

# Baumann™ Electronic Modulating Actuators

Baumann 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 12-20 mA; dry contact closure
- **Wide Ambient Temperature Operating Range:** -40 to 65°C (-40 to 150°F)
- **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:** Baumann 24000 series family of bronze, carbon steel, stainless steel, and special alloy designs, see table 1
- **Top-Mounted Manual Override:** Permits manual operation with loss of power
- **Built-in Loop-Powered Position Transmitter:** 4-20 mA signal
- **Easy Pushbutton Calibration**



W9852

Jordan MV-1020 Linear Valve Actuator Mounted to Baumann 24000SVF Valve

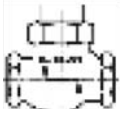

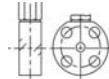




W9853

Jordan VA-1020 Linear Valve Actuator Mounted to Baumann 24000C Valve



**Table 1. Valve Body Selections for Electronic Actuators**

VALVE BODY STYLE	VALVE SERIES	VALVE BODY MATERIAL	AVAILABLE SIZES	VALVE BODY RATING	AVAILABLE CONNECTIONS	APPLICATION TEMPERATURE RANGE	Cv RATING
			NPS				
	24000	Bronze	1/2 3/4 1 1-1/2 2	ASME CL250	NPT	-20 to 400°F	0.2 - 50.0
	24000C	Carbon Steel WCC	1/2 3/4 1 1-1/2 2	ASME CL150 / PN40 per EN 1092-2	ASME CL150RF or PN10-PN40 RF	-320 to 450°F	0.2 - 52.9
	24000F	316L CF3M	1/2 3/4 1	ASME CL600	Wafer Design CL150/300/600	-320 to 1000°F	0.0005 - 6.5
	24000S	316SS CF8M	1/2 1 1-1/2 2 3	ASME CL300	NPT, Flangeless, or Butt weld	-320 to 1000°F	0.0005 - 61
	24000SB	316L CF3M	1/2 3/4 1	3000 psig	NPT, Socket/Butt weld CL150 - 1500RF	-320 to 1000°F	0.0005 - 6.8
	24000SVF 24000CVF	316L SS CF3M WCC	1/2 3/4 1 1-1/2 2	ASME CL150 or CL300, PN10-40 per EN 1092	ASME CL150 or 300RF, PN10-40 RF	-320 to 850°F	0.0005 - 53.7

## Specifications

See table 4 for actuator specifications.

Table 2. MV-1020 Valve Pressure Drop Limitations (Based on 200 lbf thrust @ 0.13 in/sec)

ORIFICE DIAMETER <sup>(1)</sup>		SEAT AREA (in <sup>2</sup> )	STEM TRAVEL		MAXIMUM SHUTOFF PRESSURE <sup>(2)</sup>			
mm	inch		mm	inch	Class IV		Class VI	
					bar	psi	bar	psi
6.35	0.25	0.08	12.7	0.50	172	2500	157	2281
7.94	0.3125	0.11	12.7	0.50	---	---	111	1619
9.53	0.375	0.15	12.7	0.50	91	1333	79	1158
20.64	0.8125	0.60	12.7	0.50	22.9	333	16.4	238
27.0	1.0625	0.89	12.7	0.50	13.8	201	8.5	126
31.80	1.25	1.35	19.1	0.75	10.2	148	5.7	83
38.10	1.50	1.92	19.1	0.75	7.1	104	3.4	49
50.80	2.00	3.34	19.1	0.75	4.0	59	1.2	18

1. See respective valve bulletins for port diameters.  
2. 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)

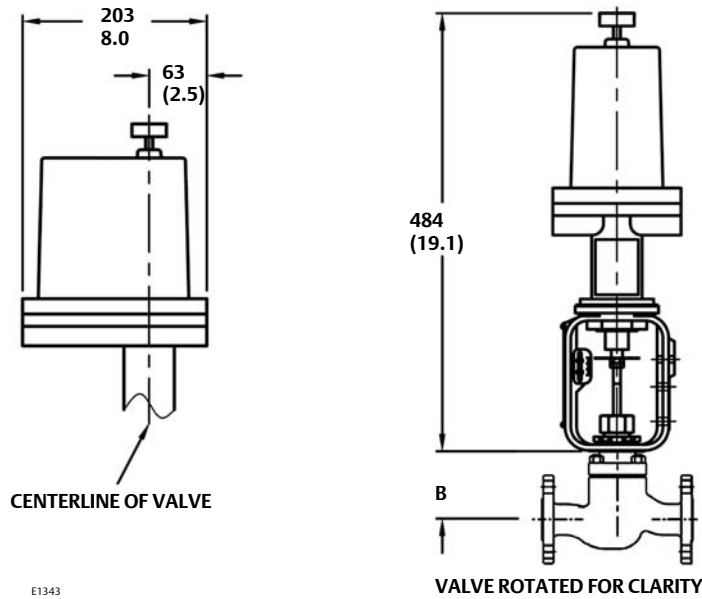
ORIFICE DIAMETER <sup>(1)</sup>		SEAT AREA (in <sup>2</sup> )	STEM TRAVEL		MAXIMUM SHUTOFF PRESSURE <sup>(2)</sup>			
mm	inch		mm	inch	Class IV		Class VI	
					bar	psi	bar	psi
6.35	0.25	0.08	12.7	0.50	206	3000	206	3000
7.94	0.3125	0.11	12.7	0.50	---	---	206	3000
9.53	0.375	0.15	12.7	0.50	206	3000	206	3000
20.64	0.8125	0.60	12.7	0.50	85.8	1245	80.6	1170
27.0	1.0625	0.89	12.7	0.50	51.8	752	47.9	695
31.80	1.25	1.35	19.1	0.75	38.0	552	34.6	502
38.10	1.50	1.92	19.1	0.75	26.9	390	23.9	347
50.80	2.00	3.34	19.1	0.75	15.3	223	13.1	190

1. See respective valve bulletins for port diameters.  
2. Do not exceed valve body pressure-temperature rating.

**Table 4. Actuator Specifications**

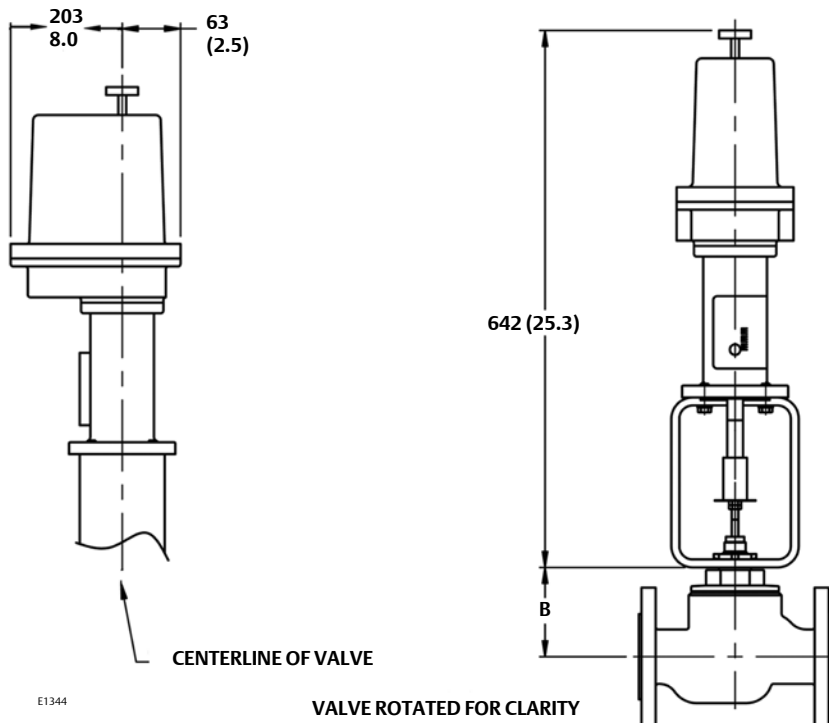
ACTUATOR		MV-1020	VA-1020
MOTOR HOUSING		Cast Aluminum	
YOKE		Ductile Iron	Carbon Steel Tube Bracket
TRIPLE CONDUIT CONNECTION	Standard	1/2 NPT Internal	
	Optional	M20	
POWER REQUIREMENTS		120 or 240 VAC 50/60 Hz, 1 Phase (24VDC of 24VAC optional)	
IMPEDANCE		200 ohms	
BATTERY BACK-UP		Optional Side Mounted	
INPUT SIGNAL		4-20 mA (4-12 mA, or 12-20 mA split range) (0-5 or 0-10 VDC optional)	
THRUST (SPEED)		890 N (200 lbf) force (@ 0.13 in/sec)	3336 N (750 lbf) (@ 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	
RESPONSE TIME		Less than 240 milliseconds	
SENSITIVITY		+/- 0.5% of span	
RESOLUTION		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)	
BATTERY BACKUP AVAILABLE		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	
ENTITY APPROVALS CERTIFICATIONS	Standard	CE	
	Optional	ATEX (for 24VDC and 120/240 VAC only) (Approvals not available for battery back-up)	
TEMPERATURE RANGE		-40 to 65°C (-40 to 150°F)	
WEIGHT (no valve)		10 kg / 22 lbs	14 kg / 30 lbs

Figure 1. Baumann MV-1020 Dimensions



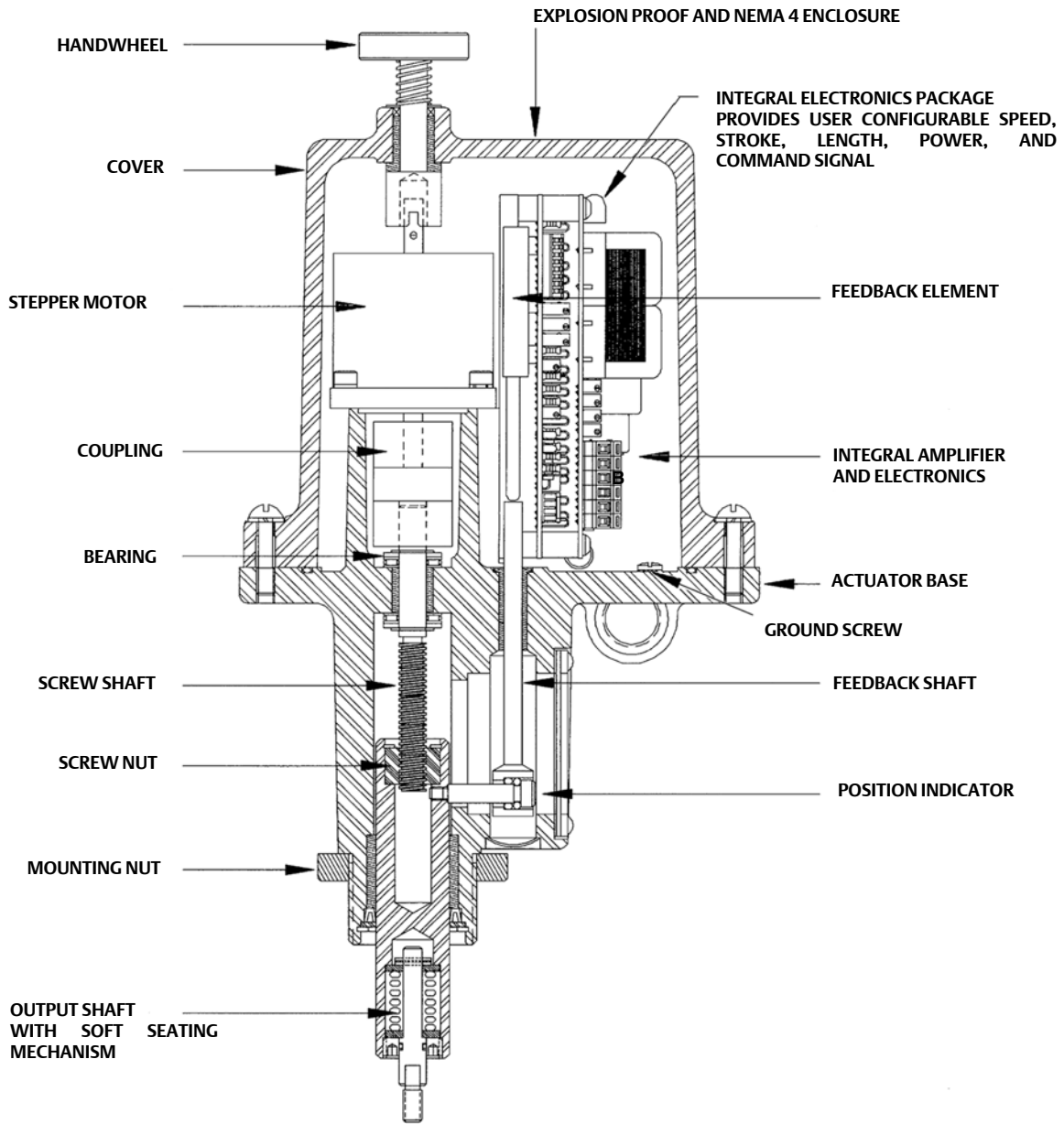
Note: B dimension varies upon valve selection; reference appropriate valve bulletin.

Figure 2. Baumann VA-1020 Dimensions



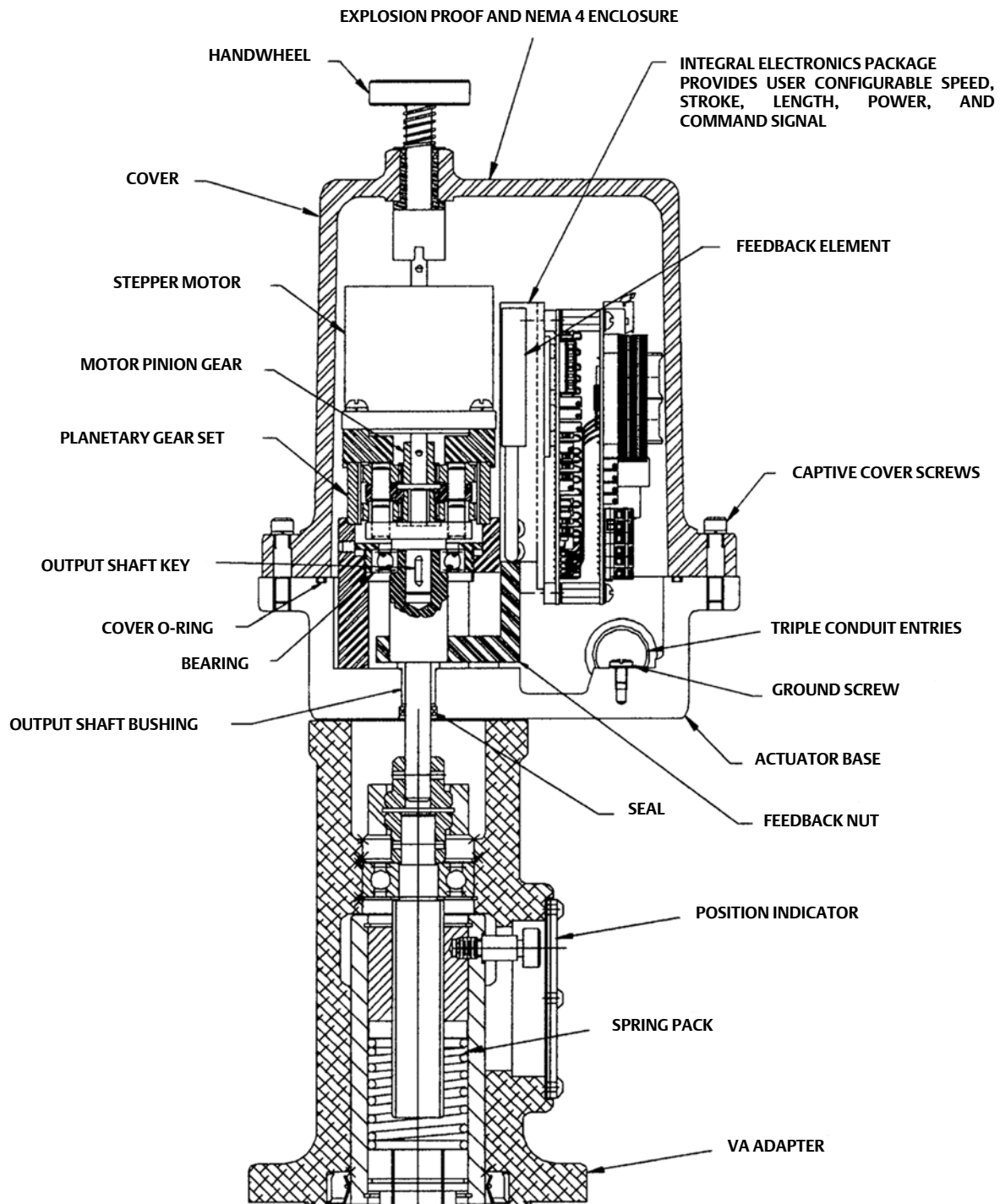
Note: B dimension varies upon valve selection; reference appropriate valve bulletin.

**Figure 3. Baumann MV-1020 Major Component Identification**



E1345

Figure 4. Baumann VA-1020 Major Component Identification



E1346

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