

# 24000S Series Stainless Steel Control Valve

This economical line of versatile pneumatic control valves may be used for the control of pressure, temperature, level and flow. Sizes 1/2 inch through 3 inch are available with NPT and buttweld end connections. The type 316 stainless steel 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.
- Epoxy powder coated actuator with stainless steel fasteners for corrosion resistance.
- Multi-spring field reversible actuator with reduced deadband permits direct operation from remote signal devices.
- Superior dual stem and plug guiding provides increased stability during plug travel.
- High quality type 316 stainless steel trim materials; 416 stainless steel trim available.
- Multiple trim capacity reductions available to meet changing process requirements.
- Extension bonnets available for temperatures ranging from -320°F to 850°F (-195°C to 434°C).
- FIELDVUE® Digital Valve Controller available for remote calibration and diagnostics in facilities using the PlantWeb® architecture.
- Superior dual stem and plug guiding provides increased stability during plug travel.

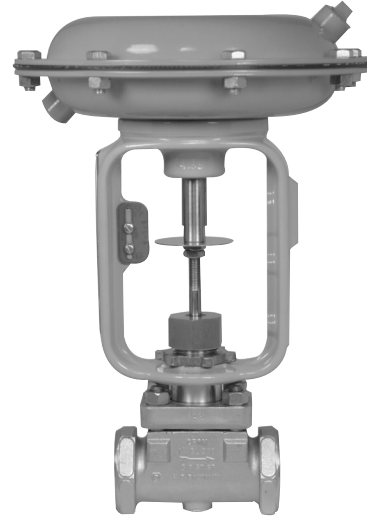


Figure 1. 24000S NPT Control Valve



Figure 2. 24000S Control Valves with Tri-clamp and Butt-weld Ends



## 24000S Series Control Valve

Table 1. MATERIALS OF CONSTRUCTION

KEY NO.	DESCRIPTION	MATERIAL	
1	Body	316 SS ASTM A351, CF8M	
2	Seat Ring	316 SS (used for 1/4" & 3/8" [6.3 mm & 9.5 mm] orifice diameters only)	
		PLUG	STEM
	Plug & Stem (Metal Seat) $C_v \leq 2.5$	Nitronic 60 (ASTM A479 S21800 Annealed) standard/ 416 SST (ASTM A582 S41600 CONDITION T) available	316 SST (ASTM A276 S31600 Condition A)
	Plug & Stem (Metal Seat) $C_v \geq 4.0$	316 SST (ASTM A276 S31600 Condition A) standard/ 416 SST (ASTM A582 S41600 CONDITION T) available	
	Plug & Stem (Soft Seat)	316 SST (ASTM A276 S31600 Condition A) with PTFE (Polytetrafluoroethylene) Insert	
5	Bonnet Flange	316 Stainless Steel	
6	O-Ring	Fluoroelastomer	
7	Compression Spring	ASTM A313 S30200	
8	Bonnet (standard)	ASTM A479 S31600	
	Bonnet (extended)	316 Stainless Steel	
	Bonnet (NOLEEK)	ASTM A479 S31600	
9	Drive Nut (Yoke)	ASTM A194 Grade 8	
10	Packing Follower	Type 303SS Patented Dual Follower with PTFE Inner V-Ring Packing (Key 17) and Viton® O-Ring Outer Seal (Key 6)	
11	Bonnet Studs (Bolt)	ASTM A193 GRADE B8, CLASS 1 S30400	
12	Bonnet Nuts	ASTM F594 ALLOY GROUP 1, Condition CW S30400	
14	V-Ring Packing Set	PTFE (Polytetrafluoroethylene)	
16	Washer	ASTM A240 S31600	
17	V-Ring Set	PTFE (Polytetrafluoroethylene)	
20	Packing Nut	ASTM A582 S30300 Condition A	
27	Locknuts	Stainless Steel (18-8 SST)	
49	Body Gasket	Graphite Grade GHR with 316 SST Insert	
58	Travel Indicator	ASTM A240 S30400	

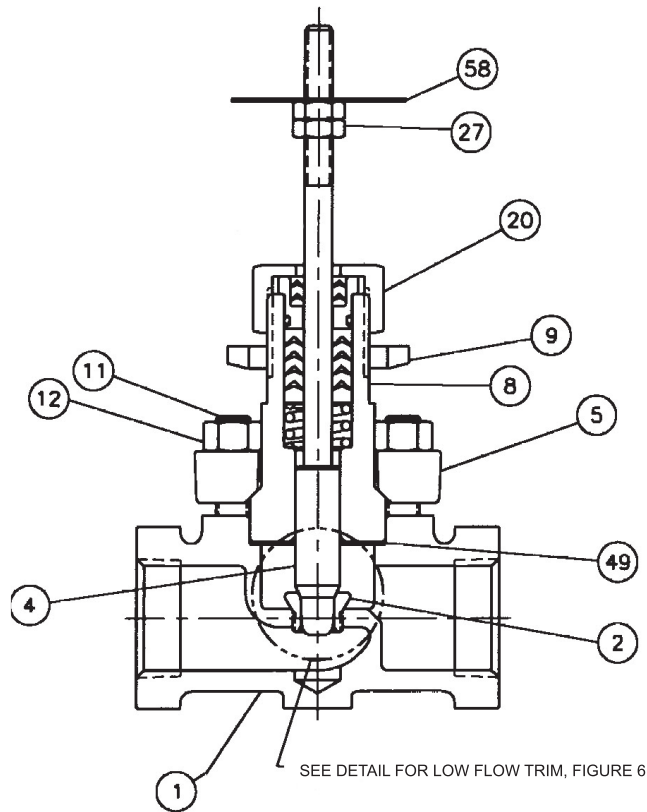


Figure 3. 24000S Valve Body Assembly

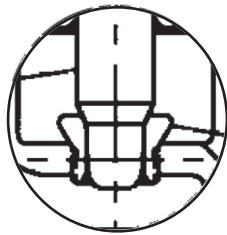


Figure 4. Screwed Seat, Cv = 2.5 and Under

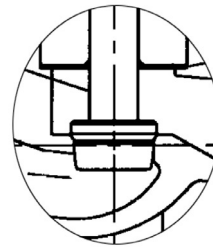


Figure 5. Integral Seat, Cv = 4.0 and Over

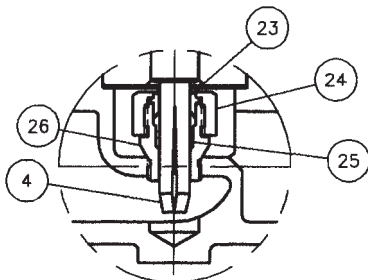


Figure 6. 24177S Low Flow Trim

Table 2, Figure 6. 24177S LOW FLOW TRIM

KEY NO.	DESCRIPTION	MATERIAL
4	Plug	ASTM A479 S21800
23	Gland	ASTM A276 S31600
24	Retainer Nut	ASTM A276 S31600
25	Insert	Rulon® LR
26	Housing	ASTM A276 S31600

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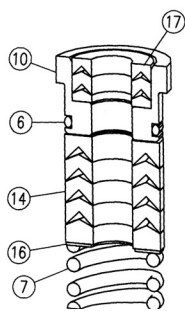


Figure 7. STANDARD PTFE Spring Loaded Packing

Table 3, Figure 4. STANDARD PTFE SPRING LOADED PACKING

KEY NO.	DESCRIPTION	MATERIAL
6	O-Ring	Viton
7	Spring	ASTM A313 S30200
10	Packing Follower	ASTM A582 S30300 Condition A
14	V-Ring Packing Set	PTFE (Polytetrafluoroethylene)
16	Washer	ASTM A240 S31600
17	V-Ring Set	PTFE (Polytetrafluoroethylene)

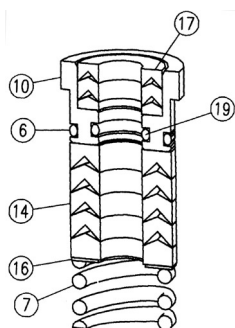


Figure 8. EPASEAL Packing (optional)

Table 4, Figure 6. EPASEAL PACKING (OPTIONAL)

KEY NO.	DESCRIPTION	MATERIAL
6	O-Ring	Fluoroelastomer
7	Spring	ASTM A313 S30200
10	Epaseal Follower	ASTM A582 S30300
14	V-Ring Packing Set (5 rings)	PTFE (Polytetrafluoroethylene)
16	Washer	ASTM S240 S31600
17	V-Ring Set	PTFE (Polytetrafluoroethylene)
19	O-Ring	Fluoroelastomer

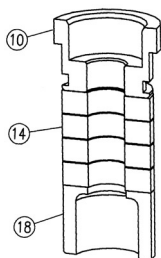


Figure 9. Molded Graphite (Grafoil) Packing (optional)

Table 5, Figure 7. MOLDED GRAPHITE (GRAFOIL) PACKING (OPTIONAL)

KEY NO.	DESCRIPTION	MATERIAL
10	Packing Follower	ASTM A582 S30300
14	Packing Set (4 rings)	Graphite
18	Spacer	ASTM S276 S31600

Table 6, Figure 8. STANDARD PACKING FOR NOLEEK BELLOWS BONNET

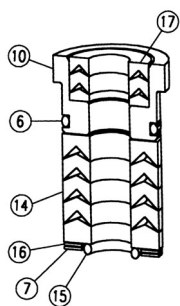


Figure 10. Standard Packing for NOLEEK Bellows Bonnet

KEY NO.	DESCRIPTION	MATERIAL
6	O-Ring	Fluoroelastomer
7	Wave Spring	17-7 PH Stainless Steel
10	Packing Follower	ASTM A582 S30300
14	V-Ring Packing Set (5 rings)	PTFE (Polytetrafluoroethylene)
15	O-Ring	PTFE (Polytetrafluoroethylene)
16	Washer	ASTM A240 S31600
17	V-Ring Set	PTFE (Polytetrafluoroethylene)

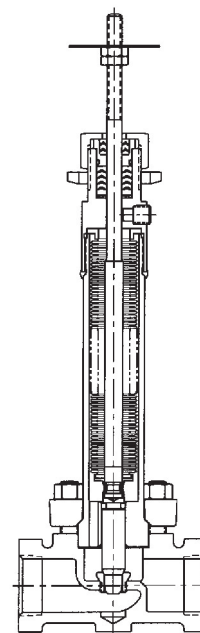
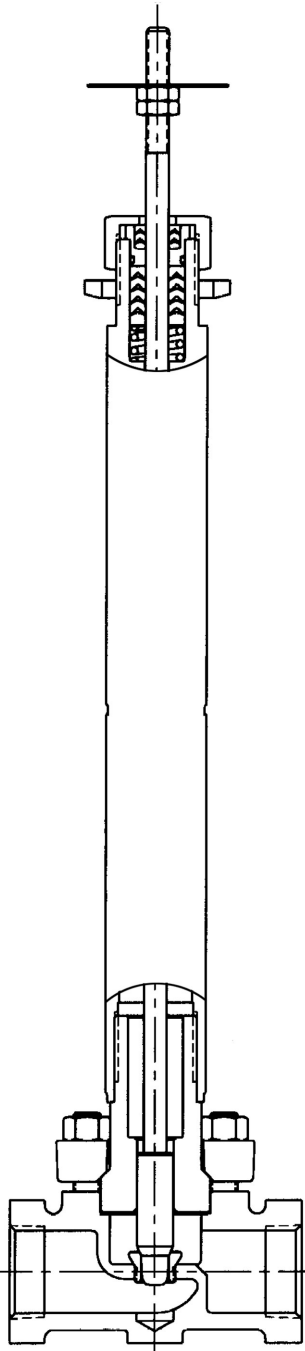
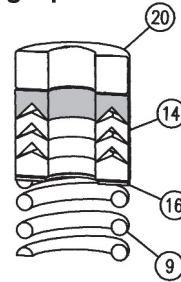


Figure 11. 24000S with NOLEEK Bonnet

**Extension Bonnets and Extension Bonnet Packing Options**

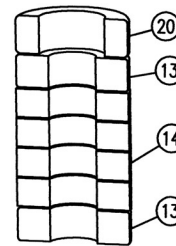


**Figure 12.** 24000S with Extension Bonnet, available in single, double and triple extension lengths



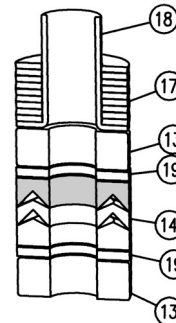
**Table 7, Figure 13. SPRING LOADED PTFE V-RING PACKING KIT**

KEY NO.	DESCRIPTION	MATERIAL
6	Spring	302 SST [ASTM A313 S30200]
14	Packing Set	PTFE (Polytetrafluoroethylene)/ PTFE, 25% carbon filled
16	Washer	316 SST [ASTM A240 S31600]
20	Spacer	J-2000 (filled Polytetrafluoroethylene)



**Table 8, Figure 14. MOLDED GRAPHITE (GRAFOIL) PACKING KIT**

KEY NO.	DESCRIPTION	MATERIAL
13	Bushing (2)	Carbon-Graphite
14	Packing Rings (4)	Graphite
20	Spacer	303 SST (ASTM A582 S30300 Condition A)



**Table 9, Figure 15. ENVIRO-SEAL PACKING KIT**

KEY NO.	DESCRIPTION	MATERIAL
13	Bushing (2)	Carbon Graphite
14	Packing Set	PTFE (Polytetrafluoroethylene)/ PTFE, 25% carbon filled
17	Belleville Spring	Inconel (ASTM B637 N07718, 40 HRC MAX)
18	Bushing	PEEK(Polyetheretherketone)
19	Washer (2)	PTFE (Polytetrafluoroethylene), filled Gylon

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Table 10. C<sub>v</sub> OR K<sub>v</sub> VALUES @ 100% PLUG OPENING

VALVE SIZE		PORT DIAMETER		PLUG TRAVEL		PLUG SERIES													
						177		102		548		577		588		677		688	
in	DN	in	mm	in	mm	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv
0.5 & 1.0	15 & 25	0.25	6.3	0.50	12.7	---	---	0.02, 0.05, 0.10, 0.20	0.02, 0.04, 0.09, 0.17	0.22, 0.61, 1.0	0.20, 0.53, 0.86	---	---	0.22, 0.61, 1.0	0.20, 0.53, 0.86	---	---	0.5, 1.0	0.43, 0.86
		0.3125	7.9	0.50	12.7	0.0005, 0.001, 0.002, 0.005, 0.01, 0.02, 0.05	0.0005, 0.0009, 0.002, 0.004, 0.009, 0.02, 0.04	---	---	---	---	---	---	---	---	---	---	---	---
		0.375	9.5	0.50	12.7	---	---	---	---	1.5, 2.5	1.3, 2.2	1.0, 1.5, 2.5	0.86, 1.3, 2.2	1.5, 2.5	1.3, 2.2	0.1, 0.2, 0.5, 1.0, 2.5	0.09, 0.17, 0.43, 0.86, 2.2	1.5, 2.5	1.3, 2.2
1.0	25	0.8125	20.6	0.50	12.7	---	---	---	---	4.7, 9.5	4.05, 8.2	4, 8.5	3.4, 7.3	4.7, 9.5	4.05, 8.2	4	3.4	4, 9.5	3.4, 8.2
1.5	40	1.25	31.8	0.75	19.1	---	---	---	---	9, 17.5	7.8, 15.1	17.5	15.1	9, 17.5	7.8, 15.1	17.5	15.1	17.5	15.1
2.0	50	1.5	38.1	0.75	19.1	---	---	---	---	10, 17.5, 30.5	8.6, 15.1, 26.4	10, 18, 30.5	8.6, 15.6, 26.4	10, 17.5, 30.5	8.6, 15.1, 26.4	10, 17.5	8.6, 15.1	10, 17.5, 30.5	8.6, 15.1, 26.4
3.0	80	2.0	50.8	0.75	19.1	---	---	---	---	35, 52.3	30.3, 45	35	30.3	35, 52.3	30.3, 45	35, 61	30.3, 52.8	35, 61	30.3, 52.8

$K_v = (0.86)(C_v)$

Table 11. TECHNICAL SPECIFICATIONS

<b>NOMINAL SIZE</b>		1/2, 1, 1-1/2, 2 & 3 inch / DN 15, 25, 40, 50 & 80											
<b>BODY PRESSURE RATING</b>		Class 300 (Class 150 for 3 inch per ASME B16.34)											
<b>BODY MATERIAL</b>		316 SS ASTM A351, GR, CF8M											
<b>END CONNECTIONS</b>		Screwed (NPT)(except for 3 inch, flangeless only!) / Flangeless / Buttweld											
<b>CHARACTERISTIC</b>		Equal Percentage or Linear											
<b>TEMPERATURE RATING</b>		<b>-320°F</b>		<b>-100°F</b>		<b>-50°F</b>		<b>450°F</b>		<b>750°F</b>		<b>850°F</b>	
<b>SEAT PLUG SEALING</b>	<b>PTFE Soft Seat</b>	-100°F to 450°F (-73°C to 232°C)											
	<b>Metal Seat</b>	-320°F to 850°F (-195°C to 454°C)											
<b>BONNET</b>	<b>Standard</b>	-100°F to 450°F (-73°C to 232°C)											
	<b>Extended</b>	-320°F to 850°F (-195°C to 454°C)											
	<b>NOLEEK Bellows</b>	-320°F to 750°F (-195°C to 398°C)											
<b>PACKING</b>	<b>Spring Loaded PTFE V-Ring</b>	-320°F to 450°F (-195°C to 232°C)											
	<b>Molded Graphite Ribbon</b>	-320°F to 450°F (-195°C to 232°C)											
	<b>ENVIRO-SEAL PTFE</b>	-50°F to 450°F (-45.5°C to 232°C)											

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24S.1.SS:BTN

August 2004

**24000S Series Control Valve**

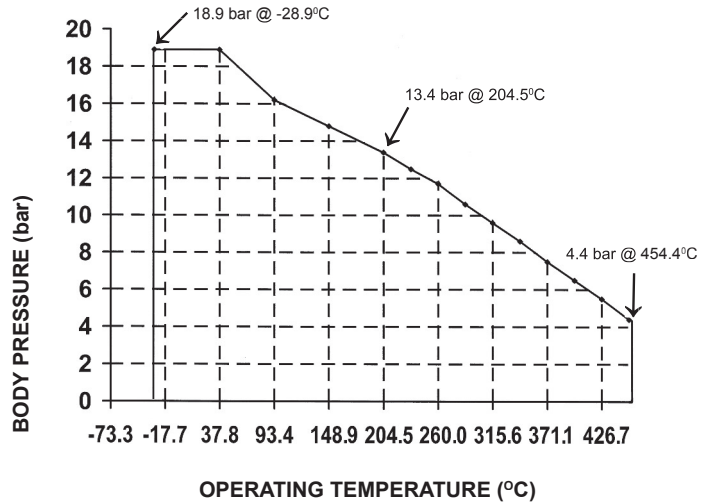
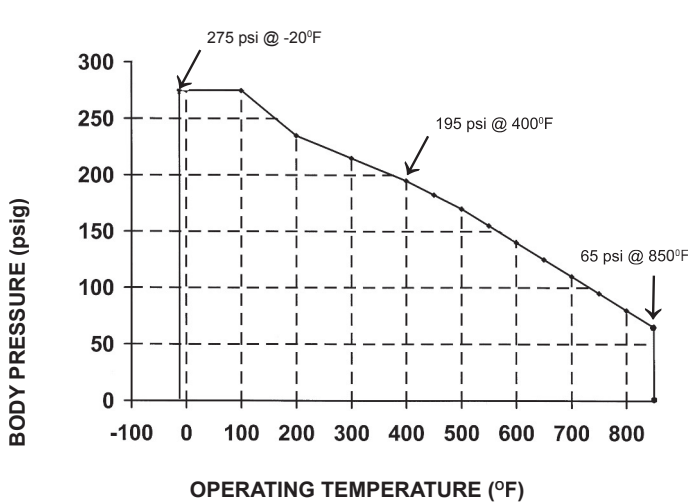
**Table 12. ACTUATOR SPECIFICATIONS**

<b>TYPE</b>	32, 54, 70 Multi-Spring Diaphragm (Single Acting)
<b>DIAPHRAGM AREA</b>	32, 54, 70in <sup>2</sup> / 210, 350, 450cm <sup>2</sup>
<b>AIR FAILURE</b>	32 and 54in <sup>2</sup> Open or Closed (Field Reversible) / 70in <sup>2</sup> Closed ONLY
<b>TRAVEL (Note A)</b>	0.50 or 0.75 inches / 12.7 or 19.1 mm
<b>AMBIENT TEMPERATURE RANGE</b>	-20°F to 160°F / -30°C to 70°C
<b>MAXIMUM AIR PRESSURE</b>	35 psig / 2.41 barg
<b>DIAPHRAGM MATERIAL (Note B)</b>	Nitrile / Polyester Fabric
<b>SPRING CASES</b>	Steel, Powder Epoxy-Coated with Stainless Steel Fasteners
<b>YOKE</b>	Ductile Iron, Powder Epoxy-Coated

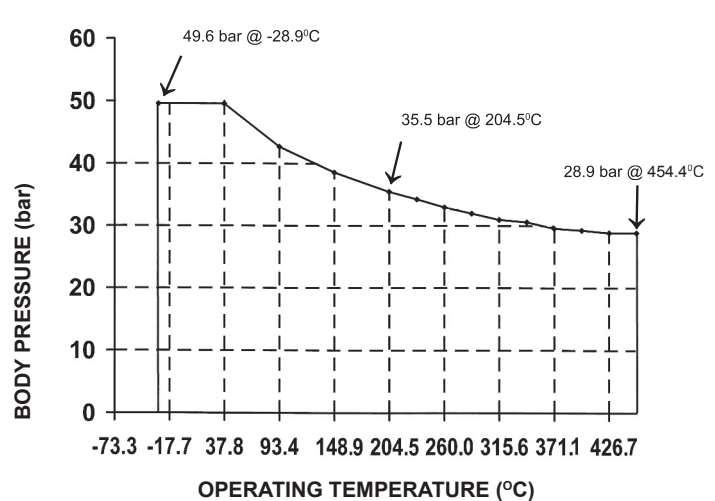
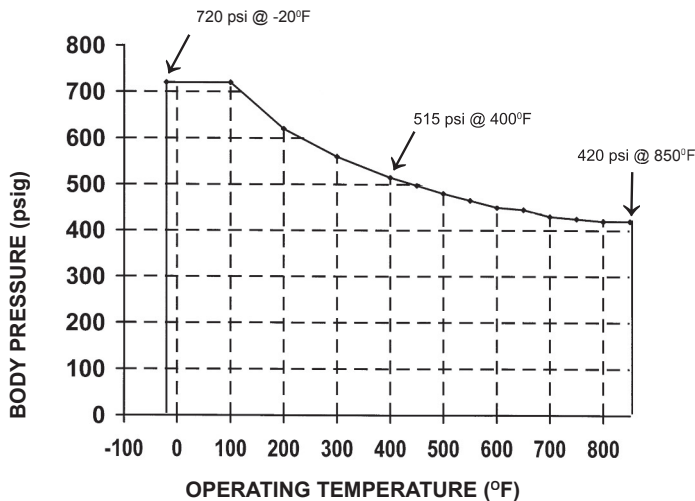
NOTE A: Dual stops available on type 32 and 54 ONLY. Not field reversible.

NOTE B: Optional reinforced silicon diaphragm with viton O-ring actuator stem seal for high ambient temperature conditions (-20°F to 250°F / -30°C to 121°C) is available with type 32 and 54 ONLY.

**BODY PRESSURE-TEMPERATURE RATINGS ASME CLASS 150 VALVES (SOURCE: ASME B16.34)**



**BODY PRESSURE-TEMPERATURE RATINGS ASME CLASS 300 VALVES (SOURCE: ASME B16.34)**  
(DOES NOT APPLY TO 3 inch 24000S valves)



## 24000S Series Control Valve

Table 13. ALLOWABLE PRESSURE DROPS (psi)

PORT DIA. (in)	PLUG TRAVEL (in)	ACT TYPE	AIR-TO-OPEN ACTION					AIR-TO-CLOSE ACTION				
			BENCH RANGE (psig)	3-15 psig SIGNAL TO ACTUATOR		WITH POSITIONER 20 psig AIR SUPPLY		BENCH RANGE (psig)	3-15 psig SIGNAL TO ACTUATOR		WITH POSITIONER 20 psig AIR SUPPLY	
				Max CL IV Shutoff Press.	Max CL VI Shutoff Press.	Max CL IV Shutoff Press.	Max CL VI Shutoff Press.		Max CL IV Shutoff Press.	Max CL VI Shutoff Press.	Max CL IV Shutoff Press.	Max CL VI Shutoff Press.
0.25	0.50	32	5-15	720	---	720 (1)	---	3-13	720	---	720 (1)(2)	---
0.3125	0.50	32	5-15	---	418	---	720 (1)(2)	3-13	---	418	---	720 (1)(2)
0.375	0.50	32	5-15	452	278	720 (1)	720	3-13	452	278	720 (1)(2)	720 (1)
0.8125	0.50	32	5-15	113	19	226	132	3-13	113	10	396	301
		32	7-15	226	132	339	245	3-10	283	188	565	471
		54	4-15	86	---	257	162	3-13	171	77	600	505
		54	7-15	343	248	514	419	3-10	428	334	720 (1)	720 (1)
		54	9-15	514	419	685	591	---	---	---	---	---
1.0625	0.50	32	5-15	68	---	137	62	3-13	68	---	239	165
		32	7-15	137	62	205	130	3-10	171	96	342	267
		54	4-15	52	---	155	81	3-13	104	29	363	288
		54	7-15	207	132	311	236	3-10	259	184	518	443
		54	9-15	311	236	414	340	---	---	---	---	---
1.25	0.75	32	5-15	50	---	101	36	3-13	50	---	176	111
		32	---	---	---	---	---	3-10	126	61	251	187
		54	5-15	76	---	152	88	3-13	76	---	266	202
		54	7-13	152	88	228	164	3-10	190	126	381	316
		54	10-14	266	202	343	278	---	---	---	---	---
		70	10-15	362	297	466	401	---	---	---	---	---
1.5	0.75	32	5-15	35	---	71	16	3-13	35	---	124	69
		32	---	---	---	---	---	3-10	89	34	177	123
		54	5-15	54	---	107	53	3-13	54	---	188	133
		54	7-13	107	53	161	106	3-10	134	80	269	214
		54	10-14	188	133	242	187	---	---	---	---	---
		70	10-15	256	201	329	274	---	---	---	---	---
		70	12-18	---	---	402	347	---	---	---	---	---
2.0	0.75	32	5-15	20	---	41	---	3-13	20	---	71	29
		32	---	---	---	---	---	3-10	51	---	102	60
		54	5-15	31	---	62	20	3-13	31	---	108	66
		54	7-13	62	20	92	51	3-10	77	35	154	112
		54	10-14	108	66	139	97	---	---	---	---	---
		70	10-15	147	105	189	147	---	---	---	---	---
		70	12-18	---	---	230	189	---	---	---	---	---

NOTE A: EXTENSION BONNET ONLY The maximum shutoff pressure when using ENVIRO-SEAL Packing is defined by:

(1) These table values should not be modified by this formula and the maximum  $\Delta P$  of 720 psi should be used for ENVIRO-SEAL Packing.

$$\Delta P = \text{Table Value} - [25/(\text{Port Diameter})^2]$$

NOTE B: The maximum shutoff pressure when using Grafoil Packing is defined by:

(1) These table values should not be modified by this formula and the maximum  $\Delta P$  of 720 psi should be used for Grafoil Packing.

$$\Delta P = \text{Table Value} - [120/(\text{Port Diameter})^2]$$



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24S.1.SS:BTN

August 2004

**24000S Series Control Valve**

**Table 14. ALLOWABLE PRESSURE DROPS (bar)**

PORT DIA. (mm)	PLUG TRAVEL (mm)	ACT TYPE	AIR-TO-OPEN ACTION						AIR-TO-CLOSE ACTION					
			BENCH RANGE (barg)	0.2-1.0 barg SIGNAL TO ACTUATOR		WITH POSITIONER 1.38 barg AIR SUPPLY		BENCH RANGE (barg)	0.2-1.0 barg SIGNAL TO ACTUATOR		WITH POSITIONER 1.38 barg AIR SUPPLY			
				Max CL IV Shutoff Press.	Max CL VI Shutoff Press.	Max CL IV Shutoff Press.	Max CL VI Shutoff Press.		Max CL IV Shutoff Press.	Max CL VI Shutoff Press.	Max CL IV Shutoff Press.	Max CL VI Shutoff Press.		
6.3	12.7	32	0.34-1.0	49.6	---	49.6 (1)	---	0.20-0.89	49.6	---	49.6 (1)(2)	---		
7.9	12.7	32	0.34-1.0	---	28.8	---	49.6 (1)(2)	0.20-0.89	---	28.8	---	49.6 (1)(2)		
9.5	12.7	32	0.34-1.0	31.2	19.2	49.6 (1)	49.6	0.20-0.89	31.2	19.2	49.6 (1)(2)	49.6 (1)		
20.6	12.7	32	0.34-1.0	7.79	1.31	15.6	9.10	0.20-0.89	7.79	1.31	27.3	20.8		
		32	0.48-1.0	15.6	9.10	23.4	16.9	0.20-0.68	19.5	13.0	39.0	32.5		
		54	0.28-1.0	5.93	---	17.7	11.2	0.20-0.89	11.8	5.30	41.4	34.8		
		54	0.48-1.0	23.6	17.0	35.4	28.9	0.20-0.68	29.5	23.0	49.6 (1)	49.6 (1)		
		54	0.62-1.0	35.4	28.9	47.2	40.7	---	---	---	---	---		
27.0	12.7	32	0.34-1.0	4.19	---	9.45	4.27	0.20-0.89	4.69	---	16.5	11.4		
		32	0.48-1.0	9.45	4.27	14.1	8.96	0.20-0.68	11.8	6.62	23.6	18.4		
		54	0.28-1.0	3.59	---	10.7	12.5	0.20-0.89	7.17	2.0	25.0	19.9		
		54	0.48-1.0	14.3	9.10	21.4	16.3	0.20-0.68	17.9	12.7	35.7	30.5		
		54	0.62-1.0	21.4	16.3	28.5	23.4	---	---	---	---	---		
31.8	19.1	32	0.34-1.0	3.45	---	6.96	2.48	0.20-0.89	3.45	---	12.1	7.65		
		32	---	---	---	---	---	0.20-0.68	8.69	4.20	17.3	12.9		
		54	0.34-1.0	5.24	---	10.5	6.07	0.20-0.89	5.24	---	18.3	13.9		
		54	0.48-0.89	10.9	6.07	15.7	11.3	0.20-0.68	13.1	8.69	26.3	21.8		
		54	0.68-0.96	18.3	13.9	23.6	19.2	---	---	---	---	---		
		70	0.68-1.0	24.9	20.5	32.1	27.6	---	---	---	---	---		
38.1	19.1	32	0.34-1.0	2.14	---	4.89	1.10	0.20-0.89	2.41	---	8.55	4.76		
		32	---	---	---	---	---	0.20-0.68	6.13	2.34	12.2	8.48		
		54	0.34-1.0	3.72	---	7.38	3.65	0.20-0.89	3.72	---	19.9	9.17		
		54	0.48-0.89	7.38	3.65	11.1	7.31	0.20-0.68	9.24	5.52	18.5	14.8		
		54	0.68-0.96	12.9	9.17	16.7	12.9	---	---	---	---	---		
		70	0.68-1.0	17.7	13.9	22.7	18.9	---	---	---	---	---		
		70	0.82-1.24	---	---	27.7	23.9	---	---	---	---	---		
50.8	19.1	32	0.34-1.0	1.38	---	2.83	---	0.20-0.89	1.38	---	4.89	2.0		
		32	---	---	---	---	---	0.20-0.68	3.52	---	7.03	4.14		
		54	0.34-1.0	2.14	---	4.27	1.38	0.20-0.89	2.14	---	7.44	4.55		
		54	0.48-0.89	4.27	1.38	6.34	3.52	0.20-0.68	5.31	2.41	10.6	7.72		
		54	0.68-0.96	7.45	4.55	9.58	6.69	---	---	---	---	---		
		70	0.68-1.0	10.1	7.24	13.0	8.07	---	---	---	---	---		
		70	0.82-1.24	---	---	15.9	13.0	---	---	---	---	---		

NOTE A: EXTENSION BONNET ONLY The maximum shutoff pressure when using ENVIRO-SEAL Packing is defined by:

(1) These table values should not be modified by this formula and the maximum ΔP of 49.6 bar should be used for ENVIRO-SEAL Packing.

$$\Delta P = \text{Table Value} - [1112/(\text{Port Diameter})^2]$$

NOTE B: The maximum shutoff pressure when using Grafoil Packing is defined by:

(2) These table values should not be modified by this formula and the maximum ΔP of 49.6 bar should be used for Grafoil Packing.

$$\Delta P = \text{Table Value} - [5337/(\text{Port Diameter})^2]$$

# 24000S Series Control Valve

Figure 16. DIMENSIONS: inches [millimeters]

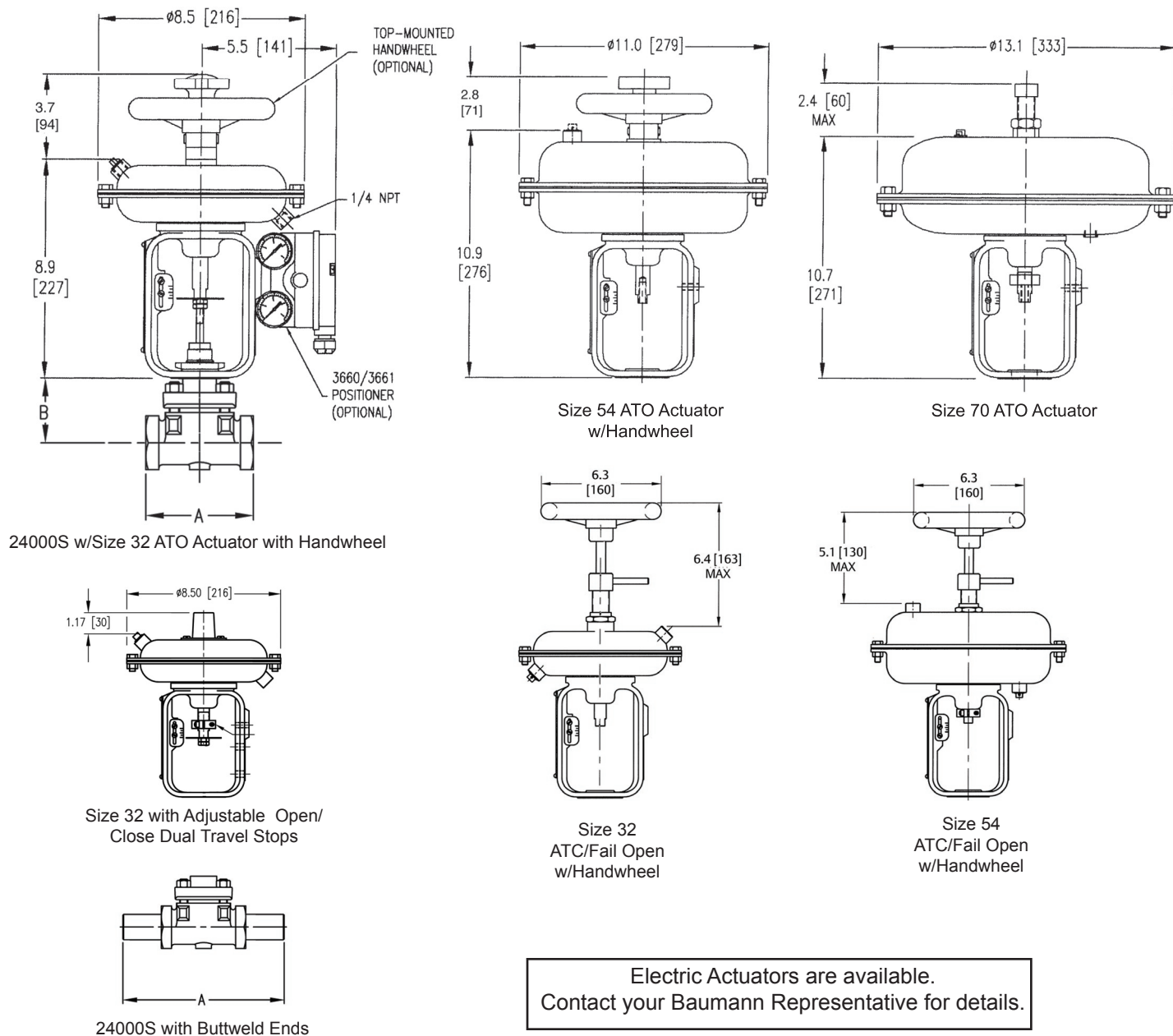


Table 15. DIMENSIONS

VALVE SIZE		ANSI CLASS	EN CLASS	A						B									
				NPT		Flangeless		Butt weld (Sched 40)		STANDARD		EXTENSION BONNET						NOLEEK BELLOWS	
				in	mm	in	mm	in	mm			in	mm	in	mm	in	mm		
0.5	15	No	No	3.1	7.9	N/A	N/A	14.38	365	2.4	61	7.8	198.1	13.2	335	18.5	470	82	208.3
1.0	25	150/300	PN 16	4.0	102	4.0	102	15.00	381	2.4	61	7.8	198.1	13.2	335	18.5	470	82	208.3
1.5	40	150/300	PN 16	4.5	114	4.5	114	15.25	387	3.1	78.7	8.5	215.9	13.9	353	19.2	488	8.4	2.134
2.0	50	150	PN 16	4.9	124	4.9	124	15.50	394	3.1	78.7	8.5	215.9	13.9	353	19.2	488	8.4	2.134
3.0	80	150	PN 16	N/A	N/A	6.5	165	13.25	337	3.9	78.7	9.3	215.9	14.7	373	20.0	509	8.4	213.4

NOTE: Actuator requires 4-1/2" (115 mm) vertical clearance.

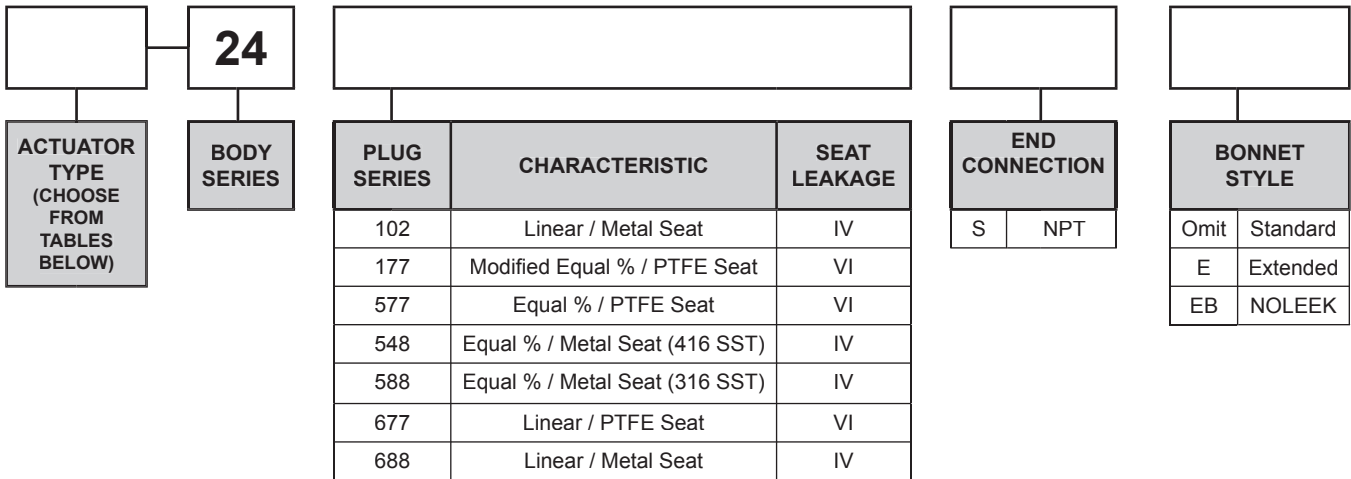
**Bulletin**

24S.1.SS:BTN

August 2004

**24000S Series Control Valve**

**Table 16. MODEL NUMBERING SYSTEM**



**PNEUMATIC ACTUATORS**

ACTUATOR TYPE
32
54
70

**ELECTRIC ACTUATORS**

(refer to Electric Actuator Bulletins ECV.3:BTN and NV.1.ACT:BTN for details)

ACTUATOR TYPE	TRAVEL
MV1020	N/A
VA1020	N/A
NV <sup>(1)</sup>	50
NVF <sup>(2)</sup>	75
NVFE <sup>(3)</sup>	

<sup>(1)</sup>NV24-MFT = Non Spring Return

<sup>(2)</sup>NVF24-MFT = Spring Return -Fail Open

<sup>(3)</sup>NVFE24-MFT-E = Spring Return -Fail Closed

**Table 17. VALVE ASSEMBLY WEIGHTS**

VALVE SIZE		WEIGHT	
in	DN	lbs	kg
0.5	15	5	2.3
1.0	25	6	2.7
1.5	40	9	4.1
2.0	50	11	5.0
3.0	80	20	9.1

**Table 18. ACTUATOR WEIGHTS**

ACTUATOR TYPE	WEIGHTS	
	lbs	kg
32	10	4.5
54	25	11.3
70	34	15.4
MV1020	22	10
VA1020	30	14
NV24-MFT (non spring return)	3.3	1.5
NVF24-MFT or NVF24-MFT-E (spring return)	4	1.8

This product may be covered under one or more of the following patents 4,577,873, 4,434,965, 5,058,861 or under pending patent applications.

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