

# Baumann™ 81000 Mikroseal Control Valve

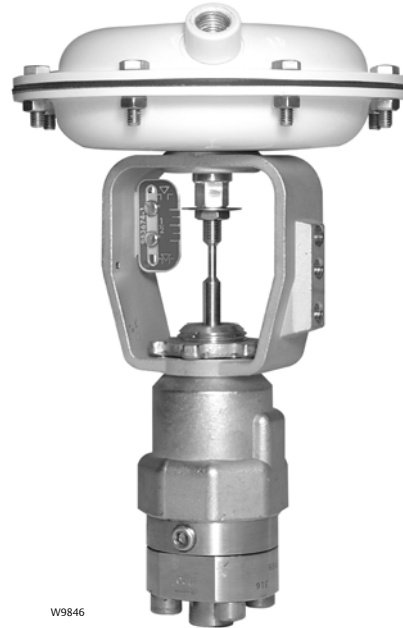
The Baumann 81000 Mikroseal control valve is excellent for throttling of liquid or gaseous media, particularly where wide flow variations are encountered. Its packless design allows for applications where leakage prone stem packings are not tolerated.

A nearly frictionless mechanical force-amplifying mechanism is employed to reduce the travel of the pneumatic or electric actuators. This allows the closure diaphragm to move precisely against the valve orifice to throttle or stop the passing fluid. The same nearly frictionless mechanism, composed of stainless steel and PTFE lined ball bearings and guide bushings, assures very precise positioning with negligible deadband. This permits direct operation from remote mounted I/P (current to pneumatic) signal converters.

Easy removal of the bonnet allows for inspection and cleaning of the valve seat and closure diaphragm while the actuator stays attached to the bonnet and the valve body remains in the line. During this process the actuator stays in calibration. A backup O-ring prevents leakage should the primary seal (diaphragm to valve body) fail. A tell-tale connection in the bonnet yoke can be utilized to show if the sealing diaphragm is damaged.

## Features

- Compact and light-weight design reduces installed piping costs
- Packless construction
- Epoxy powder-coated actuator cases with stainless steel yoke and fasteners for corrosion resistance
- Multi-spring, field-reversible actuator with reduced deadband permits direct operation from remote signal devices
- Fisher® FIELDVUE™ digital valve controller available for remote calibration and diagnostics in facilities utilizing PlantWeb™ architecture



W9846

81000 NPS 1/4 Angle Valve with Baumann 16 Actuator

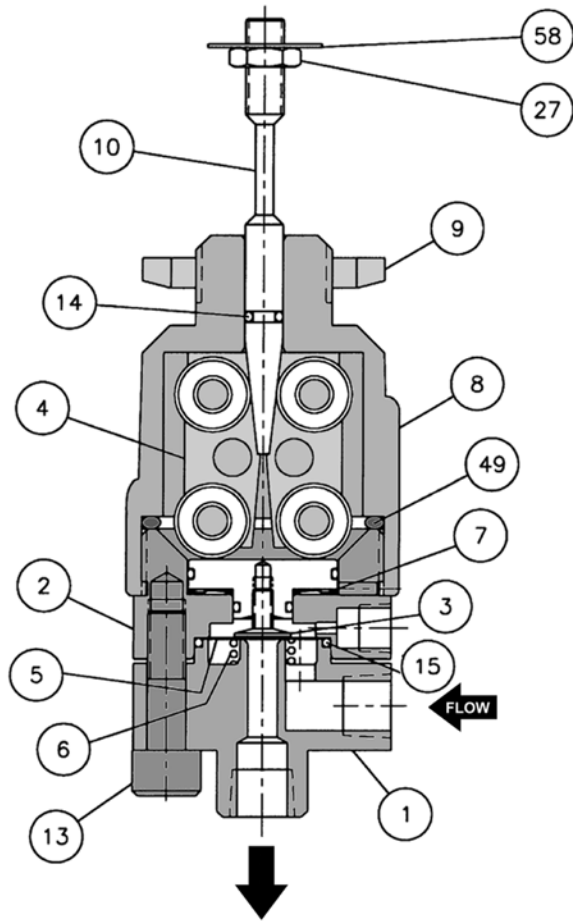


W9847

81000 NPS 1/2 Inline Valve with Baumann 16 Actuator, and FIELDVUE DVC2000 Digital Valve Controller

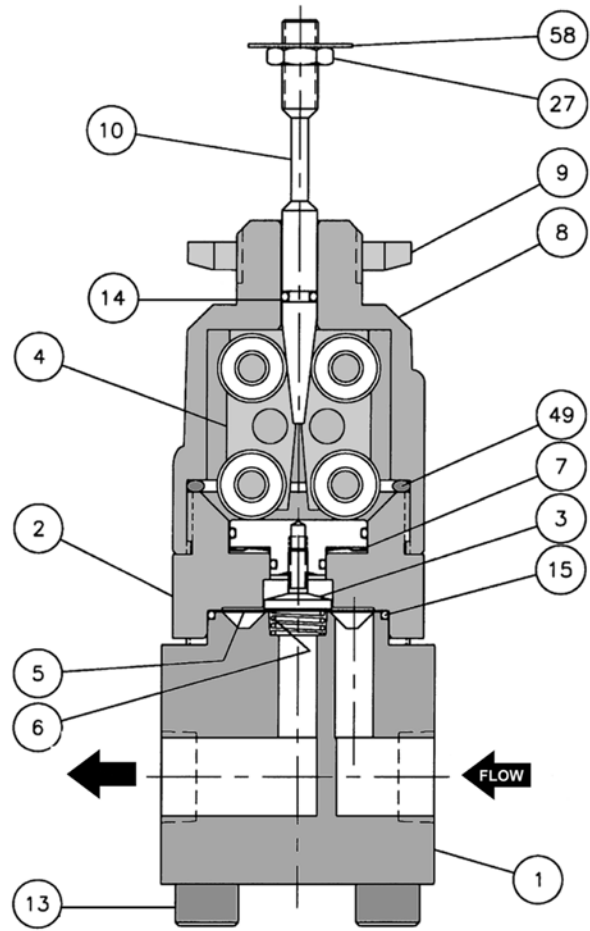


Figure 1. Baumann 81000 NPS 1/4 Angle Valve Body



E1324

Figure 2. Baumann 81000 NPS 1/2 Inline Valve Body



E1325

## Specifications

See table 4 for technical specifications and table 5 for actuator specifications.

81000 Valve

Table 1. Materials of Construction

Key Number	Description	Material
1	Valve Body	S31600 SST, standard / ASTM B575 N06022, optional
2	Bonnet Yoke	S31600 SST
3	Piston Subassembly	S30300 SST and FKM (Fluorocarbon)
4	Bearing Cartridge Subassembly	Stainless Steel and PTFE (Polytetrafluoroethylene)
5	Closure Diaphragm	S31600 SST, standard / N10276 Nickel Alloy, optional
6	Seat Spring	ASTM B575 N06022
7	Wave Spring	S17700 SST
8	Bonnet	ASTM A743 CF8
9	Drive Nut, Yoke	S30400 SST
10	Plunger	ASTM A276 S31600 Condition A
13	Allen head Bolts	Stainless Steel (18-8 SST)
14	O-Ring, Plunger	FKM (Fluorocarbon)
15	O-Ring	PTFE, FDA 21 CFR 177 (Polytetrafluoroethylene)
27	Jam Nut	Stainless Steel (18-8 SST)
49	O-Ring	FKM (Fluorocarbon)
58	Travel Indicator Disk	ASTM A240 S30400

Table 2. Allowable Pressure Drops

VALVE SIZE	PLUG		PLUG TRAVEL	AIR-TO-OPEN ACTION						AIR-TO-CLOSE ACTION					
				Bench Range		3-15 psig (0.2-1.0 bar) Signal to Actuator		With Positioner		Bench Range		3-15 psig (0.2-1.0 bar) Signal to Actuator		With Positioner	
				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)	0.2-1.0	3-15	10	150	19	275	0.2-0.9	3-13	10	150	19	275
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)												

Table 3. Flow Coefficients (ASME/ISA/IEC) and ISA Sizing Factors

ORIFICE DIA-METER	DIA-PHRAGM TRAVEL	Cv AT VALVE OPENING - PERCENT OF VALVE STEM TRAVEL											FL	Fd	XT	Kc	
		5	10	20	30	40	50	60	70	80	90	100					
0.635 (0.025)	0.177 (0.007)	0.00001	0.0001	0.0010	0.0024	0.0038	0.0052	0.0066	0.0076	0.0084	0.0092	0.01	0.85	0.50	0.61	0.61	
1.60 (0.063)		0.00003	0.0003	0.002	0.005	0.009	0.013	0.017	0.021	0.024	0.027	0.03					0.50
7.92 (0.312)		0.0002	0.001	0.010	0.030	0.050	0.060	0.068	0.076	0.084	0.092	0.10					0.20
7.92 (0.312)	0.381 (0.015)	0.0004	0.002	0.020	0.070	0.120	0.150	0.180	0.210	0.240	0.270	0.30					0.20
13.2 (0.520)	0.304 (0.012)	0.0007	0.003	0.040	0.100	0.150	0.200	0.250	0.310	0.370	0.430	0.50					0.20
13.2 (0.520)	0.381 (0.015)	0.001	0.005	0.070	0.160	0.220	0.300	0.380	0.460	0.540	0.620	0.70					0.20

Table 4. Technical Specifications

VALVE BODY RATING		18.9 bar CWP (275 psi CWP)
NOMINAL SIZE		6.35 mm or 12.7 mm (NPS 1/4 or 1/2)
CONNECTIONS		NPT (Flanged or Welded Ends Optional)
SEAT LEAKAGE		ASME/FCI 70-2, Class IV
BONNET		Bolted
CHARACTERISTIC		Modified Equal Percentage
MAXIMUM OPERATING TEMPERATURE		177°C (350°F)
WEIGHTS	6.35 mm (1/4 inch)	1.35 kg (3 lbs)
	12.7 mm (1/2 inch)	1.82 kg (4 lbs)

Table 5. Actuator Specifications

TYPE	16 Multi-Spring Diaphragm (Single Acting)
NOMINAL SIZE	103cm <sup>2</sup> (16in <sup>2</sup> )
AIR FAILURE	Open or Closed (Field Reversible)
BENCH SPRING RANGE	0.2 - 0.9 bar (3-13 psi), fail open / 0.2-1.0 bar (3-15 psi) fail closed
TRAVEL	12.7 mm (0.5 inch)
AMBIENT TEMPERATURE RANGE	-29 to 71°C (-20 to 160°F)
MAXIMUM AIR PRESSURE	2.4 bar (35 psig)
DIAPHRAGM MATERIAL	CR (Chloroprene), TPES (Polyester Thermoplastic)
SPRING CASES	Steel, Powder Epoxy-Coated Appliance White per FDA 21 CFR 175.300 with Stainless Steel Fasteners
YOKE	CF8M Stainless Steel
WEIGHT	2.1 kg (4.6 lbs)

81000 Valve

Figure 3. 81000 Angle Valve with Baumann 16 Actuator and FIELDVUE DVC6000 Digital Valve Controller

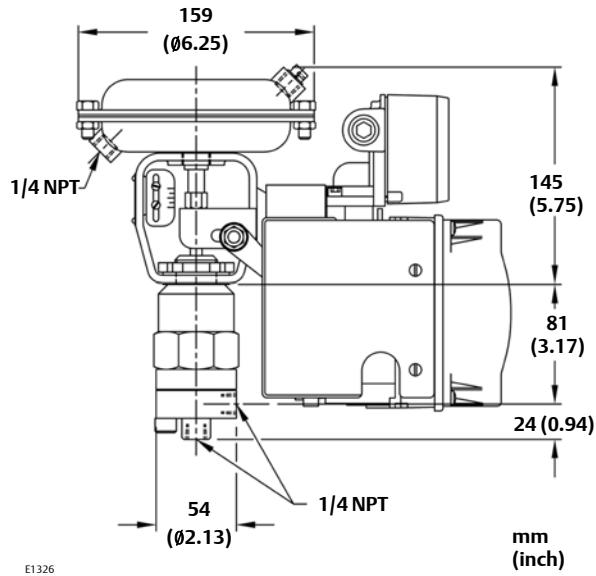


Figure 4. 81000 Inline Valve with Baumann 16 Actuator and FIELDVUE DVC6000 Digital Valve Controller

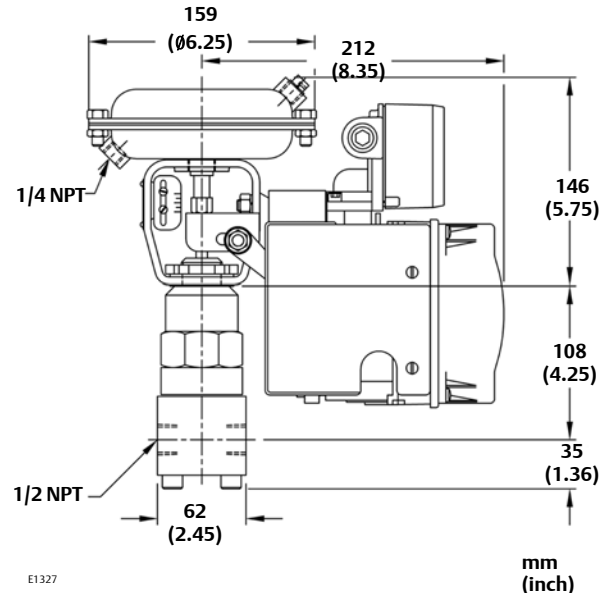
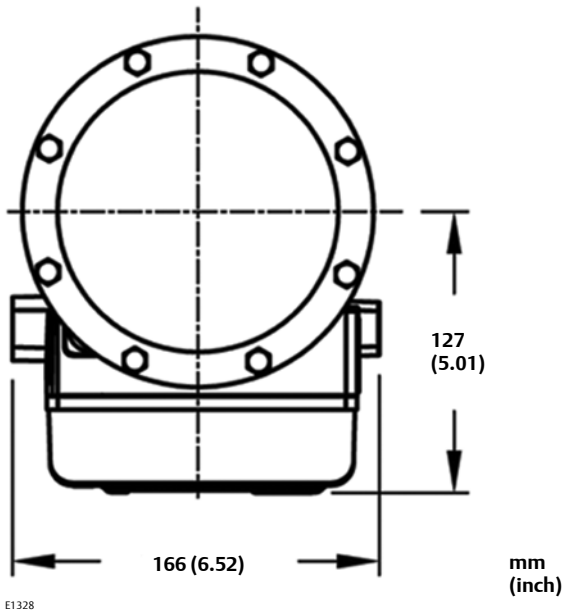
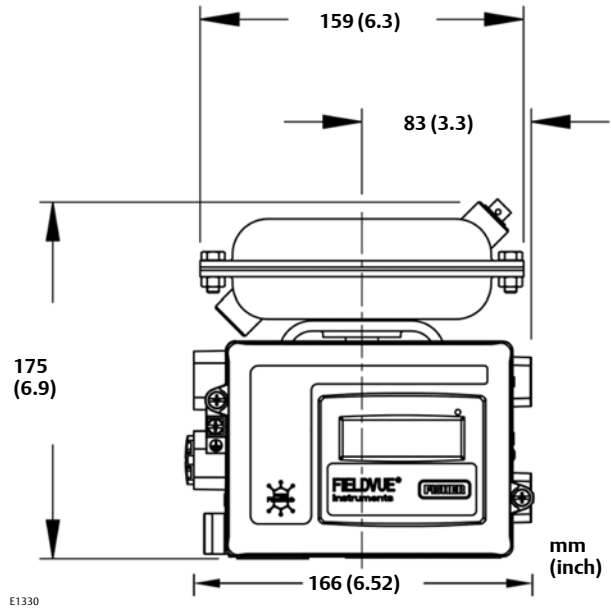


Figure 5. Baumann 16 Actuator with FIELDVUE DVC2000 Digital Valve Controller, Top View



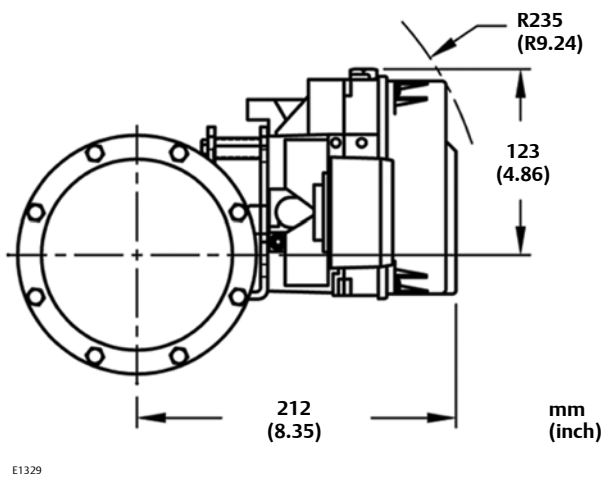
Note: Baumann 16 actuator requires 77mm (3 inches) vertical clearance.

Figure 7. Baumann 16 Actuator with FIELDVUE DVC2000 Digital Valve Controller



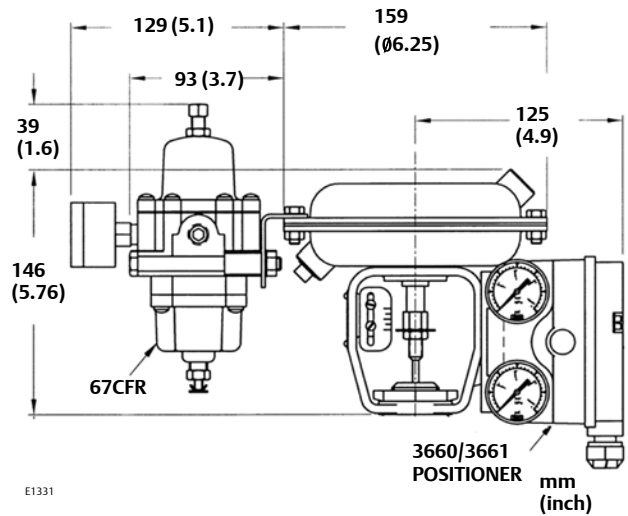
Note: Baumann 16 actuator requires 77mm (3 inches) vertical clearance.

Figure 6. Baumann 16 Actuator with FIELDVUE DVC6000 Digital Valve Controller, Top View



Note: Baumann 16 actuator requires 77mm (3 inches) vertical clearance.

Figure 8. Baumann 16 Actuator with Fisher 3660/3661 and 67CFR Airstet



Note: Baumann 16 actuator requires 77mm (3 inches) vertical clearance.

81000 Valve

Table 6. Model Numbering System

16	81						2						
Actuator Size	81000	Maximum Cv		End Connections	Bonnet Construction	Valve Body Material		Valve Body Style					
		Cv	Kv										
16		3	0.01	0.009	0	Screwed (NPT) / Flangeless		2	Bolted	S	316 SST	A	Angle
		4	0.03	0.026	3	Special				H	N06022 Nickel Alloy	I	Inline
		6	0.10	0.086									
		7	0.30	0.259									
		8	0.50	0.43									
		9	0.70	0.60									

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