Baumann™ 24000CVF Carbon and 24000SVF Stainless Steel Flanged Control Valves

Contents

Figure 1. Baumann Control Valve with FIELDVUE™ Digital Valve Controller

24000CVF with DVC6200

24000SVF with DVC2000

Introduction

The Baumann 24000CVF and 24000SVF line of pneumatic control valves (figure 1) may be used for the control of pressure, temperature, level, and flow. These valves are available with CL150 or 300 and EN PN10-40 flanged end connections.

The high performance 24000CVF and SVF designs feature low deadband and hysteresis, high flow capacity, superb control characteristics, tight shutoff, and advanced packing systems to meet demanding service conditions. The rugged, compact and light weight control valves are ideal for use in tight piping systems where space is a premium.

Scope of Manual

This instruction manual includes installation, maintenance, and parts information for the Baumann 24000CVF carbon steel and SVF stainless flanged control valves.

Do not install, operate, or maintain Baumann 24000CVF or 24000SVF 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.

⚠ 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 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.

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 24000CVF/SVF valves, 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 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 by the arrow cast on the valve body.
3. A three-valve bypass must be used to permit 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.

⚠ 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 or equivalent for all air lines. If 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 2.5 barg (35 psig).

Disassembly

⚠ WARNING

If there is evidence of process fluid under pressure leaking from the joint, retighten the valve body/joint nuts. Return to the Warning at the beginning of the Maintenance section to ensure proper steps have been taken to isolate the valve and relieve process pressure.

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 packing in the valve. Instead, counter-tighten the two locknuts (key 27) on the stem (key 5). This will allow you to turn the stem by turning the locknuts (key 27) with a wrench.**
- **When placing the valve in a vise, do not clamp the rounded sides of the valve. This will distort the shape of the casting, and will ruin the valve. Caution must be taken not to damage the serrated flange faces.**
- **Mount the valve in a vise by clamping one flange below the serrated surface. Caution must be taken not to damage the serrated flange faces.**

Actuator Removal

Access to the internal components of the valve body can be accomplished with the actuator removed. For actuator maintenance see the Baumann Pneumatic Actuators Instruction Manual (D103352X012).

Air-to-Close Actuators

1. Disconnect the air supply to the actuator and remove the air tubing.
2. Loosen the drive nut (key 9) and then remove the plug and stem (keys 4 and 5) assembly by holding the actuator stem still while unthreading the plug and stem assembly clockwise.
3. Remove the stem locknuts (key 27), travel indicator (key 58), and yoke drive nut (key 9).
4. Remove the actuator from the valve.

Air-to-Open Actuators

1. Using flexible tubing, apply sufficient air pressure to the actuator to lift the plug off the seat.
2. Loosen the drive nut (key 9) and then remove the plug and stem (keys 4 and 5) assembly by holding the actuator stem still while unthreading the plug and stem assembly clockwise.
3. Remove the stem locknuts (key 27), travel indicator (key 58), and yoke drive nut (key 9).
4. Remove the actuator from the valve.
5. Disconnect the air supply to the actuator and remove the air tubing.

Valve Body Disassembly

1. After removing the actuator, remove the hex nuts (key 12), lift bonnet (key 8), and plug and stem (keys 4 and 5) from the valve body (key 1). A new valve body gasket (key 49) should be installed each time the valve is disassembled.
2. Loosen the packing spring load by removing the packing follower (key 10).

Remove the plug and stem assembly by pulling it out through the bottom of the bonnet (key 8) while rotating the stem (key 5). This will help prevent damage to the packing components.

Note

Handle the parts carefully to avoid damaging the seating and guiding surfaces. Wipe the parts with a clean soft cloth and examine for signs of wear or damage.

3. Use a seat ring tool made according to the dimensions in figure 2 and table 1 to remove the seat ring (key 2) as follows:

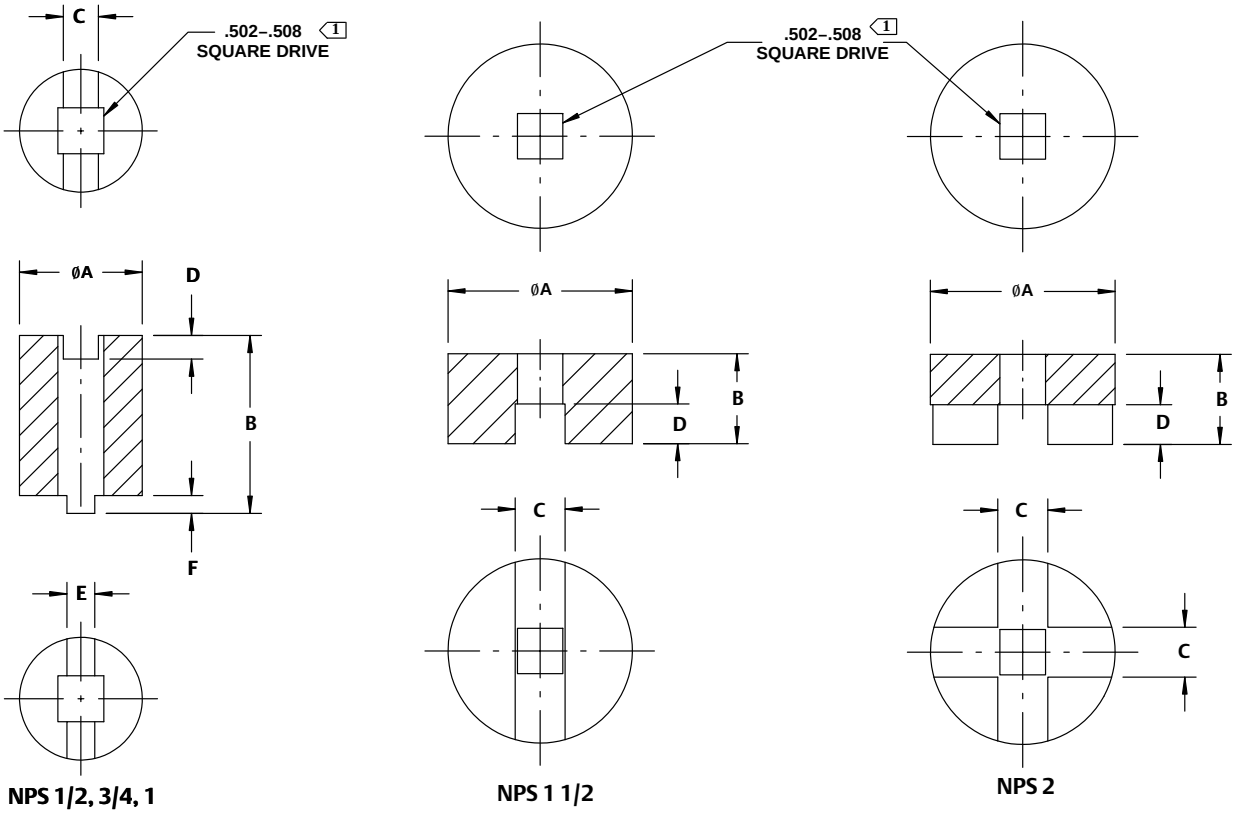
   a. Insert the tool into the valve body. Be certain the tool lugs are engaged in the corresponding recesses in the seat ring.

   b. Use a 1/2 inch drive breaker bar or impact wrench having sufficient torque capability to remove the seat ring. Seat ring installation torque is provided in table 2 for reference. Connect the breaker bar or impact wrench, and if needed, a impact-rated extension bar, to the square drive of the seat ring tool.

   c. Remove the seat ring (key 2) from the valve body. Make sure the seat ring tool is held at a right angle to the seat ring during removal to prevent the tool from disengaging from the lugs of the seat ring.

   d. Inspect parts for wear or damage that would prevent proper operation of the valve body.

Figure 2. Seat Ring Tool Dimensions



1 MAX ALLOWABLE CENTER DRILL ø 0.532

Table 1. Seat Ring Tool Dimensions (see figure 2)

Part Number	DN	NPS	A	B	C	D	E	F
			Inch					
GE96219X012	15 20	1/2 3/4	1.32	2.0	0.38	0.26	0.29	0.19
GE96219X022	25	1	1.52	2.3	0.40	0.25	0.35	0.20
GE96219X032	40	1-1/2	2.06	0.9	0.55	0.30	---	---
GE96219X042	50	2	2.74	1.0	0.55	0.44	---	---

Table 2. Seat Ring Assembly and Torque Tool

24000CVF/SVF		VALVE SIZE NPS (Inch) (DN)				
		1/2 (15)	3/4 (20)	1 (25)	1-1/2 (40)	2 (50)
Port Diameter	151 Low Flow(1)	GE96219X012	GE96219X012	GE96219X022	---	---
	177 Low Flow(1)	GE96219X012	GE96219X012	GE96219X022	---	---
	0.25(1)	GE96219X012	GE96219X012	GE96219X022	---	---
	0.375(1)	GE96219X012	GE96219X012	GE96219X022	---	---
	0.8125(2)	GE96219X012	GE96219X012	GE96219X022	---	---
	1.0625(2)	---	---	GE96219X022	---	---
	1.25	---	---	---	GE96219X032	---
	1.5	---	---	---	GE96219X032	GE96219X042
	2	---	---	---	---	GE96219X042
Installation Torque (lb•ft)		80	80	80	100	100

1. Male end used for trim 151,177, and port diameters .25 and .375
2. Female end used for port diameters .8125 and 1.0625

4. Low Flow Trims:

   e. For Baumann 151 trim (figure 5) unscrew the seat subassembly (key 51) from the seat ring (key 2) with a 5/8 inch socket wrench. When reassembling, hand tighten the subassembly (key 51) and then rotate 1/8 of a turn with the 5/8 inch socket to lock in place.

Note

If changing to Baumann 151 trim, for correct flow characteristics, be sure the valve is reversed in the pipeline so that flow direction is flow down.

   f. For Baumann 177 trim (figure 6) unscrew the retainer nut (key 24) using a 3/4 inch socket wrench. Remove the gland (key 23) and insert (key 25). Replace the insert (key 25), making sure that the tapered portion faces up. If replacement of the housing (key 26) is required, use a 5/8 inch socket wrench.

5. NOLEEK Bellows Trim: Refer to figure 7 and table 9. Hold the bellows bonnet and push down on the stem to expose the plug retaining pin (key 21). Using a small punch, tap pin (key 21) out. To replace the new plug retaining pin (key 21), be sure the plug and stem are aligned to expose the hole (figure 7). With a needle nose pliers, slide the pin (key 21) into the hole.

⚠ WARNING

Be sure the plug retaining pin (key 21) is flush inside the hole and not exposed on either side of the plug or damage could happen to the bonnet interior.

Lapping the Valve Seat

If valve seat leakage becomes excessive, it may be necessary to lap the valve seat.

Lapping is the process of mating the valve plug to the seat ring, with an abrasive to produce a close fit. When valve seat leakage becomes excessive, lapping becomes necessary. The plug and seat ring seating surfaces should be free of large scratches or dents and the contact surface of the seats should be as narrow as possible.

1. Disassemble the valve body and remove the plug and stem assembly (keys 4 and 5) as directed in the previous Valve Body Disassembly section in this instruction manual.
2. Use a good quality lapping compound with a mixture that contains 280 to 600 grit. Apply at several spots around the plug seating surface. Replace the plug and stem carefully in the bonnet.
3. Install the bonnet (key 8) into the valve body, without gasket and hand tighten. The bonnet will serve as a guide during the lapping operation.
4. Lap the valve by applying a slight pressure on the stem and rotate the stem in short oscillating strokes approximately 8 to 10 times or until you see an even and complete lap line. The plug should be intermittently lifted and turned 90 degrees while lapping to keep the plug and seat ring concentric.
5. Clean the valve seat and plug (key 4) thoroughly when lapping is complete, removing all traces of lapping compound.
6. Reinsert the plug and stem assembly through the bottom of the bonnet (key 8) by slowly rotating through the packing. Be careful not to damage the packing rings.

Replacing Packing

Refer to figure 3 and the standard and optional packing constructions (figure 8) to determine the packing that has been preinstalled in your valve.

1. Disassemble the valve as directed earlier. Remove the locknuts (key 27) and travel indicator (key 58), and turn the plug stem (key 5) out through the packing box. Remove the packing follower (key 10). Push out the old packing (key 14) by working from the underside of the bonnet (key 8).
2. Standard Spring Loaded PTFE V-Ring Packing (figures 3 and 8): Carefully insert each piece in exact order shown in figure 8. Turn the packing follower (key 10) until it shoulders on the bonnet (key 8). This will compress the packing spring (key 6) to enable constant stem sealing throughout packing life.
3. Molded Graphite Ribbon Packing (figure 8): Carefully insert each piece in exact order shown in figure 8. Hand tighten the packing follower (key 10). Use a wrench to increase tightness by turning the follower an additional 60 degrees.
4. ENVIRO-SEAL™ Packing (figure 8): Carefully insert each piece in exact order as shown in figure 8. Tighten the packing follower (key 10) until the Belleville springs are compressed. This will be signaled by a significant increase in resistance. Back off the follower 1/8 to 1/4 turn. A gap of approximately 1.5 mm (1/16 inch) between the packing follower and the bonnet will ensure the packing is seated properly.
5. For the optional NOLEEK bellows bonnet (not available with Baumann 24000CVF carbon steel valves):

NOLEEK bellows seal packing (figure 7, table 9): Insert each piece in the exact order shown in the illustration. Hand tighten the packing follower (key 10).

Actuator and Valve Body Reassembly

1. Before installing seat ring in valve body, thoroughly clean the threads in the valve body port. Apply suitable anti-seize lubricant to the threads and tighten to torque specified in table 2. Remove all excess lubricant after tightening.
2. Insert a new valve body gasket (key 49) and install the bonnet assembly (key 8). For NPS 1/2 to 1 valves, tighten the nuts (key 12) to torque of 9.5-17.6 N•m (7-13 lbf•ft); NPS 1-1/2 to 2 valves, tighten nuts (key 12) to torque of 21.7-42.0 N•m (16-31 lbf•ft).

3. Place the actuator yoke over the stem (key 5). While tilting the actuator back, drop the yoke drive nut (key 9) over the stem (key 5). Run the locknuts (key 27), and the travel indicator (key 58), down as far as possible and counter tighten the locknuts (key 27) to lock.

See the Baumann Pneumatic Actuators Instruction Manual (D103352X012) for reassembly and bench range adjustment.

CAUTION

When assembling or disassembling the valve, do not turn the valve stem while the plug is in contact with the valve seat. This can damage the seating surface very quickly.

⚠ WARNING

To avoid personal injury or equipment damage due to possible sudden shifting or falling of the valve assembly, do not lift the valve assembly by the handwheel.

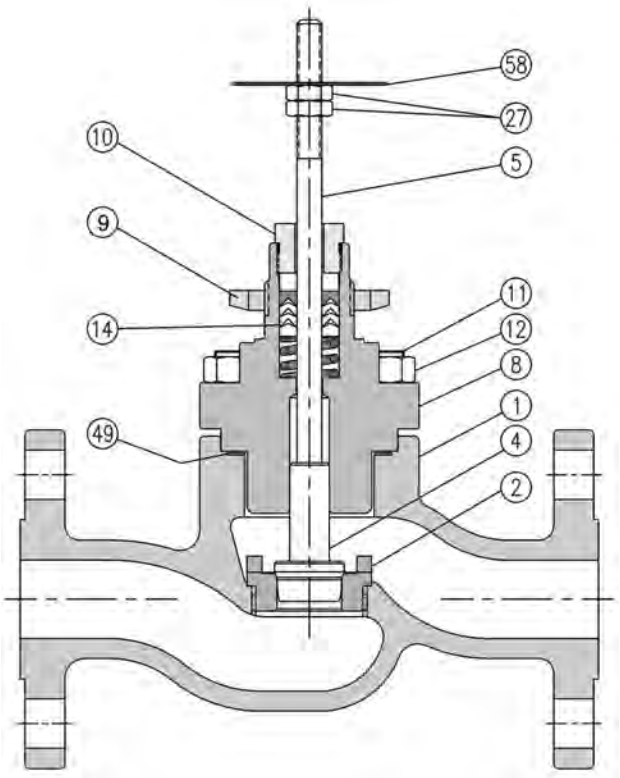
Parts Ordering

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

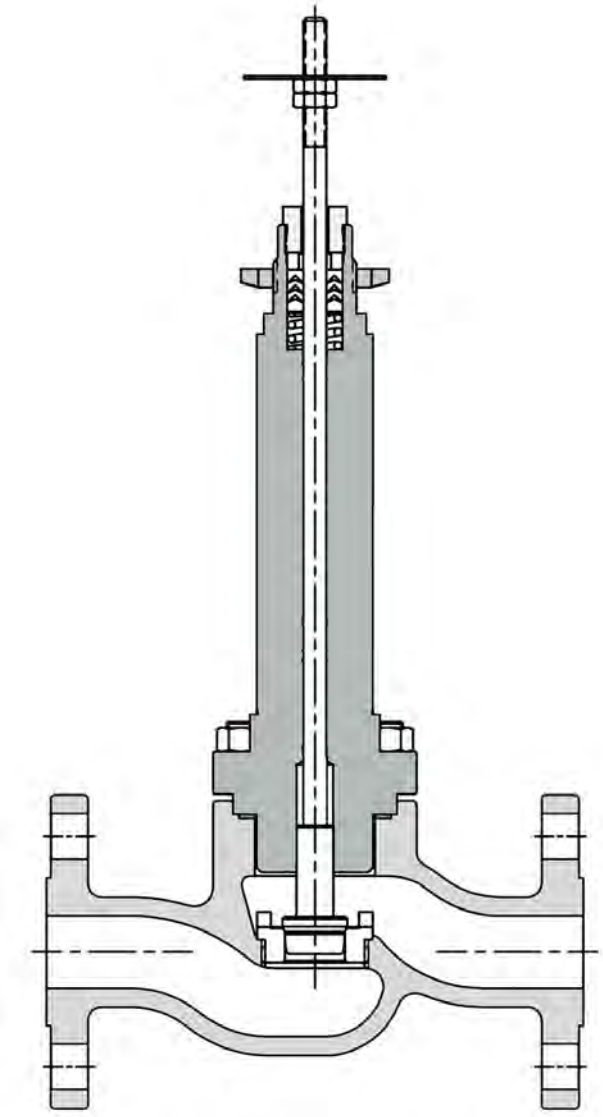
Use only genuine Fisher™ replacement parts. Components that are not supplied by Emerson should not, under any circumstances, be used in any Fisher valve, because they may void your warranty, might adversely affect the performance of the valve, and could cause personal injury and property damage.

Figure 3. Baumann 24000CVF Valve Body Assembly with Standard PTFE Spring-Loaded Packing



E1245

Figure 4. Baumann 24000SVF Valve Body Assembly with Standard PTFE Spring-Loaded Packing



E1292

Table 3. Baumann 24000CVF/SVF Common Parts[1]

KEY NO.	QTY	DESCRIPTION	VALVE SIZE				
			DN15 (NPS 1/2)	DN20 (NPS 3/4)	DN25 (NPS 1)	DN40 (NPS1-1/2)	DN50 (NPS 2)
1	1	Valve Body, Carbon Steel, CL150	24000-165	24000-265	24000-365	24000-565	24000-665
		Valve Body, Carbon Steel, CL300	24000-167	24000-267	24000-367	24000-567	24000-667
		Valve Body, Carbon Steel, PN 10-40	24000-169	24000-269	24000-369	24000-569	24000-669
		Valve Body, Stainless Steel, CL150	24000-115	24000-215	24000-315	24000-515	24000-615
		Valve Body, Stainless Steel, CL300	24000-117	24000-217	24000-317	24000-517	24000-617
		Valve Body, Stainless Steel, PN 10-40	24000-119	24000-219	24000-319	24000-519	24000-619
8	1	Bonnet, Standard for Carbon Steel	24000-163		24000-363	24000-563	24000-663
		Bonnet, Standard for Stainless Steel	24000-123		24000-323	24000-523	24000-623
		Bonnet, Single Ext[3]	24000-123-1		24000-323-1	24000-523-1	24000-623-1
		Bonnet, Double Ext[3]	24000-123-2		24000-323-2	24000-523-2	24000-623-2
		Bonnet, Triple Ext[3]	24000-123-3		24000-323-3	24000-523-3	24000-623-3
		Bonnet, NOLEEK Bellows[3]	24000-130		24000-330	24000-530	24000-630
8a	1	Guide Bushing[2]	24000-124 (24000CVF ONLY)				
9	1	Drive Nut (Yoke)	011757-003-153				
10	1	Packing Follower	24490-1				
11	4	Stud	24000-127			24000-126	
12	4	Nut	25705			25717-1	
14*	1	V-Ring Packing Set (standard)	24494T001 (See page 13 for additional packing options)				
27	2	Locknuts	971514-002-250				
49*	1	Valve Body Gasket	24000-133	24000-133	24000-333	24000-533	24000-633
58	1	Travel Indicator	24299				

1. For valves made before 2005, the common parts numbers above may not apply. Please notify your Emerson sales office if the valve is prior to 2005 so the appropriate parts can be ordered.
2. Guide bushing is applicable to 24000CVF valve ONLY.
3. Extension bonnets and NOLEEK bellows bonnets are not available with 24000CVF carbon steel valves.

*Recommended spare parts

The guidelines below apply to tables 4, 5, 6, and 8.

For Extension Bonnet Construction		Double Extension Bonnet Construction		Triple Extension Bonnet Construction	
Substitute	-104 for -101 -105 for -102	Substitute	-107 for -101 -108 for -102	Substitute	-110 for -101 -111 for -102

Table 4. Plug and Seat Ring for NPS 1/2, 3/4, and 1 Valves

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG NO.	ORIFICE DIAMETER mm (Inch)	C_v(2)	VALVE SIZE		
						DN 15 (NPS 1/2)	DN 20 (NPS 3/4)	DN 25 (NPS 1)
4*	Plug & Stem Assy	Low Flow	151	See table 6				
			177	See table 7				
		Metal Seat, Micro Trim (Linear)	102	6.3 (0.25)	0.02(1)	GE46385X052		GE46385X092
					0.05(1)	GE46386X052		GE46386X092
					0.1(1)	GE46387X092		GE46387X052
					0.2(1)	GE46388X012		GE46388X092
		PTFE Seat (Equal %)	577	9.5 (0.375)	1.0	24893-101-577		---
					1.1	---	---	24893-101-577
					1.6	24796-101-577		
					2.7	24609-101-577		---
					3.2	---	---	24609-101-577
				20.6 (0.8125)	3.9	24010-2-101-577		---
					5	---	---	24010-2-101-577
					6.1	24010-101-577	---	---
					9.5	---	24010-101-577	---
					11	---	---	24010-101-577
				26.9 (1.0625)	13	---	---	24011-101-577
		Metal Seat (Equal %)	548 (S41600)	6.3 (0.25)	0.22(1)	GE46393X092		GE46393X052
					0.61(1)	GE46394X092		GE46394X052
					1.0(1)	GE46392X092		GE46392X052
				9.5 (0.375)	1.6	24634-6-101-548		---
					1.7	---	---	24634-6-101-548
					2.9	24171-12-101-548		---
					3.3	---	---	24171-12-101-548
				20.6 (0.8125)	3.9	24185-6-101-548		---
					4.4	---	---	24185-6-101-548
					6.1	24061-5-101-548	---	---
					9.8	---	24061-5-101-548	---
					11	---	---	24061-5-101-548
				26.9 (1.0625)	15.5	---	---	24062-1-101-548
		Metal Seat (Equal %)	588	6.3 (0.25)	0.22(1)	GE46390X052		GE46390X092
					0.61(1)	GE46391X052		GE46391X092
					1.0(1)	GE46389X052		GE46389X092
				9.5 (0.375)	1.6	24634-101-588		---
					1.7	---	---	24634-101-588
					2.9	24171-101-588		---
					3.3	---	---	24171-101-588
				20.6 (0.8125)	3.9	24185-101-588		---
					4.4	---	---	24185-101-588
					6.1	24061-101-588	---	---
					9.8	---	24061-101-588	---
					11	---	---	24061-101-588
				26.9 (1.0625)	15.5	---	---	24062-101-588

-continued-

Table 4. Plug and Seat Ring for NPS 1/2, 3/4, and 1 Valves (continued)

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG NO.	ORIFICE DIAMETER mm (Inch)	C_v(2)	VALVE SIZE		
						DN 15 (NPS 1/2)	DN 20 (NPS 3/4)	DN 25 (NPS 1)
4*	Plug & Stem Assy	PTFE Seat (Linear)	677	9.5 (0.375)	0.1	24660-101-677		
					0.2	24625-101-677		
					0.5	24617-101-677		
					1.0	24631-101-677		
					2.8	24656-101-677		---
					3.3	---	---	24656-101-677
				20.6 (0.8125)	3.4	24010-1-101-677		---
					5.1	---	---	24010-1-101-677
		Metal Seat (Linear)	648 (S41600)	6.3 (0.25)	0.5(1)	GE46398X052		GE46398X092
					1.0(1)	GE46397X052		---
					1.4(1)	---	---	GE46397X092
				9.5 (0.375)	1.6	24669-1-101-648		---
					1.7	---	---	24669-1-101-648
					2.9	24671-2-101-648		---
					3.3	---	---	24671-2-101-648
				20.6 (0.8125)	3.7	24757-5-101-648		---
					4.6	---	---	24757-5-101-648
					6.1	24717-3-101-648	---	---
					9.8	---	24717-3-101-648	---
					11	---	---	24717-3-101-648
				26.9 (1.0625)	13	---	---	24791-1-101-648
		Metal Seat (Linear)	688	6.3 (0.25)	0.5(1)	GE46396X052		GE46396X092
					1.0(1)	GE46395X062		---
					1.4(1)	---	---	GE46395X102
				9.5 (0.375)	1.6	24669-101-688		---
					1.7	---	---	24669-101-688
					2.9	24671-101-688		---
					3.3	---	---	24671-101-688
				20.6 (0.8125)	3.7	24757-101-688		---
					4.6	---	---	24757-101-688
					6.1	24717-101-688	---	---
					9.8	---	24717-101-688	---
					11	---	---	24717-101-688
				26.9 (1.0625)	13	---	---	24791-101-688
2*	Seat Ring	9.5 (0.375) Orifice Diameter, S31600				007635-002-163		24000-342
		20.6 (0.8125) Orifice Diameter, S31600				007635-005-163		24000-343
		26.9 (1.0625) Orifice Diameter, S31600				---	---	24000-344
		9.5 (0.375) Orifice Diameter, S41600				007635-002-416		24000-342-1
		20.6 (0.8125) Orifice Diameter, S41600				007635-005-416		24000-343-1
		26.9 (1.0625) Orifice Diameter, S41600				---	---	24000-344-1

1. Matching seat ring (key 2) is furnished with replacement plug orders.
2. K_v equals (0.86)*(C_v)

Table 5. Plug and Seat Ring for NPS 1-1/2 and 2 Valves

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG NO.	ORIFICE DIAMETER mm (Inch)	C_v(1)	VALVE SIZE	
						DN 40 (NPS 1-1/2)	DN 50 (NPS 2)
4*	Plug and Stem Assy	PTFE Seat (Equal %)	577	31.8 (1.25)	26	24411-102-577	---
				38.1 (1.50)	13	24884-102-577	
					20	24774-102-577	
					33	24254-102-577	---
					38	---	24254-102-577
				50.8 (2.0)	33	---	24882-102-577
		Metal Seat (Equal %)	548 (S41600)	31.8 (1.25)	10	24421-2-102-548	---
					27	24401-2-102-548	---
				38.1 (1.50)	11	24635-2-102-548	
					18	---	24710-2-102-548
					19	24710-2-102-548	---
					31	24038-2-102-548	---
					35	---	24038-2-102-548
				50.8 (2.0)	55	---	24039-1-102-548
		Metal Seat (Equal %)	588	31.8 (1.25)	10	24421-102-588	---
					27	24401-102-588	---
				38.1 (1.50)	11	24635-102-588	
					18	---	24710-102-588
					19	24710-102-588	---
					31	24038-102-588	---
					35	---	24038-102-588
				50.8 (2.0)	55	---	24039-102-588
		PTFE Seat (Linear)	677	31.8 (1.25)	26	24436-102-677	---
				38.1 (1.50)	14	24799-102-677	
					23	24798-102-677	
				50.8 (2.0)	37	---	24891-102-677
					56	---	24070-102-677
		Metal Seat (Linear)	648 (S41600)	31.8 (1.25)	11	24425-1-102-648	---
					26	24424-1-102-648	---
				38.1 (1.50)	12	24761-2-102-648	
					22	24899-2-102-648	
					31	24760-1-102-648	---
					35	---	24760-1-102-648
				50.8 (2.0)	33	---	24887-1-102-648
					55	---	24762-1-102-648
		Metal Seat (Linear)	688	31.8 (1.25)	11	24425-102-688	---
					26	24424-102-688	---
				38.1 (1.50)	12	24761-102-688	
					22	24899-102-688	
					31	24760-102-688	---
					35	---	24760-102-688
				50.8 (2.0)	33	---	24887-102-688
					55	---	24762-102-688
2*	Seat Ring	38.1 mm (1.25 inch) Orifice Diameter, S31600				24000-542	---
		38.1 mm (1.50 inch) Orifice Diameter, S31600				24000-541	24000-642
		50.8 mm (2.0 inch) Orifice Diameter, S31600				---	24000-641
		38.1 mm (1.25 inch) Orifice Diameter, S41600				24000-542-1	---
		38.1 mm (1.50 inch) Orifice Diameter, S41600				24000-541-1	24000-642-1
		50.8 mm (2.0 inch) Orifice Diameter, S41600				---	24000-641-1

1. K_v equals (0.86)*(C_v)

*Recommended spare parts

Figure 5. Optional Baumann 151 Low Flow Trim Assembly

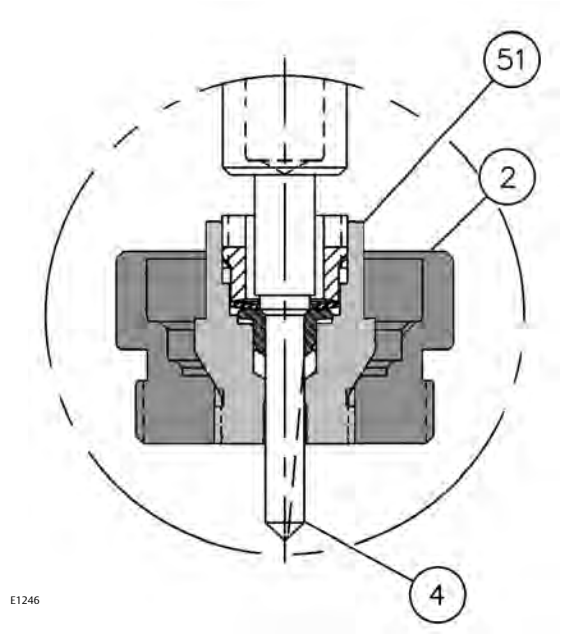


Table 6. Plug and Seat Ring for Baumann 151 Trim

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG SERIES	ORIFICE DIAMETER mm (Inch)	C_v	K_v	VALVE SIZE		
							DN 15 (NPS 1/2)	DN 20 (NPS 3/4)	DN 25 (NPS 1)
2*	Seat Ring						24000-135		24000-345
51*	Seat Sub-Assembly						24151-20		
4*	Plug & Stem Assy	Modified Equal % Low Flow	151	3.96 (0.156)	0.00013	0.0001	24151-2-101-151		
					0.00025	0.0002	24151-3-101-151		
					0.0005	0.0004	24151-4-101-151		
					0.001	0.0009	24151-5-101-151		
					0.002	0.0017	24151-6-101-151		
					0.004	0.003	24151-7-101-151		
					0.008	0.007	24151-8-101-151		
					0.015	0.013	24151-9-101-151		
					0.03	0.026	24151-10-101-151		
					0.06	0.052	24151-11-101-151		
					0.1	0.86	24151-12-101-151		
					0.2	0.17	24151-24-101-151		
					0.45	0.39	24151-25-101-151		

*Recommended spare parts

Figure 6. Optional Baumann 177 Low Flow Trim Assembly

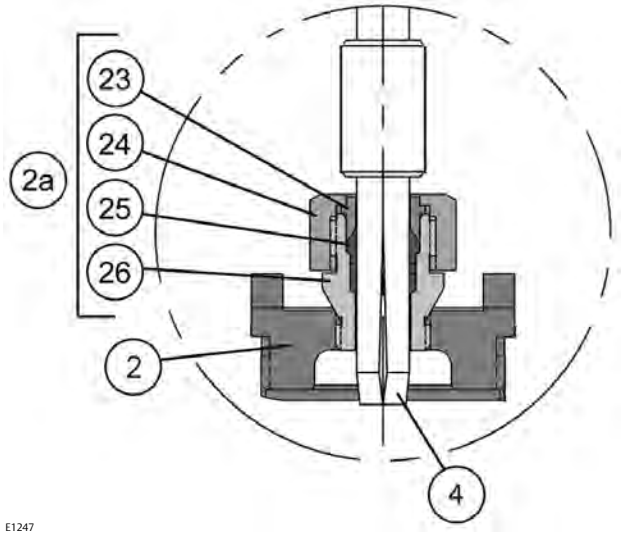


Table 7. Baumann 177 Low Flow Trim

Key No.		Description	
4*		Plug (see table 8)	
2a*	23	Gland	Seat Ring Subassembly, P/N 24241
	24	Retainer Nut	
	25	Insert	
	26	Housing	

Table 8. Plug and Seat Ring for Baumann 177 Trim

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG SERIES	ORIFICE DIAMETER mm (Inch)	C_v	K_v	VALVE SIZE		
							DN 15 (NPS 1/2)	DN 20 (NPS 3/4)	DN 25 (NPS 1)
2*	Seat Ring						24000-135		24000-345
2a*	Seat Sub-Assembly (See table 7)						24241		
4*	Plug & Stem Assy	Low Flow	177	7.9 (0.3125)	0.0005	0.0004	24598-101-177		
					0.001	0.0009	24597-101-177		
					0.002	0.0017	24594-101-177		
					0.005	0.004	24595-101-177		
					0.01	0.009	24596-101-177		
					0.02	0.017	24621-10-101-177		
					0.05	0.04	24658-10-101-177		

*Recommended spare parts

⚠ WARNING

The Baumann NOLEEK valve bonnet assembly is not intended for use in lethal service applications.

Figure 7. Baumann NOLEEK Bellows Bonnet Assembly

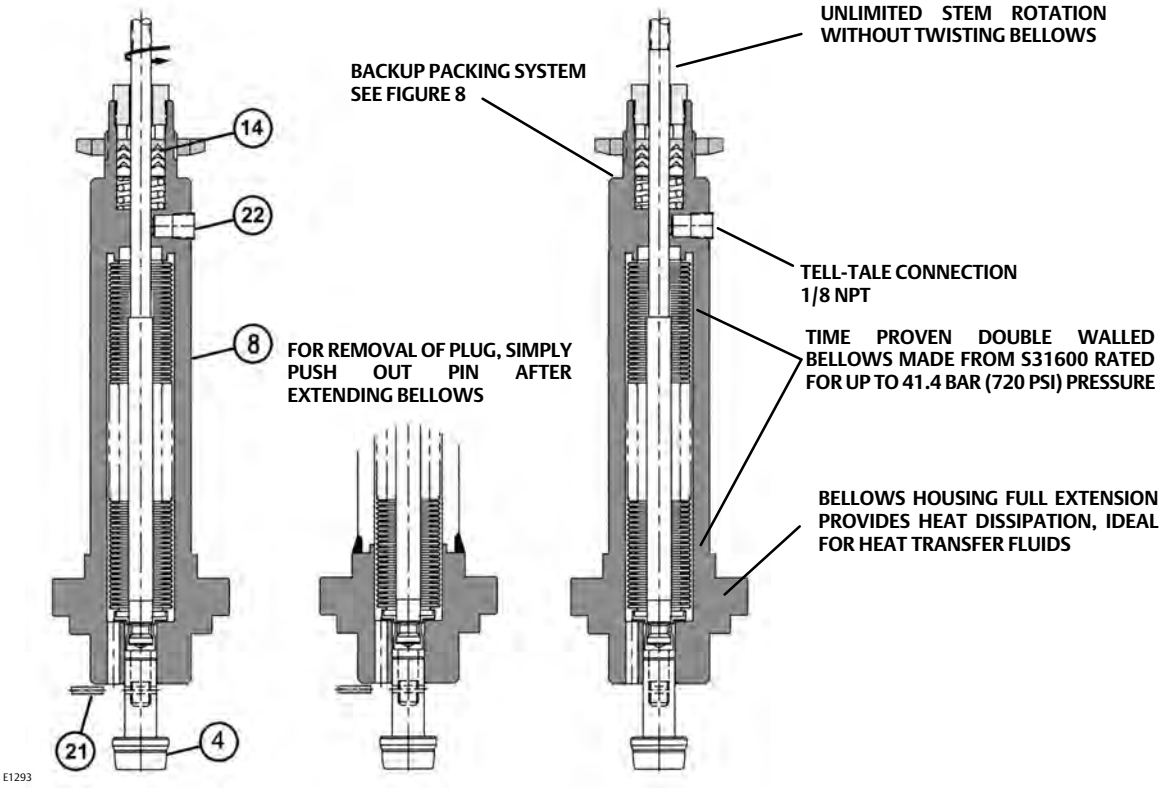


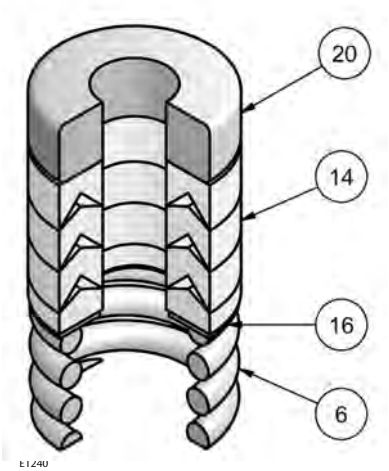
Table 9. NOLEEK Bellows Bonnet Assembly with Standard Packing Kit(1)

Key No.	Qty	Description	Part Number
4*	1	Plug	Contact Factory
8	1	Complete Bellows/ Bonnet Sub-Assembly, DN15 & 20 (NPS 1/2 & 3/4)	24000-130
		Complete Bellows/ Bonnet Sub-Assembly, DN25 (NPS 1)	24000-330
		Complete Bellows/ Bonnet Sub-Assembly, DN40 (NPS 1-1/2)	24000-530
		Complete Bellows/ Bonnet Sub-Assembly, DN50 (NPS 2)	24000-630
14*	1	V-Ring Packing Kit (standard)	24494T001
		ENVIRO-SEAL Packing Kit (optional)	24490T001
21*	1	Plug Retaining Pin	971342-005-163
22*	1	Hex Socket Pipe Plug, 1/8 NPT, Stainless Steel	Included with Key 8

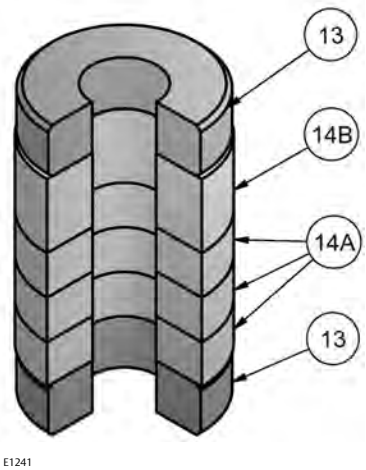
1. Not available with Baumann 24000CVF carbon steel valves.

*Recommended spare parts

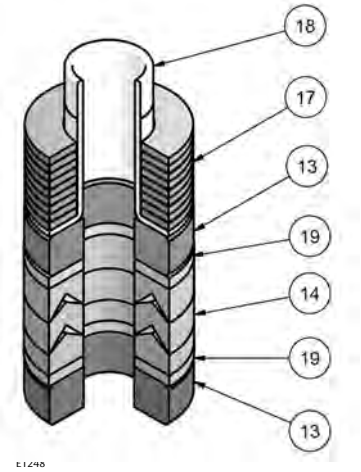
Figure 8. Packing Kits



Spring-Loaded PTFE V-Ring Packing Kit P/N 24494T001



Molded Graphite (Flexible Graphite) Packing Kit P/N 24492T001



ENVIRO-SEAL Packing Kit P/N 24490T001

Table 10. Spring-Loaded PTFE V-Ring Packing Kit P/N 24494T001

Key No.	Description	Material
6	Spring	ASTM A313 S30200
14	Packing Set	PTFE / carbon-filled PTFE
16	Washer	ASTM A240 S31600
20	Spacer	J-2000 (filled PTFE)

Table 11. Molded Graphite (Flexible Graphite) Packing Kit P/N 24492T001

Key No.	Description	Material
13	Bushing, qty 2	Carbon - Graphite
14A	Packing Ring, qty 2	Graphite
14B	Packing Ring	Graphite

Table 12. ENVIRO-SEAL Packing Kit P/N 24490T001

Key No.	Description	Material
13	Bushing, qty 2	Carbon Graphite
14	Packing Set	PTFE / carbon-filled PTFE
17	Belleville Spring	ASTM B637 N07718
18	Bushing	PEEK
19	Washer, qty 2	Modified PTFE

Special ENVIRO-SEAL Packing Note

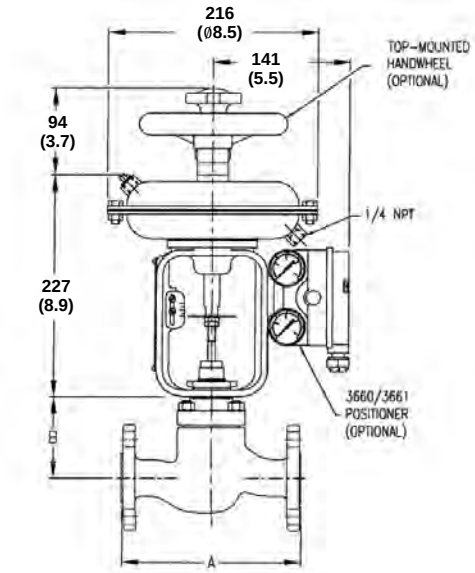
The ENVIRO-SEAL PTFE packing system is suitable for 100 ppm environmental applications on services up to 51.7 barg (750 psig) and process temperatures ranging from -46 to 232°C (-50 to 450°F).

For non-environmental applications, this packing system offers excellent performance at the same temperature range up to the maximum valve working pressure.

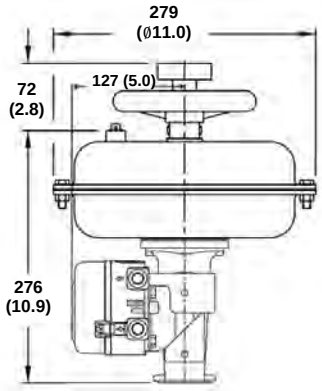
Temperature limits apply to packing arrangements only. Complete valve assembly temperature limits may differ. Refer to appropriate pressure/ temperature ratings.

Reference the Packing Selection Guidelines for Fisher Sliding Stem Valves Bulletin 59.1:062 (D101986X012).

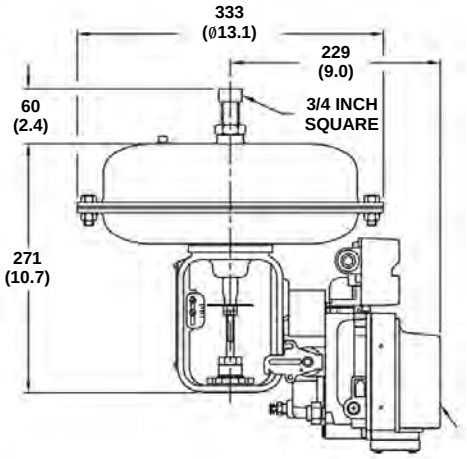
Figure 9. Dimensional Drawings



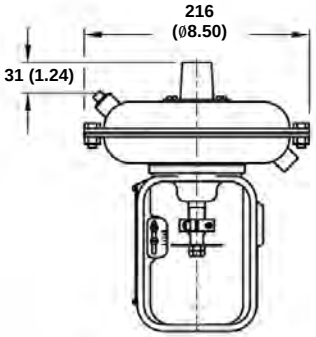
24000CVF/SVF FLANGED WITH BAUMANN 32 ATO ACTUATOR WITH HANDWHEEL



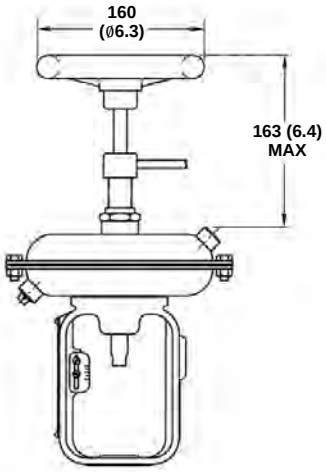
BAUMANN 54 ATO ACTUATOR WITH HANDWHEEL AND DVC2000



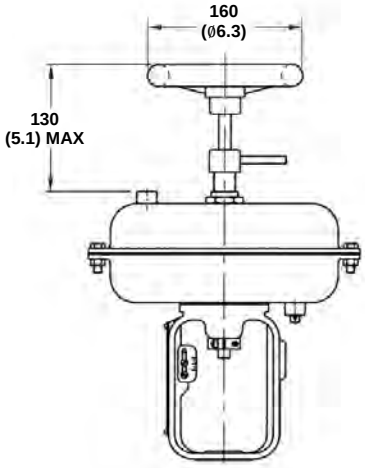
BAUMANN 70 ATO ACTUATOR WITH OPTIONAL FIELDVUE DIGITAL VALVE CONTROLLER



BAUMANN 32 ACTUATOR WITH ADJUSTABLE OPEN / CLOSE DUAL TRAVEL STOPS



BAUMANN 32 ATC / FAIL OPEN ACTUATOR WITH HANDWHEEL



BAUMANN 54 ATC / FAIL OPEN ACTUATOR WITH HANDWHEEL

E1257

NOTE: ACTUATOR REMOVAL REQUIRES 115 mm (4.5 INCHES) VERTICAL CLEARANCE.

mm
(inch)

Table 13. Baumann Valve Dimensions

VALVE SIZE		A -- FACE-to-FACE						B -- BONNET					
		CL150		CL300		PN 10-40		Standard		Single Extension		Bellows	
DN	NPS	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
15	1/2	184	7.25	190	7.50	130	5.11	79	3.1	216	8.5	226	8.9
20	3/4	184	7.25	194	7.62	150	5.90	79	3.1	216	8.5	226	8.9
25	1	184	7.25	197	7.75	160	6.30	84	3.3	221	8.7	229	9.0
40	1-1/2	222	8.75	235	9.25	200	7.87	96	3.8	234	9.2	229	9.0
50	2	254	10.0	267	10.5	230	9.06	107	4.2	244	9.6	234	9.2

Table 14. Baumann Valve Assembly Weights

VALVE SIZE		WEIGHT					
		CL150		CL300		PN 10-40	
DN	NPS	kg	lb	kg	lb	kg	lb
15	1/2	3.0	6.6	3.5	7.7	3.3	7.3
20	3/4	3.1	6.9	4.2	9.3	3.4	7.6
25	1	5.1	11.3	5.9	13.1	5.7	12.6
40	1-1/2	7.9	17.5	10.7	23.5	8.8	19.5
50	2	13.4	29.5	15.0	33.1	14.4	31.9

Table 15. Baumann Actuator Weights

ACTUATOR	WEIGHT	
	kg	lbs
32	4.5	10
54	11.3	25
70	15.4	34
CML-250(1)	8.3	18
CML-750(1)	11.5	25
SVX-LIL (non spring return)	1.3	3
SVK-FO or SVK-FC(1) (spring return)	1.6	4

1. Electric actuators, reference CML Electric Actuator for Baumann 24000 Series Bulletin 52.1:ECV (D103347X012) for additional information.

Emerson Automation Solutions
Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Cernay 68700 France
Dubai, United Arab Emirates
Singapore 128461 Singapore

www.Fisher.com