Instruction Manual
D103365X012
August 2026

Fisher™ Baumann™ 51000 Low Flow Control Valve

FISHER™

EMERSON™

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Section 1: Introduction

The Fisher Baumann 51000 control valve (Figure 1) is optimally designed for demanding low flow control and is a perfect fit where space is at a premium. This compact package provides the connection integrity of flanged body globe valves, while being significantly lighter and easier to install.

1.1 Scope of the Manual

This instruction manual includes installation, maintenance and parts information for the Fisher Baumann 51000 control valve and Fisher Baumann 16 actuator.

⚠ WARNING

Do not install, operate or maintain Fisher Baumann 51000 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 sales office before proceeding.

Figure 1. 51000 NPS 1/2 Control Valve with Fisher Baumann 16 Actuator and Fisher FIELDVUE™ DVC2000 Digital Valve Controller

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1.2 Education Services

Emerson's Education Services
Phone: 800-338-8158
Email: education@emerson.com
emerson.com/en/final-control/services/valve-training

Table 1. Valve Body S/A Pressure-Temperature Ratings

WORKING PRESSURE, barg			WORKING PRESSURE, psig		
Temperature, °C	Stainless Steel	N10276, 35 HRC Max	Temperature, °F	Stainless Steel	N10276, 35 HRC Max
-195 to +37.8	207	207	-320 to +100	3000	3000
93.3	178	207	200	2580	3000
149	161	200	300	2330	2910
176	154	196	350	2235	2850

Section 2: Installation

⚠ 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.

⚠ WARNING

When ordered, the valve configuration and construction materials were selected to meet particular pressure, temperature, pressure drop and controlled fluid conditions. Responsibility for the safety of process media and compatibility of valve materials with process media rests solely with the purchaser and end-user. Because some valve body/trim material combinations are limited in their pressure drop and temperature range capabilities, do not apply any other conditions to the valve without first contacting your Emerson sales office.

⚠ 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.

NOTICE

To avoid damaging valve seating surfaces, make sure the adjacent piping is free of pipe scale, welding slag and any other potentially damaging material.

1. Before installing the valve in the pipeline, inspect the valve body to be certain it is free of foreign material and 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 by the arrow.
3. A three-valve bypass permits removal of the control valve from the line without shutting down the system.
4. In case of a heat-insulated installation, insulate the valve body only, not the bonnet.

Section 3: 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.

3.1 Actuator Removal

Refer to Figures 2, 3, 7 and 8.

1. For air-to-open actuators, lift actuator travel with air to lessen tension on the upper clamp nut (key 10).

NOTE

For air-to-close, this is NOT required.

2. Gently tap the upper clamp nut (key 10). With slight downward pressure on top of the actuator, unscrew the upper clamp nut (key 10) completely.
3. The Fisher Baumann 16 actuator assembly must be unscrewed from the stem adapter (key 26).

3.2 Plug and Packing Replacement

Refer to Figures 2 and 3.

NOTICE

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 packing in the valve.

1. For valves supplied with Fisher Baumann 16 actuators, remove the travel indicator disc (key 58). With the hex jam nuts (key 27) still tight, loosen the stem adapter (key 26) from the stem adapter nut (key 31) and unthread the stem adapter (key 26) from the plug stem (key 4).

   For valves with rated C_V's less than 1.0, unscrew the packing nut (key 11) and gently pull the plug (key 4) out through the top of the bonnet (key 6).

   For valves with rated C_V's greater than or equal to 1.0, follow the valve disassembly instructions to first remove the bonnet (key 6) before removing the plug (key 4).
2. Inspect or replace the packing (key 9) and the stem guide (key 8).
3. Inspect the valve plug (key 4) for wear or particle accumulation.

3.3 Valve Disassembly

Refer to Figures 2 and 3.

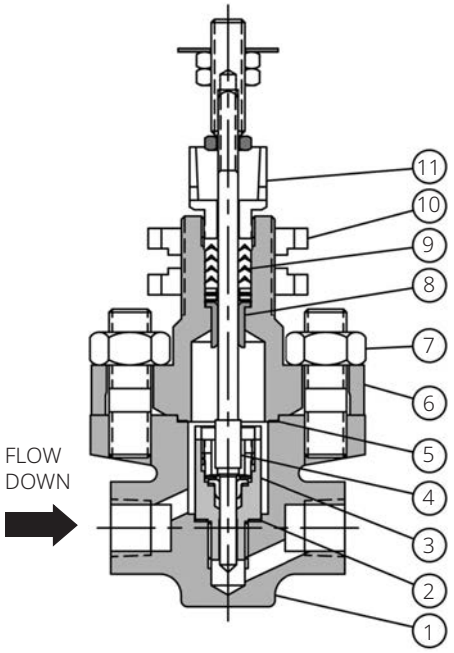
NOTE
The actuator must be removed from the valve body before valve body disassembly.

1. Remove the bonnet hex nuts (key 7) and lift the bonnet (key 6) off the valve body (key 1), which may include the packing (key 9) and plug assembly (key 4). [For alloy valve bodies, lift the bonnet flange (key 34) off from the bonnet (key 6) and then lift the bonnet (key 6) off the valve body (key 1)].
2. Remove the bonnet gasket (key 5) and replace.
3. The cage subassembly (key 3) can be removed by unscrewing with a flat screwdriver, using the outer screw slot and lifting out of the valve body (key 1). The cage subassembly should be inspected and cleaned with water or an approved solvent.

For valves with rated C_V's greater than or equal to 1.0, remove and inspect the plug guide (key 33) for wear. Replace if necessary. Replacement of the entire assembly will be necessary if excessive leakage or wear has occurred in service.

NOTE
The seat cage gasket (key 2) must be replaced when the cage subassembly (key 3) has been removed. The seat cage will appear oblong. This is to prevent loosening of the soft seat.

Figure 2. Fisher Baumann 51000 Valve Body Subassembly, NPS 1/4 Soft Seat



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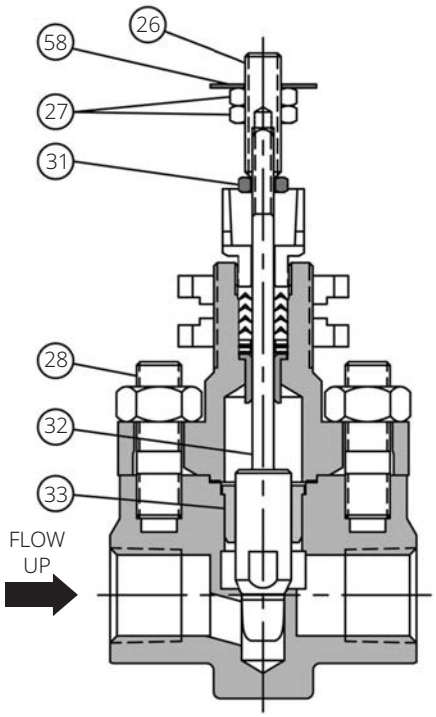
Soft Seat

Figure 3. Fisher Baumann 51000 Valve Body Subassembly, NPS 1/2 Alloy Valve Body Integral (Metal) Seat



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Metal Seat

3.4 Valve Reassembly

1. Place the cage gasket (key 2) and cage subassembly (key 3) in the valve body (key 1).
2. Tighten the cage (key 3) hand tight plus 1/8 of a turn. (For valves with rated C_V's greater than or equal to 1.0, insert the plug guide (key 33)).
3. Place the seat plug (key 4) into the valve body (key 1).
4. Place the bonnet gasket (key 5) into the valve body (key 1). Look at the bonnet (key 6) and valve body (key 1) for correct bonnet orientation.
5. Place the bonnet (key 6) onto the valve body (key 1) and secure with the hex nuts (key 7). For alloy valve bodies, place the bonnet (key 6) onto the valve body (key 1), then place the bonnet flange (key 34) over the bonnet—confirm correct orientation—then secure with the hex nuts (key 7).

   DO NOT TIGHTEN AT THIS POINT.

6 Install the stem guide (key 8) and packing kit (key 9) on the plug stem (key 4) in the proper order (as shown in Figure 4).

7. Carefully press into the top of the bonnet (key 6) making sure each part is seated properly.

8. Install packing rings over the stem one at a time. Use the packing follower nut (key 11) to push each packing ring in individually to avoid jamming.

9. With all required packing (key 9) in place, tighten the packing follower nut (key 11) until it becomes stiff.

   DO NOT OVERTIGHTEN THE PACKING FOLLOWER (key 11).

10. Now tighten the hex nuts (key 7)

Figure 4. V-ring Packing Kit

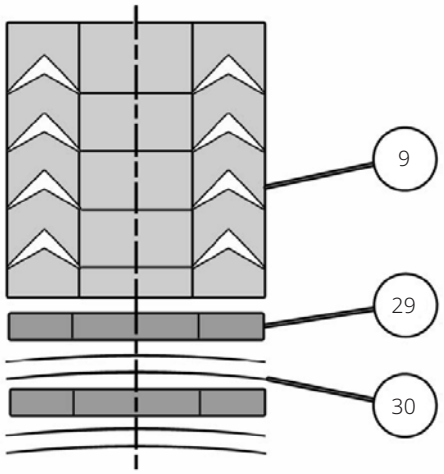

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Table 2. Fisher Baumann 51000 V-ring Packing Kit 51607

Key No.	Description	Qty
9(1)	Packing set	1
29	Flat washer	2
30	Disc spring	4
1. P/N 51604 used by itself for N10276 Nickel alloy packing.		

Section 4: Parts Ordering

When corresponding with your Emerson 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 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 5. Fisher Baumann 16 Actuator

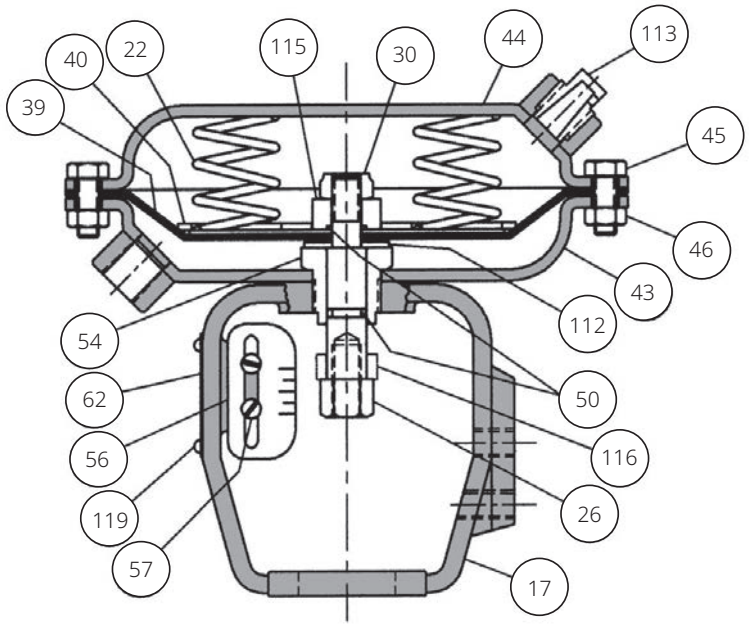

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Table 3. Fisher Baumann 16 Actuator

Key No.	Description	Qty
17	Yoke - Machined	1
22	Spring 1/2-in. Stroke 4 to 15 psi	5
	Spring 1/2-in. Stroke 3 to 12 psi	4
26	Actuator stem	1
30	Hex FLEXLOC Nut	1
39*	Diaphragm	1
40	Diaphragm plate	1
43	Lower actuator case	1
44	Upper actuator case	1
45	Hex head cap screw	8
46	Hex nut	8
50*	O-ring, FKM (Fluorocarbon)	2
54	Coupling	1
56	Travel scale	1
57	Pan head machine screw	2
62	Serial plate	1
112	Washer	1
113	Vent plug	1
115	Collar	1
116	Collar, Upper stop (Not shown)	1
119	Drive screw	2
* Recommended spare parts		

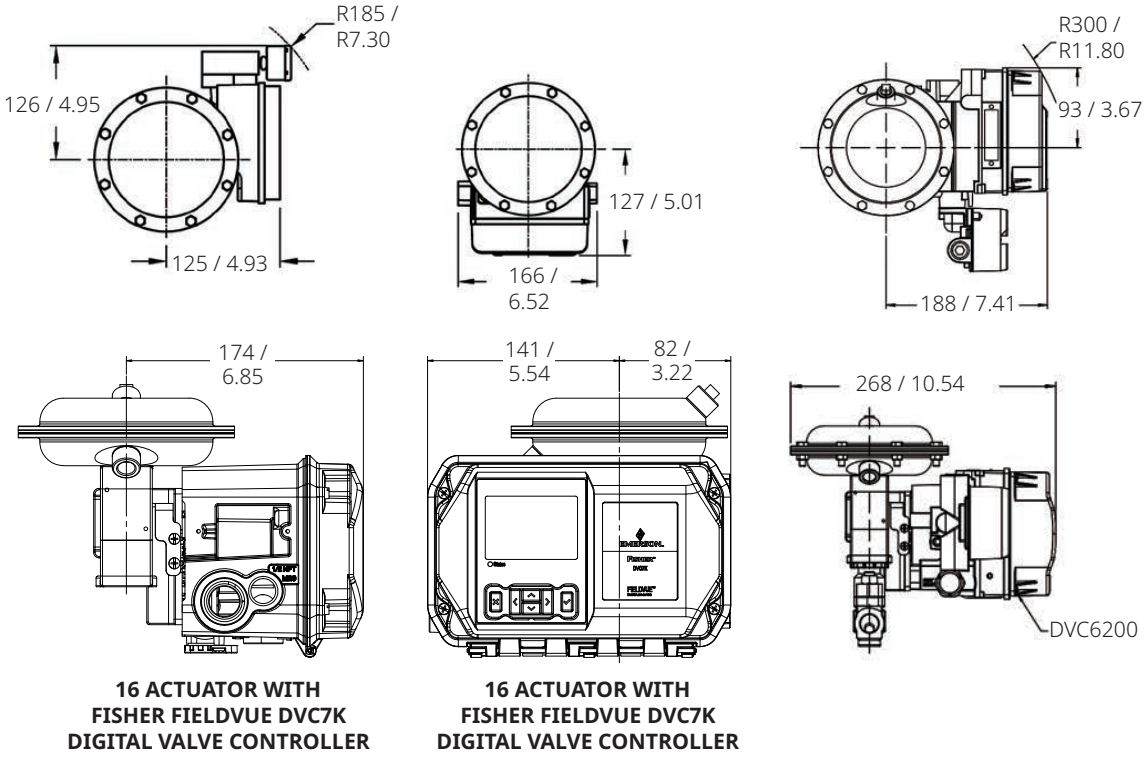
Table 4. Valve Body Assembly

Key No.	Description	Qty
1	Valve body	1
2*	Seat cage gasket	1
3*	Soft seat cage subassembly	1
4*	Plug	1
5*	Bonnet gasket	1
6	Bonnet	1
7	Hex nut	2
8	Stem guide	1
9*	V-ring	1
	V-ring packing kit	1
10	Clamp nut	2
11	Packing follower nut	1
28	Stud	2
32	Plug and stem S/A	1
33	Plug guide	1
34	Flange, Bonnet	1
26	Stem adapter	- - -
27	Hex jam nut	- - -
31	Stem adapter jam nut	- - -
58	Travel indicator disc	- - -
* Recommended spare parts		

Table 5. Fisher Baumann 51000 Plug Selection

Key No.	Valve Size	Plug C_V	Marking Code
4	NPS 1/2 ONLY	2.5	T01
		1.5	T02
		1.0	T03
	NPS 1/4 and 1/2	0.45	T04
		0.2	T05
		0.1	T06
		0.06	T07
		0.03	T08
		0.015	T09
		0.008	T10
		0.004	T11
		0.002	T12
		0.001	T13
		0.0005	T14
		0.00025	T15
		0.00013	T16
Linear		0.5	T17

Figure 6. Dimensions



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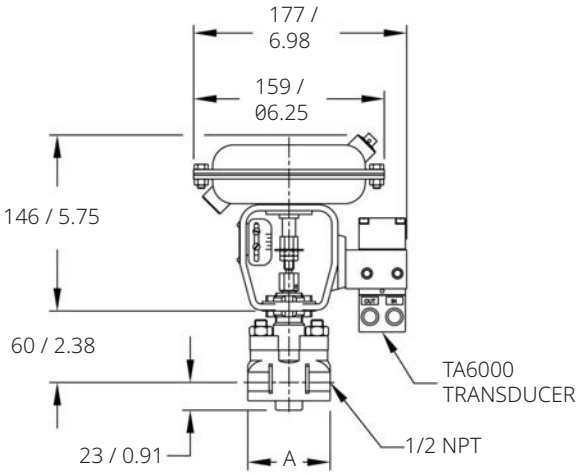
mm / in.

Table 6. Dimensions and Weights, Valve Body Subassembly

VALVE SIZE		A		MATERIAL	APPROXIMATE WEIGHTS	
mm	NPS	mm	in.		kg	lbs
6.35	1/4	55.9	2.20	Stainless steel	0.64	1.4
				N10276 Nickel alloy	1.0	2.2
12.7	1/2	68.6	2.70	Stainless steel	0.82	1.8
				N10276 Nickel alloy	1.18	2.6

Figure 7. Fisher Baumann 16 Actuator (Front View)



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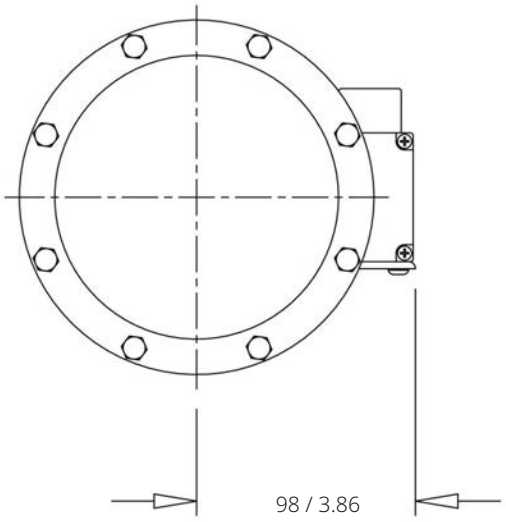
mm / in.

Figure 8. Fisher Baumann 16 Actuator with TA6000 (Top View)



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mm / in.

Table 7. Actuator/Instrument Weights

ACTUATOR	INSTRUMENT	APPROXIMATE WEIGHT	
		kg	lbs
16	Actuator without instrument	2.1	4.6
	Fisher 3660/3661 Positioner	3.6	8.0
	Fisher FIELDVUE DVC2000	3.8	8.3
	Fisher FIELDVUE DVC6200 and DVC6200f (Aluminum)	3.5	7.7
	Fisher FIELDVUE DVC6200 and DVC6200f (SST)	8.6	19
	Fisher FIELDVUE DVC7K	3.9	8.9
	TA6000 Electropneumatic Transducer	2.5	5.5

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