

Fisher™ Baumann™ 16, 32, 54 and 70

Pneumatic Actuators



Fisher Baumann actuators are single acting, pneumatic actuators with spring-return action. They are compact, multi-spring actuators with low operating friction. The 16, 32 and 54 can be reversed in the field (air-to-open or air-to-close) without special tools or additional parts. The size 70 is not field-reversible.

Features

- Multi-spring, field-reversible actuator with reduced deadband, permits direct operation from remote signal devices.
- Epoxy powder-coated actuator with stainless steel fasteners for corrosion resistance.
- Actuator and yoke can be removed from the valve assembly while maintaining packing integrity.
- Stainless steel construction available for corrosive and sanitary environments.
- Optional handwheel and adjustable travel stop constructions are available.

Figure 1. Fisher Baumann 24000SB Valve with 32 Actuator



X0567

Specifications

Table 1. Actuator Construction

TYPE	16	32	54	70
DIAPHRAGM PLATE	S30400 SST	Steel - AISI G10100		
STEM	ASTM A582 S30300 Condition A		ASTM A276 S30400 Condition A	
DIAPHRAGM MATERIAL ⁽¹⁾	CR (Chloroprene), TPES (Polyester Thermoplastic)	NBR (Nitrile), TPES (Polyester Thermoplastic) ⁽¹⁾		
SPRINGS	Stainless Steel	Steel		
SPRING CASES	Carbon Steel (AISI G10100) ⁽²⁾			
YOKE	CF8M Stainless Steel	Ductile Iron, Powder-Epoxy-Coated ⁽³⁾		
1. Optional reinforced VMQ (Silicone) diaphragm with FKM (Fluorocarbon) O-ring actuator stem seal for high temperature conditions (-29 to +121°C / -20 to +250°F) is available on select sizes. 2. ASTM S240 S30400 SST is available as an optional casing material on select sizes. 3. ASTM A351 CF8M SST is available as an optional yoke material on select sizes.				

Table 2. Actuator Specifications

TYPE ⁽¹⁾	16	32	54	70
DIAPHRAGM AREA	103 cm ² / 16 in ²	210 cm ² / 32 in ²	350 cm ² / 54 in ²	450 cm ² / 70 in ²
AIR FAILURE	Fail Open or Closed (Field Reversible)			Fail Closed ONLY
TRAVEL ⁽²⁾	12.7 mm / 0.50 in.	12.7 or 19.1 mm / 0.50 or 0.75 in.		
AMBIENT TEMPERATURE RANGE	-29 to +71°C / -20 to +160°F ⁽³⁾			
MAXIMUM AIR PRESSURE	2.41 barg / 35 psig			
PRESSURE CONNECTION	1/4 NPT			
SPRING CASES	Steel, Powder Epoxy-Coated with Stainless Steel Fasteners			
YOKE	CF8M Stainless Steel	Ductile Iron, Powder Epoxy-Coated		
1. Electric actuators available. Refer to CML Electric Actuator for Fisher Baumann 24000 Series Bulletin (D103347X012) and Baumann SV Electric Actuator with 24000 Control Valves Bulletin (D104169X012).				
2. Dual travel stops are available on 32 and 54 actuators. These are not field reversible.				
3. Optional reinforced VMQ (Silicone) diaphragm with FKM (Fluorocarbon) O-ring actuator stem seal for high temperature conditions (-29 to +121°C / -20 to +250°F) is available with 32 and 54 actuators only.				

Table 3. Actuator Weight

ACTUATOR TYPE	WEIGHT	
	kg	lb
16	2.1	4.6
32	4.5	10
54	11.3	25
70	15.4	34

Considerations

- Contact your [Emerson sales office](#) for bellows sizing and actuator selection.
- Size 54 or 70 actuator should be used with graphite packing selection.

24000 Series

Table 4. Maximum Allowable Pressure Drops (bar)
24000, 24000C, 24000CVF/SVF, 24000S, 24000F and 24000SB^(1,2,3), CL IV Shutoff

Air to Diaphragm, bar		AIR-TO-OPEN									AIR-TO-CLOSE			
		0.2 to 1.0 (Signal to Actuator)				0 to 1.38 (with Positioner)					0.2 to 1.0 (Signal to Actuator)		0 to 1.38 (with Positioner)	
Port Dia., mm	Actuator Size	ΔP, bar				ΔP, bar					ΔP, bar			
CL IV SHUTOFF - 0.50 IN. TRAVEL														
Bench Set, bar		0.3 to 1.0	0.5 to 1.0	0.6 to 1.0	0.7 to 1.0	0.3 to 1.0	0.5 to 1.0	0.6 to 1.0	0.7 to 1.0	0.8 to 1.1	0.2 to 0.9	0.2 to 0.7	0.2 to 0.9	0.2 to 0.7
6.3	32	61.0	122.4	---	---	122.4	183.4	---	---	---	61.0	152.7	214.1	305.8
	54	92.7	185.1	277.9	---	185.1	277.9	370.2	---	---	92.7	232.0	324.4	430.9
	70	---	---	---	430.9	---	---	---	430.9	430.9	---	---	---	---
9.5	32	31.0	62.4	---	---	62.4	93.4	---	---	---	31.0	77.9	109.3	155.8
	54	47.2	94.5	141.7	---	94.5	141.7	188.9	---	---	47.2	118.2	165.5	236.1
	70	---	---	---	224.8	---	---	---	288.9	353.0	---	---	---	---
20.6	32	7.9	15.5	---	---	15.5	23.4	---	---	---	7.9	19.7	27.2	39.0
	54	11.7	23.8	35.5	---	23.8	35.5	47.2	---	---	11.7	29.6	41.4	59.0
	70	---	---	---	56.2	---	---	---	72.4	88.3	---	---	---	---
27.0	32	3.8	8.6	---	---	8.6	13.1	---	---	---	3.8	10.7	15.5	22.8
	54	5.9	12.8	20.0	---	12.8	20.0	27.2	---	---	5.9	16.5	23.4	34.1
	70	---	---	---	32.1	---	---	---	41.7	51.4	---	---	---	---
CL IV SHUTOFF - 0.75 IN. TRAVEL														
Bench Set, bar		0.3 to 1.0	0.5 to 0.9	0.7 to 1.0	0.7 to 1.0	0.3 to 1.0	0.5 to 0.9	0.7 to 1.0	0.7 to 1.0	0.8 to 1.2	0.2 to 0.9	0.2 to 0.7	0.2 to 0.9	0.2 to 0.7
31.8	32	2.2	2.8	---	---	6.2	---	---	---	---	2.8	7.9	11.4	16.5
	54	4.1	9.3	17.2	---	9.3	14.8	22.8	---	---	4.1	12.1	17.2	25.2
	70	---	---	---	23.4	---	---	---	30.7	37.9	---	---	---	---
38.1	32	2.1	---	---	---	4.5	---	---	---	---	2.1	5.5	7.9	11.7
	54	3.1	6.6	12.4	---	6.6	10.3	15.9	---	---	3.1	8.6	12.4	17.9
	70	---	---	---	16.5	---	---	---	21.7	26.5	---	---	---	---
50.8	32	1.0	---	---	---	2.4	---	---	---	---	1.0	3.1	4.5	6.9
	54	1.7	3.8	6.9	---	3.8	5.9	9.3	---	---	1.7	4.8	6.9	10.3
	70	---	---	---	9.7	---	---	---	12.4	15.2	---	---	---	---

1. Do not exceed valve body temperature/pressure ratings.

 2. Maximum shutoff pressure when using Fisher enhanced ENVIRO-SEAL™ packing: Table Value - $(1120 / (\text{Port Dia})^2)$. Environmental applications, maximum shutoff pressure limited to 51.7 bar.

 3. Maximum shutoff pressure when using Graphite packing: Table Value - $(6150 / (\text{Port Dia})^2)$.

Table 5. Maximum Allowable Pressure Drops (psi)**24000, 24000C, 24000CVF/SVF, 24000S, 24000F and 24000SB^(1,2,3), CL IV Shutoff**

Air to Diaphragm, psig		AIR-TO-OPEN									AIR-TO-CLOSE			
		3 to 15 (Signal to Actuator)				0 to 20 (with Positioner)					3 to 15 (Signal to Actuator)		0 to 20 (with Positioner)	
Port Dia., in.	Actuator Size	ΔP, psi				ΔP, psi					ΔP, psi			
CL IV SHUTOFF - 0.50 IN. TRAVEL														
Bench Set, psig		5 to 15	7 to 15	9 to 15	10 to 15	5 to 15	7 to 15	9 to 15	10 to 15	12 to 16	3 to 13	3 to 10	3 to 13	3 to 10
0.25	32	885	1775	---	---	1775	2660	---	---	---	885	2215	3105	4435
	54	1345	2685	4030	---	2685	4030	5370	---	---	1345	3365	4705	6250
	70	---	---	---	6250	---	---	---	6250	6250	---	---	---	---
0.375	32	450	905	---	---	905	1355	---	---	---	450	1130	1585	2260
	54	685	1370	2055	---	1370	2055	2740	---	---	685	1715	2400	3425
	70	---	---	---	3260	---	---	---	4190	5120	---	---	---	---
0.8125	32	115	225	---	---	225	340	---	---	---	115	285	395	565
	54	170	345	515	---	345	515	685	---	---	170	430	600	855
	70	---	---	---	815	---	---	---	1050	1280	---	---	---	---
1.0625	32	55	125	---	---	125	190	---	---	---	55	155	225	330
	54	85	185	290	---	185	290	395	---	---	85	240	340	495
	70	---	---	---	465	---	---	---	605	745	---	---	---	---
CL IV SHUTOFF - 0.75 IN. TRAVEL														
Bench Set, psig		5 to 15	7 to 13	10 to 14	10 to 15	5 to 15	7 to 13	10 to 14	10 to 15	12 to 18	3 to 13	3 to 10	3 to 13	3 to 10
1.25	32	40	---	---	---	90	---	---	---	---	40	115	165	240
	54	60	135	250	---	135	215	330	---	---	60	175	250	365
	70	---	---	---	340	---	---	---	445	550	---	---	---	---
1.5	32	30	---	---	---	65	---	---	---	---	30	80	115	170
	54	45	95	180	---	95	150	230	---	---	45	125	180	260
	70	---	---	---	240	---	---	---	315	385	---	---	---	---
2.0	32	15	---	---	---	35	---	---	---	---	15	45	65	100
	54	25	55	100	---	55	85	135	---	---	25	70	100	150
	70	---	---	---	140	---	---	---	180	220	---	---	---	---

1. Do not exceed valve body temperature/pressure ratings.

2. Maximum shutoff pressure when using Fisher enhanced ENVIRO-SEAL packing: Table Value - $(25 / (\text{Port Dia})^2)$. Environmental applications, maximum shutoff pressure limited to 750 psi.3. Maximum shutoff pressure when using Graphite packing: Table Value - $(140 / (\text{Port Dia})^2)$.

Table 6. Maximum Allowable Pressure Drops (bar)**24000, 24000C, 24000CVF/SVF, 24000S, 24000F and 24000SB^(1,2,3), CL VI Shutoff**

Air to Diaphragm, bar		AIR-TO-OPEN									AIR-TO-CLOSE			
		0.2 to 1.0 (Signal to Actuator)				0 to 1.38 (with Positioner)					0.2 to 1.0 (Signal to Actuator)	0 to 1.38 (with Positioner)		
Port Dia., mm	Actuator Size	ΔP, bar				ΔP, bar					ΔP, bar			
CL VI SHUTOFF - 0.50 IN. TRAVEL														
Bench Set, bar		0.3 to 1.0	0.5 to 1.0	0.6 to 1.0	0.7 to 1.0	0.3 to 1.0	0.5 to 1.0	0.6 to 1.0	0.7 to 1.0	0.8 to 1.1	0.2 to 0.9	0.2 to 0.7	0.2 to 0.9	0.2 to 0.7
3.9 ⁽⁴⁾ (Trim 151)	32	104.8	229.9	---	---	229.9	355.1	---	---	---	104.8	292.7	413.7	413.7
	54	169.3	358.9	413.7	---	358.9	413.7	413.7	---	---	169.3	413.7	413.7	413.7
7.9 ^(4,5) (Trim 177)	32	29.0	71.4	---	---	71.4	113.8	---	---	---	29.0	92.4	134.8	198.6
	54	50.7	114.8	179.3	---	114.8	179.3	243.4	---	---	50.7	147.5	211.7	307.9
9.5	32	19.3	50.3	---	---	50.3	81.4	---	---	---	19.3	65.8	97.2	143.8
	54	35.2	94.5	129.6	---	82.4	129.6	176.9	---	---	35.2	106.2	153.4	224.1
20.6	32	1.4	9.0	---	---	9.0	16.9	---	---	---	1.4	13.1	20.7	32.4
	54	5.2	17.2	29.0	---	17.2	29.0	40.7	---	---	5.2	23.1	34.8	52.4
	70	---	---	---	49.6	---	---	---	65.8	81.7	---	---	---	---
27.0	32	---	3.4	---	---	3.4	7.9	---	---	---	---	5.9	10.3	17.6
	54	---	7.6	14.8	---	7.6	14.8	22.1	---	---	---	11.4	18.6	29.3
	70	---	---	---	26.9	---	---	---	36.5	46.2	---	---	---	---
CL VI SHUTOFF - 0.75 IN. TRAVEL														
Bench Set, bar		0.3 to 1.0	0.5 to 0.9	0.7 to 1.0	0.7 to 1.0	0.3 to 1.0	0.5 to 0.9	0.7 to 1.0	0.7 to 1.0	0.8 to 1.2	0.2 to 0.9	0.2 to 0.7	0.2 to 0.9	0.2 to 0.7
31.8	32	---	---	---	---	1.7	---	---	---	---	---	3.4	6.9	12.1
	54	---	4.8	12.8	---	4.8	10.3	18.3	---	---	---	7.6	12.8	20.7
	70	---	---	---	19.0	---	---	---	26.2	33.4	---	---	---	---
38.1	32	---	---	---	---	0.7	---	---	---	---	---	1.7	4.1	7.9
	54	---	2.8	8.6	---	2.8	6.6	12.1	---	---	---	4.8	8.6	14.1
	70	---	---	---	12.8	---	---	---	17.9	22.8	---	---	---	---
50.8	32	---	---	---	---	---	---	---	---	---	---	---	1.7	3.8
	54	---	1.0	4.1	---	1.0	3.1	6.2	---	---	---	2.1	4.1	7.2
	70	---	---	---	6.6	---	---	---	9.7	12.4	---	---	---	---
1. Do not exceed valve body temperature/pressure ratings. 2. Maximum shutoff pressure when using Fisher enhanced ENVIRO-SEAL packing: Table Value - (1120 / (Port Dia) ^ 2). Environmental applications, maximum shutoff pressure limited to 51.7 bar. 3. Maximum shutoff pressure when using Graphite packing: Table Value - (6150 / (Port Dia) ^ 2). 4. For the 24000F and 24000SB, valves can shutoff against the pressure listed. Maximum allowable pressure drop limited to 82.7 bar. 5. Actuator requires dual travel stops.														

Table 7. Maximum Allowable Pressure Drops (psi)**24000, 24000C, 24000CVF/SVF, 24000S, 24000F and 24000SB^(1,2,3), CL VI Shutoff**

Air to Diaphragm, psig		AIR-TO-OPEN									AIR-TO-CLOSE			
		3 to 15 (Signal to Actuator)				0 to 20 (with Positioner)					3 to 15 (Signal to Actuator)		0 to 20 (with Positioner)	
Port Dia., in.	Actuator Size	ΔP, psi				ΔP, psi					ΔP, psi			
CL VI SHUTOFF - 0.50 IN. TRAVEL														
Bench Set, psig		5 to 15	7 to 15	9 to 15	10 to 15	5 to 15	7 to 15	9 to 15	10 to 15	12 to 16	3 to 13	3 to 10	3 to 13	3 to 10
0.156 ⁽⁴⁾ (Trim 151)	32	1520	3335	---	---	3335	5150	---	---	---	1520	4245	6000	6000
	54	2455	5205	6000	---	5205	6000	6000	---	---	2455	6000	6000	6000
0.3125 ^(4,5) (Trim 177)	32	420	1035	---	---	1035	1650	---	---	---	420	1340	1955	2880
	54	735	1665	2600	---	1665	2600	3530	---	---	735	2140	3070	4465
0.375	32	280	730	---	---	730	1180	---	---	---	280	955	1410	2085
	54	510	1370	1880	---	1195	1880	2565	---	---	510	1540	2225	3250
0.8125	32	20	130	---	---	130	245	---	---	---	20	190	300	470
	54	75	250	420	---	250	420	590	---	---	75	335	505	760
	70	---	---	---	720	---	---	---	955	1185	---	---	---	---
1.0625	32	---	50	---	---	50	115	---	---	---	---	85	150	255
	54	---	110	215	---	110	215	320	---	---	---	165	270	425
	70	---	---	---	390	---	---	---	530	670	---	---	---	---
CL VI SHUTOFF - 0.75 IN. TRAVEL														
Bench Set, psig		5 to 15	7 to 13	10 to 14	10 to 15	5 to 15	7 to 13	10 to 14	10 to 15	12 to 18	3 to 13	3 to 10	3 to 13	3 to 10
1.25	32	---	---	---	---	25	---	---	---	---	---	50	100	175
	54	---	70	185	---	70	150	265	---	---	---	110	185	300
	70	---	---	---	275	---	---	---	380	485	---	---	---	---
1.5	32	---	---	---	---	10	---	---	---	---	---	25	60	115
	54	---	40	125	---	40	95	175	---	---	---	70	125	205
	70	---	---	---	185	---	---	---	260	330	---	---	---	---
2.0	32	---	---	---	---	---	---	---	---	---	---	---	25	55
	54	---	15	60	---	15	45	90	---	---	---	30	60	105
	70	---	---	---	95	---	---	---	140	180	---	---	---	---

1. Do not exceed valve body temperature/pressure ratings.

2. Maximum shutoff pressure when using Fisher enhanced ENVIRO-SEAL packing: Table Value - $(25 / (\text{Port Dia})^2)$. Environmental applications, maximum shutoff pressure limited to 750 psi.3. Maximum shutoff pressure when using Graphite packing: Table Value - $(140 / (\text{Port Dia})^2)$.

4. For the 24000F and 24000SB, valves can shutoff against the pressure listed. Maximum allowable pressure drop limited to 1200 psi.

5. Actuator requires dual travel stops.

Table 8. Allowable Pressure Drops (psi) - Mixing (Combining) Service for 24003

ORIFICE DIAMETER, in.	NOMINAL PLUG TRAVEL, in. ⁽¹⁾	ACTUATOR TYPE	BENCH RANGE, psi	AIR-TO-OPEN		AIR-TO-CLOSE		
				Allowable Pressure Drop Port L Fails Closed, psi		Bench Range, psi	Allowable Pressure Drop Port L Fails Open, psi	
				3 to 15 psi Signal to Actuator	With Positioner 20 psig Air Supply		3 to 15 psi Signal to Actuator	With Positioner 20 psig Air Supply
0.626	0.56	32	5 to 13	112	225	3 to 11	281	563
			7 to 15	225	337	5 to 13	112	394
		54	7 to 14	375	563	3 to 10	469	720
			9 to 15	563	720	3 to 13	187	656
0.876	0.56	32	5 to 13	60	121	3 to 11	151	303
			7 to 15	121	259	5 to 13	60	212
		54	7 to 14	202	303	3 to 10	252	505
			9 to 16	303	404	3 to 13	101	353
1.126	0.56	32	5 to 13	37	75	3 to 11	94	189
			7 to 15	75	113	5 to 13	37	132
		54	7 to 14	126	189	3 to 10	157	315
			9 to 16	189	252	3 to 13	63	220
		70	8 to 15	220	309	---	---	---
1.676	0.75	54	5 to 15	29	58	3 to 10	73	147
			7 to 13	58	88	3 to 13	29	102
		70	7 to 15	82	123	---	---	---
2.126	0.75	54	3 to 10	---	---	3 to 10	46	93
			7 to 13	37	55	3 to 13	18	65
		70	7 to 15	52	78	---	---	---
			10 to 15	91	117	---	---	---
1. Use Fisher Baumann 54 or larger actuator with molded graphite ribbon or Fisher enhanced ENVIRO-SEAL packing systems.								

Table 9. Allowable Pressure Drops (psi) - Diverting (Diverging) Service for 24003

ORIFICE DIAMETER, in.	NOMINAL PLUG TRAVEL, in. ⁽¹⁾	ACTUATOR TYPE	BENCH RANGE, psi	AIR-TO-OPEN		AIR-TO-CLOSE		
				Allowable Pressure Drop Port L Fails Closed, psi		Bench Range, psi	Allowable Pressure Drop Port L Fails Open, psi	
				3 to 15 psi Signal to Actuator	With Positioner 20 psig Air Supply		3 to 15 psi Signal to Actuator	With Positioner 20 psig Air Supply
0.626	0.56	32	5 to 13	80	160	3 to 11	201	402
			7 to 15	160	241	5 to 13	80	281
		54	7 to 14	268	402	3 to 10	335	670
			9 to 15	402	670	3 to 13	134	469
0.876	0.56	32	5 to 13	43	86	3 to 11	108	216
			7 to 15	86	185	5 to 13	43	151
		54	7 to 14	144	216	3 to 10	180	360
			9 to 16	216	288	3 to 13	72	252
1.126	0.56	32	5 to 13	27	54	3 to 11	67	135
			7 to 15	54	81	5 to 13	27	94
		54	7 to 14	90	135	3 to 10	112	225
			9 to 16	135	180	3 to 13	45	157
		70	8 to 15	157	220	---	---	---
1.676	0.75	54	5 to 15	21	42	3-10	52	105
			7 to 13	42	63	3-13	21	73
		70	7 to 15	59	88	---	---	---
2.126	0.75	54	3 to 10	---	---	3 to 10	33	66
			7 to 13	26	39	3 to 13	13	46
		70	7 to 15	37	55	---	---	---
			10 to 15	65	83	---	---	---
1. Use Fisher Baumann 54 or larger actuator with molded graphite ribbon or Fisher enhanced ENVIRO-SEAL packing systems.								

Low Flow and Specialty

Table 10. 26000 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 to 1.0 barg Signal to Actuator		With Positioner 1.38 barg Air Supply		BENCH RANGE, barg	0.2 to 1.0 barg Signal to Actuator		With Positioner 1.38 barg Air Supply	
				Max CL IV Shutoff Pressure	Max CL VI Shutoff Pressure	Max CL IV Shutoff Pressure	Max CL VI Shutoff Pressure		Max CL IV Shutoff Pressure	Max CL VI Shutoff Pressure	Max CL IV Shutoff Pressure	Max CL VI Shutoff Pressure
7.9	12.7	32	0.3 to 1.0	---	10	---	10	0.2 to 0.9	---	10	---	10
9.5	12.7	32	0.3 to 1.0	10	---	10	---	0.2 to 0.9	10	---	10	---
12.7	12.7	32	0.3 to 1.0	10	---	10	---	0.2 to 0.9	10	---	10	---

Table 11. 26000 Allowable Pressure Drops (psi)

PORT DIA., in.	PLUG TRAVEL, in.	ACT TYPE	AIR-TO-OPEN ACTION					AIR-TO-CLOSE ACTION				
			BENCH RANGE, psig	3 to 15 psig Signal to Actuator		With Positioner 20 psig Air Supply		BENCH RANGE, psig	3 to 15 psig Signal to Actuator		With Positioner 20 psig Air Supply	
				Max CL IV Shutoff Pressure	Max CL VI Shutoff Pressure	Max CL IV Shutoff Pressure	Max CL VI Shutoff Pressure		Max CL IV Shutoff Pressure	Max CL VI Shutoff Pressure	Max CL IV Shutoff Pressure	Max CL VI Shutoff Pressure
0.312	0.50	32	5 to 15	---	150	---	150	3 to 13	---	150	---	150
0.375	0.50	32	5 to 15	150	---	150	---	3 to 13	150	---	150	---
0.500	0.50	32	5 to 15	150	---	150	---	3 to 13	150	---	150	---

Table 12. 51000 Series Valve with 16 Actuator and Positioner (Metric)

PERFORMANCE SPECIFICATIONS				ALLOWABLE PRESSURE DROPS			
Valve Size, mm	K _v Range	Process Temperature Range	Seat Leakage (per ASME/ FCI 70-2)	Bench Spring Range	Air-to-Open ^(1,2)	Bench Spring Range	Air-to-Close ^(1,2)
6.35 and 12.7	0.00011 to 0.39	-28.9 to +177°C	Class VI	0.3 to 0.9 bar	207 bar	0.2 to 0.8 bar	207 bar
12.7	0.86, 1.29, 2.16	-28.9 to +232°C	Class IV	0.3 to 0.9 bar	28 bar	0.2 to 0.8 bar	55 bar

1. Based on 1.4 barg air supply to positioner
2. For the 51000 series, valves can shutoff against the pressure listed. Maximum allowable pressure drop limited to 82.7 bar.

Table 13. 51000 Series Valve with 16 Actuator and Positioner

PERFORMANCE SPECIFICATIONS				ALLOWABLE PRESSURE DROPS			
Valve Size, NPS	C _v Range	Process Temperature Range	Seat Leakage (per ASME/ FCI 70-2)	Bench Spring Range	Air-to-Open ^(1,2)	Bench Spring Range	Air-to-Close ^(1,2)
1/4 and 1/2	0.00013 to 0.45	-20 to +350°F	Class VI	4 to 13 psi	3000 psi	3 to 12 psi	3000 psi
1/2	1.0, 1.5, 2.5	-20 to +450°F	Class IV	4 to 13 psi	400 psi	3 to 12 psi	800 psi

1. Based on 20 psig air supply to positioner.
2. For the 51000 series, valves can shutoff against the pressure listed. Maximum allowable pressure drop limited to 1200 psi.

Table 14. 51000 Series Valve with 16 Actuator without Positioner or with Transducer (Metric)

PERFORMANCE SPECIFICATIONS				ALLOWABLE PRESSURE DROPS			
Valve Size, mm	K _v Range	Process Temperature Range	Seat Leakage (per ASME/ FCI 70-2)	Bench Spring Range	Air-to-Open ^(1,2)	Bench Spring Range	Air-to-Close ^(1,2)
6.35 and 12.7	0.00011 to 0.39	-28.9 to +177°C	Class VI	0.3 to 0.9 bar	69 bar	0.2 to 0.8 bar	207 bar
12.7	0.86, 1.29, 2.16	-28.9 to +232°C	Class IV	0.3 to 0.9 bar	6.8 bar	0.2 to 0.8 bar	20.6 bar

1. Based on 0.2 to 1.0 bar air output signal to actuator.
2. For the 51000 series, valves can shutoff against the pressure listed. Maximum allowable pressure drop limited to 82.7 bar.

Table 15. 51000 Series Valve with 16 Actuator without Positioner or with Transducer

PERFORMANCE SPECIFICATIONS				ALLOWABLE PRESSURE DROPS			
Valve Size, NPS	C _v Range	Process Temperature Range	Seat Leakage (per ASME/ FCI 70-2)	Bench Spring Range	Air-to-Open ^(1,2)	Bench Spring Range	Air-to-Close ^(1,2)
1/4 and 1/2	0.00013 to 0.45	-20 to +350°F	Class VI	4 to 13 psi	1000 psi	3 to 12 psi	3000 psi
1/2	1.0, 1.5, 2.5	-20 to +450°F	Class IV	4 to 13 psi	100 psi	3 to 12 psi	300 psi

1. Based on 3 to 15 psi air output signal to actuator.
2. For the 51000 series, valves can shutoff against the pressure listed. Maximum allowable pressure drop limited to 1200 psi.

Table 16. 81000 Allowable Pressure Drops with 16 Actuator

VALVE SIZE	PLUG		PLUG TRAVEL	AIR-TO-OPEN ACTION						AIR-TO-CLOSE ACTION					
				Bench Range		3 to 15 psig / 0.2 to 1.0 bar Signal to Actuator		With Positioner		Bench Range		3 to 15 psig / 0.2 to 1.0 bar Signal to Actuator		With Positioner	
NPS / mm	C _V	K _V	mm / in.	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig
1/4 / 6.35	0.01 0.03 0.10 0.30	0.0009 0.026 0.086 0.259	12.7 / 0.50												
1/2 / 12.7	0.01 0.03 0.10 0.30 0.50 0.70	0.0009 0.026 0.086 0.259 0.43 0.60	12.7 / 0.50	0.2 to 1.0	3 to 15	10	150	19	275	0.2 to 10.9	3 to 13	10	150	19	275

Sanitary/Aseptic

Table 17. 83000 Allowable Pressure Drops with 16 Actuator

ORIFICE		PLUG TRAVEL	AIR-TO-OPEN ACTION						AIR-TO-CLOSE ACTION					
			Bench Range		3 to 15 psig / 0.2 to 1.0 bar Signal to Actuator		With Positioner ⁽¹⁾		Bench Range		3 to 15 psig / 0.2 to 1.0 bar Signal to Actuator		With Positioner ⁽¹⁾	
C _V	K _V	mm / in.	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig
0.014 0.053 0.182 0.427 0.631 1.02	0.012 0.046 0.157 0.369 0.546 0.882	12.7 / 0.50	0.2 to 1.0	3 to 15	10	150	19	275	0.2 to 0.9	3 to 13	10	150	19	275

1. Based on 1.38 bar / 20 psig supply.

Table 18. 84000 Allowable Pressure Drops (bar): NPS 1 Angle and NPS 1 Inline Valves

VALVE SIZE	FLOW DIRECTION	RATED K _V	TRAVEL	ACTUATOR TYPE	AIR-TO-OPEN ACTION			AIR-TO-CLOSE ACTION				
					Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾	Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾
NPS			mm		bar	0.2 to 1.0 bar	0.07 to 1.2 bar ⁽¹⁾	bar	bar	0.2 to 1.0 bar	0.07 to 1.2 bar ⁽¹⁾	bar
25	A to B	1.72	12.7	32	0.3 to 1.0	7.58	8.62	8.62	0.2 to 0.9	6.9	8.62	8.62
		3.44	12.7	32	0.3 to 1.0	6.9	10.34	10.34	0.2 to 0.9	6.9	8.62	8.62
			12.7	54	0.3 to 1.0	10.34	10.34	10.34	0.2 to 0.9	10.34	10.34	10.34
		6.88	19.05	32	0.3 to 1.0	3.45	8.62	8.62	0.2 to 0.9	3.45	8.62	8.62
			19.05	54	0.5 to 0.9	6.9	10.34	10.34	0.2 to 0.7	6.9	10.34	10.34

1. I/P transducer with 0.07 to 1.2 bar / 1 to 17 psig output signal per FCI 87.2.

2. Shutoff with positioner based on 1.4 bar / 20 psi air supply pressure.

Table 19. 84000 Allowable Pressure Drops (psi): NPS 1 Angle and NPS 1 Inline Valves

VALVE SIZE	FLOW DIRECTION	RATED C _V	TRAVEL	ACTUATOR TYPE	AIR-TO-OPEN ACTION			AIR-TO-CLOSE ACTION				
					Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾	Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾
NPS			in.		psig	3 to 15 psig	1 to 2 psig ⁽¹⁾	psig	psig	3 to 15 psig	1 to 2 psig ⁽¹⁾	psig
1	A to B	2.00	0.50	32	5 to 15	110	125	125	3 to 13	100	125	125
		4.00	0.50	32	5 to 15	100	150	150	3 to 13	100	125	125
			0.50	54	5 to 15	150	150	150	3 to 13	150	150	150
		8.00	0.75	32	5 to 15	50	125	125	3 to 13	50	125	125
			0.75	54	7 to 13	100	150	150	3 to 10	100	150	150

1. I/P transducer with 0.07 to 1.2 bar / 1 to 17 psig output signal per FCI 87.2.

2. Shutoff with positioner based on 1.4 bar / 20 psi air supply pressure.

Table 20. 84000 Allowable Pressure Drops (bar): Flow Direction A to B: NPS 1-1/2 and 2 Angle Valves

VALVE SIZE	FLOW DIRECTION	RATED K _V	TRAVEL	ACTUATOR TYPE	AIR-TO-OPEN ACTION				AIR-TO-CLOSE ACTION			
					Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾	Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾
DN			mm		bar	0.2 to 1.0 bar	0.07 to 1.2 bar ⁽¹⁾	bar	bar	0.2 to 1.0 bar	0.07 to 1.2 bar ⁽¹⁾	bar
40	A to B	18.92	12.7	54	0.3 to 1.0	1.99	3.99	3.99	0.2 to 0.9	1.99	3.99	6.96
		18.92	12.7	54	0.6 to 1.0	4.96	6.96	6.96	0.2 to 0.7	4.96	6.96	9.99
		25.8	19.05	54	0.3 to 1.0	1.99	3.99	3.99	0.2 to 0.9	1.99	3.99	6.96
		25.8	19.05	54	0.5 to 0.9	3.99	5.99	5.99	0.2 to 0.7	4.92	6.96	9.99
50	A to B	24.94	12.7	54	0.3 to 1.0	2.34	4.68	4.68	0.2 to 0.9	2.34	4.68	8.20
		24.94	12.7	54	0.6 to 1.0	5.86	8.20	8.20	0.2 to 0.7	5.79	8.20	11.72
		36.98	19.05	54	0.3 to 1.0	2.34	4.68	4.68	0.2 to 0.9	2.34	4.68	8.20
		36.98	19.05	54	0.5 to 0.9	4.68	7.03	7.03	0.2 to 0.7	5.86	8.20	11.72

1. I/P transducer with 0.07 to 1.2 bar / 1 to 17 psig output signal per FCI 87.2.

2. Shutoff with positioner based on 1.4 bar / 20 psi air supply pressure.

Table 21. 84000 Allowable Pressure Drops (psi): Flow Direction A to B: NPS 1-1/2 and 2 Angle Valves

VALVE SIZE	FLOW DIRECTION	RATED C _v	TRAVEL	ACTUATOR TYPE	AIR-TO-OPEN ACTION			AIR-TO-CLOSE ACTION				
					Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾	Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾
NPS			in.		psig	3 to 15 psig	1 to 2 psig ⁽¹⁾	psig	psig	3 to 15 psig	1 to 2 psig ⁽¹⁾	psig
1-1/2	A to B	22	0.50	54	5 to 15	29	58	58	3 to 13	29	58	101
		22	0.50	54	8 to 15	72	101	101	3 to 10	72	101	145
		30	0.75	54	5 to 15	29	58	58	3 to 13	29	58	101
		30	0.75	54	7 to 13	58	87	87	3 to 10	72	101	145
2	A to B	29	0.50	54	5 to 15	34	68	68	3 to 13	34	68	119
		29	0.50	54	8 to 15	85	119	119	3 to 10	84	119	170
		43	0.75	54	5 to 15	34	68	68	3 to 13	34	68	119
		43	0.75	54	7 to 13	68	102	102	3 to 10	85	119	170

1. I/P transducer with 0.07 to 1.2 bar / 1 to 17 psig output signal per FCI 87.2.

2. Shutoff with positioner based on 1.4 bar / 20 psi air supply pressure.

Table 22. 84000 Allowable Pressure Drops (bar): Flow Direction B to A: NPS 1-1/2 and 2 Angle Valves

VALVE SIZE	FLOW DIRECTION	RATED K _V	TRAVEL	ACTUATOR TYPE	AIR-TO-OPEN ACTION				AIR-TO-CLOSE ACTION			
					Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾	Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾
			DN		mm	bar	0.2 to 1.0 bar	0.07 to 1.2 bar ⁽¹⁾	bar	bar	bar	0.2 to 1.0 bar
40	B to A	14.62	12.7	54	0.3 to 1.0	5.10	10.20	10.20	0.2 to 0.9	5.10	10.20	17.86
		14.62	12.7	54	0.6 to 1.0	12.76	17.86	17.86	0.2 to 0.7	12.76	17.86	25.58
		20.64	19.05	54	0.3 to 1.0	5.10	10.20	10.20	0.2 to 0.9	5.10	10.20	17.86
		20.64	19.05	54	0.5 to 0.9	10.20	15.31	15.31	0.2 to 0.7	12.76	17.86	25.58
50	B to A	20.64	12.7	54	0.3 to 1.0	2.90	5.79	5.79	0.2 to 0.9	2.90	5.79	10.14
		20.64	12.7	54	0.6 to 1.0	7.24	10.14	10.14	0.2 to 0.7	7.24	10.14	14.48
		27.52	19.05	54	0.3 to 1.0	2.90	5.79	5.79	0.2 to 0.9	2.90	5.79	10.14
		27.52	19.05	54	0.5 to 0.9	5.79	8.69	8.69	0.2 to 0.7	7.24	10.14	14.48

1. I/P transducer with 0.07 to 1.2 bar / 1 to 17 psig output signal per FCI 87.2.

2. Shutoff with positioner based on 1.4 bar / 20 psi air supply pressure.

Table 23. 84000 Allowable Pressure Drops (psi): Flow Direction B to A: NPS 1-1/2 and 2 Angle Valves

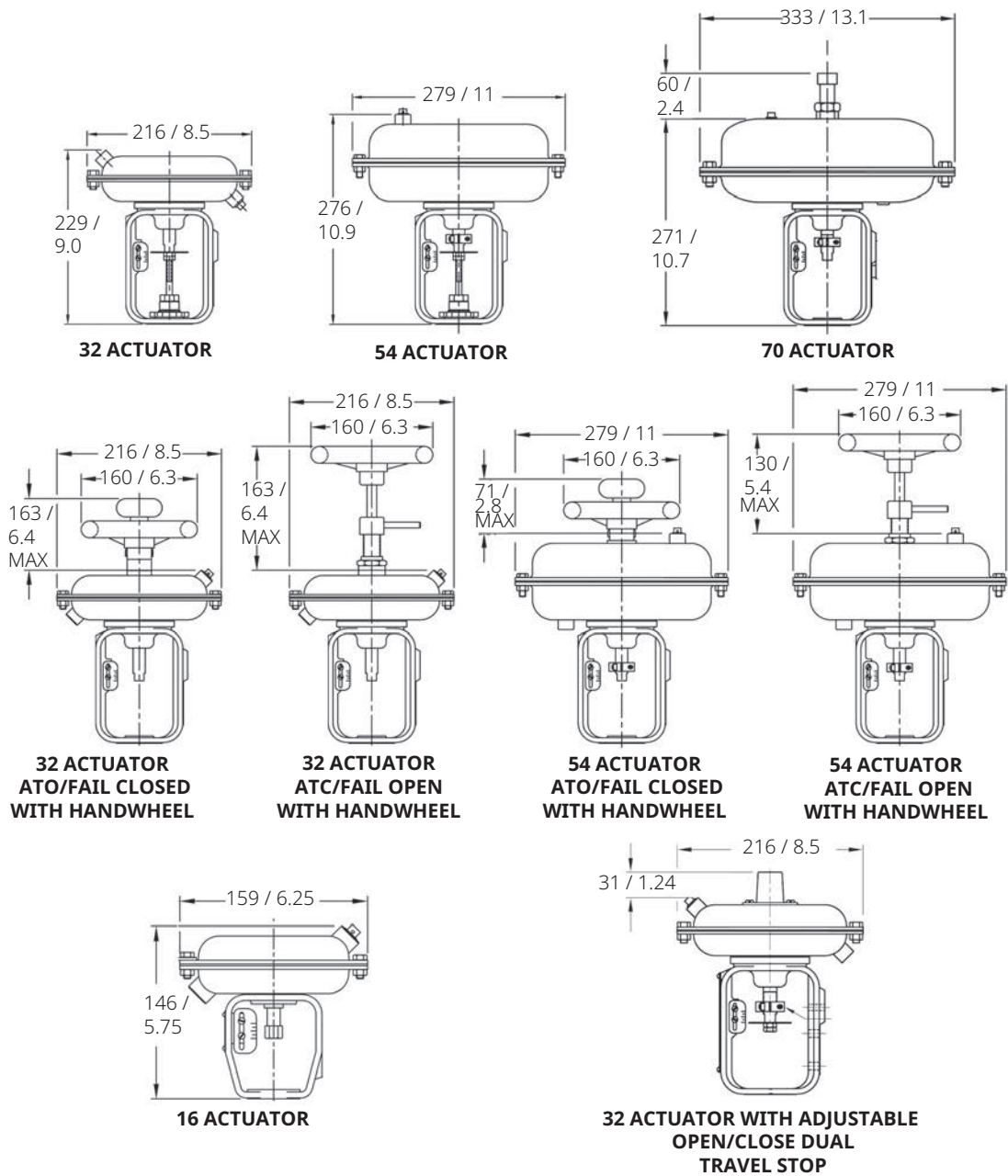
VALVE SIZE	FLOW DIRECTION	RATED C _V	TRAVEL	ACTUATOR TYPE	AIR-TO-OPEN ACTION			AIR-TO-CLOSE ACTION				
					Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾	Bench Spring Range	Signal to Actuator		With Positioner ⁽²⁾
						3 to 15 psig	1 to 2 psig ⁽¹⁾			3 to 15 psig	1 to 2 psig ⁽¹⁾	
NPS			in.		psig	3 to 15 psig	1 to 2 psig ⁽¹⁾	psig	psig	3 to 15 psig	1 to 2 psig ⁽¹⁾	psig
1-1/2	B to A	17	0.50	54	5 to 15	74	148	148	3 to 13	74	148	259
		17	0.50	54	8 to 15	185	259	259	3 to 10	185	259	371
		24	0.75	54	5 to 15	74	148	148	3 to 13	74	148	259
		24	0.75	54	7 to 13	148	222	222	3 to 10	185	259	371
2	B to A	24	0.50	54	5 to 15	42	84	84	3 to 13	42	84	147
		24	0.50	54	8 to 15	105	147	147	3 to 10	105	147	210
		32	0.75	54	5 to 15	42	84	84	3 to 13	42	84	147
		32	0.75	54	7 to 13	84	126	126	3 to 10	105	147	210

1. I/P transducer with 0.07 to 1.2 bar / 1 to 17 psig output signal per FCI 87.2.

2. Shutoff with positioner based on 1.4 bar / 20 psi air supply pressure.

See the Baumann 87000 Flexsleeve Sanitary Control Valve Bulletin ([D103345X012](#)) for maximum pressure drops on 87000 valves.

Figure 2. Fisher Baumann Pneumatic Actuator Dimensions, mm / in.



mm / in.

E1313

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