

# Replacement of Baumann™ NV Electric Actuators with Baumann SV Electric Actuators

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*Baumann 24000CVF Valve with SV Electric Actuator*

## Management of Change

Management of Change (MOC) is a procedure used to proactively manage changes that can potentially affect safety or general procedure within a process plant. Product changes often have a significant impact on plant efficiency throughout the transition period. In lieu of the complexity of completing an MOC approval process, this MOC Guide has been developed to prevent delays and difficulties while ensuring a successful product change.

Contained in the following sections are design comparisons between the obsolete Baumann NV electric actuator and the current Baumann SV electric actuator. These comparisons are intended to help end-users complete MOC approval documents to understand the similarities and differences between the Baumann NV and SV electric actuators to facilitate a safe and efficient transition to the Baumann SV electric actuator.

## Background

The Baumann NV electric actuator series has been used with Baumann sliding stem control valves for a number of years. It was used for temperature and humidity control for HVAC applications including: hot and chilled water, steam, and glycol; semiconductor manufacturing applications, including: clean rooms, make-up air handlers, recirculation air handlers, humidification, chillers, jackets, and glycol systems; along with many other industrial environments, including but not limited to textiles, food and beverage, and tire manufacturing. The Baumann NV electric actuator series is now an obsolete product and is to be directly replaced with the Baumann SV electric actuator series.

The Baumann SV electric actuator series leverages features end-users have come to know in the NV actuator, along with improvements like increased output thrust, a lighter weight assembly, and faster stroke speed.

## Question & Answer Checklist

- 1**    **Q:** Does the proposed modification cause any changes to the piping and instrumentation diagram (P&ID)?  
**A:** No. Actuation mounting is the same for both the NV and the SV.
  
- 2**    **Q:** Does the proposed modification change process chemistry, technology, or operating and control philosophies?  
**A:** No.
  
- 3**    **Q:** Does the proposed modification change how the existing plant is operated?  
**A:** No. Valve capacity is not affected by actuator revisions.

- 4** Q: Does the proposed modification change process flows?  
A: No. Valve capacity is not affected by actuator revisions.
- 5** Q: Does the proposed modification change existing pressure relief cases?  
A: No. This change involves actuators only. Pressure relief valve sizing is not considered when sizing and selecting Fisher control valves for end user applications. If the control valve is determined to affect upstream or downstream safety relief cases, review by the end user or third party is recommended.
- 6** Q: Does the proposed modification change the process description?  
A: No.
- 7** Q: Have the codes and standards to which the new equipment was designed changed?  
A: Not to our knowledge. Since both the Baumann NV and SV electric actuators are buyout components, Fisher cannot confirm whether or not our supplier's design codes and standards have changed.
- 8** Q: Does the proposed modification change the materials of construction, such as a change in material form (cast, forged, or alloy)?  
A: Yes. The NV housing is polycarbon and the yoke is epoxy-coated ductile iron, while the SV housing is die-cast aluminum with an aluminum yoke.
- 9** Q: Does the proposed modification introduce new equipment items that require periodic predictive maintenance?  
A: No. The new equipment items will require the same periodic maintenance as required by the old equipment items.
- 10** Q: Does the proposed modification change existing operator training requirements?  
A: No.

- 11 Q:** Does the proposed modification introduce new equipment items that require spare parts, training manuals, maintenance procedures or training to teach the maintenance department how to maintain them?
- A:** Yes. Emerson local business partners and sales offices offer local training and support to help ensure operators, maintenance personnel, and instrument technicians are trained on Baumann SV electric actuators.
- 12 Q:** Does the proposed modification introduce new equipment items that require spares or obsolete spares for existing equipment?
- A:** Yes. We have created two (2) new mounting kits—one for 0.50 inches travel (GE81278X012) and one for 0.75 inches travel (GE81279X012).
- 13 Q:** Does the proposed modification permanently remove the spares for existing pieces of equipment?
- A:** No.
- 14 Q:** Does the proposed modification change the inspection scope or inspection interval?
- A:** No.
- 15 Q:** Does the proposed modification require welding work to be performed?
- A:** No.
- 16 Q:** Have the materials of construction been reviewed to ensure that the metallurgy is correct?
- A:** Yes.

## Comparison of Baumann NV and SV Electric Actuators

The NV and SV electric actuators share several specifications, as shown in the table below.

Actuator Type	NV24-MFT, Non Spring Return	NVF24-MFT and NVF24-MFT-E, Spring Return	SVX24-MFT	SVK24-MFT
Power Failure	Lock in last position	Lock in last position / Fail Open / Fail Closed	Lock in last position	Fail Open / Fail Closed
Action	Direct or Reverse			
Power Consumption	5.0 W	5.5 W	4 W	8.5 W
Transformer Size	7 VA (class 2 power source)	10 VA (class 2 power source)	6 VA (class 2 power source)	21 VA (class 2 power source)
Travel	12.7 and 19.1 mm (0.50 and 0.75 inches)			
Material – Housing	Polycarbon (ABS), UL94-5V flammability rating		Aluminum die cast and plastic casing	
Material - Yoke	Ductile Iron, Powder Epoxy-Coated		Aluminum	
Enclosure Rating	NEMA 2 / IP 54 with cable entry facing down		NEMA 2, / IP 54 UL Enclosure	
Input Signal	2-10 VDC or 4-20 mA input signal (Upon loss of signal, SVK24 will always close)			
Power Supply	24 VAC or 24 VDC			
Electrical Connection	3 ft, 18 GA appliance cable, 0.5 inch conduit fitting			
Ambient Temperature	-30 to 50°C (-22 to 122°F)			
Relative Humidity Range	5 to 95% RH, non-condensing			
Output Thrust	800 N (180 lbf)		1500 N (337 lbf)	
Valve Stem Position Feedback Output	2-10 VDC (0.5 mA maximum)			
Shutoff Class	Class IV or VI per ANSI/FCI 70-2 (Refer to Valve Technical Bulletin)			
Travel Time	Maximum 150 seconds for 0.5 and 0.75 inch travel ranges (optional 75 second travel time for non-spring return) Spring fail time: 30 seconds for full travel		30 seconds	
Noise Level	Maximum 35 dB(A)		<45 dB(A)	
Manual Override	5mm(3/16 inch) Hex Head Screwdriver		4 mm Hex Head	
Position Indication	Travel indicator on Yoke			
Split Range Capability	Yes			
Agency Approvals	CE (A), UL873, CSA 4813 02 (CE approval applies to actuator only)		CE(A), UL 60730-1A/-2 -14, CSA E60730- 1:02 (CE approval for actuator only)	
Quality Standard	ISO 9001			
Weight	1.5 kg (3.3 lbs)	1.8 kg (4 lbs)	1.3 kg (2.9 lbs)	1.6 kg (3.6 lbs)

Table 1. Baumann Actuator Specifications

## Materials Construction

While the Baumann NV electric actuator used polycarbon (ABS) material for the housing and epoxy-coated ductile iron for the yoke, the new SV electric actuator housing and yoke are die-case aluminum. Table 2 illustrates these material comparisons.

Old Type	NV Housing/ Yoke	SV Housing/ Yoke	New Type
NV	Polycarbon (ABS), UL94-5V flammability rating/ ductile iron, powder epoxy-coated	Aluminum die cast and plastic casing/ aluminum	SVX
NVF			SVK
NVFE			

Table 2. Actuator Materials of Construction Comparison

## Output Thrust

The available thrust capability for the new SV electric actuator nearly doubles that of the NV electric actuator. Table 3 illustrates the comparison in available thrust.

Old Type	NV Output Thrust	SV Output Thrust	New Type
NV	800 N (180 lbf.)	1500 N (337 lbf.)	SVX
NVF			SVK
NVFE			

Table 3. Actuator Thrust Comparison

## Dimensions

Please reference Table 4 below along with Figures 1 & 2 for illustration of dimensional differences.

Actuator Type	Actuator Height	Actuator Width
NV	284 mm (11.2 in)	179 mm (7.0 in)
SV	244 mm (9.6 in)	258 mm (10.16 in)

Table 4. Actuator Dimensional Comparison

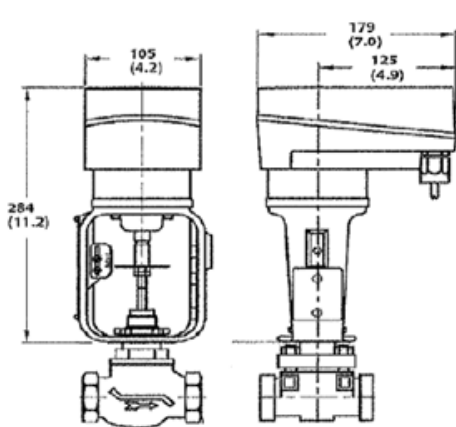


Figure 1. Baumann NV electric actuator on a Baumann control valve body

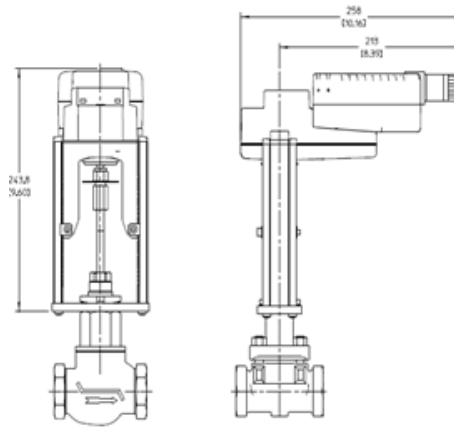


Figure 2. Baumann SV electric actuator on a Baumann control valve body

### Approximate Assembly Weights

Table 5 provides approximate assembly weights for the Baumann NV and SV electric actuators. For more specific information, please contact your [Emerson local sales office](#).

Old Type	NV Weight	SV Weight	New Type
NV	1.5 kg (3.3 lbs)	1.3 kg (2.9 lbs)	SVX
NVF	1.8 kg (4 lbs)	1.6 kg (3.6 lbs)	SVK
NVFE			

Table 5. Approximate Actuator Assembly Weight Comparison

### Type

Table 6 illustrates the type comparison between the Baumann NV and SV series.

Old Type	Old Description	New Description	New Type
NV	Non Spring Return, proportional, fails in last position, 4-20 mA	Non Spring Return, proportional, fails in last position, 4-20 mA	SVX
NVF	Spring Return, proportional, fails open, 4-20 mA	Spring Return, modulating, Fail Open / Fail Closed, 4-20 mA	SVK
NVFE	Spring Return, proportional, fails closed, 4-20 mA		

Table 6: Actuator Type Comparison

## Conclusion

The Baumann SV electric actuator offers compatible sizes and features for Baumann sliding stem control valves for use in a wide range of industrial environments and is the direct replacement for the obsolete Baumann NV electric actuator.

Please contact your [local Emerson sales office](#) for additional details or questions regarding the Baumann SV electric actuator.

## Additional Resources



[Baumann SV Product Bulletin](#)

[D104169X012](#)



[Baumann SV Instruction Manual](#)

[D104170X012](#)



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<http://www.YouTube.com/user/FisherControlValve>



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To find the Emerson sales contact in your area, scan or click the QR code.



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