

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



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Section 1: Introduction

The Fisher 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 to 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.

1.1 Scope of the Manual

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



WARNING



Do not install, operate or maintain Fisher 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.

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



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**24000CVF WITH FISHER FIELDVUE DVC6200
DIGITAL VALVE CONTROLLER**

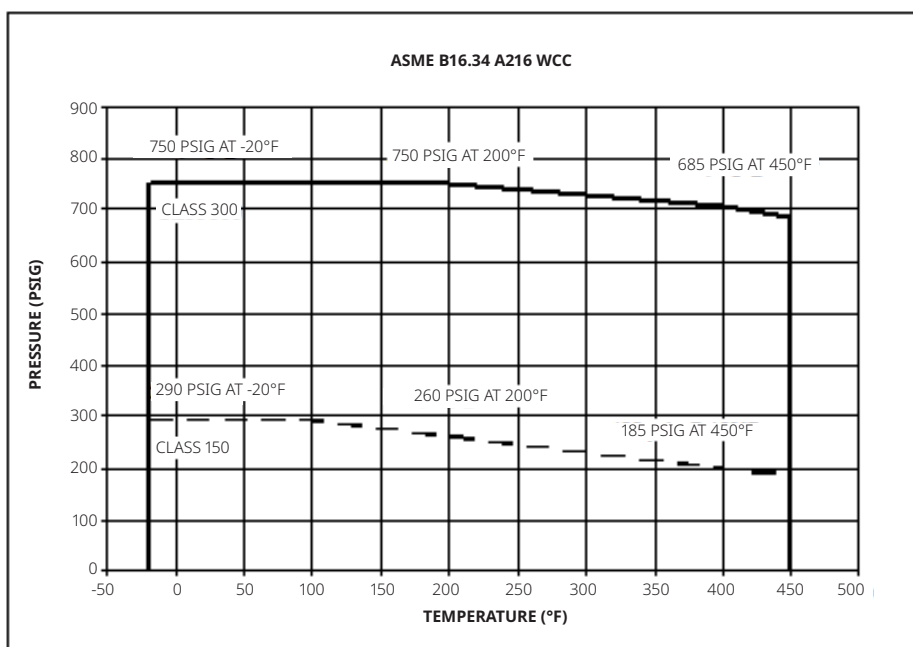


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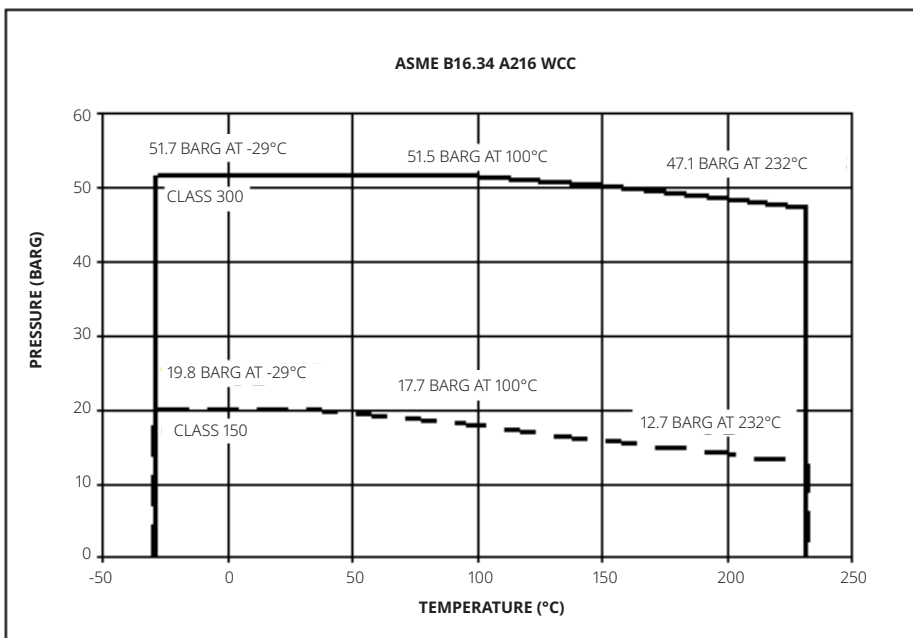
**24000SVF WITH FISHER FIELDVUE DVC200
DIGITAL VALVE CONTROLLER**

Table 1. Technical Specifications

VALVE TYPE	EN	ASME
NOMINAL PIPE SIZE	DN 15, 20, 25, 40 and 50	NPS 1/2, 3/4, 1, 1-1/2 and 2
END CONNECTIONS	PN 10 to 40 Flanges per EN 1092-1	CL150 RF or CL300 RF Flanges per ASME B16.5
PRESSURE RATING	PN 40 per EN 1092-1	CL150 or CL300 per ASME B16.34
FACE-TO-FACE DIMENSIONS	Consistent with EN 558-1	Consistent with EN 588-2 (ISA 575.03)

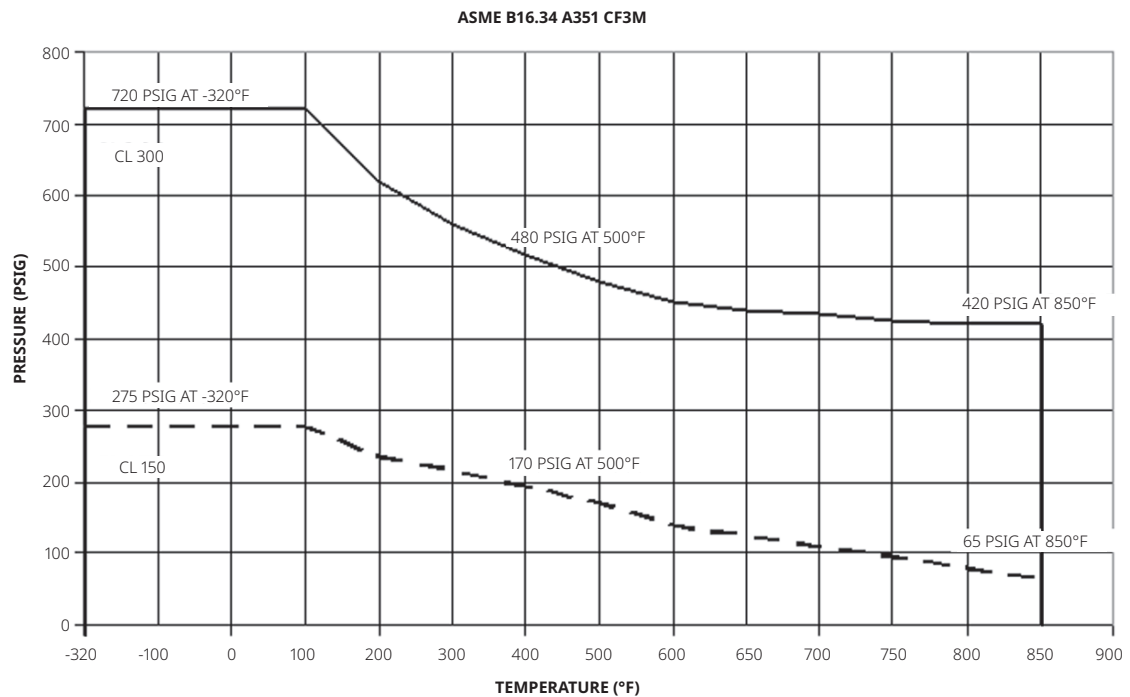
Figure 2. Fisher Baumann 24000CVF Carbon Steel Flanges, Pressure-Temperature Ratings

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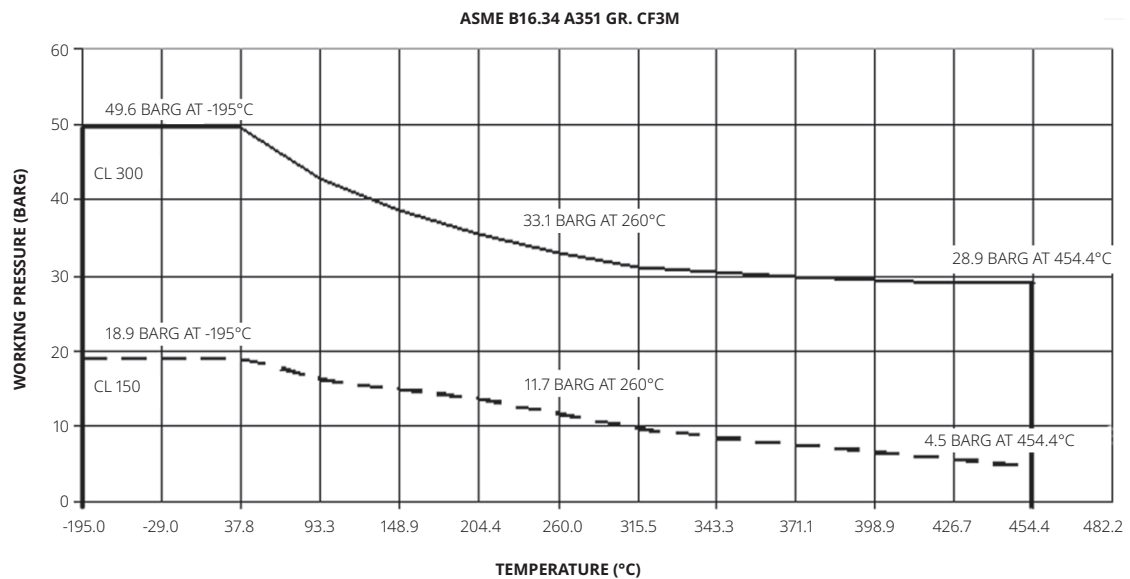


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Figure 3. Fisher Baumann 24000SVF Stainless Steel Flanges, Pressure-Temperature Ratings

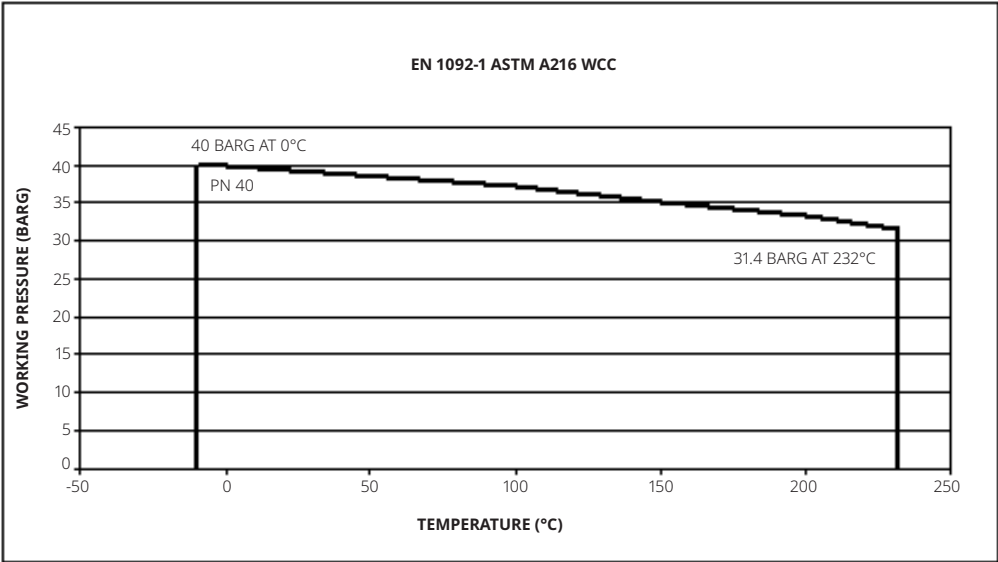


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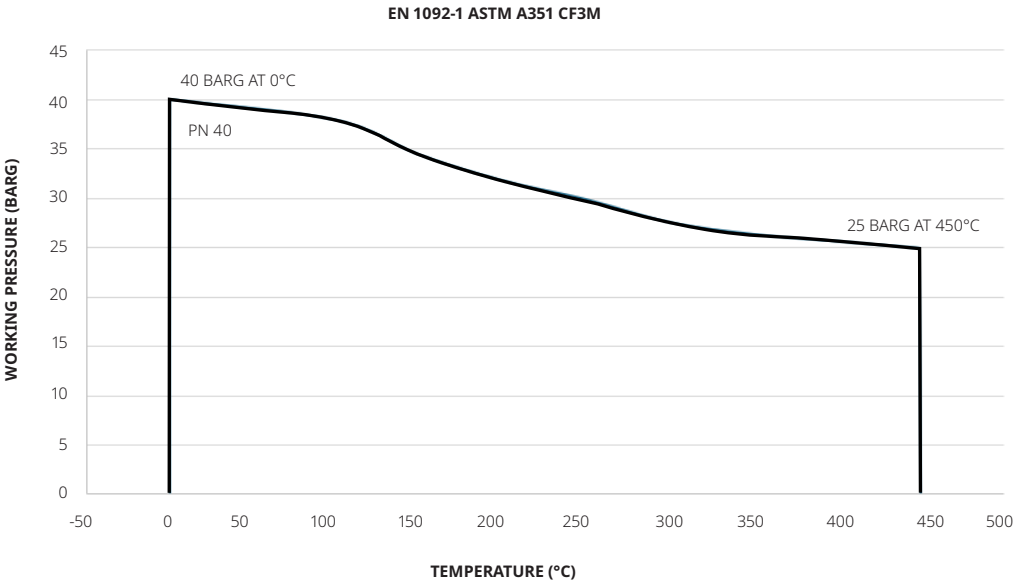
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Figure 4. Fisher Baumann 24000CVF and 24000SVF Pressure-Temperature Ratings for EN 1092-1



E1253-1

24000CVF



E1256-2

24000SVF

1.2 Education Services

Emerson's Education Services

Phone: 800-338-8158

Email: education@emerson.com

emerson.com/en/final-control/services/valve-training

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](#).

NOTE

The acronym of CWP may appear on the nameplate. CWP (Cold Working Pressure) denotes the pressure rating at normal ambient temperature. A normal ambient temperature range being -4 to +100°F / -20 to +38°C.

⚠ 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.

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 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.

2.1 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 in. O.D. tubing or equivalent for all air lines. If air line exceeds 8 m / 25 ft in length, 9.5 mm / 3/8 in. tubing is preferred. Air lines must not leak. Air pressure not to exceed 2.5 bar / 35 psig.

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 Disassembly

NOTICE

- **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 Fisher 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 counterclockwise.
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 counterclockwise.
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.

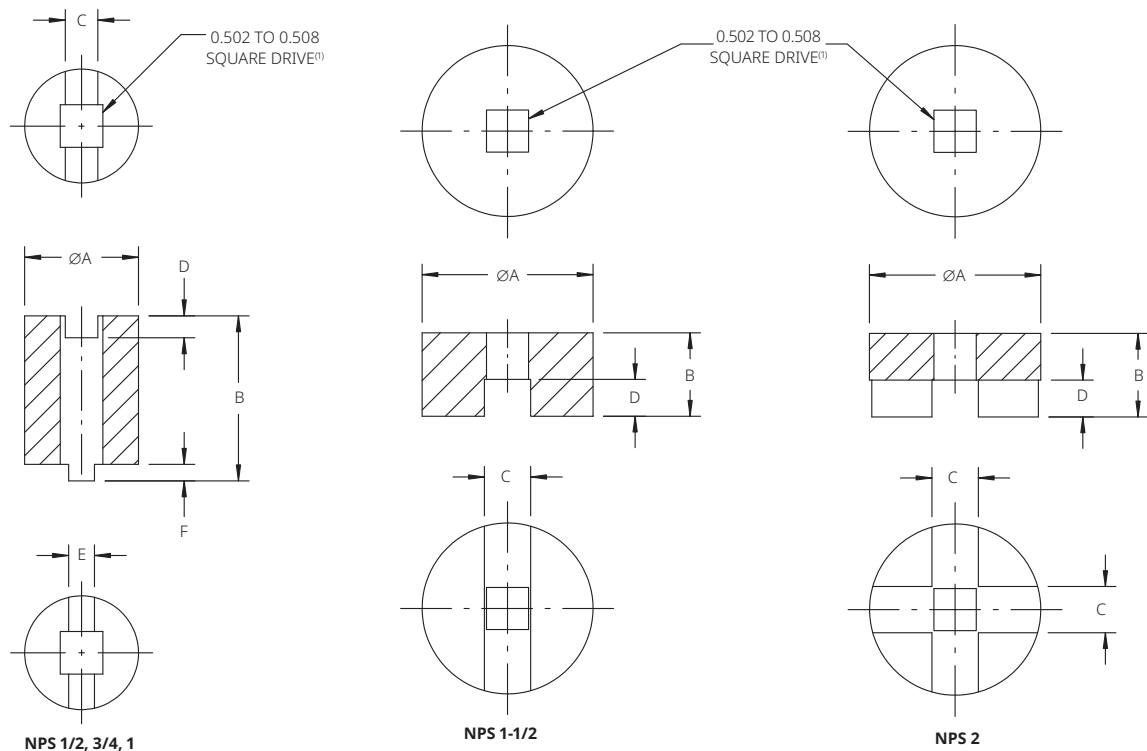
Valve Body Disassembly

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 5 and Table 2 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 in. drive breaker bar or impact wrench having sufficient torque capability to remove the seat ring. Seat ring installation torque is provided in Table 3 for reference. Connect the breaker bar or impact wrench and if needed, an 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 5. Seat Ring Tool Dimensions

1. MAX ALLOWABLE CENTER DRILL Ø 0.532.

Table 2. Seat Ring Tool Dimensions (see Figure 5)

PART NUMBER	DN	NPS	A	B	C	D	E	F
			in.					
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 3. Seat Ring Assembly and Torque Tool

24000CVF/SVF		VALVE SIZE DN / NPS, in.				
		15 / 1/2	20 / 3/4	25 / 1	40 / 1-1/2	50 / 2
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 0.25 and 0.375						
2. Female end used for port diameters 0.8125 and 1.0625						

4. Low Flow Trims:

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

NOTE

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

- b. For Fisher Baumann 177 trim (Figure 9) unscrew the retainer nut (key 24) using a 3/4 in. 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 in. socket wrench.
5. NOLEEK Bellows Trim: Refer to Figure 10 and Table 10. 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 10). With a needle nose pliers, slide the pin (key 21) into the hole.

NOTICE

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.

3.2 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.

3.3 Replacing Packing

Refer to Figure 6 and the standard and optional packing constructions (Figure 11) to determine the packing that has been pre-installed 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 6 and 11): Carefully insert each piece in exact order shown in Figure 11. 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 11): Carefully insert each piece in exact order shown in Figure 11. Hand tighten the packing follower (key 10). Use a wrench to increase tightness by turning the follower an additional 60 degrees.
4. Fisher enhanced ENVIRO-SEAL Packing (Figure 11): Carefully insert each piece in exact order as shown in Figure 11. 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 in. between the packing follower and the bonnet will ensure the packing is seated properly.

5. For the optional NOLEEK bellows bonnet (not available with Fisher Baumann 24000CVF carbon steel valves):

NOLEEK bellows seal packing (Figure 10, Table 10): Insert each piece in the exact order shown in the illustration. Hand tighten the packing follower (key 10).

3.4 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 3. 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 to 17.6 N•m / 7 to 13 lbf•ft; NPS 1-1/2 to 2 valves, tighten nuts (key 12) to torque of 21.7 to 42.0 N•m / 16 to 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 Fisher Baumann Pneumatic Actuators Instruction Manual ([D103352X012](#)) for reassembly and bench range adjustment

NOTICE

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.

Section 4: Parts

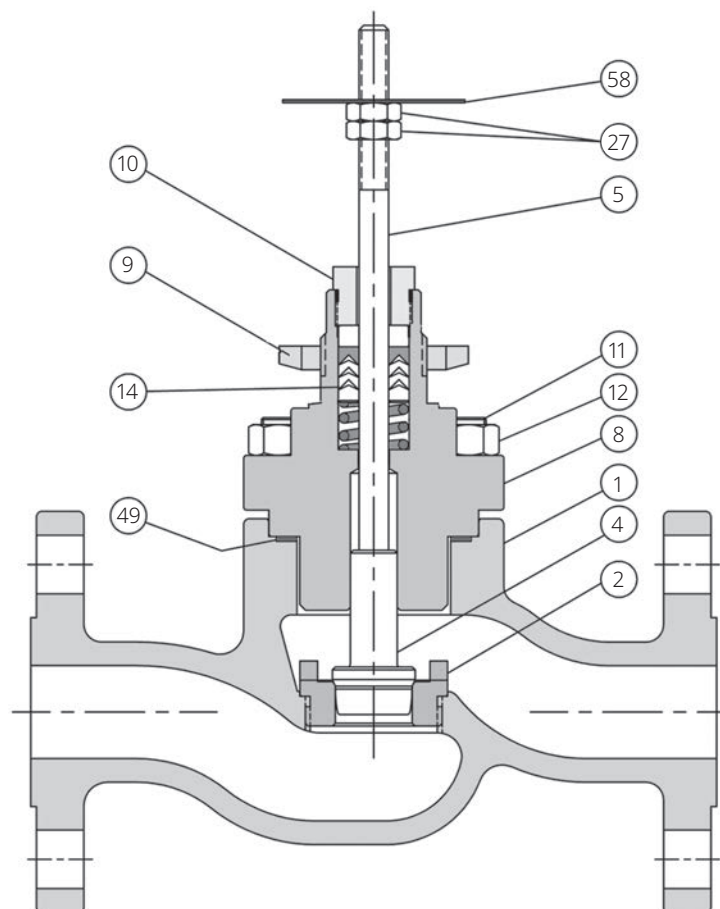
4.1 Parts Ordering

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

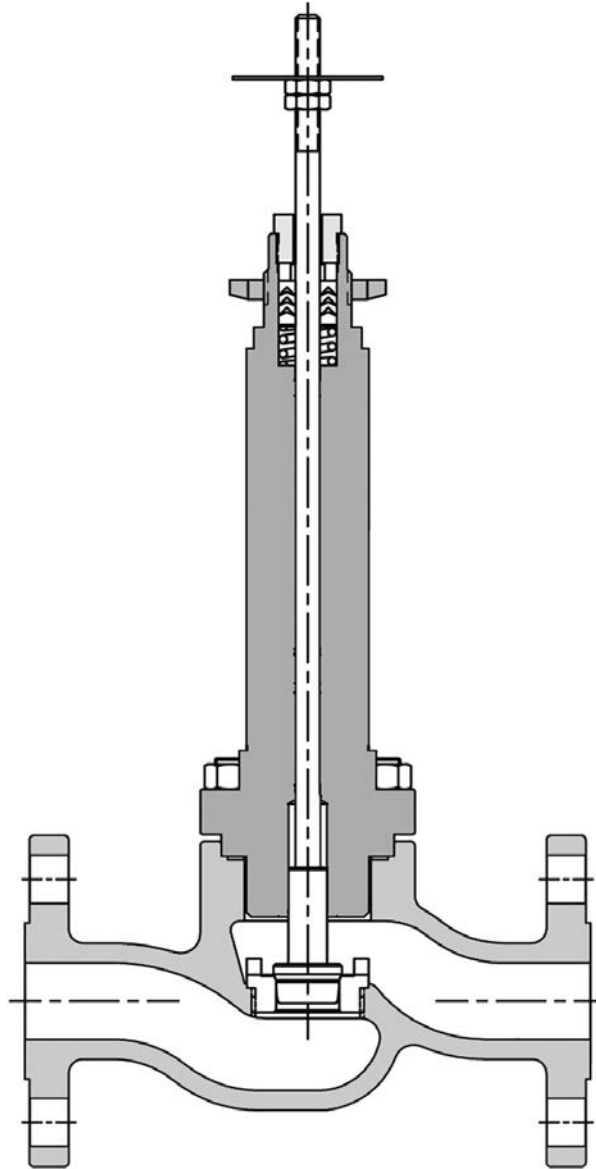
Use only genuine Fisher replacement parts. Components that are not supplied by Emerson should not, under any circumstances, be used in any Fisher valve, because they may void your warranty, might adversely affect the performance of the valve and could cause personal injury and property damage.

Figure 6. Fisher Baumann 24000CVF Valve Body Assembly with Standard PTFE Spring-Loaded Packing



E1245

Figure 7. Fisher Baumann 24000SVF Valve Body Assembly with Standard PTFE Spring-Loaded Packing



E1292

Table 4. Fisher Baumann 24000CVF/SVF Common Parts⁽¹⁾

KEY NO.	QTY	DESCRIPTION
1	1	Valve body, Carbon steel, CL150, CL300 and PN 10 to 40 Valve body, Stainless steel, CL150, CL300 and PN 10 to 40
8	1	Bonnet, Standard for Carbon steel Bonnet, Standard for Stainless steel Bonnet, Single Ext ⁽³⁾ Bonnet, Double Ext ⁽³⁾ Bonnet, Triple Ext ⁽³⁾ Bonnet, NOLEEK bellows ⁽³⁾
8a	1	Guide bushing ⁽²⁾
9	1	Drive nut (Yoke)
10	1	Packing follower
11	4	Stud
12	4	Nut
14*	1	V-ring packing set (standard)
27	2	Locknuts
49*	1	Valve body gasket
58	1	Travel indicator
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.		

The guidelines below apply to Tables 5, 6, 7 and 9.

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

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG NO.	ORIFICE DIAMETER mm / in.	C _V ⁽²⁾
4*	Plug and stem assy	Low Flow	151	See Table 7	
			177	See Table 8	
		Metal Seat, Micro Trim (Linear)	102	6.3 / 0.25	0.02 ⁽¹⁾
					0.05 ⁽¹⁾
					0.1 ⁽¹⁾
					0.2 ⁽¹⁾
		PTFE Seat (Equal %)	577	9.5 / 0.375	1.0
					1.1
					1.6
					2.7
					3.2
				20.6 / 0.8125	3.9
					5
					6.1
					9.5
					11
				26.9 / 1.0625	13
		Metal Seat (Equal %)	548 (S41600)	6.3 / 0.25	0.22 ⁽¹⁾
					0.61 ⁽¹⁾
					1.0 ⁽¹⁾
				9.5 / 0.375	1.6
					1.7
					2.9
				20.6 / 0.8125	3.3
					3.9
					4.4
					6.1
					9.8
					11
				26.9 / 1.0625	15.5
		Metal Seat (Equal %)	588	6.3 / 0.25	0.22 ⁽¹⁾
					0.61 ⁽¹⁾
					1.0 ⁽¹⁾
				9.5 / 0.375	1.6
					1.7
					2.9
					3.3

- continued -

Table 5. Plug and Seat Ring for NPS 1/2, 3/4 and 1 Valves (continued)

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG NO.	ORIFICE DIAMETER mm / in.	C _V ⁽²⁾
4*	Plug and stem assy	Metal Seat (Equal %)	588	20.6 / 0.8125	3.9
					4.4
					6.1
					9.8
					11
				26.9 / 1.0625	15.5
		PTFE Seat (Linear)	677	9.5 / 0.375	0.1
					0.2
					0.5
					1.0
					2.8
					3.3
				20.6 / 0.8125	3.4
				5.1	
		Metal Seat (Linear)	648 (S41600)	6.3 / 0.25	0.5 ⁽¹⁾
					1.0 ⁽¹⁾
					1.4 ⁽¹⁾
				9.5 / 0.375	1.6
					1.7
					2.9
					3.3
				20.6 / 0.8125	3.7
					4.6
					6.1
					9.8
					11
				26.9 / 1.0625	13
		Metal Seat (Linear)	688	6.3 / 0.25	0.5 ⁽¹⁾
					1.0 ⁽¹⁾
					1.4 ⁽¹⁾
				9.5 / 0.375	1.6
					1.7
					2.9
					3.3
				20.6 / 0.8125	3.7
					4.6
					6.1
					9.8
					11
				26.9 / 1.0625	13
2*	Seat ring	9.5 / 0.375 Orifice Diameter, S31600			
		20.6 / 0.8125 Orifice Diameter, S31600			
		26.9 / 1.0625 Orifice Diameter, S31600			
		9.5 / 0.375 Orifice Diameter, S41600			
		20.6 / 0.8125 Orifice Diameter, S41600			
		26.9 / 1.0625 Orifice Diameter, S41600			

1. Matching seat ring (key 2) is furnished with replacement plug orders.

2. K_V equals (0.86)*(C_V)

*Recommended spare parts.

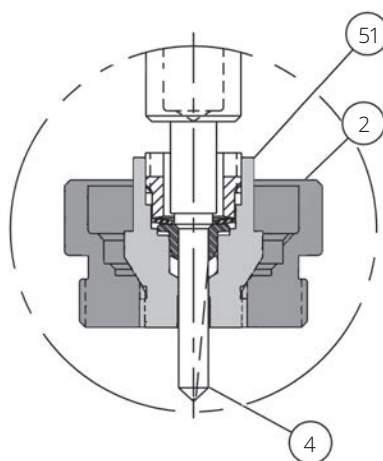
Table 6. Plug and Seat Ring for NPS 1-1/2 and 2 Valves

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG NO.	ORIFICE DIAMETER mm / in.	C _V ⁽¹⁾
4*	Plug and stem assy	PTFE Seat (Equal %)	577	31.8 / 1.25	26
				38.1 / 1.50	13
					20
					33
					38
				50.8 / 2.0	33
		Metal Seat (Equal %)	548 (S41600)	31.8 / 1.25	10
				38.1 / 1.50	27
					11
					18
					19
					31
					35
				50.8 / 2.0	55
		Metal Seat (Equal %)	588	31.8 / 1.25	10
				38.1 / 1.50	27
					11
					18
					19
					31
					35
				50.8 / 2.0	55
		PTFE Seat (Linear)	677	31.8 / 1.25	26
				38.1 / 1.50	14
				50.8 / 2.0	23
					37
		Metal Seat (Linear)	648 (S41600)	31.8 / 1.25	56
					11
				38.1 / 1.50	26
					12
					22
					31
					35
				50.8 / 2.0	33
				55	
		Metal Seat (Linear)	688	31.8 / 1.25	11
				38.1 / 1.50	26
					12
					22
					31
					35
					33
				50.8 / 2.0	55

- continued -

Table 6. Plug and Seat Ring for NPS 1-1/2 and 2 Valves (continued)

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG NO.	ORIFICE DIAMETER mm / in.	C _V ⁽¹⁾
2*	Seat ring		38.1 mm / 1.25 in. Orifice Diameter, S31600		
			38.1 mm / 1.50 in. Orifice Diameter, S31600		
			50.8 mm / 2.0 in. Orifice Diameter, S31600		
			38.1 mm / 1.25 in. Orifice Diameter, S41600		
			38.1 mm / 1.50 in. Orifice Diameter, S41600		
			50.8 mm / 2.0 in. Orifice Diameter, S41600		
1. K _V equals (0.86)*(C _V) *Recommended spare parts.					

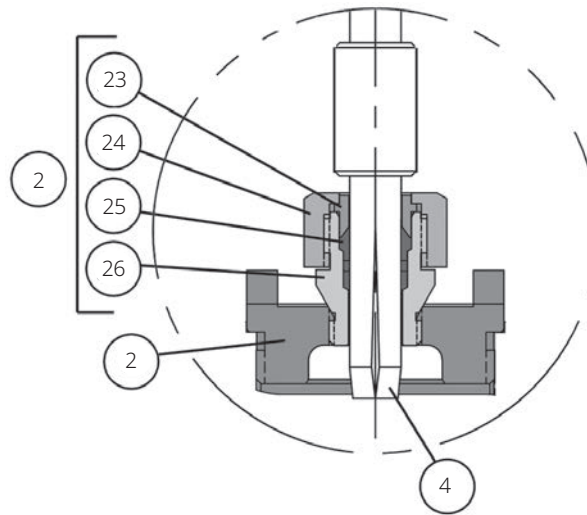
Figure 8. Optional Fisher Baumann 151 Low Flow Trim Assembly

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Table 7. Plug and Seat Ring for Fisher Baumann 151 Trim

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG SERIES	ORIFICE DIAMETER mm / in.	C _v	K _v
2*	Seat ring					
51*	Seat sub-assembly					
4*	Plug and stem assy	Modified Equal % Low Flow	151	3.96 / 0.156	0.00013	0.0001
					0.00025	0.0002
					0.0005	0.0004
					0.001	0.0009
					0.002	0.0017
					0.004	0.003
					0.008	0.007
					0.015	0.013
					0.03	0.026
					0.06	0.052
					0.1	0.86
					0.2	0.17
					0.45	0.39
*Recommended spare parts						

Figure 9. Optional Fisher Baumann 177 Low Flow Trim Assembly



E1247

Table 8. Fisher Baumann 177 Low Flow Trim

Key No.		Description	
4*	- - -	Plug (see Table 9)	
2*	23	Gland	Seat ring sub-assembly
	24	Retainer nut	
	25	Insert	
	26	Housing	
*Recommended spare parts			

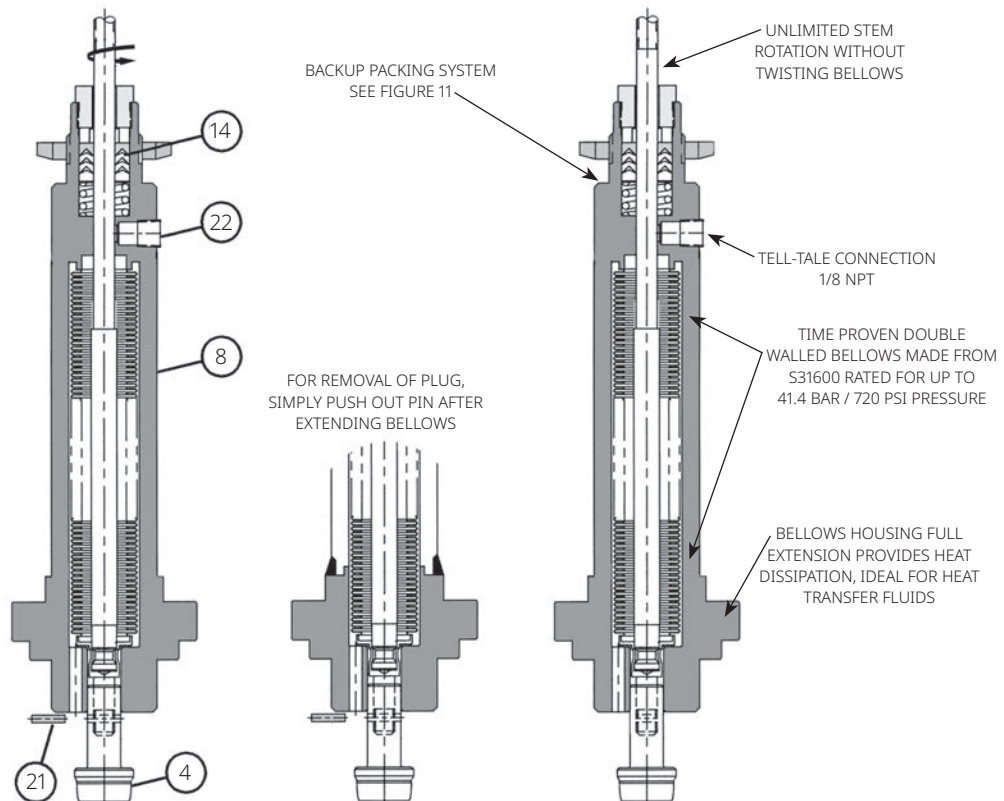
Table 9. Plug and Seat Ring for Fisher Baumann 177 Trim

KEY NO.	DESCRIPTION	PLUG TYPE	PLUG SERIES	ORIFICE DIAMETER mm / in.	C _v	K _v
2*	Seat ring					
2*	Seat sub-assembly (see Table 8)					
4*	Plug and stem assy	Low Flow	177	7.9 / 0.3125	0.0005	0.0004
					0.001	0.0009
					0.002	0.0017
					0.005	0.004
					0.01	0.009
					0.02	0.017
					0.05	0.04
*Recommended spare parts						

⚠ WARNING

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

Figure 10. Fisher Baumann NOLEEK Bellows Bonnet Assembly



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Table 10. NOLEEK Bellows Bonnet Assembly with Standard Packing Kit⁽¹⁾

Key No.	Qty	Description
4*	1	Plug
8	1	Complete bellows/Bonnet sub-assembly, DN 15, 20, 25, 40 and 50 / NPS 1/2, 3/4, 1, 1-1/2 and 2
14*	1	V-ring packing kit (standard) Fisher enhanced ENVIRO-SEAL Packing kit (optional)
21*	1	Plug retaining pin
22*	1	Hex socket pipe plug, 1/8 NPT, Stainless steel

1. Not available with Fisher Baumann 24000CVF carbon steel valves.
*Recommended spare parts

Figure 11. Packing Kits

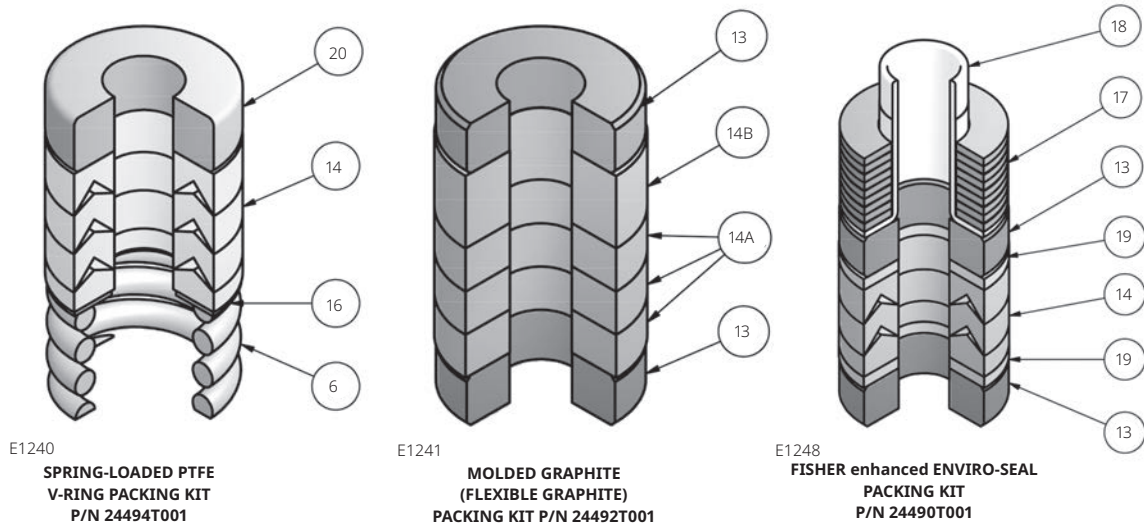


Table 11. Spring-Loaded PTFE V-Ring Packing Kit P/N 24494T001

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 12. 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 13. Fisher enhanced 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

4.2 Special Fisher enhanced ENVIRO-SEAL Packing Note

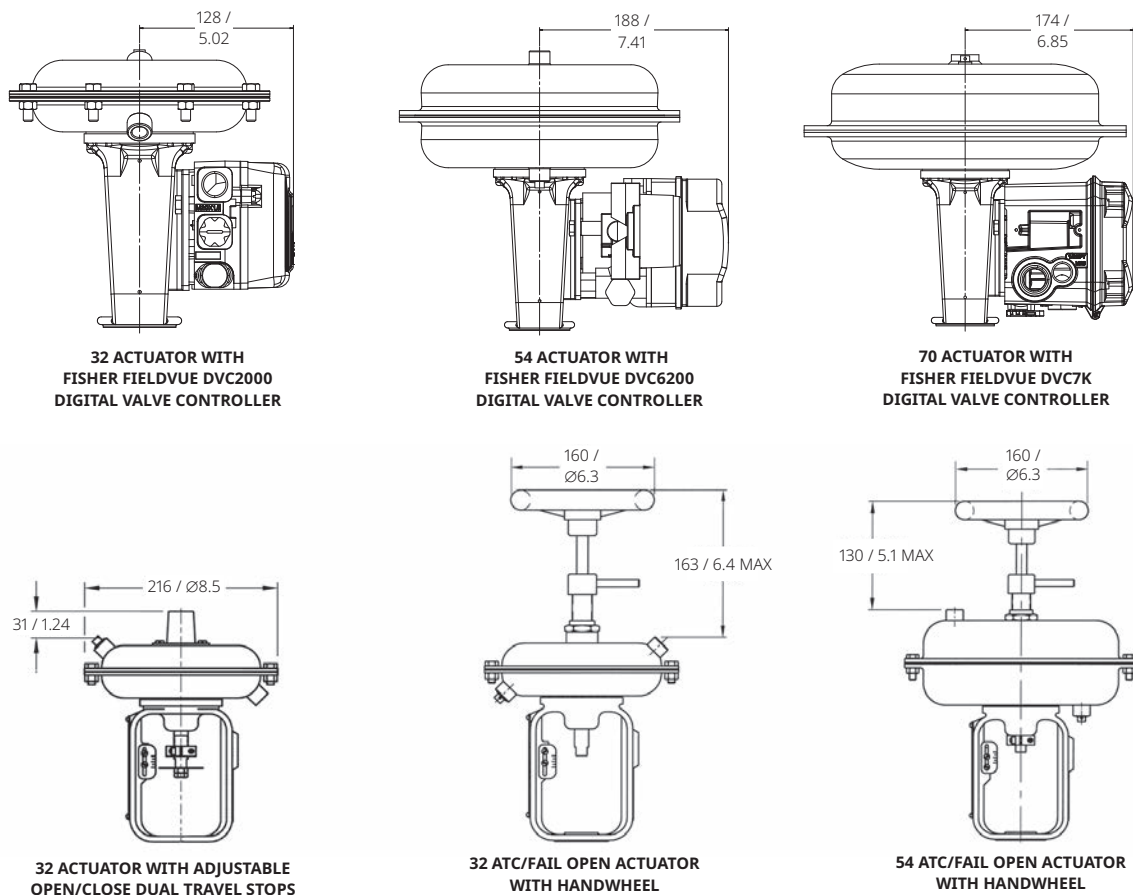
The Fisher enhanced ENVIRO-SEAL PTFE packing system is suitable for 100 ppm environmental applications on services up to 51.7 barg / 750 psig and process temperatures ranging from -46 to +232°C / -50 to +450°F.

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 (D101986X012).

Figure 12. Dimensional Drawings



E1257

mm / in.

NOTE: ACTUATOR REMOVAL REQUIRES 115 MM / 4.5 IN. VERTICAL CLEARANCE.

Table 14. Fisher Baumann Valve Dimensions

VALVE SIZE		A — FACE-TO-FACE						B — BONNET					
		CL150		CL300		PN 10 to 40		Standard		Single Extension		Bellows	
DN	NPS	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
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 15. Fisher Baumann Valve Assembly Weights

VALVE SIZE		WEIGHT					
		CL150		CL300		PN 10 to 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 16. Fisher 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 Fisher Baumann 24000 Series Bulletin (D103347X012) for additional information.

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