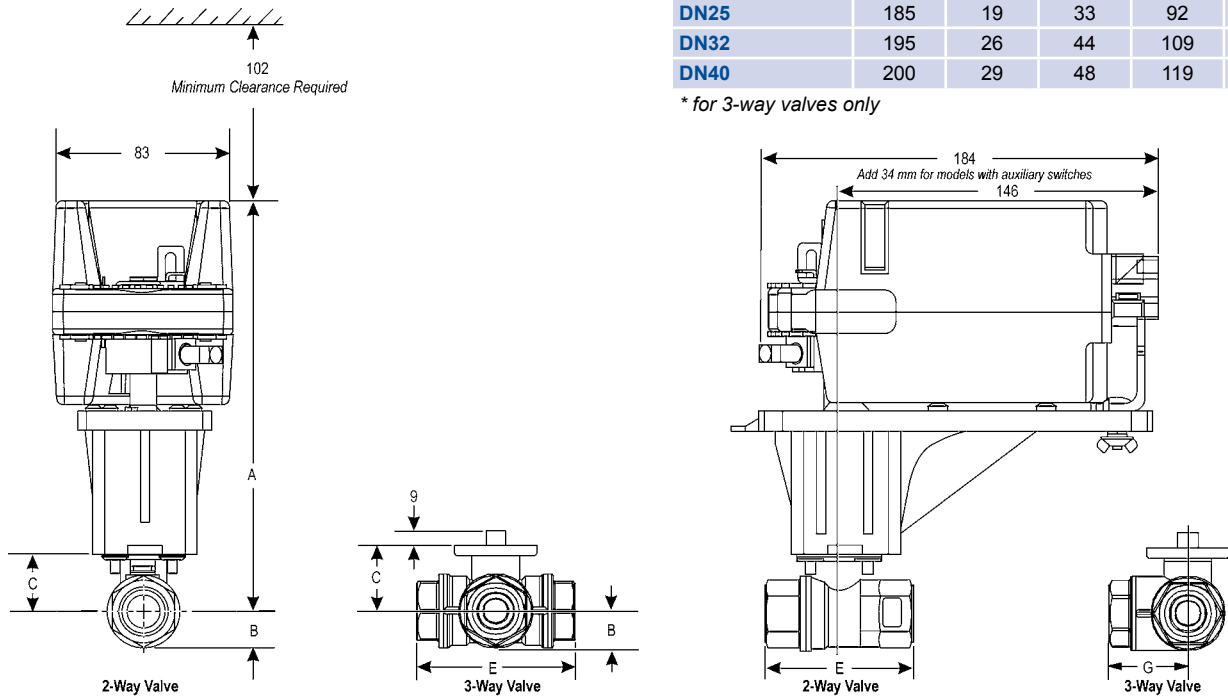


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Spring Return M9206 Actuated VG1000 Series Ball Valve with M9000-520-5 Linkage, Dimensions in mm

Valve Size, DN	A	B	C	E	G*
DN15	183	17	31	67	33
DN20	183	17	31	75	38
DN25	185	19	33	92	46
DN32	195	26	44	109	54
DN40	200	29	48	119	59

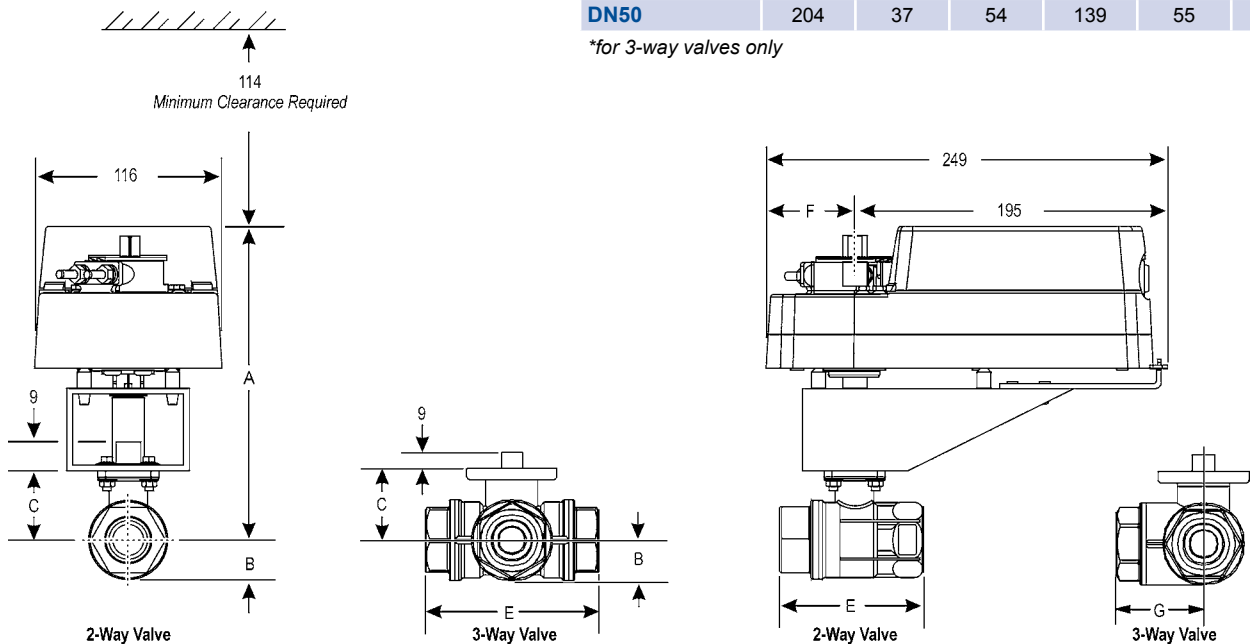
* for 3-way valves only



Spring Return M9216 Actuated VG1000 Series Ball Valve with M9000-510-5 Linkage, Dimensions in mm


Valve Size, DN	A	B	C	E	F	G*
DN50	204	37	54	139	55	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 (-5...95 °C with VA9104) Water with glycol to max 50% volume Steam to max 100 kPa at 120 °C	
Body pressure rating	PN40	
Close-off pressure Δp_s	1380 kPa	
Differenzial pressure Δp_{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"> - Body device Forged brass body - Ball Stainless Steel - Stem Stainless Steel - Valve seat PTFE with graphite part and EPDM O-ring - Spindle gasket 2 x EPDM O-ring - Flow characterisation disk AMODEL® AS 1145HS 	
End Connections	British Standard Pipe Parallel (BSPP) - (Rp, ISO 7/1)	
 Conformity	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

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