Baumann™ SV Electric Actuator

Contents

Figure 1. Baumann 24000CVF Valve with SV Electric Actuator

X1326

Introduction

Baumann SV electric actuators (figure 1) provide high accuracy for industrial temperature, HVAC, and sanitary applications.

This system is specifically designed for Baumann sliding stem-control valves.

Scope of Manual

This instruction manual includes installation, maintenance, and parts information for Baumann SV electric actuators.

Do not install, operate, or maintain Baumann SV electric actuators without being fully trained and qualified in valve, actuator, and accessory installation, operation, and maintenance. **To avoid personal injury or property damage, it is important to carefully read, understand, and follow all the contents of this manual, including all safety cautions and warnings.** If you have any questions about these instructions, contact your Emerson sales office or Local Business Partner before proceeding.

Actuator Specifications

Table 1. Baumann Actuator Specifications

ACTUATOR TYPE		SVX24-MFT	SVK24-MFT
POWER FAILURE		Lock in last position	Fail Open / Fail Closed
ACTION		Direct or Reverse	
POWER CONSUMPTION		4 W	8.5 W
TRANSFORMER SIZE		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	Aluminum die cast and plastic casing	
	YOKE Legs	Aluminum	
ENCLOSURE RATING		NEMA 2, / IP 54 UL Enclosure Type 2	
INPUT SIGNAL		2 - 10 VDC or 4 - 20 mA input signal	
POWER SUPPLY		24 VAC or 24 VDC	
ELECTRICAL CONNECTION		3 ft, 18GA 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		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		35 seconds	
NOISE LEVEL		< 45 dB(A)	
MANUAL OVERRIDE		4 mm Hex Head	
POSITION INDICATION		Travel Indicator on Yoke	
SPLIT RANGE CAPABILITY		Yes	
AGENCY APPROVALS		CE (A), UL 60730-1A/-2 -14, CSA E60730-1:02 (CE approval for actuator only)	
QUALITY STANDARD		ISO 9001	
WEIGHT		1.3 kg (2.9 lbs)	1.6 kg (3.6 lbs)

⚠ WARNING

Always wear protective gloves, clothing and eyewear when performing any installation operations to avoid personal injury.

Personal injury or property damage caused by sudden release of pressure or bursting of pressure retaining parts may result if service conditions exceed those for which the product was intended. To avoid injury or damage, provide a relief valve for over pressure protection as required by government or accepted industry codes and good engineering practices.

Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

If installing into an existing application, also refer to the WARNING at the beginning of the Maintenance section in this instruction manual.

CAUTION

This actuator is intended for a specific range of pressures, temperatures and other application specifications. Applying different pressures and temperatures to the actuator could result in parts damage, malfunction of the actuator or loss of control of the process. Do not expose this product to service conditions or variables other than those for which the product was intended. If you are not sure what these conditions are you should contact your Emerson sales office or Local Business Partner for more complete specifications. Provide the product serial numbers (shown on the nameplate) and all other pertinent information.

⚠ WARNING

If you move or work on an actuator installed on a valve with loading pressure applied, keep your hands and tools away from the stem travel path to avoid personal injury. Be especially careful when removing the stem connector to release all loading on the actuator stem.

Likewise take similar care when adjusting or removing any optional travel stop. Refer to the relevant actuator Maintenance Instructions.

If hoisting the valve, take care to prevent people from being injured in case the hoist or rigging slips. Be sure to use adequate sized hoists and chains or slings to handle the valve.

⚠ WARNING

Personal injury could result from packing leakage. Valve packing is tightened before shipment; however, the packing might require some readjustment to meet specific service conditions.

Educational Services

For information on available courses for Baumann SV electric actuators, as well as a variety of other products, contact:

Emerson Automation Solutions
Educational Services - Registration
Phone: 1-641-754-3771 or 1-800-338-8158
E-mail: education@emerson.com
emerson.com/fishervalvetraining

Maintenance

⚠ WARNING

Avoid personal injury and property damage from sudden release of process pressure or bursting of parts. Before performing any maintenance operations:

- **Do not remove the actuator from the valve while the valve is still pressurized.**
- **Always wear protective gloves, clothing, and eyewear when performing any maintenance operations.**
- **Disconnect any operating lines providing air pressure, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.**
- **Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure on both sides of the valve. Drain the process media from both sides of the valve.**
- **Depending on the actuator construction, it will be necessary to manage the pneumatic actuator spring pre-compression. It is essential to refer to the relevant actuator instructions in this manual to provide safe removal of the actuator from the valve.**
- **Use lock-out procedures to be sure the above measures stay in effect while you work on the equipment.**
- **The valve packing box may contain process fluids that are pressurized, *even when the valve has been removed from the pipeline.* Process fluids may spray out when removing the packing hardware or packing rings, or when loosening the packing box pipe plug.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**
- **Do not tamper with actuator positioning bolts located on the adjustable yoke legs.**

Note
It is recommended that you review figure 2 before performing maintenance or installation of the SV electric actuator.

Recommended Installation Location

It is permissible to install the SV actuator upright or horizontally. Allow 12 inches of clearance for removal of the actuator.

CAUTION

To avoid equipment damage, do not install the valve with the stem in a downward position. Equipment damage may occur from liquids leaking into the actuator cover.

Note
Assembly can be mounted horizontally or vertically. Do not install with the actuator below the pipe.

Figure 2. Baumann Actuator Parts

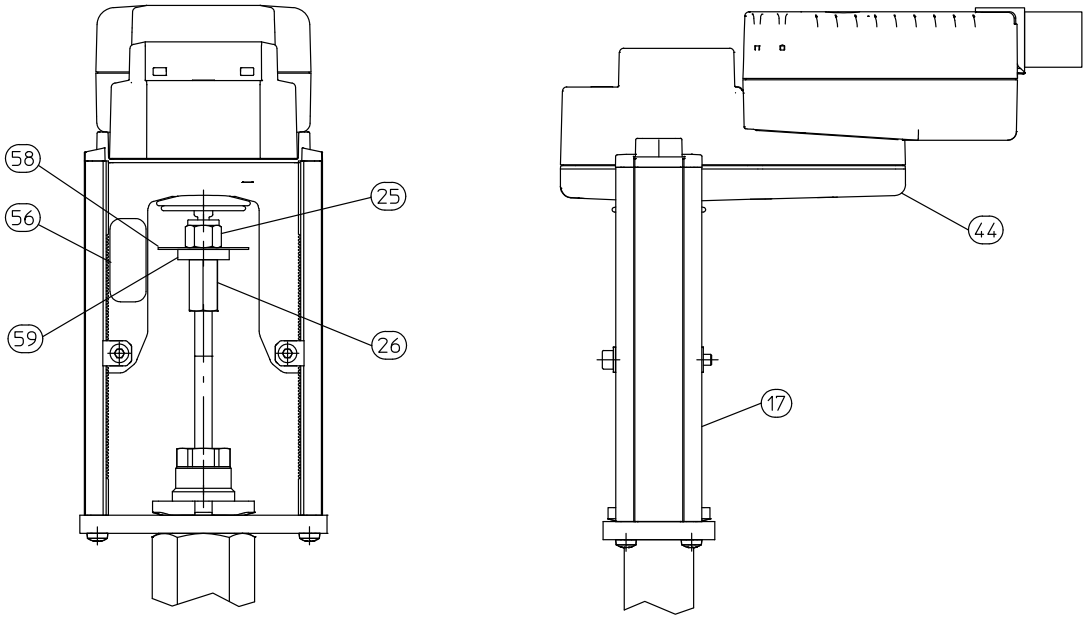

Table 2. Baumann Actuator Assembly Parts List

Key No.	Key No.	Qty	12.7 mm (1/2 inch) TRAVEL	19.1 mm (3/4 inch) TRAVEL
			Part Number	Part Number
17	Actuator Yoke	1	Consult your Emerson sales office or Local Business Partner	
25	Stem Connector	1	24837	
26	Stem Adapter	1	24836	
44	SV Actuator	1	Consult your Emreson sales office or Local Business Partner	
56	Travel Scale	1	GE78016	GE77985
58	Travel Indicator	1	GE79702	
59	Spacer	1	GE83197	

Table 3. Common Valve Parts for Baumann 24000, 24000C, 24000S, 24000F, 24000SVF, and 24000CVF

Key No.	Key No.
1	Valve Body
2	Seat Ring
4	Plug
5	Stem
8	Bonnet
9	Drive Nut
10	Packing Follower
27	Locknuts

Installation

See table 2 for actuator parts/key numbers referenced in this Installation section. See table 3 and also refer to the appropriate Baumann valve instruction manual for valve parts referenced in this Installation section.

1. Before starting, ensure you have the correct actuator part number for the necessary stroke and locate the following parts: stem locknuts, travel indicator, bonnet, yoke drive nut, plug and stem assembly, packing follower. Refer to the assembly instructions for the appropriate Baumann control valve for parts identification.
2. Place the body of the valve in a vise. Clamp the flat end faces of the valve.
3. Connect the actuator wires in the proper setup. The black and red wires should be connected to power and the black and white wires should be connected to the input signal. Cycle the actuator to the upper travel point.
4. When mounting the actuator assembly to the valve body, the hole in the yoke plate should fit over the top of the valve stem. Tilt the top of the actuator back at an angle so you can access the top of the valve stem.
5. Position the yoke drive nut over the valve stem with the flat side facing up [the rounded side should face down, toward the top surface of the yoke plate].
6. Thread two locknuts onto the valve stem. Finger-tighten both nuts down as far as possible. Lock the nuts together using two wrenches to counter-tighten them. By turning the locked nuts with a wrench, you will be able to turn the valve stem in step 8 without damaging the surface of the valve stem.

CAUTION

When assembling or disassembling the valve, do not turn the valve stem while the plug is touching the valve seat. This will damage the valve's seating surfaces.

7. Tighten the yoke drive nut by hand.
8. Apply anti-seize compound to the first few threads of the valve stem. Lift the valve stem up so that the plug is off the seat. Turn the valve stem so that the threads begin to catch in the lower end of the stem adapter (key 26). Using one wrench placed on the lower counter-tightened nut and one wrench on the stem adapter (key 26), turn the valve stem up until you feel resistance, then back off or unscrew the stem adapter one full turn. Be sure that the actuator yoke plate is firmly seated on the bonnet.
9. Using a hammer and punch, tighten the drive nut.
10. Place the spacer (key 59) on top of the stem adapter (key 26). Place the travel indicator disk on top of the spacer and tighten the stem connector (key 25) to the stem adapter (key 26) until rigid.
11. Check the seat leak and adjust the stem adapter down as required to achieve shutoff.
12. Using two wrenches, unlock the two counter-tightened locknuts. Holding the stem adapter (key 26) with a wrench, turn the locknuts, one at a time, up until they are locked together against the stem adapter (key 26).
13. With the valve in the closed position, add the travel indicator sticker (key 56). The closed line on the travel indicator sticker (key 56) should be aligned with the travel indicator (key 58) at this point.

Additional Calibration and Setup

For additional calibration and setup information, please visit http://www.belimo.us/ishop/cms/sh/mftpctool/index.html. The calibration PC tool, as well as MFT documentation, is available.

SV Manual Override

SV Manual Override

Y2A7087

E1354

TURN MANUAL OVERRIDE COUNTERCLOCKWISE: ACTUATOR PLUNGER RETRACTS

TURN MANUAL OVERRIDE CLOCKWISE: ACTUATOR PLUNGER EXTENDS

Parts Ordering

When corresponding with your Emerson sales office or Local Business Partner about this equipment, always mention the valve serial number. When ordering replacement parts, also specify the key number and part name shown in table 2.

⚠ WARNING

Use only genuine Fisher replacement parts. Components that are not supplied by Emerson Automation Solutions should not, under any circumstances, be used in any Fisher valve, because they may void your warranty, might adversely affect the performance of the valve, and could cause personal injury and property damage.

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