

**VAL-SR061 Series  
Electric Actuators  
Spring Return**

**FEATURES & BENEFITS**

Automatic Stroke Calibration at Installation	<ul style="list-style-type: none"> <li>• Reduces field installation time and cost due to self adjustment.</li> </ul>
0 (2) to 10 VDC, 0 (4) to 20 mA, or 6 to 9 VDC Input	<ul style="list-style-type: none"> <li>• Eliminates the need for an externally wired 500 Ω resistor.</li> </ul>
Reversible Stroke Direction	<ul style="list-style-type: none"> <li>• Provides the flexibility to work with direct acting or reverse acting control signals.</li> </ul>
Direct Mount Linear Stroke Design	<ul style="list-style-type: none"> <li>• Eliminates linkages and saves installation time.</li> </ul>
1/2 in. Conduit Connector with 48 in. Wire Leads	<ul style="list-style-type: none"> <li>• Meets local code requirements for wiring and allows easy field wiring on retrofit jobs.</li> </ul>
Manual Hand Crank	<ul style="list-style-type: none"> <li>• Allows positioning of the valve independent of a power supply.</li> </ul>
Auxiliary Switches (Optional)	<ul style="list-style-type: none"> <li>• Provides adjustable switch points with line voltage capability.</li> </ul>



**VAL-SR061 Actuator Shown on CG-J Series Globe Valve**

VAL-SR061 Series Electric Valve Actuators use a stepper motor to accurately position control valves in HVAC applications. In the event of a power failure, a spring in the actuator automatically returns the valve to the full stem-up position. These directmount, spring return electric actuators provide a minimum 61 lb (271 N) force output, and can be easily field mounted or ordered factory coupled to Bray 1/2 through 1-1/4 in. CG-J Series Bronze Control Valves, with no additional linkages required.

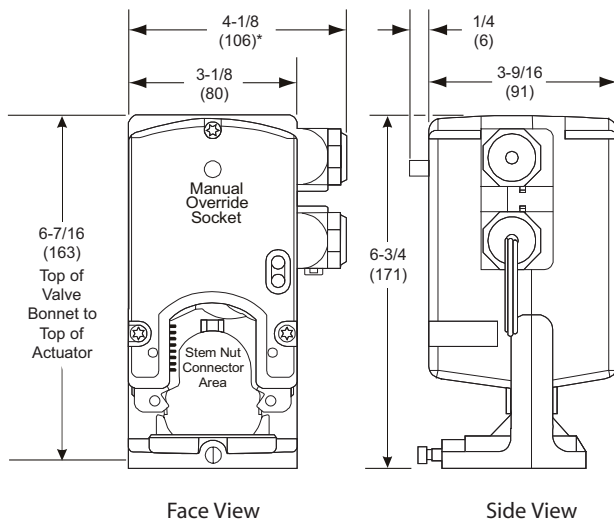
All proportional models feature an AUTO stroke calibration feature that eliminates the need for manual calibration or adjustment after installation.

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**APPLICATION OVERVIEW**

The proportional models of this series feature an AUTO stroke calibration function that enables the actuator to redefine the selected input signal and feedback proportionally across the actual valve stroke. Initial application of a power signal will drive the actuator and valve assembly to the full stem-up position and then the full stem-down position, and will store these positions in nonvolatile memory (retains data when power is lost or removed). The actuator will then drive to the position determined by the applied control signal.

**DIMENSIONS**



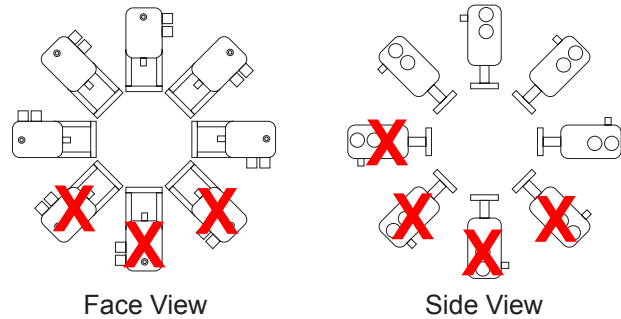
Allow a minimum 1-1/2" (38 mm) top and side clearance for actuator removal.

\* Add 1-17/32" (39 mm) for conduit adapter on models with auxiliary switches.

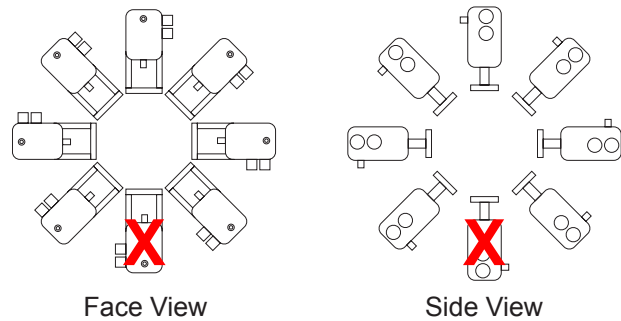
**Figure 1. Actuator Dimensions, in. (mm)**

**MOUNTING POSITIONS**

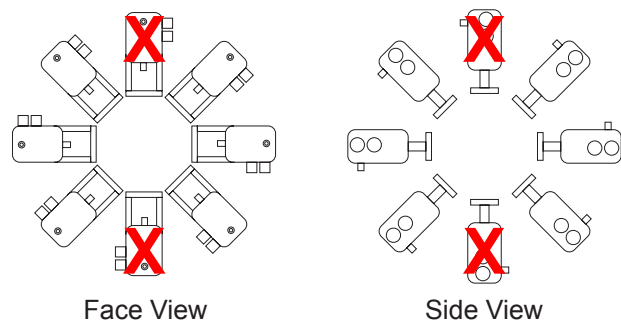
**Hot Water**



**Chilled Water**



**Steam**



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**MODEL INFORMATION**

	VAL-SR061-511	VAL-SR061-512	VAL-SR061-521	VAL-SR061-522	VAL-SR061-541	VAL-SR061-542
On/Off Control	•	•				
Floating Control			•	•		
Proportional Control					•	•
0 (2) - 10 or 6 - 9 VDC Feedback					•	•
2 Auxiliary Switches		•		•		•

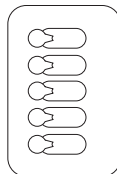
**MODE SELECTION**

Mode Switches	Switch Functions	Factory Settings
5	VDC or mA	VDC
4	0 - 10 VDC (0 - 20 mA) or 2 - 10 VDC (4 - 20 mA)	0 - 10 VDC
3	Direct Acting (DA) or Reverse Acting (RA)	DA
2	Fixed or Auto	Fixed
1	— or 6 - 9 VDC	—

**MODE SWITCH POSITION**

The mode switches are factory set with all five switches positioned as shown in the illustration at right.

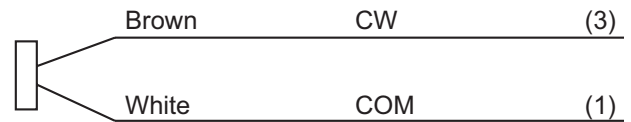
The AUTO calibration or auto mode enables the actuator to redefine the selected input signal and feedback proportionally across a reduced rotation range. The actuator stores the reduced range in nonvolatile memory (retains data when power is lost or removed).



VDC	5	mA
0-10	4	2-10
DA	3	RA
FIXED	2	AUTO
-	1	6-9

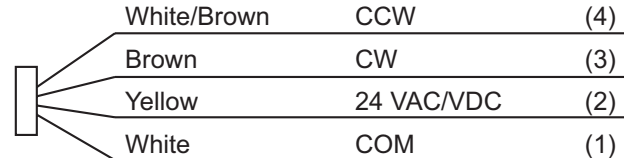
**WIRING DIAGRAMS**

**On/Off Control  
Models: -511 and -512**

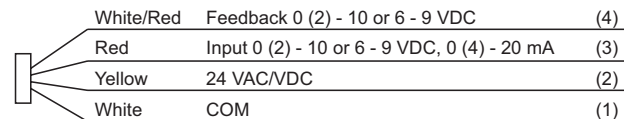


**Note:** CW (3) becomes CCW, and CCW (4) becomes CW when the actuator is mounted for CW spring return operation for both floating and on/off control.

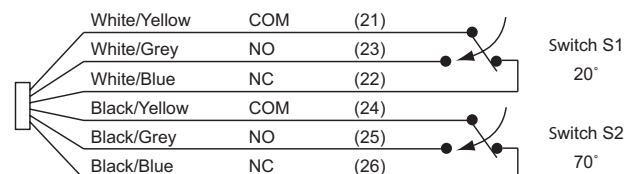
**Floating Control  
Models: -521 and -522**



**Proportional Control  
Models: -541 and -542**



**Auxiliary Switches  
Models: -512, -522, and -542**



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## SPECIFICATIONS

Input Signal	VAL-SR601-51X	24 VAC On/Off
	VAL-SR601-52X	24 VAC Three Wire Floating or On/Off
	VAL-SR601-54X	Factory Set at 0 to 10 VDC; Switch Selectable 0 (2) to 10 VDC, 6 to 9 VDC, or 0 (4) to 20 mA
Force Output	Minimum 61 lb (271 N)	
Power Requirements	20 to 30 VAC at 50/60 Hz or 24 VDC + 10%; Class 2, 12 VA	
Input Signal	-54X	0 (2) to 10 VDC, 6 to 9 VDC, or 0 (4) to 20 mA
Input Signal Adjustments	-54X	Factory Set at 0 to 10 VDC; Switch Selectable 0 (2) to 10 VDC, 6 to 9 VDC, or 0 (4) to 20 mA
Direction of Action	Switch Selectable Stem-Up or Stem-Down with Signal Increase	
Input Impedance (Proportional Models)	Voltage Input	200,000 $\Omega$
	Current Input	500 $\Omega$
Feedback Signal (Proportional Models)	0 to 10 VDC, 2 to 10 VDC, or 6 to 9 VDC at 2 mA (Corresponding to Input Signal Selection)	
Switch Contact Rating (-5X2 Models Only)	Two Single-Pole, Double-Throw (SPDT), Double Insulated Switches: 24 VAC, 50 VA Pilot Duty; 120 VAC, 5.8 A Resistive, 1/4 hp, 275 VA Pilot Duty; 240 VAC, 2.9 A Resistive, 1/4 hp, 275 VA Pilot Duty	
Maximum Stroke	29/32 in. (23 mm)	
Nominal Timing for Max. Stroke	76 Seconds (Proportionally Less for Shorter Strokes)	
Nominal Spring Return Timing for Max. Stroke	4 to 9 Seconds at Room Temperature (Proportionally Less for Shorter Strokes)	
Spring Return Direction	Stem Up	
Electrical Connections	Actuator	48 in. (122 cm) Cable with 20 AWG Wire Leads
	Auxiliary Switches (-5X2 Only)	48 in. (122 cm) Cable with 18 AWG Wire Leads
Ambient Temperature Limits	Operating	32 to 122°F (0 to 50°C)
	Storage	-85 to 185°F (-65 to 85°C)
Maximum Ambient Humidity	95% RH Non-Condensing (90% RH at 70°F Ambient Temperature and 40°F Fluid Temperature)	
Fluid Temperature Limits (Actuator and Valve Assembly)	35 to 250°F (2 to 121°C); 15 psig (103 kPa) Saturated Steam	
Acoustic Noise	35 dB(A) Maximum at 39 in. (100 cm) per DIN 1946 and ISO 3745	
Agency Compliance	UL 873 Listed, File E27734, CCN XAPX; CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02; CE Mark, EMC Directive 89/336/EEC	
Enclosure Rating	NEMA 2, IP 42	
Shipping Weight	3.1 lb (1.4 kg)	

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

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# Bray<sup>®</sup> CONTROLS

## Commercial Division

A Division of BRAY INTERNATIONAL, Inc.  
13333 Westland East Blvd. Houston, Texas 77041  
Toll Free: 888.412.BRAY(2729), FAX 281.894.9499 [www.bray.com](http://www.bray.com)  
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