

Baumann™ 89000 Sanitary Control Valve

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Figure 1. Baumann 89000 NPS 1/2 Sanitary Control Valve Shown with FIELDVUE™ DVC2000 Digital Valve Controller



Introduction

The Baumann 89000 sanitary control valve (figures 1 and 2) provides control solutions for sanitary and aseptic process systems. These valves meet FDA and USP CLVI standards. They are designed to drain freely from inlet to outlet. In sanitary and aseptic valve applications, the surface finish of all wetted parts is of the utmost importance and needs to be free of pits and cracks. The Baumann 89000 series valves meet all of these requirements.

The 89000 control valve covers a wide range of applications in many industries including food and beverage, biotechnology, pharmaceutical, and others where cleanliness and sterility are required. The valves are designed for easy maintenance and all parts in contact with the media are made of corrosion resistant S31603 stainless steel.



Figure 2. Baumann 89000 NPS 3 Sanitary Control Valve Shown with FIELDVUE DVC6200 Digital Valve Controller



Scope of Manual

This instruction manual includes installation, maintenance, and parts information for the Baumann 89000 series sanitary control valve.

Do not install, operate, or maintain Baumann 89000 control valves 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 Process Management sales office before proceeding.

Safety Precautions

▲ 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 valve is intended for a specific range of pressures, temperatures and other application specifications. Applying different pressures and temperatures to the valve could result in parts damage, malfunction of the control valve 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 Process Management sales office 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 whether it be from air pressure on the diaphragm or compression in the actuator springs. 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.

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 perform 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 under pressure 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.

Note

Whenever a gasket seal is disturbed by removing or shifting gasketed parts, install a new gasket during reassembly. This provides a good gasket seal because the used gasket may not seal properly.

Installation

1. Before installing the valve in the pipeline, thoroughly clean the line of all dirt, welding chips, scale, oil or grease, and other foreign material.
2. Install the valve so the controlled fluid will flow through the valve body in the direction indicated. If you are not sure, reference bulletin 51.2:89SV, D103346X012 or contact your Emerson Process Management sales office.
3. A three-valve bypass must be used to permit removal of the control valve from the line without shutting down the system.

▲ WARNING

To avoid personal injury or property damage, do not attempt to do any work on a valve while the system is in operation, the valve must be isolated 100% from the active system and the isolated line voided of pressure and/or hazardous fluids.

Air Piping

1. For an air-to-extend actuator (air-to-close action), connect the actuating air pressure line to the 1/4 NPT opening in the upper diaphragm case. For an air-to-retract actuator (air-to-open action) connect the actuating air pressure line to the 1/4 NPT in the lower diaphragm case.
2. Use 6.4 mm (1/4 inch) O.D. tubing on type 20 and 9.6 mm (3/8 inch) on types 50, 50H, and 112 or equivalent for all air lines. If the air line exceeds 8 m (25 ft) in length, 9.5 mm (3/8 inch) tubing is preferred. Air lines must not leak. Air pressure not to exceed 6.9 bar (100 psig).

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.

When adjusting the valve stem, do not grip the stem directly with pliers or a wrench. This will damage the surface of the stem, and cause damage to the O-ring seals in the valve. Instead, use a spanner or Allen wrench through the recessed holes on the stem (key 12). This will allow you to turn the stem.

Do not place valve in a vise. This can distort the shape of the valve.

CAUTION

Prior to performing maintenance on the valve, isolate the valve, vent the process pressure, and shut off supply and signal air lines to the actuator.

Disassembly

Actuator Removal

Access to the internal components of the valve body can be accomplished with the actuator removed.

Air-to-Close Actuators

1. Disconnect the air supply to the actuator (key 2) and remove the air tubing.
2. Loosen the upper body clamp (key 5) and then remove the plug and stem (key 12) by holding the actuator stem still while unthreading the plug and stem (key 12) counterclockwise.
3. Remove the stem locknut (key 8) and the upper body clamp (key 5) by sliding the yoke (key 4) and actuator assembly off from the plug and stem (key 12).
4. Carefully remove the actuator from the valve.

Air-to-Open Actuators

1. Using flexible tubing, apply sufficient air pressure to the actuator (key 2) to lift the plug and stem (key 12) off the valve seat/lower pipe connection (key 13).
2. Loosen the upper body clamp (key 5) and then remove the plug and stem (key 12) by holding the actuator stem still while unthreading the plug and stem (key 12) counterclockwise.
3. Remove the stem locknut (key 8) and the upper body clamp (key 5).
4. Carefully remove the actuator from the valve.

Valve Body Disassembly

89000A, Angle Valve Body

1. After removal of the actuator (key 2), the bonnet (key 10) should be visible. Slide the bonnet (key 10) out of the valve body assembly and off of the plug and stem (key 12). Be sure not to tear the O-ring seals.
2. Remove the plug and stem (key 12) from the valve body (key 1a).
3. Unthread the lower body clamp bolts and remove the bolts from the lower body clamp (key 7). Take the lower body clamp off of the valve body (key 1a) and the valve seat/lower pipe connection (key 13) from the valve body.
4. Carefully slide the valve seat/lower pipe connection (key 13) from the valve body (key 1a), being sure not to tear the O-ring seal.
5. Inspect all O-rings and sealing surface for signs of wear and scratches. Replace O-rings if needed.

89000I, Inline Valve Body

1. After removal of the actuator (key 2), the bonnet (key 10) should be visible. Slide the bonnet (key 10) out of the upper valve body (key 1b) and off of the plug and stem (key 12).
2. Remove the plug and stem (key 12) from the upper valve body (key 1b).
3. Unthread the middle valve body clamp bolts and remove the bolts from the middle body clamp (key 6). Take the middle body clamp (key 6) off and slide the lower body (key 1c) away from the upper body (key 1b). Be sure not to tear the O-ring seal.
4. Once the lower body (key 1c) has been removed, the valve seat (key 16) should be visible. Carefully slide the valve seat (key 16) from the upper valve body (key 1b), being sure not to tear the O-ring seal.
5. Carefully slide the lower valve body wall from the lower valve body (key 1c), being sure not to tear the O-ring seal.

6. Inspect all O-rings and sealing surfaces for signs of wear and scratches. Replace the O-rings if needed.

Replacing O-Ring Seals

Remove the old O-rings by hand or with an appropriate tool. Be sure not to scratch the sealing surfaces of the valve components. Replace the O-rings with care, being sure not to overstretch, tear, or twist the O-rings.

Valve Body Reassembly

Reverse the previous Valve Body Disassembly procedure. Be sure to take care and not damage the O-rings when pressing the valve body components back into place.

Parts Ordering

When corresponding with your Emerson Process Management sales office about this equipment, always mention the valve serial number. When ordering replacement parts, also specify the key number, part name, and desired material using the following parts tables.

▲ WARNING

Use only genuine Fisher® replacement parts. Components that are not supplied by Emerson Process Management 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.

Figure 3. Baumann 89000A Angle Valve Assembly

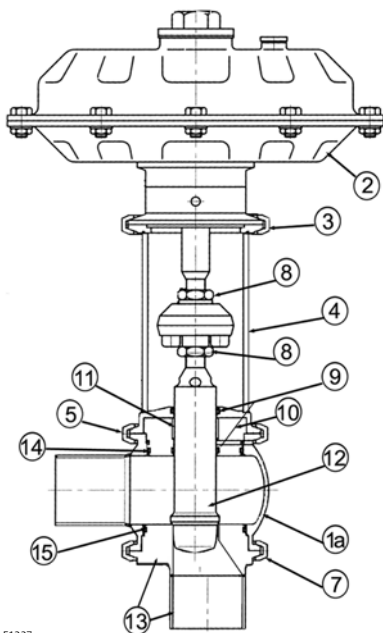


Figure 4. Baumann 89000I Inline Valve Assembly

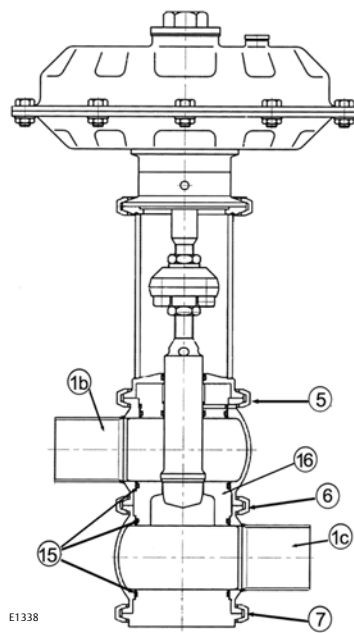
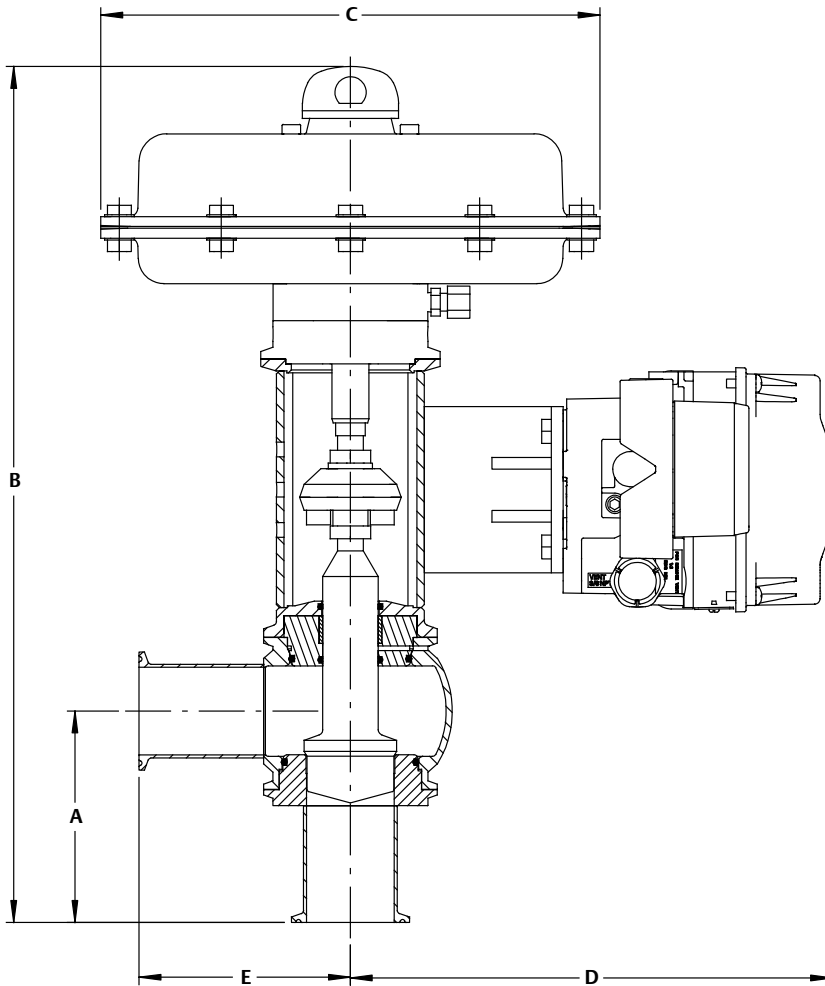


Table 1. Materials of Construction

Key Number	Description
1a	Angle Valve Body
1b	Upper Inline Valve Body
1c	Lower Inline Valve Body
2	Diaphragm Actuator
3	Actuator Clamp
4	Yoke
5	Upper Body Clamp
6	Middle Body Clamp
7	Lower Body Clamp
8	Stem Locknut
9	O-Ring
10	Bonnet
11	Bearing
12	Valve Plug with Seat
13	Angle Valve Seat/Lower Pipe Connection (1 pc)
14	O-Ring
15	O-Ring
16	Inline Valve Seat

Figure 5. Dimensions for Baumann 89000A Angle Valve with FIELDVUE DVC6200 Digital Valve Controller

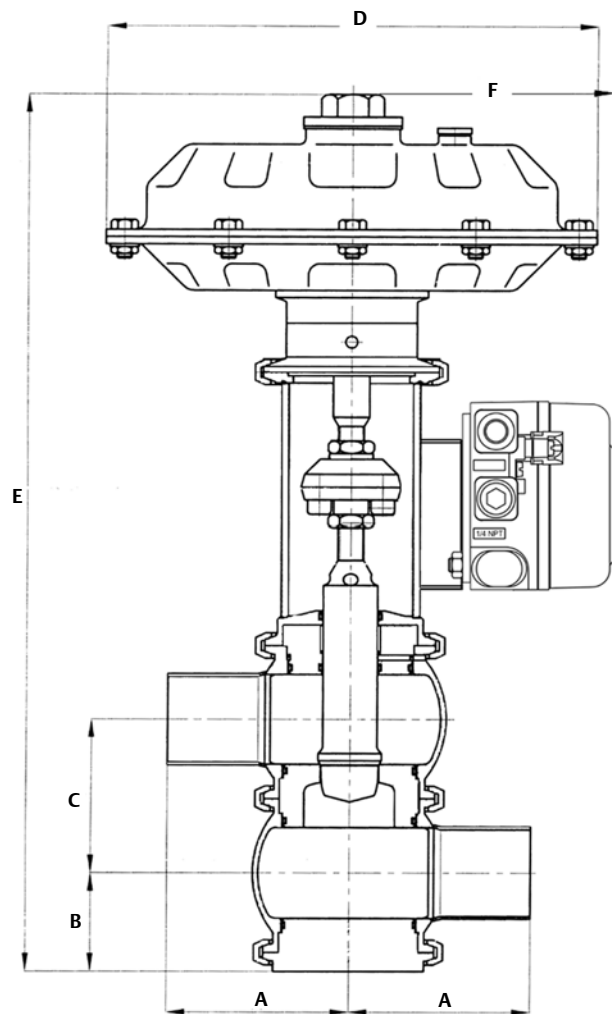


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Table 2. Baumann 89000A Angle Valve Dimensions

VALVE SIZE			DIMENSIONS															
			Tri-Clamp A		Weld End A		Tri-Clamp B		Weld End B		C		D		Tr-Clamp E		Weld End E	
DN	NPS	Capacity	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
15	1/2	0.29	62.7	2.5	50	1.97	344	13.5	331	13	165	6.5	261	10.3	65.40	2.57	52.70	2.07
15	1/2	1.2	62.7	2.5	50	1.97	344	13.5	331	13	165	6.5	261	10.3	63.90	2.52	51.20	2.01
20	3/4	1.9	62.7	2.5	50	1.97	344	13.5	331	13	165	6.5	261	10.3	66.35	2.61	53.65	2.11
20	3/4	4.7	62.7	2.5	50	1.97	344	13.5	331	13	165	6.5	261	10.3	62.70	2.47	50.00	1.97
25	1	10	62.7	2.5	50	1.97	344	13.5	331	13	270	10.6	261	10.3	61.75	2.43	49.05	1.93
40	1-1/2	21	102.7	4	90	3.54	445	17.5	432	17	270	10.6	261	10.3	104.10	4.1	91.40	3.60
50	2	33	112.7	4.4	100	3.94	459	18.1	446	17.6	270	10.6	261	10.3	112.70	4.44	100.00	3.94
---	3	79	142.7	5.6	130	5.12	531	20.9	519	20.4	270	10.6	261	10.3	148.15	5.83	135.45	5.33
80	---	99	142.7	5.6	130	5.12	531	20.9	519	20.4	270	10.6	261	10.3	142.70	5.62	130.00	5.12
100	4	209	155.9	6.1	140	5.50	552	21.7	536	21.1	270	10.6	261	10.3	155.90	6.14	150.00	5.91
150	6	442	Contact your Emerson Process Management sales office for NPS 6 availability.															

Figure 6. Dimensions for Baumann 89000I Inline Valve with FIELDVUE DVC2000 Digital Valve Controller



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Table 3. Baumann 89000I Inline Valve Dimensions

VALVE SIZE		DIMENSIONS													
		Tri-Clamp A		Weld End A		B		C		D		E		F	
DN	NPS	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
15	1/2	62.7	2.5	50	1.97	34.5	1.36	50	1.97	165	6.5	366	14.4	127	5
20	3/4	62.7	2.5	50	1.97	34.5	1.36	50	1.97	165	6.5	366	14.4	127	5
25	1	102.7	4	90	3.54	48	1.89	74	2.91	165	6.5	464	18.3	153	6
40	1-1/2	102.7	4	90	3.54	48	1.89	74	2.91	270	10.6	464	18.3	153	6
50	2	112.7	4.4	100	3.94	56	2.20	85	3.35	270	10.6	488	19.2	153	6
80	3	147.7	5.6	130	5.12	78	3.07	116	4.57	270	10.6	581	22.9	153	6
100	4	155.3	6.1	140	5.50	86	3.39	136	5.35	270	10.6	617	24.3	153	6
150	6	Contact your Emerson Process Management sales office for NPS 6 availability.													

Figure 7. Baumann 89000 Valve Body Spare Parts

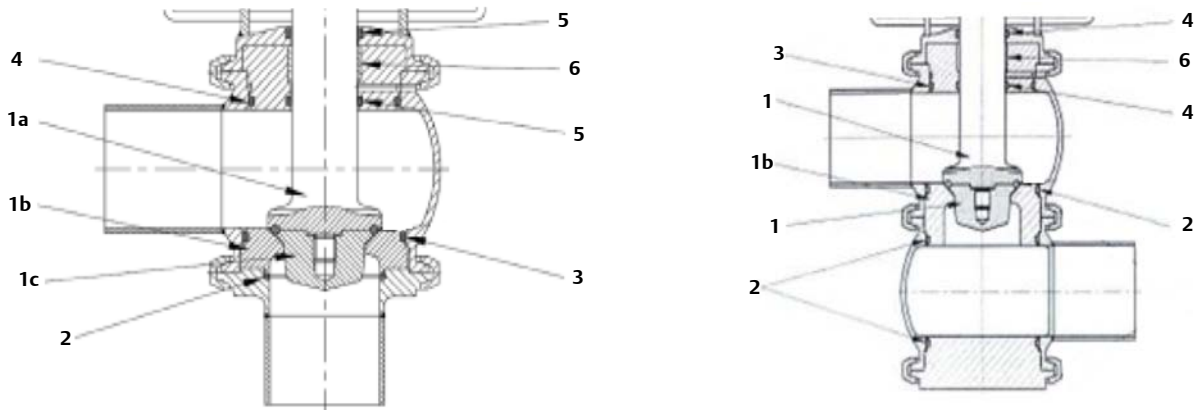


Table 4. Baumann 89000 Valve Body Spare Parts

DN	NPS	Valve Body Type	Capacity (Cv)	Valve Seat & Plug ⁽¹⁾	O-Ring Kit ⁽²⁾
15	1/2	Angle	0.29	GE56512X012	89T001
			1.2	GE56142X012	
		Inline	0.29	GE56513X012	89T007
			1.2	GE56514X012	
20	3/4	Angle	1.9	GE56143X012	89T001
			4.7	GE56515X012	
		Inline	1.9	GE56516X012	89T007
			4.7	GE56517X012	
25	1	Angle	10	GE56144X012	89T001
		Inline	10	GE56518X012	89T007
40	1-1/2	Angle	21	GE53538X012	89T002
		Inline	21	GE56519X012	89T008
50	2	Angle	33	GE52287X012	89T003
		Inline	33	GE56520X012	89T009
---	3	Angle	79	GE52860X012	89T005
		Inline	79	GE56521X012	89T011
80	---	Angle	99	GE56522X012	89T004
		Inline	99	GE56523X012	89T010
100	4	Angle	209	GE53537X012	89T006
		Inline	209	GE56524X012	89T012
150	6	Inline	442	GE56034X012	GE56035X012

1. Includes key numbers 1a, 1b, and 1c.
 2. Includes key numbers 2, 3, 4, and 6 (also includes key number 5 for angle body).

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