

# VA9203-AGx / VA9203-Bxx / VA9203-GGx

## Spring Return Actuators

### Product Bulletin

The VA9203 Series Electric Spring Return Actuators are direct-mount actuators. These bidirectional actuators are used to provide accurate positioning on Johnson Controls® VG1000 Series DN15 up to DN25 ball valves in Heating, Ventilating and Air Conditioning (HVAC) applications.

One Integral line voltage auxiliary switch, available only on the VA9203-xxB-1(Z) models, indicate end-stop position, or perform switching functions within the selected rotation range.

A graduated scale from 0% to 100% and a position indicator provide visual indication of the valve's opening.

When power fails during service, the mechanical spring return system open or close the valve ports.

The series includes the following control options:

- ON/OFF, 24 V AC/DC, 100 to 240 VAC power
- ON/OFF and Floating Point, 24 V AC/DC power
- Proportional, 24 V AC/DC power, for 0(2) to 10 VDC or 0(4) to 20 mA Control



VA9203 mounted on VG1000

- **3 Nm Rated Torque**  
Expands the range of VG1000 Ball Valve applications to include DN15, DN20 and DN25 sizes.
- **Mechanical Spring Return System**  
Provides the most reliable mechanism sold today, with no batteries to fail, wear out, or replace.
- **Direct-Coupled Design**  
Requires no separate linkage because the VA9203 Series Actuators are ready for direct attachment to Johnson Controls VG1000 Series valves by driving one captive screw.
- **Reversible Mounting**  
Provides either clockwise or counterclockwise operation.
- **Rugged IP54 Rated Enclosure**  
Provides a high degree of protection from dust, splashing water, and rough handling.
- **Electronic Stall Detection**  
Protects from overload at all angles of rotation and reduces power consumption in holding mode.
- **Double-Insulated Construction**  
Requires no electrical ground connection for regulatory agency compliance.
- **Microprocessor Controlled Brushless DC Motor (-AGx and -GGx Models)**  
Provides constant runtime independent of torque.
- **External Mode Selection Switch (-AGx and -GGx Models)**  
Permits control logic reversal for Floating Control (-AGx models) and permits calibration, input signal range selection, and control logic reversal for Proportional Control (-GGx models).
- **Integral Cables with Colored and Numbered Conductors**  
Simplify installation and field wiring.
- **Optional Integrated Auxiliary Switch**  
Provides one integrated line-voltage-capable Single-Pole, Double-Throw (SPDT) switch (continuously adjustable switch point) that facilitates safety interfacing or signaling.
- **Override Control (Proportional Models Only)**  
Provides manual control system override applications through field wiring.
- **UL, CE, and C-Tick Compliance**  
Provides internationally recognized regulatory agency approval.
- **Manufacturing under International Standards Organization (ISO) 9001 Quality Control Standards.**  
Ensures quality control standards.

## VA9203-GGx-1Z Series Proportional Actuators

VA9203-GGx-1Z Series Actuators provide proportional modulation of Ball Valves that are controlled by an electronic controller or positioner. The actuator responds to 0 to 10 VDC or 2 to 10 VDC control signals. With the addition of a 500 ohm resistor, the actuator responds to a 0 to 20 mA or 4 to 20 mA signal. A 0 to 10 VDC or 2 to 10 VDC feedback signal indicates position and provides support for master slave applications.

VA9203-GGx-1Z Series Actuators use a brushless DC motor controlled by a microprocessor. The microprocessor drives the motor at constant speed, independent of torque.

The microprocessor also monitors the brushless DC motor's rotation to prevent damage to the actuator in a stall condition. The actuator can be stalled anywhere within its rotation range without the need for mechanical end switches.

Power consumption is reduced in the holding mode.

Manual control system override applications are supported through field wiring, and include:

- override to MIN position
- override to MAX position
- override to MIN, MID, and MAX position.

### Setup and Adjustments

#### Mode Selection Switch

Actuators have an external mode selection switch to calibrate, select input signal range, and reverse control logic.

The switch is accessible from both A and B sides of the actuator as illustrated in Figure 4. Actuators are delivered in Direct Acting (DA), DC 0 to 10 V input signal mode.

To change to Reverse Acting (RA) mode, move the mode selection switch from DA to RA (see figure 1). The input signal range is selectable between DC 0 to 10 V or DC 2 to 10 V.

If the CAL function is not used, both input signal ranges are proportioned across the full rotation range of 0 to 100% rotation. For example, if a DC 0 to 10 V input signal is selected and the rotation range is limited to 75°, the rotation range limit will be reached at DC 8.3 V.

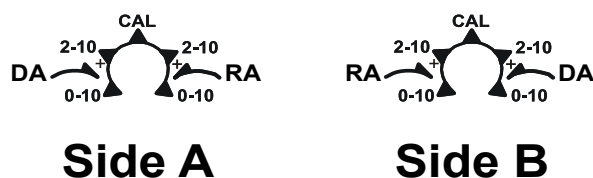
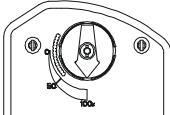
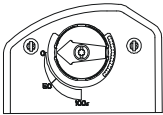













Figure 1: Mode Selection

### Control Response

The installation side of the actuator and the position of the mode selection switch combine to determine control response from the actuator.

	Installation Side				
		<b>A</b>		<b>B</b>	
Input Signal	Mode Selection Switch				
					
Increasing					
Decreasing					

		Rotation Position							
Direction	Feedback	0°*	15°	30°	45°	60°	75°	90°	
Direct Acting	0-10 V	0.0 V	1.7 V	3.3 V	5.0 V	6.7 V	8.3 V	10.0 V	
	2-10 V	2.0 V	3.3 V	4.7 V	6.0 V	7.3 V	8.7 V	10.0 V	
Reverse Acting	0-10 V	10.0 V	8.3 V	6.7 V	5.0 V	3.3 V	1.7 V	0.0 V	
	2-10 V	10.0 V	8.7 V	7.3 V	6.0 V	4.7 V	3.3 V	2.0 V	

\* 0° is the Spring Return Position.

Figure 2: VA9203-GGx - Control Response

#### Calibration (CAL) Function

The CAL function enables the actuator to redefine the selected input signal range proportionally across a reduced rotation range. The actuator maintains calibration when power is lost or removed.

Follow these steps to calibrate the input signal range:

1. With power applied to the actuator, move the mode selection switch to the CAL position and leave it in this position for approximately 5 seconds. The actuator begins rotating until the end-stops are found.
2. Move the mode selection switch to the desired input signal range. Selection can be made while the calibration process is in progress, or after it is complete. The selected input signal is proportionally reconfigured to the reduced rotation range.

**Note:** During normal operation, if the actuator stroke increases due to seal or seat wear, input signals are automatically reconfigured to the increased rotation range in approximately 0.5° increments.

3. If the actuator mounting position is changed or if the linkage is adjusted, repeat Step 1 and Step 2 to repeat the CAL function.

**Note:** The mode selection switch must remain out of the CAL position for at least 2 seconds before re-initiating the CAL function.

**Note:** If the mode selection switch is left in the CAL position, the actuator defaults to 0-10 V input signal range, DA.

## VA9203-AGx-1Z Series ON/OFF and Floating Point Actuators

VA9203-AGx-1Z Series Actuators provide on/off control or floating modulation of in HVAC systems. Floating point control is provided from a triac or relay. On/off control can be provided from a manual switch, controller, auxiliary switch from a fan motor contactor, or similar device.

VA9203-AGx-1Z Series Actuators use a brushless DC motor controlled by a microprocessor.

The microprocessor drives the motor at constant speed, independent of torque. The microprocessor also monitors the brushless DC motor's rotation to prevent damage to the actuator in a stall condition.

The actuator can be stalled anywhere within its rotation range without the need for mechanical end switches. Power consumption is reduced in the holding mode. Actuators have an external mode selection switch to reverse control logic. The switch is accessible from both A and B sides of the actuator. Actuators are delivered in Direct Acting (DA) mode and can be switched by the user to Reverse Acting (RA) mode.

### Control Response

The installation side of the actuator and the position of the mode selection switch combine to determine control response from the actuator.

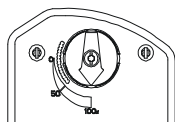
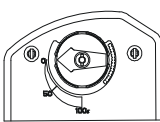
















		Installation Side			
					
		<b>A</b>		<b>B</b>	
					
Control Inputs		Mode Selection Switch			
GRY	ORN				
3	4	DA		RA	
CLOSED	OPEN				
OPEN	CLOSED				
OPEN	OPEN	STOP	STOP	STOP	STOP
CLOSED	CLOSED				

Figure 3: VA9203-AGx - Control Response

## VA9203-Bxx-1 Series ON/OFF Actuators

VA9203-Bxx-1 Series Actuators provide on/off control of Ball valve . On/off control can be provided from a manual switch, controller, auxiliary switch from a fan motor contactor, or similar device.

VA9203-Bxx-1 Series Actuators use a DC brush motor controlled by analog electronics.

Power consumption is reduced in the holding mode. Two different voltage ratings are available for On/ Off Actuators:

- VA9203-BGx-1: AC 24 V 50/60 Hz or DC 24 V power
- VA9203-BUx-1: AC 100 to AC 230 V 50/60 Hz power

The VA9203-BUx-1 actuators are double-insulated so an electrical ground is not required.

### Auxiliary Switch

The VA9203-xxB models include one integral auxiliary switch with a switch adjuster accessible on either face of the actuator.

The factory setting for the Auxiliary Switch is 10% closing (relative to the 0 to 100% rotation range as printed on the product label). The switch point continuously adjustable throughout the actuator's rotation range.

For the most accurate switch positioning, see Figure 4 and use the method in the following example.

To change the switch point, proceed as follows:

1. Position the actuator in the full spring return position.  
**Note:** Note: The switch is factory set to trip when the actuator reaches the 10% position.
2. Rotate the switch adjuster until it points to the desired switch point.
3. Connect the Auxiliary Switch to a power source or an ohmmeter and apply power to the actuator. The actuator moves to the fully open position and holds while power is applied.
4. Observe the switch point. If required, repeat Step 1 through Step 3.

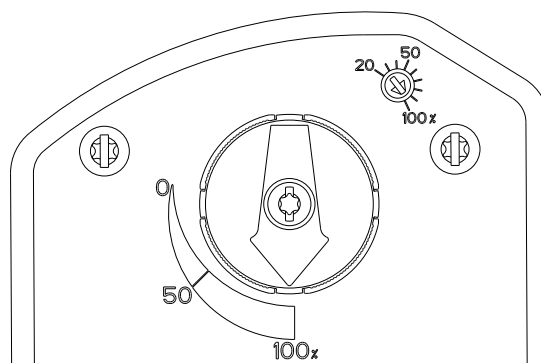


Figure 4: Switch Trip Point Settings

## Mounting

Install the ball valve with the actuator at or above the center line of the horizontal piping.



### WARNING:

In steam applications, install the valve with the stem horizontal to the piping. Failure to follow this precaution may shorten the life of the actuator.



### WARNING:

Do not install or use this actuator in or near environments where corrosive substances or vapors could be present. Exposure of the actuator to corrosive environments may damage the device's internal components, and will void the warranty.

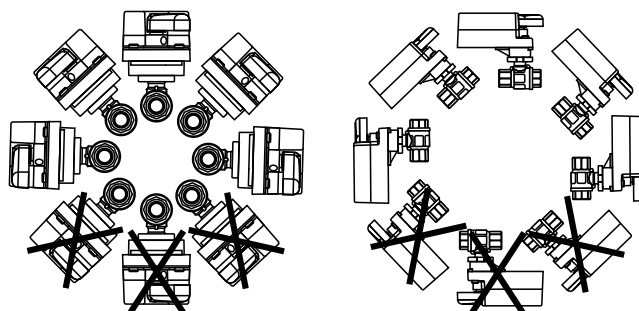


Figure 5: Mounting Positions for Chilled Water and Condensing Atmosphere Applications

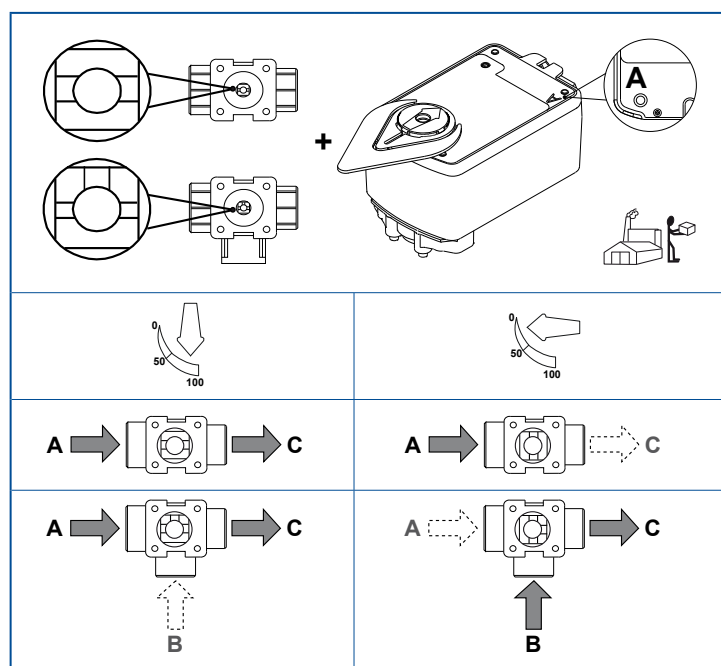


Figure 6: Spring open configuration

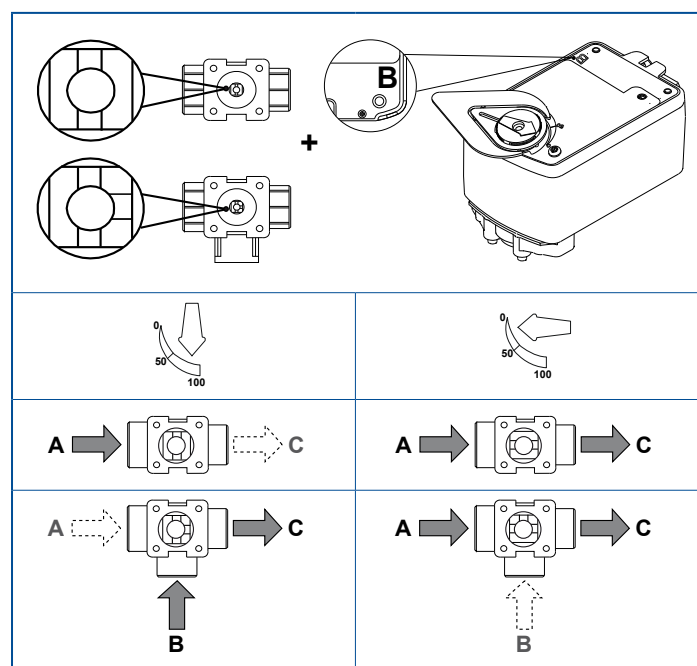
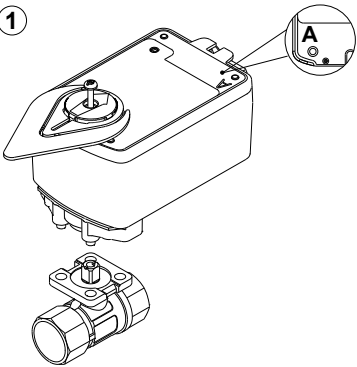
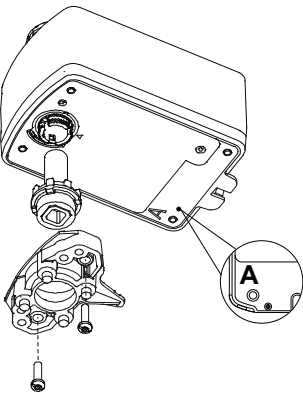
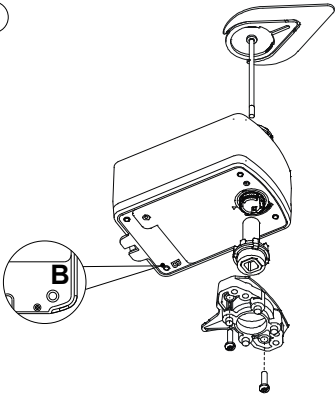
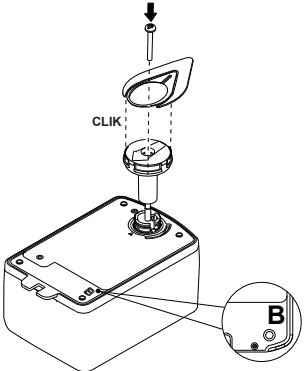
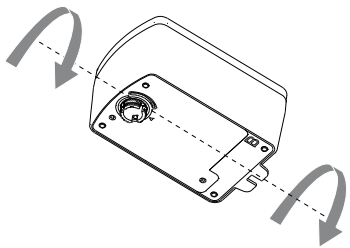
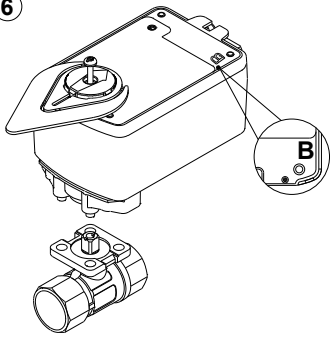


Figure 7: Spring close configuration

The actuators are delivered ready to be direct connected on a VG1000 in a "Spring Open Configuration"; the spring of the actuator, without power applied, connects port A with port C (see Figure 6). To link the actuator on the valve in a spring open configuration turn the valve stem to the position outlined in Figure 6, install the actuator on the valve tightening the mounting screw. The linkage must be on actuator Side B.

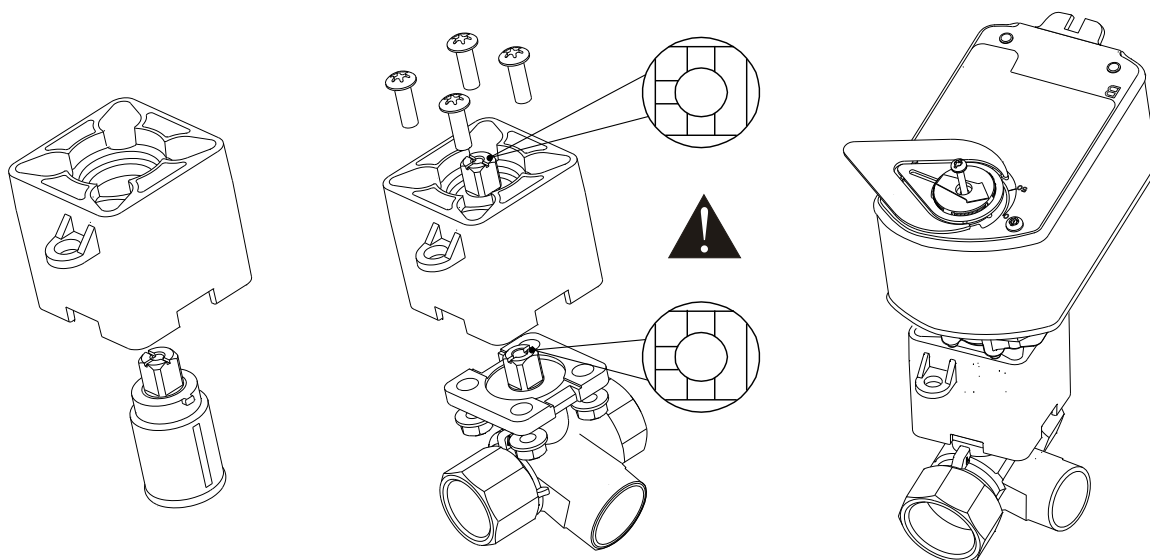
In the "Spring Close Configuration" the spring of the actuator, without power applied, closes port A with port C (see Figure 7). To link the actuator on the valve in a spring close configuration, turn the valve stem to the position outlined in Figure 7, install the actuator on the valve tightening the mounting screw. The linkage must be on actuator Side A.

If it is necessary to change the position of the linkage from one side to the other, proceed as follow:

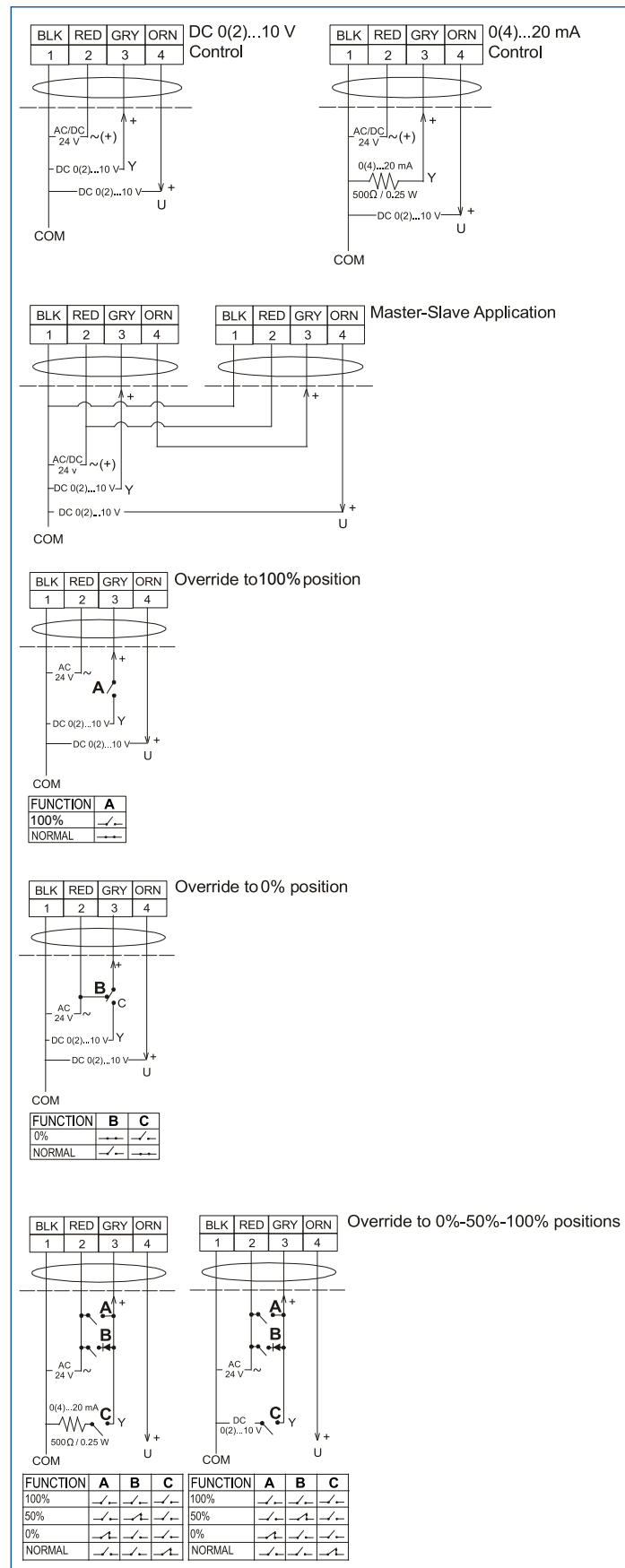
<p>①</p>  <ul style="list-style-type: none"> <li>Remove the screws from the actuator.</li> </ul>	<p>④</p>  <ul style="list-style-type: none"> <li>Connect the linkage to the linkage.</li> </ul>
<p>②</p>  <ul style="list-style-type: none"> <li>Remove the linkage from the bottom of the actuator.</li> </ul>	<p>⑤</p>  <ul style="list-style-type: none"> <li>Snap the pointer.</li> </ul>
<p>③</p>  <ul style="list-style-type: none"> <li>Turn the actuator.</li> </ul>	<p>⑥</p>  <ul style="list-style-type: none"> <li>Connect the actuator to the valve.</li> </ul>

## M9000-561 Thermal Barrier

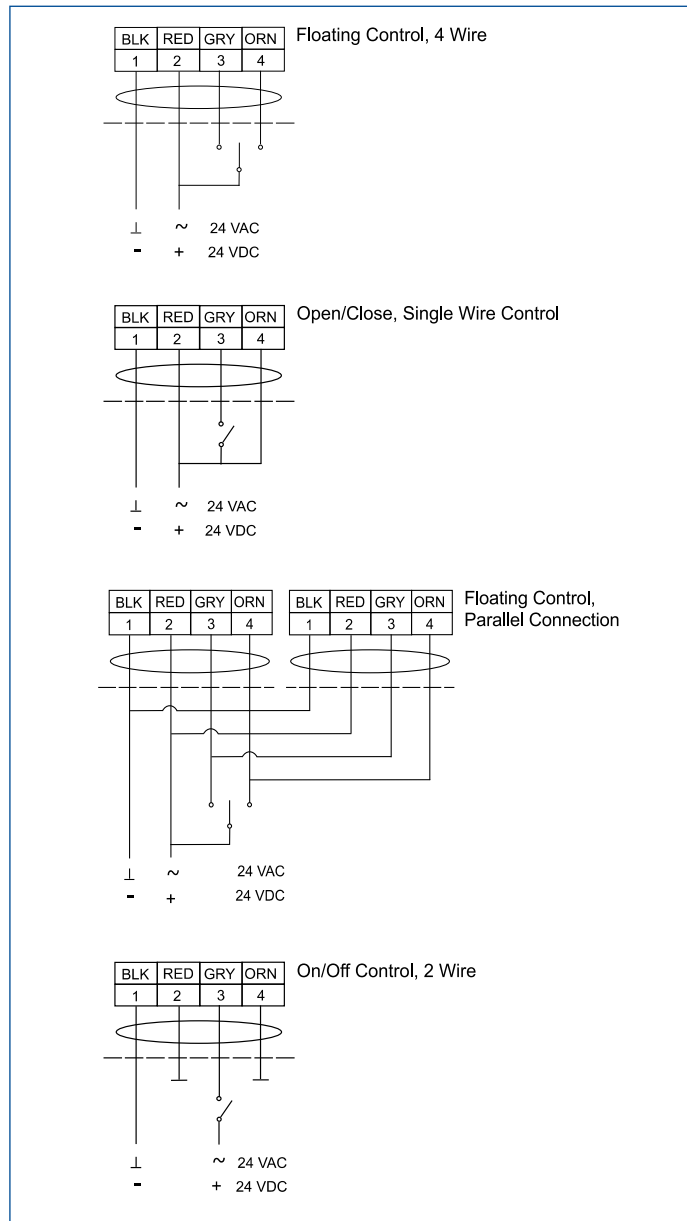
The Thermal barrier optional kit extends the application of the VA9203 actuators in combination with VG1000 ball valves. Linking together valve and actuator using the M9000-561 you can include applications with low pressure steam up to 123 °C at 103kPa (250 °F at 15 psig) and hot water up to 140 °C (284 °F).



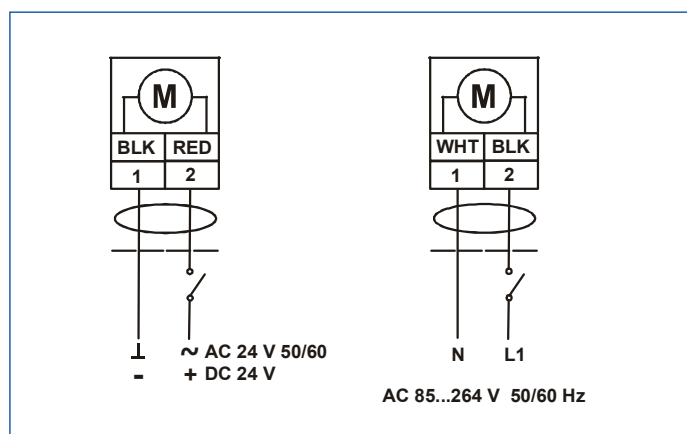
## Wiring Diagrams



**VA9203-GGx**



**VA-9203-AGx**



**VA9203-BGx**

**VA9203-BUX**

## Dimensions

### Valve Actuator

See Table 1 and Figure 8 for the dimensions of the VA9203 Series Actuated Ball Valves.

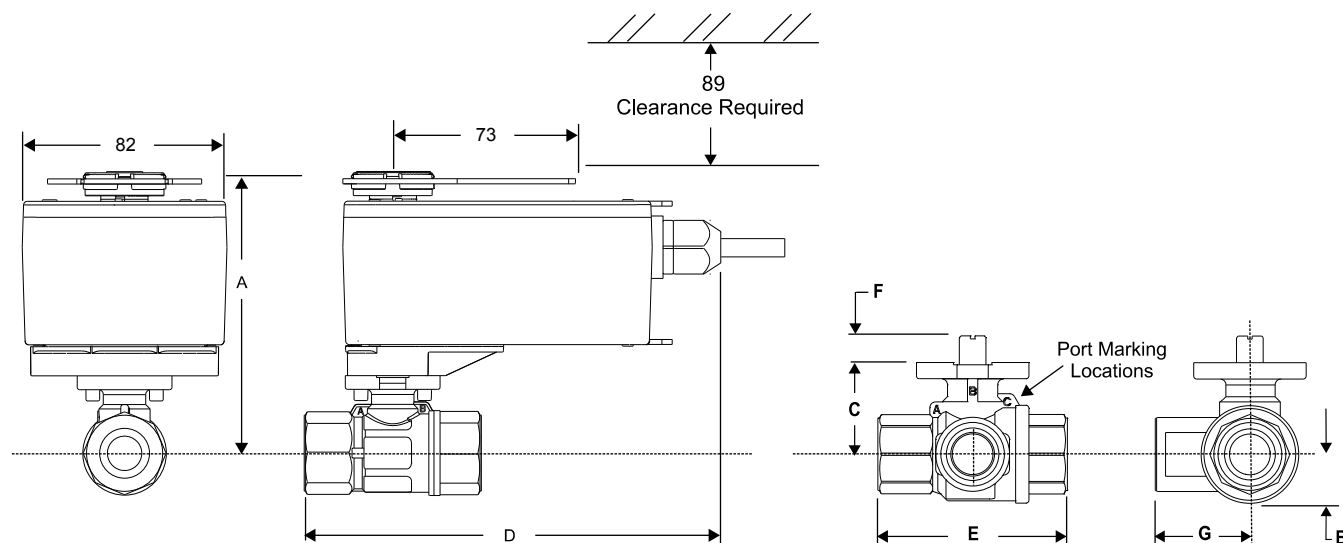


Figure 8: Spring Return VA9203 Actuated VG1205 and VG1805 Series Ball Valve Dimensions, in mm

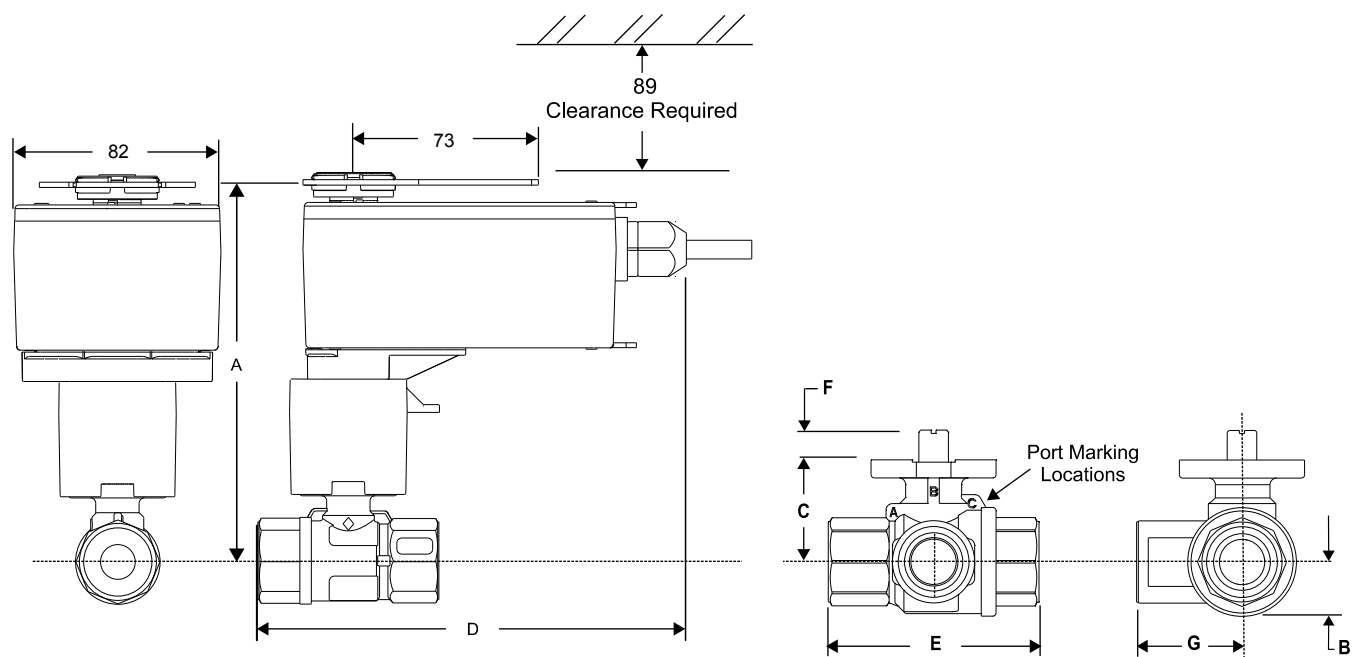
Table 1: VA9203 Actuated VG1205 and VG1805 Series Ball Valve Dimensions, in mm

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



## Valve Actuator

See Table 2 and Figure 9 for valve actuator dimensions with optional M9000-561 thermal barrier installed.



**Figure 9: Spring Return VA9203 Actuated VG1205 and VG1805 Series Ball Valve with Optional M9000-561 Thermal Barrier Installed Dimensions, in mm**

**Table 2: VA9203 Actuated VG1205 and VG1805 Series NPT Ball Valve with Optional Thermal Barrier Installed 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

## Ordering Code

**Table 3: VA9203 Spring Return Actuators**

Code Number	Description
<b>VA9203-GGA-1Z</b>	3 Nm Spring Return Actuator for Valves, Proportional, 24 V AC/DC
<b>VA9203-GGB-1Z</b>	3 Nm Spring Return Actuator for Valves, Proportional, 24 V AC/DC, 1 Switch
<b>VA9203-AGA-1Z</b>	3 Nm Spring Return Actuator for Valves, Floating & ON/OFF, 24 V AC/DC
<b>VA9203-AGB-1Z</b>	3 Nm Spring Return Actuator for Valves, Floating & ON/OFF, 24 V AC/DC, 1 Switch
<b>VA9203-BGA-1</b>	3 Nm Spring Return Actuator for Valves, ON/OFF, 24 V AC/DC
<b>VA9203-BGB-1</b>	3 Nm Spring Return Actuator for Valves, ON/OFF, 24 V AC/DC, 1 Switch
<b>VA9203-BUA-1</b>	3 Nm Spring Return Actuator for Valves, ON/OFF, 100 to 230 V AC
<b>VA9203-BUB-1</b>	3 Nm Spring Return Actuator for Valves, ON/OFF, 100 to 230 V AC, 1 Switch

**Table 4: Accessory (Order Separately)**

Code Number	Description
<b>M9000-200</b>	Commissioning Tool that Provides a Control Signal to Drive 24 V On/Off, Floating, Proportional, and/or Resistive Electric Actuators
<b>M9000-560</b>	Ball Valve Linkage Kit for applying M9203 and M9208 Series Actuators to VG1000 Series Valves (quantity 1)
<b>M9000-561</b>	Thermal Barrier Extends M(VA)9104, M(VA)9203, and M(VA)9208 Series Electric Spring Return Actuator applications to include low pressure steam (quantity 1)
<b>M9000-341</b>	Weathershield Kit for VG1000 Series Ball Valve application of M(VA)9104, M(VA)9203, and M(VA)9208 Series Electric Spring Return Actuators (quantity 1)
<b>M9000-607</b>	Position Indicator for VG1000 Series Ball Valve Applications (Quantity 5)

## Technical Specifications

### VA9203-AGx-1Z Series On/Off and Floating Point Electric Spring Return Actuator

Actuator	VA9203-AGA-1Z	VA9203-AGB-1Z
<b>Power Requirements</b>	AC 24 V (AC 19.2 V to 28.8 V) at 50/60 Hz: Class 2 (North America) or Safety Extra-Low Voltage (SELV) (Europe), 5.1 VA Running, 2.8 VA Holding Position DC 24 V (DC 21.6 V to 28.8 V): Class 2 (North America) or SELV (Europe), 1.9 W Running, 1.1 W Holding Position Minimum Transformer Size: 6 VA per Actuator	
<b>Input Signal / Adjustment</b>	AC 19.2 to 28.8 V at 50/60 Hz or DC 24 V +20%/-10% Class 2 (North America) or SELV (Europe) Minimum Pulse Width: 500 msec	
<b>Control Input Impedance</b>	4,700 ohm Control Inputs	
<b>Auxiliary Switch Rating</b>	---	One Single-Pole, Double-Throw (SPDT), Double-Insulated Switch with Silver Contacts: AC 24 V, 50 VA Pilot Duty AC 120 V, 5.8 A Resistive, 1/4 hp, 275 VA Pilot Duty AC 240 V, 5.0 A Resistive, 1/4 hp, 275 VA Pilot Duty
<b>Spring Return</b>	Direction is Selectable with Mounting Position of Actuator: Actuator Face Labeled A Is Away from Valve: CCW Spring Return Actuator Face Labeled B Is Away from Valve: CW Spring Return	
<b>Rated Torque</b> - Power On (Running) - Power Off (Spring Returning)	3 Nm All Operating Temperatures 3 Nm All Operating Temperatures	
<b>Rotation Range</b>	Maximum Full Stroke: 95°	
<b>Rotation Time for 90 Degrees of Travel</b> - Power On (Running) - Power Off (Spring Returning)	90 Seconds Constant for 0 to 3 Nm Load, at all Operating Conditions 12 to 17 Seconds for 0 to 3 Nm Load, at Room Temperature 16 Seconds Nominal at Full Rated Load 22 Seconds Maximum with 3 Nm Load, at -30 °C (-22 °F)	
<b>Life Cycles</b>	60,000 Full Stroke Cycles with 3 Nm Load 1,500,000 Repositions with 3 Nm Load	
<b>Audible Noise Rating</b> - Power On (Running) - Power On (Holding) - Power Off (Spring Returning)	<37 dBA at 3 Nm Load, at a Distance of 1 m <20 dBA at a Distance of 1 m <56 dBA at 3 Nm Load, at a Distance of 1 m	
<b>Electrical Connections</b>	1.2 m UL 758 Type AWM Halogen Free Cable with 18 AWG (0.85 mm <sup>2</sup> ) Conductors and 6 mm Ferrule Ends	
<b>Fluid Temperature Limits</b> -VG1205 and VG1805 Series -VG1205 and VG1805 Series with M9000-561	-30 to 100 °C (-22 to 212 °F), Not Rated for Steam Service -30 to 140 °C (-22 to 284 °F) water; 103 kPa (15 psig) at 121 °C (250 °F) Saturated Steam	
<b>Enclosure Rating</b>	IP54 (NEMA 2) for all Mounting Orientations	
<b>Ambient Conditions</b> - Standard Operating - Storage	-30 to 60 °C (-22 to 140 °F); 90% RH Maximum, Noncondensing -40 to 85 °C (-40 to 185 °F); 95% RH Maximum, Noncondensing	
<b>Dimensions</b>	See tables	
<b>Shipping Weight</b>	0.9 kg	1.1 kg





**VA9203-Bxx-1 Series ON/OFF Electric Spring Return Actuator**

Actuator	VA9203-BGx-1	VA9203-BUx-1
<b>Power Requirements</b>	AC 24 V (AC 19.2 V to 28.8 V) at 50/60 Hz: Class 2 (North America) or Safety Extra-Low Voltage (SELV) (Europe), 5 VA Running, 1.6 VA Holding Position DC 24 V (DC 21.6 V to 28.8 V): Class 2 (North America) or SELV (Europe), 2.8 W Running, 0.8 W Holding Position Minimum Transformer Size: 6 VA per Actuator	AC 100 V to 240 V (AC 85 V to 264 V) at 50/60 Hz: 0.06 A Running, 0.02 A Holding Position
<b>Auxiliary Switch Rating</b> - <i>xxB-1 Models only</i>	One Single-Pole, Double-Throw (SPDT), Double-Insulated Switch with Silver Contacts: AC 24 V, 50 VA Pilot Duty AC 120 V, 5.8 A Resistive, 1/4 hp, 275 VA Pilot Duty AC 240 V, 5.0 A Resistive, 1/4 hp, 275 VA Pilot Duty	
<b>Spring Return</b>	Direction is Selectable with Mounting Position of Actuator: Actuator Face Labeled A Is Away from Valve: CCW Spring Return Actuator Face Labeled B Is Away from Valve: CW Spring Return	
<b>Rated Torque</b> - <i>Power On (Running)</i> - <i>Power Off (Spring Returning)</i>	3 Nm All Operating Temperatures 3 Nm All Operating Temperatures	
<b>Rotation Range</b>	Maximum Full Stroke: 95°	
<b>Rotation Time for 90 Degrees of Travel</b> - <i>Power On (Running)</i> - <i>Power Off (Spring Returning)</i>	53 to 71 Seconds Constant for 0 to 3 Nm Load, at Room Temperature 60 Seconds Nominal at Full Rated Load (0.25 rpm) 19 to 23 Seconds for 0 to 3 Nm Load, at Room Temperature 22 Seconds Nominal at Full Rated Load 28 Seconds Maximum with 3 Nm Load, at -30 °C (-22 °F)	
<b>Life Cycles</b>	60,000 Full Stroke Cycles with 3 Nm Load	
<b>Audible Noise Rating</b> - <i>Power On (Running)</i> - <i>Power On (Holding)</i> - <i>Power Off (Spring Returning)</i>	<36 dBA at 3 Nm Load, at a Distance of 1 m <20 dBA at a Distance of 1 m <51 dBA at 3 Nm Load, at a Distance of 1 m	
<b>Electrical Connections</b> - <i>Actuator (All Models)</i> - <i>Auxiliary Switches (-xxB-1 Models)</i>	1.2 m UL 758 Type AWM Halogen Free Cable with 18 AWG (0.85 mm <sup>2</sup> ) Conductors and 6 mm Ferrule Ends 1.2 m UL 758 Type AWM Halogen Free Cable with 18 AWG (0.85 mm <sup>2</sup> ) Conductors and 6 mm Ferrule Ends	
<b>Fluid Temperature Limits</b> - <i>VG1205 and VG1805 Series</i> - <i>VG1205 and VG1805 Series with M9000-561</i>	-30 to 100 °C (-22 to 212 °F), Not Rated for Steam Service -30 to 140 °C (-22 to 284 °F) water; 103 kPa (15 psig) at 121 °C (250 °F) Saturated Steam	
<b>Enclosure Rating</b>	IP54 (NEMA 2) for all Mounting Orientations	
<b>Ambient Conditions</b> - <i>Standard Operating</i> - <i>Storage</i>	-30 to 60 °C (-22 to 140 °F); 90% RH Maximum, Noncondensing -40 to 85 °C (-40 to 185 °F); 95% RH Maximum, Noncondensing	
<b>Dimensions</b>	See tables	
<b>Shipping Weight</b> - <i>xxA Models</i> - <i>xxB Models</i>	0.9 kg 1.1 kg	

## VA9203-GGx-1Z Series Proportional Electric Spring Return Actuator

Actuator	VA9203-GGA-1Z	VA9203-GGB-1Z
<b>Power Requirements</b>	AC 24 V (AC 19.2 V to 28.8 V) at 50/60 Hz: Class 2 (North America) or Safety Extra-Low Voltage (SELV) (Europe), 4.7 VA Running, 2.7 VA Holding Position DC 24 V (DC 21.6 V to 28.8 V): Class 2 (North America) or SELV (Europe), 1.8 W Running, 1 W Holding Position Minimum Transformer Size: 6 VA per Actuator	
<b>Input Signal / Adjustment</b>	Factory Set at DC 0 to 10 V, CW Rotation with Signal Increase Selectable DC 0 (2) to 10 V or 0 (4) to 20 mA with Field -Furnished 500 ohm 0.25 W Minimum Resistor Switch Selectable Direct or Reverse Action with Signal Increase	
<b>Control Input Impedance</b>	Voltage Input: 100,000 ohm Current Input: 500 ohm with Field Furnished 500 ohm Resistor	
<b>Feedback Signal</b>	DC 0 (2) to 10 V for Desired Rotation Range up to 95° Corresponds to Rotation Limits, 0.5 mA at 10 V Maximum	
<b>Auxiliary Switch Rating</b>	---	One Single-Pole, Double-Throw (SPDT), Double-Insulated Switch with Silver Contacts: AC 24 V, 50 VA Pilot Duty AC 120 V, 5.8 A Resistive, 1/4 hp, 275 VA Pilot Duty AC 240 V, 5.0 A Resistive, 1/4 hp, 275 VA Pilot Duty
<b>Spring Return</b>	Direction is Selectable with Mounting Position of Actuator: Actuator Face Labeled A Is Away from Valve: CCW Spring Return Actuator Face Labeled B Is Away from Valve: CW Spring Return	
<b>Rated Torque</b> - Power On (Running) - Power Off (Spring Returning)	3 Nm All Operating Temperatures 3 Nm All Operating Temperatures	
<b>Rotation Range</b>	Maximum Full Stroke: 95° Adjustable Stop: 35° to 95° Maximum Position	
<b>Rotation Time for 90 Degrees of Travel</b> - Power On (Running) - Power Off (Spring Returning)	90 Seconds Constant for 0 to 3 Nm Load, at all Operating Conditions 12 to 17 Seconds for 0 to 3 Nm Load, at Room Temperature 16 Seconds Nominal at Full Rated Load 22 Seconds Maximum with 3 Nm Load, at -30 °C (-22 °F)	
<b>Life Cycles</b>	60,000 Full Stroke Cycles with 3 Nm Load 1,500,000 Repositions with 3 Nm Load	
<b>Audible Noise Rating</b> - Power On (Running) - Power On (Holding) - Power Off (Spring Returning)	<37 dBA at 3 Nm Load, at a Distance of 1 m <20 dBA at a Distance of 1 m <56 dBA at 3 Nm Load, at a Distance of 1 m	
<b>Electrical Connections</b>	1.2 m UL 758 Type AWM Halogen Free Cable with 18 AWG (0.85 mm <sup>2</sup> ) Conductors and 6 mm Ferrule Ends	
<b>Fluid Temperature Limits</b> -VG1205 and VG1805 Series -VG1205 and VG1805 Series with M9000-561	-30 to 100 °C (-22 to 212 °F), Not Rated for Steam Service -30 to 140 °C (-22 to 284 °F) water; 103 kPa (15 psig) at 121 °C (250 °F) Saturated Steam	
<b>Enclosure Rating</b>	IP54 (NEMA 2) for all Mounting Orientations	
<b>Ambient Conditions</b> - Standard Operating - Storage	-30 to 60 °C (-22 to 140 °F); 90% RH Maximum, Noncondensing -40 to 85 °C (-40 to 185 °F); 95% RH Maximum, Noncondensing	
<b>Dimensions</b>	See tables	
<b>Shipping Weight</b>	0.9 kg	1.1 kg

## Compliance

 <b>- United States</b>	UL Listed, CCN XAPX, File E27734; to UL 60730-1A: 2003-08, Ed. 3.1, Automatic Electrical Controls for Household and Similar Use; and UL 60730-2-14: 2002-02, Ed. 1, Part 2, Particular Requirements for Electric Actuators.
 <b>- Canada</b>	UL Listed, CCN XAPX7, File E27734; to UL 60730-1:02-CAN/CSA: July 2002, 3rd Ed., Automatic Electrical Controls for Household and Similar Use; and CSA C22.2 No. 24-93 Temperature Indicating and Regulating Equipment.
 <b>- Europe</b>	CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC.
 <b>- Australia and New Zealand</b>	C-Tick Mark, Australia/NZ Emissions Compliant