

Electronic Modulating Actuators for Baumann Control Valves

Model MV-1020 and VA-1020 Electronic Modulating Valve Actuators feature state-of-the-art stepper motor technology to provide unrestricted continuous modulation and exacting position control. Performance of these actuators rivals the power of our pneumatic diaphragm sliding stem designs.

FEATURES:

- **Integral Servo Amplifier/Positioner;**
AC or DC pulse (optional)
Accepts 4-20 mA, 0-5 VDC, or 0-10 VDC Input Signal as standard; Split range 4-12 and 12-20mA; Dry contact closure
- **Wide Ambient Temperature Operating Range**
-40°F to 150°F (-40°C to 65°C)
- **Motor Enclosure**
Standard: CSA Explosion-proof for Class I, Div 1, Groups C & D; Dust-ignition-proof for Class II, Div 1, Groups E, F, G. Also rated NEMA 4, 7, & 9 (IP65) indoor/outdoor; Optional: Group B and ATEX (for 24VDC & 120/240 VAC only)
- **Excellent Positioning Accuracy**
+/- 1% of Full Range
- **Stepper Motor Technology**
Unrestricted continuous modulating duty
- **Fits Baumann™ 24000 Series Sliding Stem Valve Designs**
24000 Series Baumann family of Bronze, Carbon Steel, Stainless Steel, and special alloy designs
- **Top-Mounted Manual Override**
Permits manual operation with loss of power
- **Built-in Loop Powered Position Transmitter**
4-20 mA signal
- **Easy pushbutton calibration**

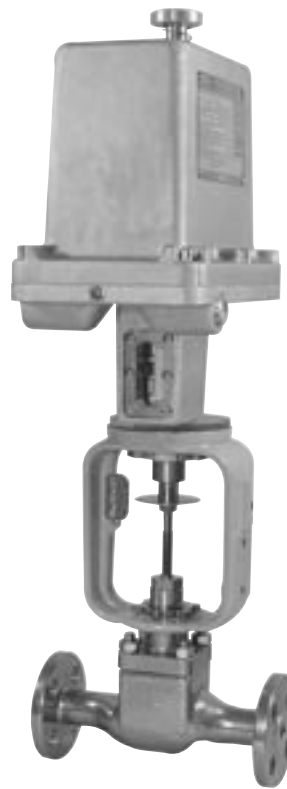


Figure 1. Model MV-1020
Linear Valve Actuator mounted
to series 2400SVF



Figure 2. Model VA-1020
Linear Valve Actuator mounted
to series 24000C



Control Valves with Electronic Actuators

Table 1. BODY SELECTIONS FOR ELECTRONIC ACTUATORS







BODY STYLE	VALVE SERIES	BODY MATERIAL	AVAILABLE SIZES (inches)	BODY RATING	AVAILABLE CONNECTIONS	APPLICATION TEMP. RANGE	Cv RATING
	24000	Bronze	0.5, 0.75, 1.0, 1.5, & 2.0	ASME CL250	NPT	-20°F to 400°F	0.2 - 50.0
	24000C	Carbon Steel WCB	0.5, 0.75, 1.0, 1.5, & 2.0	ASME CL150 / PN40 per EN 1092-2	ANSI CL150RF or PN10-PN40 RF	-320°F to 450°F	0.2 - 52.9
	24000F	316L CF3M	0.5, 0.75, & 1.0	ANSI CL600	Wafer Design CL150/300/600	-320°F to 1000°F	0.0005 - 6.5
	24000S	316SS CF8M	0.5, 1.0, 1.5, 2.0, & 3.0	ANSI CL300	NPT, Flangeless, or Buttweld	-320°F to 1000°F	0.0005 - 61
	24000SB	316L CF35M	0.5, 0.75, & 1.0	3000 psig	NPT, Socket/Buttweld CL 150 - 1500RF	-320°F to 1000°F	0.0005 - 6.8
	24000SVF	316L SS CF3M	0.5, 0.75, 1.0, 1.5, & 2.0	ANSI CL150 or CL300, PN10-40 per EN 1092	ASME CL150 or 300RF, PN10-40 RF	-320°F to 850°F	0.0005 - 53.7

Table 2. MV-1020 VALVE PRESSURE DROP LIMITATIONS (Based on 200 lbf thrust @ 0.13 in/sec)

PORT DIAMETER (A)		SEAT AREA (in ²)	STEM TRAVEL		MAXIMUM SHUTOFF PRESSURE (B)			
					Class IV		Class VI	
in	mm		in	mm	psi	bar	psi	bar
0.25	6.35	0.08	.50	12.7	2500	172	2281	157
0.3125	7.94	0.11	.50	12.7	N/A	N/A	1619	111
0.375	9.53	0.15	.50	12.7	1333	91	1158	79
0.8125	20.64	0.60	.50	12.7	333	22.9	238	16.4
1.0625	27.0	0.89	.50	12.7	201	13.8	126	8.5
1.25	31.80	1.35	.75	19.1	148	10.2	83	5.7
1.50	38.10	1.92	.75	19.1	104	7.1	49	3.4
2.00	50.80	3.34	.75	19.1	59	4.0	18	1.2

NOTES: A. See respective valve bulletins for port diameters.
B. Do not exceed valve body pressure-temperature rating.

Table 3. VA-1020 VALVE PRESSURE DROP LIMITATIONS (Based on 750 lbf thrust @ 0.018 in/sec)

PORT DIAMETER (A)		SEAT AREA (in ²)	STEM TRAVEL		MAXIMUM SHUTOFF PRESSURE (B)			
					Class IV		Class VI	
in	mm		in	mm	psi	bar	psi	bar
0.25	6.35	0.08	.50	12.7	3000	206	3000	206
0.3125	7.94	0.11	.50	12.7	N/A	N/A	3000	206
0.375	9.53	0.15	.50	12.7	3000	206	3000	206
0.8125	20.64	0.60	.50	12.7	1245	85.8	1170	80.6
1.0625	27.0	0.89	.50	12.7	752	51.8	695	47.9
1.25	31.80	1.35	.75	19.1	552	38.0	502	34.6
1.50	38.10	1.92	.75	19.1	390	26.9	347	23.9
2.00	50.80	3.34	.75	19.1	223	15.3	190	13.1

NOTES: A. See respective valve bulletins for port diameters.
 B. Do not exceed valve body pressure-temperature rating

NOTE

Neither Emerson®, Emerson Process Management, Fisher®, nor any of their affiliated entities assumes responsibility for the selection, use and maintenance of any product. Responsibility for the selection, use and maintenance of any product remains with the purchaser and end-user.

Control Valves with Electronic Actuators

Table 4. ACTUATOR SPECIFICATIONS

ACTUATOR		MV-1020	VA-1020
MOTOR HOUSING		Cast Aluminum	Cast Aluminum
YOKE		Ductile Iron	Carbon Steel Tube Bracket
TRIPLE CONDUIT CONNECTION	Standard	1/2 inch (12.7 mm) NPT Female	1/2 inch (12.7 mm) NPT Female
	Optional	M20	M20
POWER REQUIREMENTS		120 or 240 VAC 50/60 Hz, 1 Phase (24VDC or 24VAC optional)	120 or 240 VAC 50/60 Hz, 1 Phase (24VDC or 24VAC optional)
IMPEDENCE		200 ohms	200 ohms
BATTERY BACK-UP		Optional Side Mounted	Optional Side Mounted
INPUT SIGNAL		4-20 mA (4-12 mA, or 12-20 mA split range) (0-5 or 0-10 VDC optional)	4-20 mA (4-12 mA, or 12-20 mA split range) (0-5 or 0-10 VDC optional)
THRUST (SPEED)		200 lbs (91 kg) force (@ 0.13 in/sec)	750 lbf (-kg) (@ 0.018 in/sec)
STROKING TIME		0.013 to 0.25 inch (3.3 - 6.4 mm) / sec	0.014 to 0.034 inch (0.36 - 0.86 mm) / sec
MODULATING DUTY CYCLE		Unrestricted and Continuous	Unrestricted and Continuous
RESPONSE TIME		Less than 240 milliseconds	Less than 240 milliseconds
SENSITIVITY		+/- 0.5% of span	+/- 0.5% of span
RESOLUTION		1% of span	1% of span
POSITIONING ACCURACY		+/- 1% of full range	+/- 1.5% of full range
FAILURE ACTION		Close Valve / Open Valve / Hold-in-Place on loss of input signal (selectable). Holds in place on power failure. (standard)	Close Valve / Open Valve / Hold-in-Place on loss of input signal (selectable). Holds in place on power failure. (standard)
BATTERY BACKUP AVAILABLE		120 / 240 VAC ONLY	120 / 240 VAC ONLY
ENVIRONMENTAL RATINGS	Standard	CSA Explosion-proof for Class I, Div 1, Groups C & D; Dust-ignition-proof for Class II, Div 1, Groups E, F, G. Also rated NEMA 4, 7, & 9 (IP65) indoor/outdoor. (Approvals not available for battery back-up)	CSA Explosion-proof for Class I, Div 1, Groups C & D; Dust-ignition-proof for Class II, Div 1, Groups E, F, G. Also rated NEMA 4 (IP65) indoor/outdoor. (Approvals not available for battery back-up)
	Optional	Group B or Exd 11B	Group B or Exd 11B
ENTITY APPROVALS CERTIFICATIONS	Standard	CE	CE
	Optional	ATEX (for 24VDC and 120/240 VAC only) (Approvals not available for battery back-up)	ATEX (for 24VDC and 120/240 VAC only) (Approvals not available for battery back-up)
TEMPERATURE RANGE		-40 deg F to 150 deg F (-40 deg C to 65 deg C)	-40 deg F to 150 deg F (-40 deg C to 65 deg C)
WEIGHT (no valve)		22 lbs / 10 kg	30 lbs / 14 kg

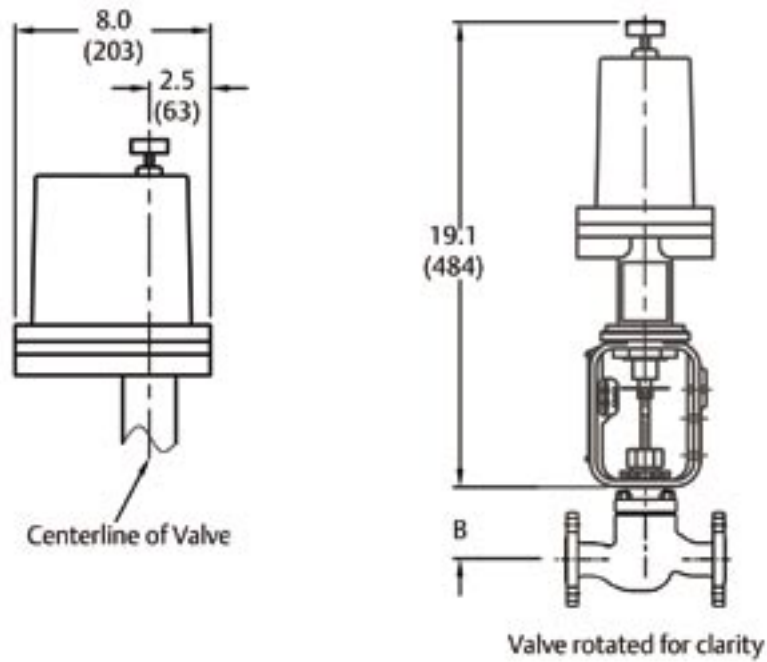


Figure 3. MV-1020 Installation Dimensions

"B" dimension varies upon valve selection; reference appropriate valve bulletin.

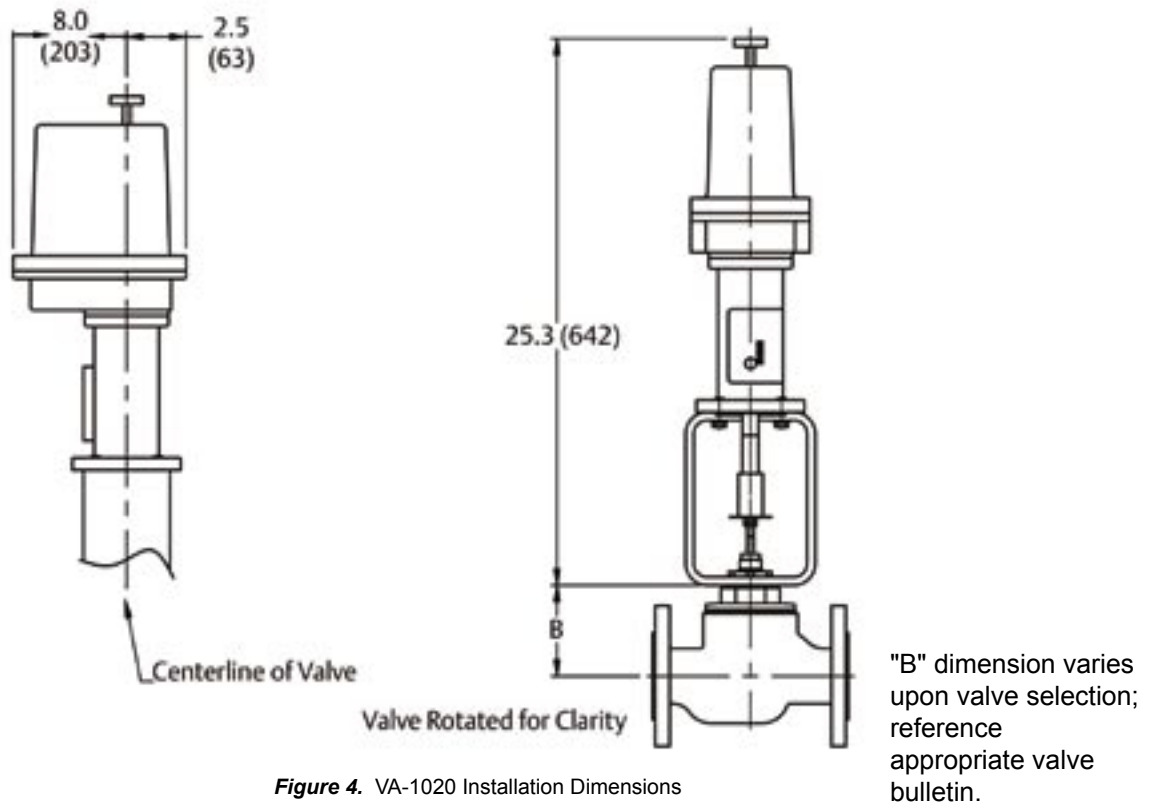


Figure 4. VA-1020 Installation Dimensions

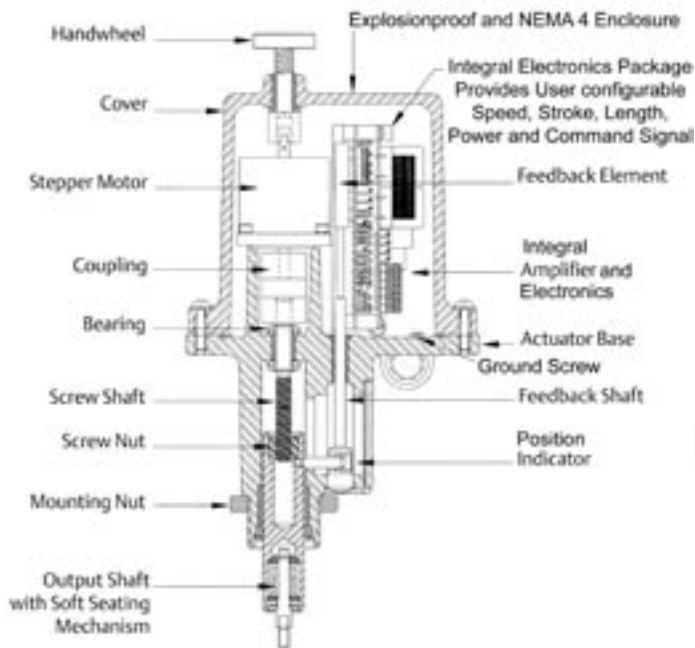


Figure 5. MV-1020 MAJOR COMPONENT IDENTIFICATION

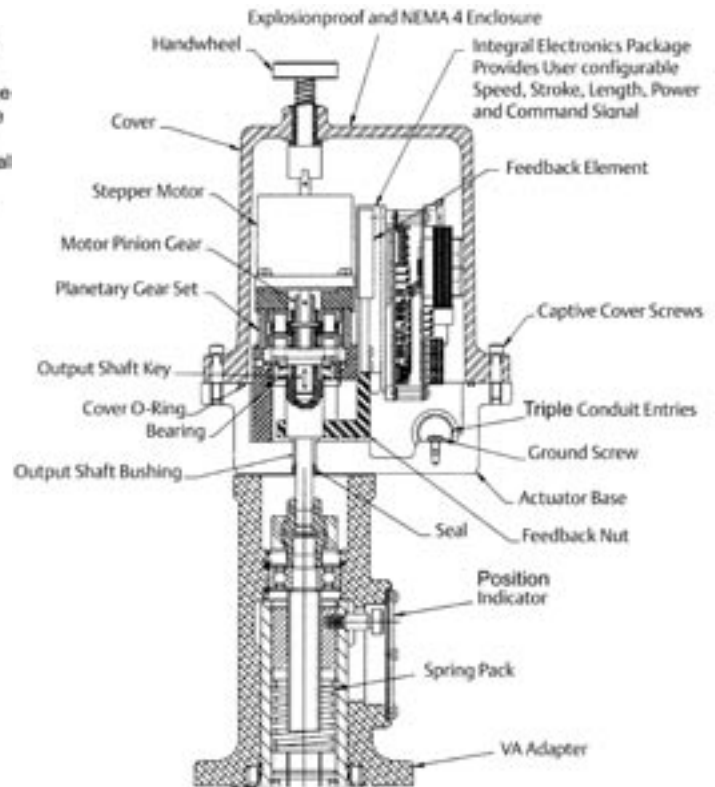


Figure 6. VA-1020 MAJOR COMPONENT IDENTIFICATION

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