

# Baumann™ 24000S Stainless Steel Control Valve

The Baumann 24000S versatile, pneumatic, control valve may be used for the control of pressure, temperature, level, and flow. NPS 1/2 through 2 valves are available with NPT end connections. NPS 3 is available as wafer style only. The CF8M stainless steel valve body will withstand mildly corrosive fluids, yet is economical enough to use in applications where carbon steel is normally specified.

## Features

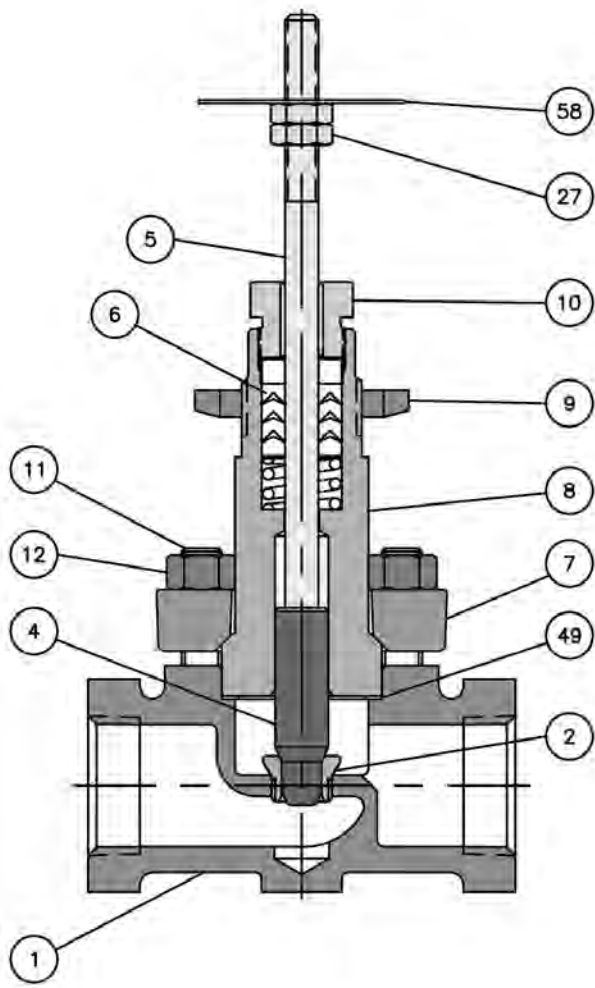
- Compact and light weight design reduces installed piping costs.
- End connection options are available to meet your piping standards.
- Dual stem and plug guiding provides increased stability during plug travel.
- High-quality S31600 stainless steel trim materials; S41600 stainless steel trim available.
- Multiple trim capacity reductions available to meet changing process requirements.
- Fisher™ FIELDVUE™ digital valve controller are available for remote calibration and diagnostics.
- The FIELDVUE DVC2000 digital valve controller has a local user interface that includes a liquid crystal display and four push buttons for menu navigation.
- NOLEEK bellows bonnet and single through triple extension bonnets are available.



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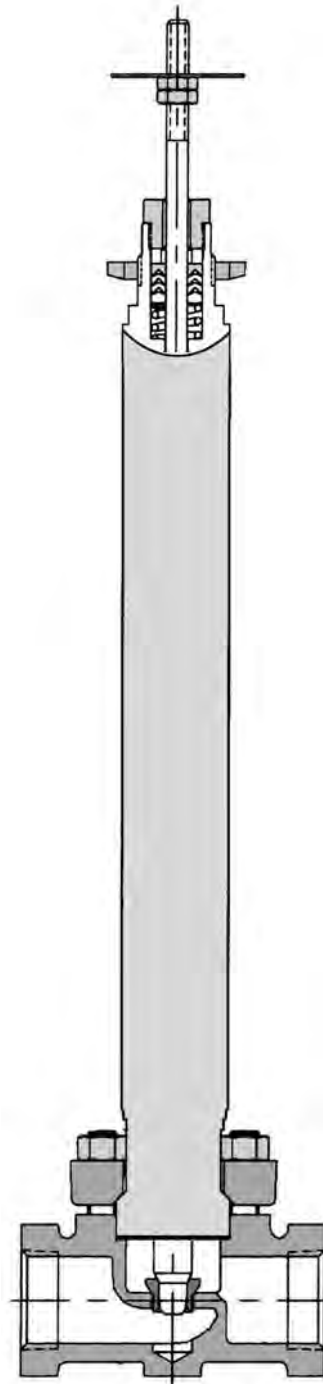
**Baumann 24000S NPT Control Valve**

Figure 1. Baumann 24000S Valve Body Assembly



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Figure 2. Baumann 24000S Valve with Extension Bonnet, available in Single and Double Extension Lengths

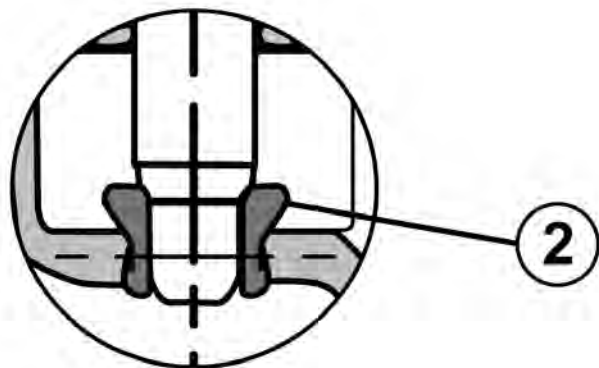


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**Table 1. Materials of Construction**

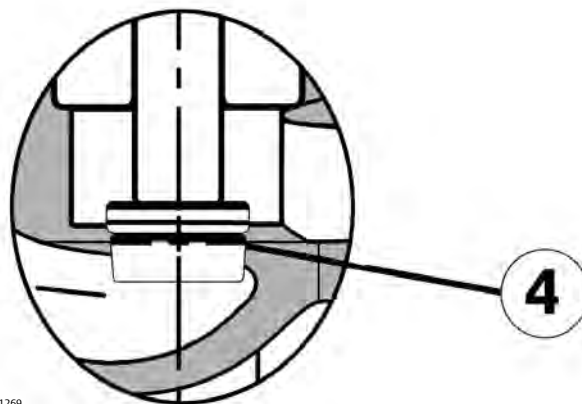
Key No.	Description	Material	
1	Valve Body	ASME SA351 CF8M	
2	Seat Ring	ASTM A276 S31600 / S31603 Dual Certified (used for 6.3 mm and 9.5 mm [1/4 inch and 3/8 inch] orifice diameters only)	
4	Plug (Metal Seat) Cv < 2.5	Standard	ASME SA479 S21800 Annealed
		Optional	ASTM A582 S41600 Condition T
	Plug (Metal Seat) Cv > 4.0	Standard	ASTM A276 S31600 / S31603 Dual Certified
		Optional	ASTM A582 S41600 Condition T
	Plug (Soft Seat)	ASTM A276 S31600 / S31603 Dual Certified with PTFE (Polytetrafluoroethylene) Insert	
5	Stem	ASTM A276 S31600 Condition A	
6	Packing Set	(Refer to page 5)	
7	Bonnet Flange	1/2 to 2 inch	ASME SA351 CF8M
		3 inch	ASME SA240 S31600 / S31603 Dual Certified
8	Bonnet	Standard	ASME SA479 S31600 / S31603 Dual Certified
		Extension	ASME SA479 S31600 / S31603 Dual Certified
		NOLEEK	ASME SA479 S31600 / S31603 Dual Certified
9	Drive Nut (Yoke)	S30400	
10	Packing Follower	ASTM A276 S31600 / S31603 Dual Certified	
11	Bonnet Studs (Bolt)	ASME SA193 Grade B8 Class 1	
12	Bonnet Nuts	ASME SA194 Grade B8	
27	Locknuts	Stainless Steel (18-8 Stainless Steel)	
49	Body Gasket	Graphite Grade GHR with S31600 Insert	
58	Travel Indicator	ASME SA240 S30400	

**Figure 3. Screwed Seat**



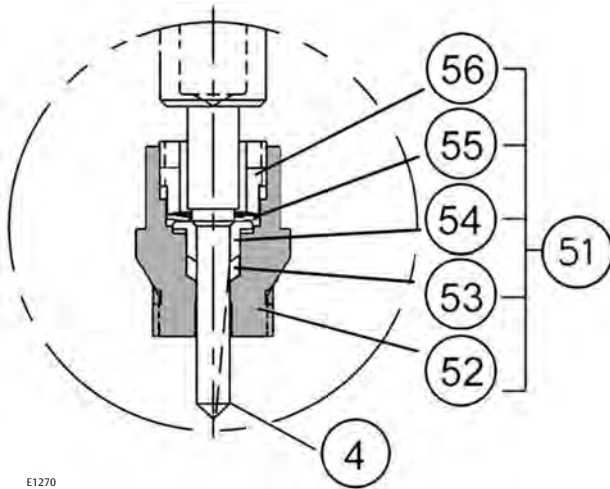
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**Figure 4. Integral Seat**



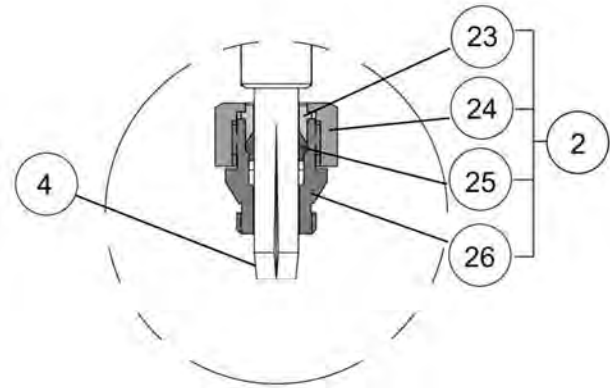
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Figure 5. 24151S Low Flow Trim



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Figure 6. 24177S Low Flow Trim



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Table 2. 24151S Low Flow Trim

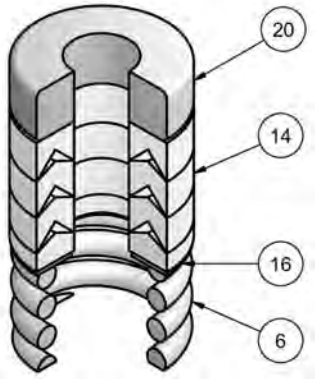
Key Number	Description	Material	
4	Plug	ASME SA479 S21800	
51	Seat Sub-Assembly		
	52	Cage	ASTM A276 S31600 / S31603
	53	Seat	PTFE
	54	Collar	ASTM A276 S31600/ S31603
	55	Washer	ASTM A276 S31600 Cond B
56	Insert	ASTM A276 S31600/ S31603	

Table 3. 24177S Low Flow Trim<sup>(1)</sup>

Key Number	Description	Material	
2	Seat Sub-Assembly		
	23	Gland	ASTM A276 S31600/ S31603
	24	Retainer Nut	ASTM A276 S31600/ S31603
	25	Insert	Reinforced PTFE
	26	Housing	ASTM A276 S31600/ S31603
4	Plug	ASME SA479 S21800	

1. For optional trim materials, consult your [Emerson sales office](#) for price and delivery. Baumann 32 actuator requires dual-stops with 177 trim series.

Figure 7. Standard Spring-Loaded PTFE V-Ring Packing Kit

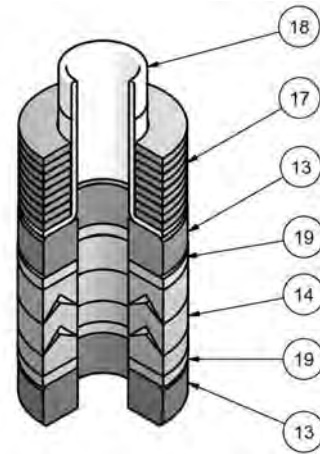


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Table 4. Standard Spring-Loaded PTFE V-Ring Packing Kit

Key Number	Description	Material
6	Spring	ASTM A313 S30200
14	Packing Set	PTFE (Polytetrafluoroethylene) / PTFE, 25% carbon filled
16	Washer	ASME SA240 S31600
20	Spacer	J-2000 (filled-Polytetrafluoroethylene)

Figure 9. ENVIRO-SEAL™ Packing Kit (Optional)

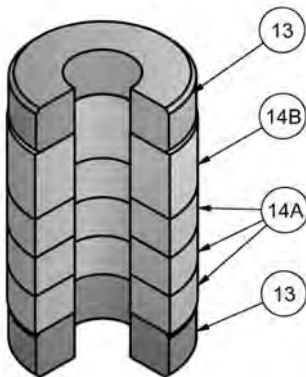


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Table 6. ENVIRO-SEAL Packing Kit (Optional)

Key Number	Description	Material
13	Bushings	Carbon-Graphite
14	Packing Rings	PTFE (Polytetrafluoroethylene) / PTFE, 25% carbon filled
17	Belleville Spring	N06600 Nickel Alloy (ASTM B637 N07718, 40 HRC max)
18	Bushing	PEEK (polyetheretherketone)
19	Washers	Modified PTFE

Figure 8. Molded Graphite (Flexible Graphite) Packing Kit (Optional)



E1241

Table 5. Molded Graphite (Flexible Graphite) Packing Kit (Optional)

Key Number	Description	Material
13	Bushings	Carbon-Graphite
14A	Packing Rings	Graphite
14B	Packing Ring	Graphite

## Special ENVIRO-SEAL Packing Note

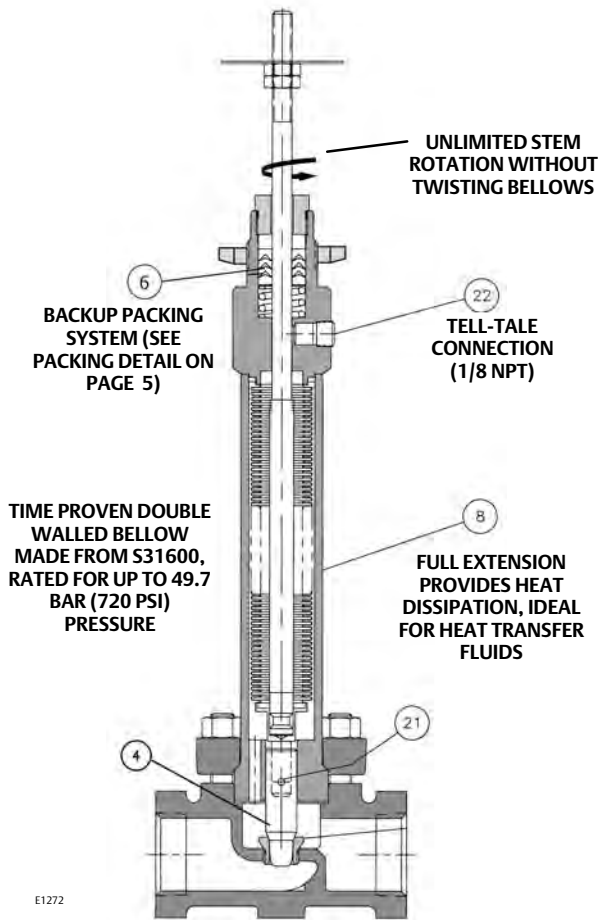
The ENVIRO-SEAL PTFE packing system is suitable for 100 ppm environmental applications on services up to 51.7 barg (750 psig) and process temperatures ranging from -46 to 232°C (-50 to 450°F).

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 Packing Selection Guidelines for Fisher Sliding-Stem Valves, Bulletin 59.1:062 ([D101986X012](#)).

Figure 10. NOLEEK Bellows Bonnet Assembly



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**⚠ WARNING**

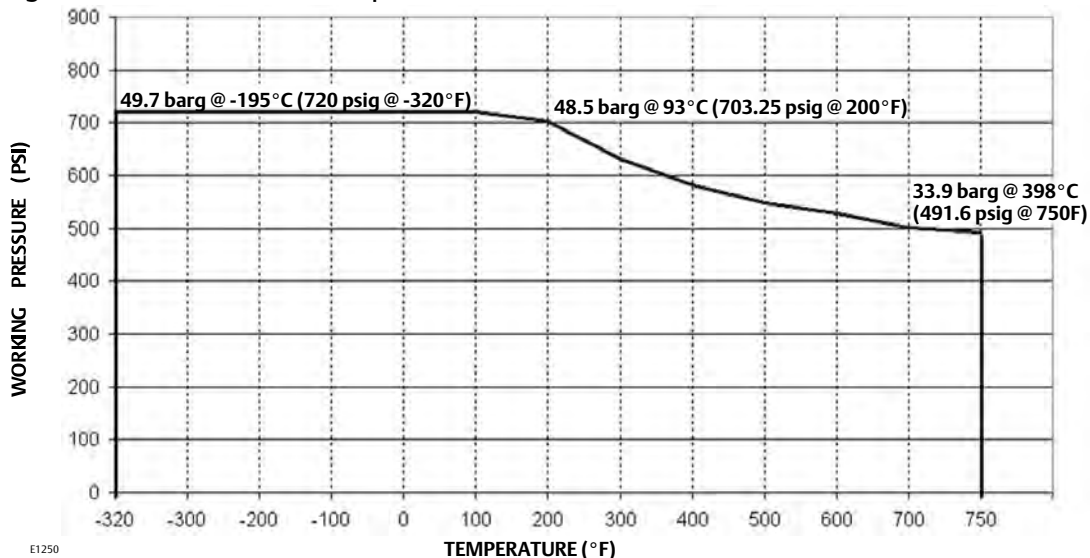
The Baumann NOLEEK valve bonnet assembly is not intended for use in lethal service applications.

The NOLEEK Bellows Bonnet Assembly is reliable and user-friendly. Typical service life is in excess of 250,000 full cycles under 100 psi pressure. The bonnet adds only approximately 5 inches to the height of a standard valve. Operating temperature range is -195 to 399°C (-320 to 750°F).

Table 7. Baumann NOLEEK Bellow Bonnet Assembly

Key No.	Description	Material
4	Plug	See table 1
6	V-Ring Packing Kit (Standard)	See table 4
	ENVIRO-SEAL Packing Kit (Optional)	See table 6
8	Housing	S31600/S31603
	Bellows	S31603/1.4571 SST
	Bonnet	CF8M
21	Plug Retaining Pin	S30300
22	Hex Socket Pipe Plug, 1/8 NPT	S30400

Figure 11. Bellows Pressure Temperature Curve



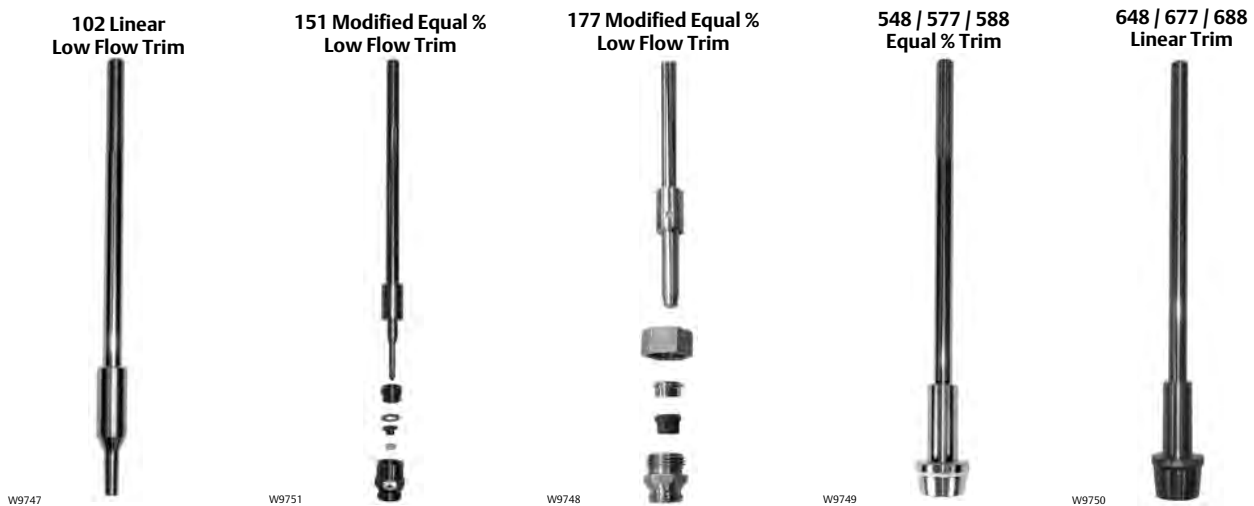
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Table 2. Cv Values at 100% Plug Opening ( $K_v = 0.86 \times C_v$ )<sup>(1)</sup>

VALVE SIZE	ORIFICE DIAMETER	PLUG TRAVEL	PLUG SERIES						
			102	151	177	577	548 / 588	677	648 / 688
NPS	inch	inch	Cv	Cv	Cv	Cv	Cv	Cv	Cv
1/2	0.156	0.50	---	0.00013, 0.00025, 0.0005, 0.001, 0.002, 0.004, 0.008, 0.015, 0.03, 0.06, 0.10, 0.20, 0.45	---	---	---	---	---
	0.25	0.50	0.02, 0.05, 0.10, 0.20	---	---	---	0.22, 0.61, 1.0	---	0.50, 1.0
	0.3125	0.50	---	---	0.0005, 0.001, 0.002 0.005, 0.01 0.02, 0.05	---	---	---	---
	0.375	0.50	---	---	---	1.0, 1.5 2.0	1.5, 2.5	0.10, 0.20, 0.50 1.0, 2.5	1.5, 2.5
1	0.156	0.50	---	0.00013, 0.00025, 0.0005, 0.001, 0.002, 0.004, 0.008, 0.015, 0.03, 0.06, 0.10, 0.20, 0.45	---	---	---	---	---
	0.25	0.50	0.02, 0.05, 0.10, 0.20	---	---	---	0.22, 0.61, 1.0	---	0.50, 1.0
	0.3125	0.50	---	---	0.0005, 0.001, 0.002 0.005, 0.01 0.02, 0.05	---	---	---	---
	0.375	0.50	---	---	---	1.0, 1.5 2.0	1.5, 2.5	0.10, 0.20, 0.50 1.0	1.5, 2.5
	0.8125	0.50	---	---	---	4, 8.5	4.7, 9.5	4.0	4.0, 9.5
1-1/2	1.25	0.75	---	---	---	17.5	9, 17.5	17.5	17.5
2	1.5	0.75	---	---	---	10, 18, 30.5	10, 17.5, 30.5	10, 17.5	10, 17.5, 30.5
3	2.0	0.75	---	---	---	35	35, 61	35, 61	35, 61

1. See [Fisher Catalog 12](#) for a full range of flow and sizing information.

Figure 12. Baumann 24000S Trims



**Table 8. Technical Specifications**

<b>NOMINAL PIPE SIZE</b>	DN 15, 25, 40, 50, and 80	NPS 1/2, 1, 1-1/2, 2, and 3
<b>END CONNECTIONS</b>	Screwed NPT (except for NPS 3, wafer style only) Wafer / Buttweld	
<b>PRESSURE RATING</b>	CL300 (CL150 for NPS 3 per ASME B16.34)	
<b>VALVE BODY MATERIAL</b>	CF8M ASTM A351	
<b>CHARACTERISTIC</b>	Equal Percentage or Linear	

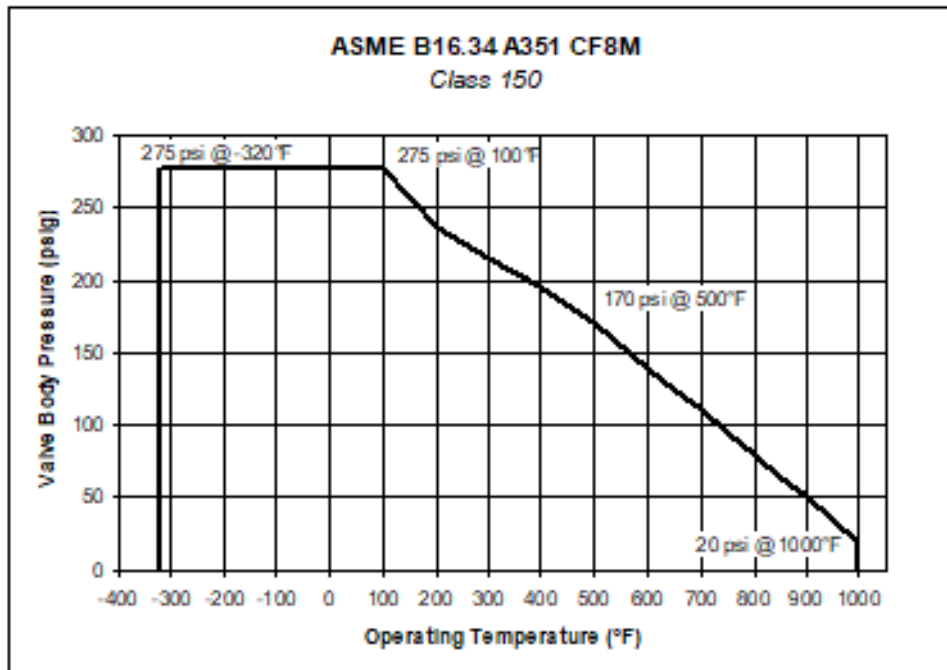
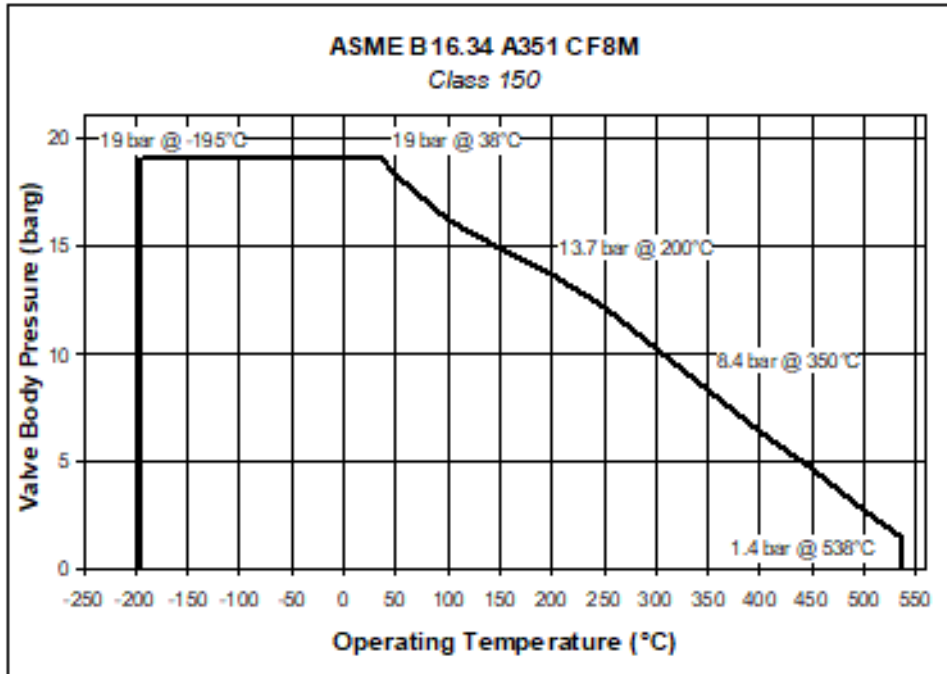
**Table 9. Temperature Ratings for Packing and Seat Material<sup>(1)</sup>**

SEATING MATERIAL	PTFE Soft Seat	151 Trim	-29 to 177°C (-20 to 350°F)
			577 & 677 Trim
	Reinforced PTFE	177 Trim	-73 to 232°C (-100 to 450°F)
	Metal Seat	102, 588, and 688 Trim	-195 to 537°C (-320 to 1000°F)
		548 and 648 Trim	-29 to 537°C (-20 to 1000°F)
PACKING AND BONNET COMBINATIONS	BONNET STYLE	PACKING	TEMPERATURE LIMIT
	Standard Bonnet	Spring Loaded PTFE	-73 to 232°C (-100 to 450°F)
		ENVIRO-SEAL	-45 to 232°C (-50 to 450°F)
		Graphite	-73 to 232°C (-100 to 450°F)
	Extension Bonnet	Spring Loaded PTFE	-195 to 232°C (-320 to 450°F)
		ENVIRO-SEAL	-45 to 232°C (-50 to 450°F)
		Graphite	-195 to 537°C (-320 to 1000°F)
	Bellows	NOLEEK Bellows	-195 to 399°C (-320 to 750°F)

1. Temperature limits apply to seating or packing arrangements only. Complete valve assembly temperature limits may differ, refer to appropriate pressure/temperature ratings. For more information on packing selection, reference Packing Selection Guidelines for Fisher Sliding-Stem Valves, Bulletin 59.1:062 ([D101986X012](#)).

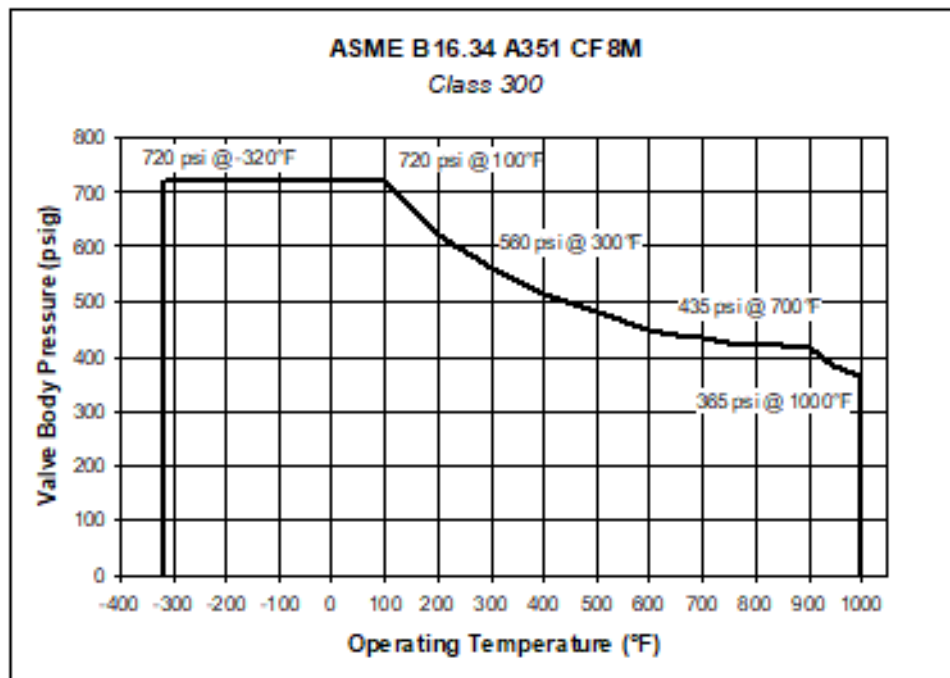
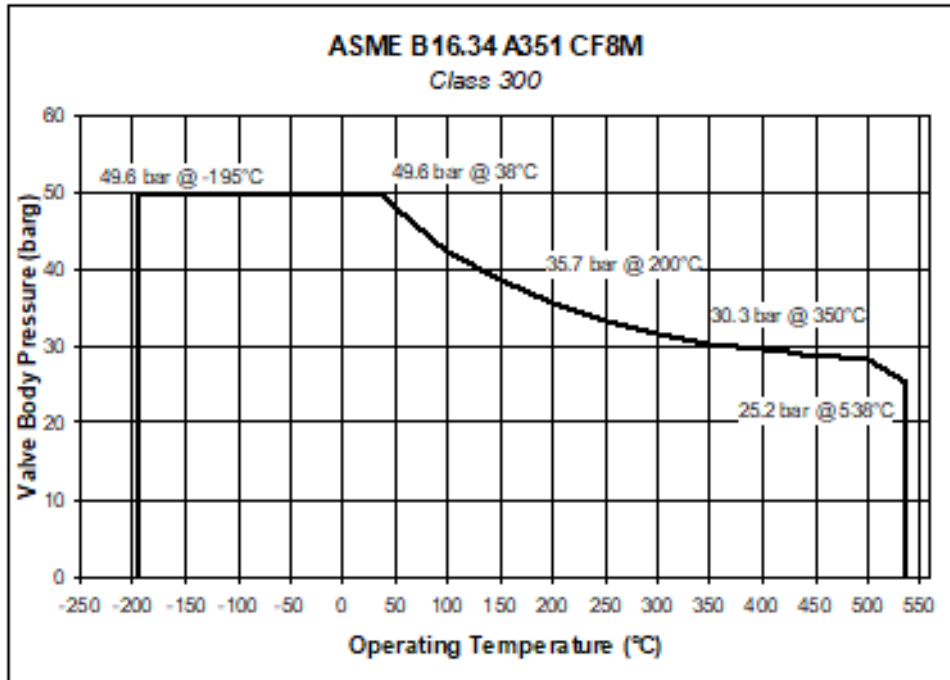


Figure 13. Valve Body Pressure / Temperature Ratings ASME CL150 Valves (Source: ASME B16.34)



E1426

Figure 14. Valve Body Pressure / Temperature Ratings ASME CL300 Valves (Source: ASME B16.34)  
 (Does not apply to 24000S NPS 3 valves)



E1427

Table 10. Valve Dimensions

VALVE SIZE		ASME CLASS	A				B							
			NPT		Wafer		Standard		Extension Bonnet				NOLEEK Bellows	
			mm	Inch	mm	Inch			Single		Double			
DN	NPS	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	
15	1/2	300	7.9	3.1	N/A	N/A	78.7	3.1	213.4	8.4	351	13.8	227.8	8.97
25	1	300	102	4.0	102	4.0	78.7	3.1	215.9	8.5	351	13.8	227.8	8.97
40	1-1/2	300	114	4.5	114	4.5	88.9	3.5	226	8.9	363	14.3	235.7	9.28
50	2	300	124	4.9	124	4.9	83.8	3.3	221	8.7	356	14	234.4	9.23
80	3	150	N/A	N/A	165	6.5	96.5	3.8	234	9.2	371	14.6	235.7	9.28

Table 11. Valve Assembly Weights

VALVE SIZE		WEIGHT	
DN	NPS	kg	lb
15	1/2	2.3	5
25	1	2.7	6
40	1-1/2	4.1	9
50	2	5.0	11
80	3	9.1	20

Table 12. Actuator Weights

ACTUATOR TYPE	WEIGHTS	
	kg	lb
MV1020	10	22
VA1020	14	30
SVX24-MFT	Reference Baumann bulletin 52.1:SVACT (D104169X012)	
SVK24-MFT		

Table 13. Baumann 24000S Wafer Style<sup>(1)</sup>

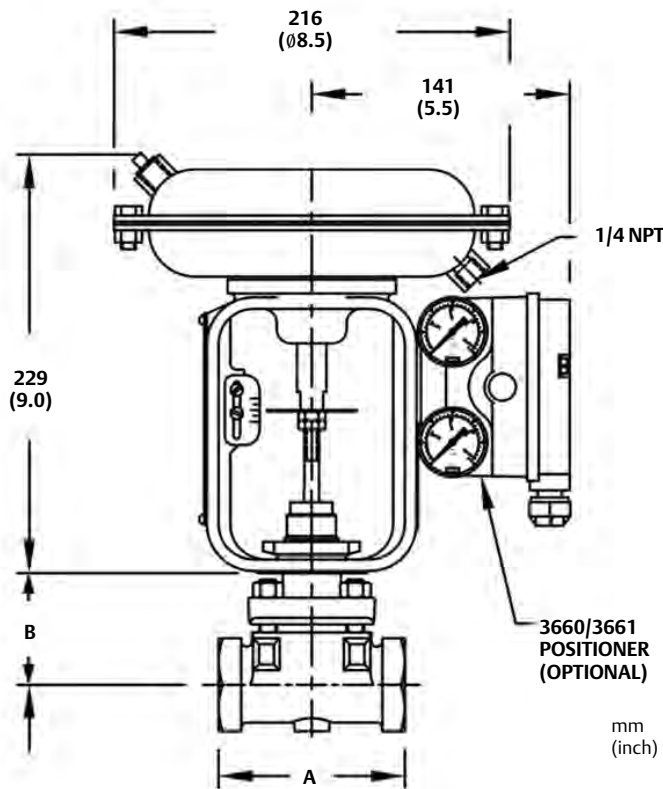
Valve Size	DN 15 / NPS 1/2	DN 25 / NPS 1	DN 40 / NPS 1-1/2	DN 50 / NPS 2	DN 80 / NPS 3
ASME Flange	None	CL150	CL150	CL150	CL150
DN Flange	None	PN 16	PN 16	PN 16	PN 16
NPT	Yes	Yes	Yes	Yes	None

1. The Baumann 24000S valve is available as NPT and wafer style (fits between RF line flanges). Not all sizes are available as wafer. This table outlines available constructions.

Table 14. Model Numbering System

24 Valve Body Series	Plug Series	Characteristic	Seat Leakage	S		Bonnet Style	
				S	Valve Body Material		
	102	Linear / Metal Seat	IV	S	NPT	Omit	Standard
	151	Modified Equal % / PTFE Seat	VI			E	Extension
	177	Modified Equal % / Reinforced PTFE	VI			EB	NOLEEK
	577	Equal % / PTFE Seat	VI				
	548	Equal % / Metal Seat (S41600)	IV				
	588	Equal % / Metal Seat (S31600)	IV				
	648	Linear / Metal Seat (S41600)	IV				
	677	Linear / PTFE Seat	VI				
	688	Linear / Metal Seat	IV				

Figure 15. Dimensional Drawing



E1262

**24000S WITH BAUMANN 32 ATO ACTUATOR**

Note: Actuator removal requires 115 mm (4.5 inches) vertical clearance.

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