

TECHNICAL BULLETIN

Valtek FlowTop Control Valve

FCD VLENTB0060 – 11/09 (Replaces FCD-VLATB060)



Experience In Motion



Body Assembly

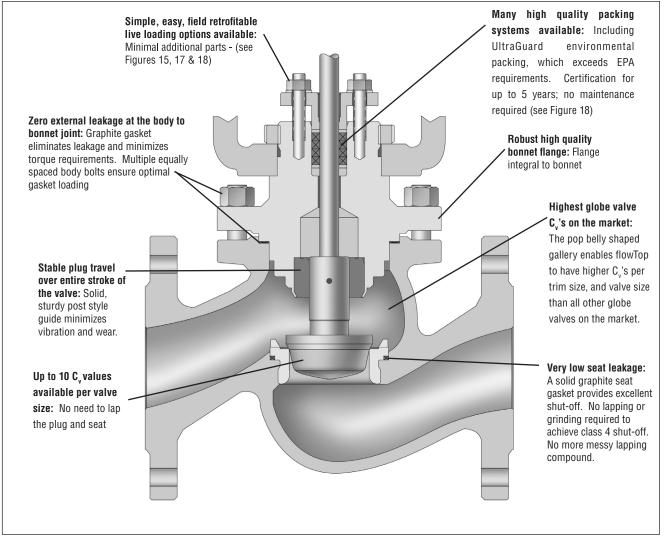


Figure 1: FlowTop Control Valve Body Assembly

The FlowTop control valve is a high-performance, general service valve coupled with the high thrust FlowAct pneumatic diaphragm actuator.

The Logix 500 positioner is mounted standard on FlowTop control valves. The Logix 500 simplifies and reduces calibration time to 20 seconds or less by pushing two buttons. The easily installed HART compatible positioner make the FlowTop/Logix 500 combination the best choice for general service valve applications. There is no need for additional software or software support and upgrades. Handheld devices are not needed to calibrate this valve, making it the highest performing, low cost solution for general service valves.

The Pop-belly shaped gallery give the FlowTop more C than all the other globe valves on the market.

Designed for use in ANSI Class 150 or 300 service applications, the FlowTop control valve is capable of operating within temperatures ranging from -50° to 800° F (-46° to 427° C).

The FlowTop control valve is available in sizes 0.5 to 4 inches with a carbon steel or stainless steel body. It features flow under, single seated trim with a post-guided valve stem to eliminate cage guiding problems.

Heavy duty parts constructed of corrosion resistant materials provide extended valve life.



Actuator Assembly

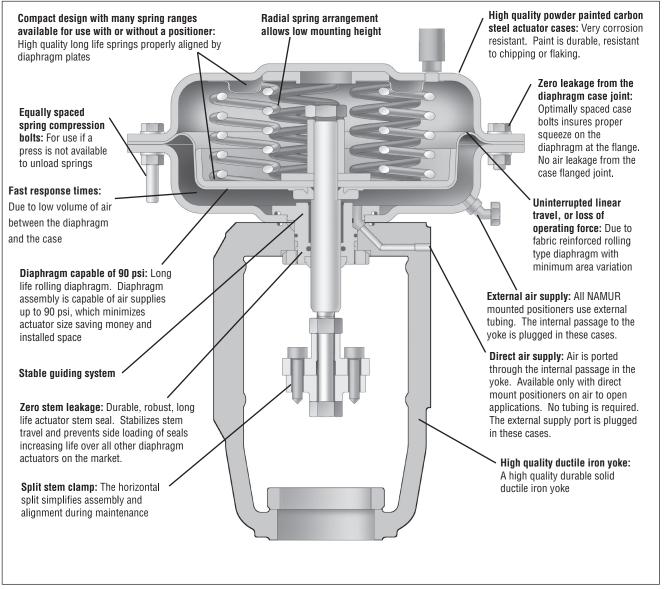


Figure 2: FlowAct 252 ATO/FC Diaphragm Actuator

The FlowAct actuator is compact, reversible and capable of accepting air supply pressures up to 90 psi (6.0 bar) allowing the valve to shutoff against high pressure drops.

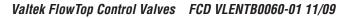
The FlowTop actuator comes standard with a direct mounted Logix 500 positioner. In all "air to open" applications, no external tubing is required. The direct mount positioner ports air through passages integral to the yoke as illustrated in Figure 2. When the direct mounted positioner is used, the external supply port is plugged. "Air to close" applications require external tubing to the top of the actuator. NAMUR positioner mounting is also very simple and easy

with FlowTop (IEC 534.6). When this mounting standard is used, the internal passageway in the yoke is plugged and external tubing is used.

The pneumatic diaphragm actuator can operate in temperatures ranging from -40° to 176° F (-40° to 80° C).

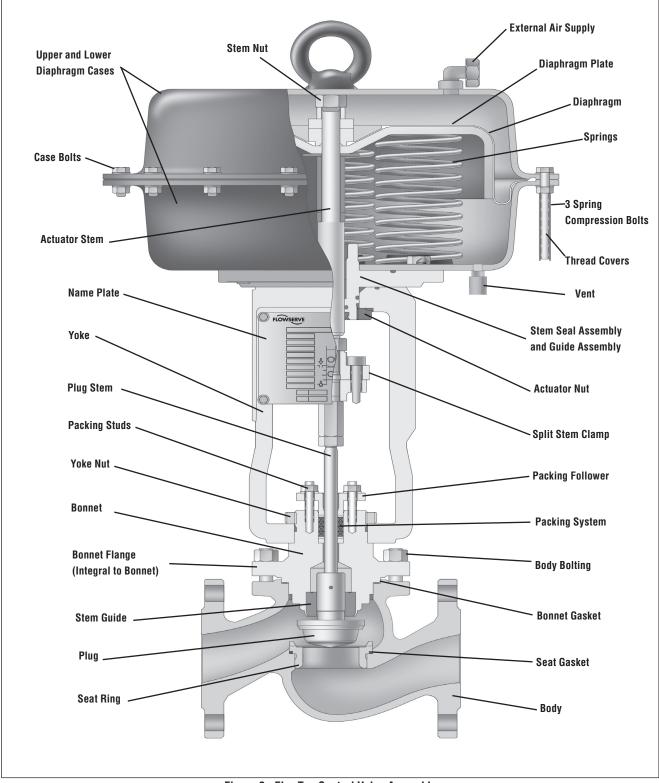
Analog or digital positioners ensure high positioner accuracy proportional to the valve instrument signal.

The FlowTop control valve with the pneumatic diaphragm actuator is the solution for most typical general service valve applications.





Body and Actuator Assembly





Features and Advantages

Features	Advantages
Logix 500 Digital Positioner	Logix 500 digital positioner reduces calibration time to 20 seconds by pushing one button.
	Either standard direct or NAMUR (IEC 534.6) positioner mounting available
	Easy to install, HART compatible positioners make the FlowTop/Logix 500 the best valve/positioner combination for general service needs
	No software or handheld device is required and can be configured locally
Good Shut-off	FlowTop control valves offer class 4 shut off without the need for lapping the seating surfaces. Unlike most conventional valves, the FlowTop seat ring has a seat gasket, providing very good shut off.
Post Guiding	Eliminates cage guiding problems
	One solid, sturdy guide stabilizes the stem and plug during entire travel and minimizes vibration and wear.
Low Noise Trim	Silent Pac Low Noise baffle can reduce noise levels generated by vapors and gasses.
Economical Stainless Steel Bellows Assembly	Bellows assembly used for tough sealing applications, like Dowtherm, steam and others
Compact	Engineered for applications with limited available installation clearance
ANSI Body	Designed for use in ANSI Class 150 and 300 service, flanged applications
Easy Maintenance	Bonnet design allows for quick, top-entry service. The valve body can remain in line while trim is changed or replaced.
Versatile Packing Configuration	Available sets include single PTFE V-ring, PTFE braid and graphite. Live loading kits are available (see Figures 13 to 20).
Fugitive Emission Packing	High quality "Ultra seal" environmental packing is available: Exceeds EPA standards of 500 ppm (see Figure 18).
Long-life Operation	Heavy duty parts provide extended life, corrosion resistant construction
Many Positioning Options	The valve can be equipped with a high performance analog or digital positioner or function without a positioner on air signal alone.
Wide Variety of Trim Sizes and Materials	Up to 10 Cv values per valve size and many material options
High-Thrust Diaphragm Actuator	Compact, light weight, capable of 90 psi (6.0 bar) air supply; multiple spring combinations. Reduces installation size and initial expense.
Dynamic Stability	Sturdy guiding system stabilizes plug travel
Reversible Actuator	Failure mode is easily reversed, using common tools
NAMUR Mounting (IEC 534.6) as an option	Easy positioner mounting with universal NAMUR mounting kit
	Support for products such as limit switches and position transmitters are easily mounted on the same NAMUR positioner bracket
Many Available Options	Top-mounted handwheel, digital positioners, position transmitter, limit switches, proximity switches, and solenoids. (See <i>Performance!</i> software for specific details.)
Multiple Applications Usage	High-performance, general service control valve used in many process indus- tries including chemical, refinery, power, food and beverage, HVAC and OEM



Materials of Construction

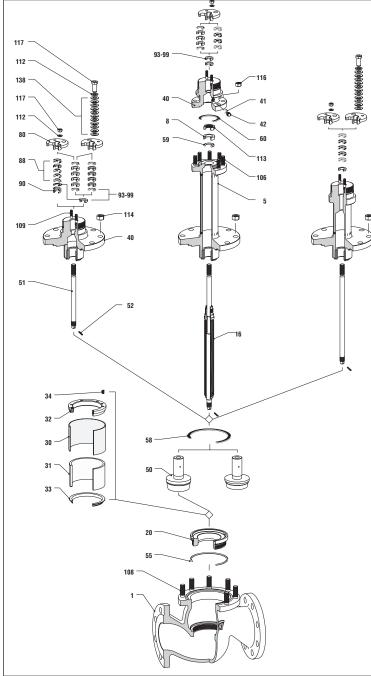


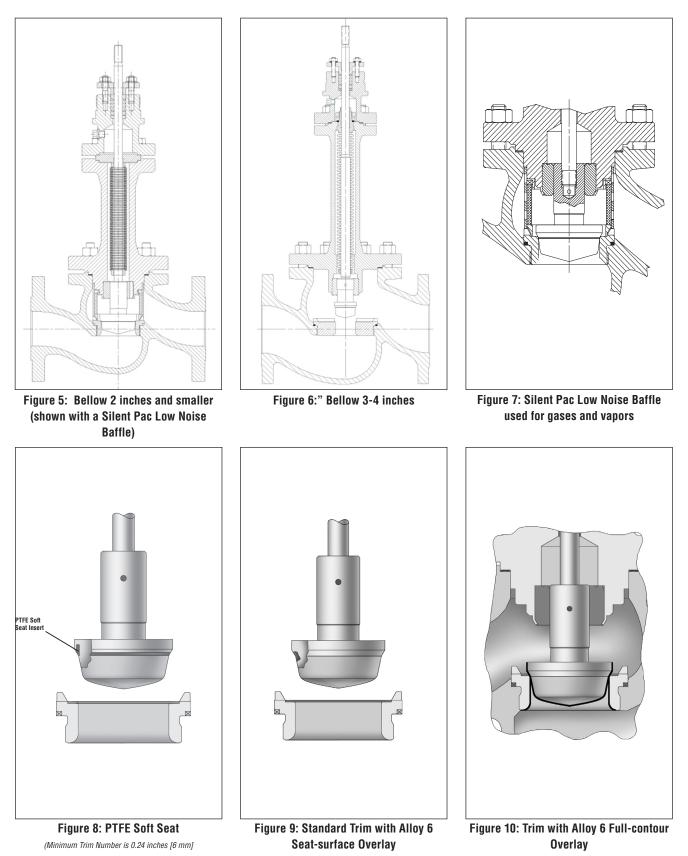
Figure 4: FlowTop

Table 1: Parts List

BOM	Designation	Materials			
1	Body	A216WCB			
5	Bellows Housing	A105	A182 F316L		
6	MBS Seal Assembly	316	SS		
20	Seat Ring	316	SS		
30	Multi-hole Stage	1.45	71		
31	Wire Netting	1.4404	(SS)		
32	Upper Retaining Ring	1.45	71		
33	Ring, Lower	316	SS		
34	Spring, Silent Pack	1.43	10		
40	Standard Bonnet				
40	Extended Bonnet	A105	A182 F316L		
40	MBS Bonnet				
41	Gasket Purge Plug	Pure Gr	aphite		
42	Purge Plug	A2 (\$	SS)		
50	Plug Head	316	66		
51	Stem	- 316 SS			
52	Spring Pin	A2 (\$	SS)		
55	Seat Gasket	Pure Graphite			
59	MBS gasket	Pure Gr	aphite		
60	MBS Gasket	Pure Gr	aphite		
80	Grand Flange	316	SS		
88	Packing Box Unloaded	PTFE-Pure	-Graphite		
	Loaded	PTFE-Rings Pure-Graphite			
90	Pressure Spring	1.4571	(SS)		
93-99	Packing Spacer	1.4571	(SS)		
106	Stud	A193 B7M	A193 B8M		
108	Stud	A193 B7M	A193 B8M		
109	Stud, Packing Box	A193 B8 M2			
117	Hex Nut	316 SS			
112	Plain Washer	A2 (SS)			
112	Plain Washer	316 SS			
113	Jam Nut	316 SS			
114	Hex Nut	4104 01104	A10.4 0M		
116	Hex Nut	A194 2HM	A194 8M		
117	Nut, Packing Box	A194	8M		
138	Belleville Spring	A2 (\$	SS)		



Options



<u>7</u>



Body Specifications and Design Options

Style	Top-entry, single seated, straight-through globe valve
Sizes	0.5 to 4-inch, ANSI Class 150-300 Flanged
End connection Integral flange	ISA 75.03
Surface finish	Standard: 125 - 250 Ra
	Optional: 250 - 500 Ra
Bonnet	Standard, extended and bellows seal
Packing	PTFE V-ring, braided PTFE, graphite, UltraGuard environmental packing systems
Trim flow characteristics	Linear, equal percentage, quick-open; unbal- anced
Leakage rates	ANSI Class IV, VI (with soft seat option) Minimum trim number with soft seat is 0.24 inches

Table 2: Valve Body Specifications

Design Options

Unlike other general service valves, the FlowTop control valve offers a number of design and accessory options - including a versatile packing box with numerous packing configurations, fugitive emission option, multiple actuator spring configurations, top-mounted hand wheels, and a wide range of digital or analog positioners.



Figure 11: FlowTop with a direct mounted Logix 500 digital positioner - local calibration, no need of handheld device or software.



Figure 12: FlowTop with a NAMUR mounted Logix 3000MD series digital positioner - local calibration, no need of handheld device or software.





C_v Tables

Table 3: $\mathbf{C}_{_{\!\boldsymbol{\nu}}}$ values for Modified Equal Percent

Valve Size	Trim N	umber	Str	oke	C, 1	C _v 100%		
Inches	Inches	mm	Inches	mm	C,	K, S		
	0.63	16	0.787	20	6.5	5.6		
	0.47	12	0.787	20	4.6	4		
	0.39	10	0.787	20	2.9	2.5		
	0.31A	8	0.787	20	1.8	1.6		
0.5	0.31B	8	0.787	20	1.16	1		
	0.24	6	0.787	20	0.73	0.63		
	0.16A	4	0.787	20	0.47	0.4		
	0.16B	4	0.787	20	0.29	0.25		
	0.16C	4	0.787	20	0.19	0.16		
	0.98	25	0.787	20	16.2	14		
	0.79	20	0.787	20	11.6	10		
	0.63	16	0.787	20	7.3	6.3		
	0.47	12	0.787	20	4.6	4		
	0.39	10	0.787	20	2.9	2.5		
1	0.31A	8	0.787	20	1.8	1.6		
	0.31B	8	0.787	20	1.16	1		
	0.24	6	0.787	20	0.73	0.63		
	0.16A	4	0.787	20	0.46	.4		
	0.16B	4	0.787	20	0.29	0.25		
	0.16C	4	0.787	20	0.18	0.16		
	1.57	40	0.787	20	36	31.5		
	1.34	34	0.787	20	29	25		
1.5	0.98	25	0.787	20	18.5	16		
	0.79	20	0.787	20	11.6	10		
	0.63	16	0.787	20	7.3	6.3		
	1.97	50	0.787	20	55	47.5		
	1.65	42	0.787	20	46	40		
	1.57	40	0.787	20	36	31.5		
2	1.34	34	0.787	20	29	25		
	0.98	25	0.787	20	18.5	16		
	0.79	20	0.787	20	11.6	10		
	3.15	80	1.57	40	145	125		
	2.64	67	1.57	40	116	100		
3	2.09	53	1.57	40	73	63		
	1.65	42	1.57	40	46	40		
	3.94	100	1.57	40	208	180		
	3.31	84	1.57	40	187	160		
4	2.64	67	1.57	40	116	100		
	2.09	53	1.57	40	73	63		

Table 4: $\mathbf{C}_{_{\boldsymbol{V}}}$ values for Linear

Valve Size	Trim N	umber	Stroke		C _v 100%	
Inches	Inches	mm	Inches	mm	C,	K,S
0.5	0.63	16	0.787	20	6.5	5.6
0.5	0.47	12	0.787	20	4.6	4
	0.98	25	0.787	20	16.2	14
1	0.79	20	0.787	20	11.6	10
	0.63	16	0.787	20	7.3	6.3
	0.47	12	0.787	20	4.6	4
	1.57	40	0.787	20	36	31.5
	1.34	34	0.787	20	29	25
1.5	0.98	25	0.787	20	18.5	16
	0.79	20	0.787	20	11.6	10
	0.63	16	0.787	20	7.3	6.3
	1.97	50	0.787	20	55	47.5
	1.65	42	0.787	20	46	40
2	1.57	40	0.787	20	36	31.5
2	1.34	34	0.787	20	29	25
	0.98	25	0.787	20	18.5	16
	0.79	20	0.787	20	11.6	10
	3.15	80	1.57	40	145	125
3	2.64	67	1.57	40	116	100
3	2.09	53	1.57	40	73	63
	1.65	42	1.57	40	46	40
	3.94	100	1.57	40	208	180
4	3.31	84	1.57	40	187	160
4	2.64	67	1.57	40	116	100
	2.09	53	1.57	40	73	63

Table5: C_v values for Quick Open

Valve Size	Trim Number		Stro	oke	C _v 100%		
Inches	Inches	mm	Inches	mm	C,	K, S	
0.5	0.63	16	0.787	20	7.3	6.3	
1	0.98	25	0.787	20	18.5	16	
1.5	1.57	40	0.787	20	41	35.5	
2	1.97	50	0.787	20	61	53	
3	3.15	80	1.57	40	162	140	
4	3.04	100	1.67	40	221	200	

Table 6: Silent Pac $\mathbf{C}_{\mathbf{v}}$ values for Modified Equal Percent

Valve Size	Trim N	umber	Stroke		C _v 100%	
Inches	Inches	mm	Inches	mm	C,	K, S
	0.63	16	0.787	20	6.5	5.6
	0.47	12	0.787	20	4.7	4
0.5	0.39	10	0.787	20	2.9	2.5
0.5	0.31A	8	0.787	20	1.9	1.6
	0.31B	8	0.787	20	1.16	1
	0.24	6	0.787	20	0.73	0.63
	0.98	25	0.787	20	14.6	12.5
	0.79	20	0.787	20	11.6	10
	0.63	16	0.787	20	7.3	6.3
1	0.47	12	0.787	20	4.7	4
1	0.39	10	0.787	20	2.9	2.5
	0.31A	8	0.787	20	1.8	1.6
	0.31B	8	0.787	20	1.16	1
	0.24	6	0.787	20	0.73	0.63
	1.57	40	0.787	20	26	22.5
	1.34	34	0.787	20	23	20
1.5	0.98	25	0.787	20	18.7	16
	0.79	20	0.787	20	11.6	10
	0.63	16	0.787	20	7.3	6.3
	1.97	50	0.787	20	41	35.5
	1.65	42	0.787	20	37	31.5
2	1.34	34	0.787	20	29	25
	0.98	25	0.787	20	18.5	16
	0.79	20	0.787	20	11.6	10
	3.15	80	1.57	40	117	100
3	2.64	67	1.57	40	105	90
3	2.09	53	1.57	40	73	63
	1.65	42	1.57	40	46	40
	3.94	100	1.57	40	145	125
	3.31	84	1.57	40	145	125
4	2.64	67	1.57	40	116	100
	2.09	53	1.57	40	73	63

Table 7: Silent Pac C_v values for Linear

Valve Size	Trim N	umber	Stroke		C _v 100%	
Inches	Inches	mm	Inches	mm	C,	K, S
0.5	0.63	16	0.787	20	6.5	5.6
0.5	0.47	12	0.787	20	4.6	4
	0.98	25	0.787	20	14.7	12.5
1	0.79	20	0.787	20	11.6	10
1	0.63	16	0.787	20	7.3	6.3
	0.47	12	0.787	20	4.6	4
	1.57	40	0.787	20	26	22.4
	1.34	34	0.787	20	23	20
1.5	0.98	25	0.787	20	18.5	16
	0.79	20	0.787	20	11.6	10
	0.63	16	0.787	20	7.3	6.3
	1.97	50	0.787	20	41	35.5
	1.65	42	0.787	20	37	31.5
	1.34	34	0.787	20	29	25
2	0.98	25	0.787	20	18.5	16
	0.79	20	0.787	20	11.6	10
	3.15	80	1.57	40	117	100
	2.64	67	1.57	40	105	90
3	2.09	53	1.57	40	73	63
3	1.65	42	1.57	40	46	40
	3.94	100	1.57	40	145	125
4	3.31	84	1.57	40	145	125
4	2.64	67	1.57	40	116	100
	2.09	53	1.57	40	73	63

<u>9</u>



Packing

Non-Environmental Packing

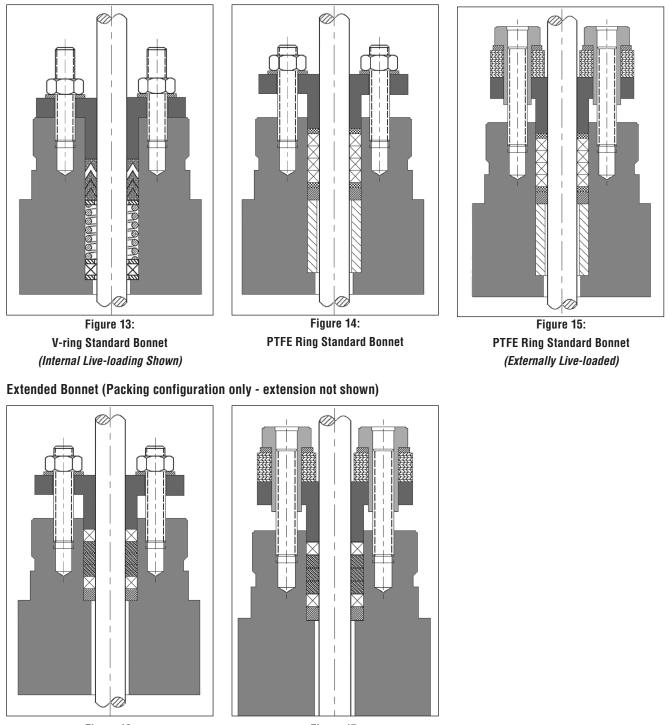


Figure 16: Graphite Ring

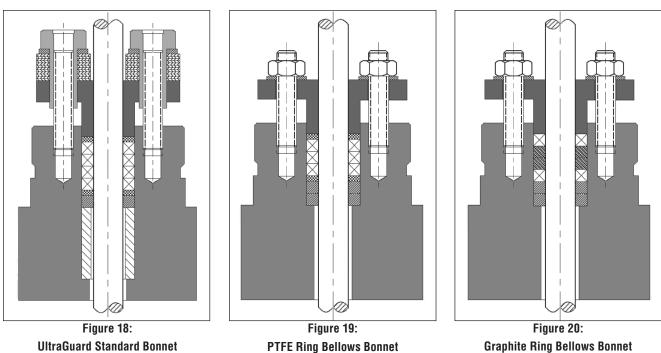
Figure 17: Graphite Ring *(Externally Live-loaded)*



Environmental Packing

(Externally Live-loaded)

Packing



Bellows Packing (Bellows assembly and purge not shown)

Table 8	· Packing	Selection	Guidelines
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	Packing Type			Temperat	ure Range ¹				Relative	Relative
Packing	and Packing	Standar	Standard Bonnets		Extended Bonnets		Bellows Bonnets		Friction	Expected
System	Material	٥F	٥C	٥F	٥C	٥F	٥C	Available	Level ²	Service Level ²
Standard V-ring	V-ring Carbon Filled PTFE	14 to 350º	-10 to 177º	-50 to 480º	-46 to 250º	NA	NA	Live-loading ⁴	.10	.85
PTFE Ring	Square-braided, PTFE	14 to 480°	-10 to 250°	-50 to 480°	-46 to 250°	-50 to 480°	-46 to 250º	Live-loading	.35	1
Graphite Ring ³	Die-formed Graphite rings, Pure Graphite	NA	NA	200 to 800º	93 to 427º	400 to 752º	204 to 400º	Live-loading	.70	.50
UltraGuard (TA Luft Latty)	PTFE Coated, Braided Graphite	14 to 480º	-10 to 250º	-50 to 480º	-46 to 250º	NA	NA	Live-loading	.35	1

¹ Temperatures based on valve body temperature limits. Exceeding these limits may increase leakage and decrease service life.

² Normalized index where 1.0 represents highest relative leakage, friction, or longest relative packing life.

³ The temperature of graphite packing should not exceed 800° F (427° C) in an oxidizing service such as air.

⁴ Both internal and external live-loading is available for this packing set.

Note: Temperature limits in carbon steels range from -15 to 800° F (-26 to 427° C)



Top-mounted Handwheel

127, 252 and 500 size actuators use the Top light Handwheel. The size 700 actuator uses only the Heavy style handwheel.

Positioners

12

Digital: Flowserve's Logix 500/HART or Logix 3000 series/HART or FOUNDATION Fieldbus digital positioners utilize built-in microprocessors and electronic relays to facilitate quick, accurate response to both large and small changes in position command. Both units offer self-contained, on-board diagnostics.

Electro-pneumatic: Beta and XL Series positioners with an I/P can receive a 4 to 20 mA input signal which is converted into a pneumatic output signal. It is vibration resistant, reversible, intrinsically safe, explosion-proof, and easy to adjust. (Figure 24).

Additional Accessories

Electro-pneumatic transducer: Converts a 4-20 DC milliampere signal into a proportional pneumatic output pressure of 3 to 15 psi (0.2 to 1.0 bar).

Position transmitter/limit switch assemblies: Position transmitters and limit switch options mount on the same NAMUR bracket as the positioner. Mounting hardware is similar. They can provide proportional feedback or on/off signals. They can signal lights, alarms, relays, etc. Available options include: UltraSwitch models, Position Pac Series, GO and P&F proximity switches. (See *Performance!* software for details).

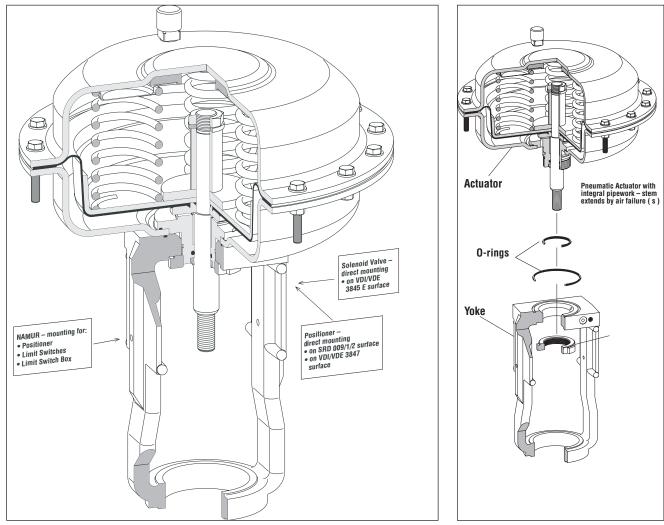


Figure 21: Pneumatic Linear Actuator with Direct-mounting Yoke



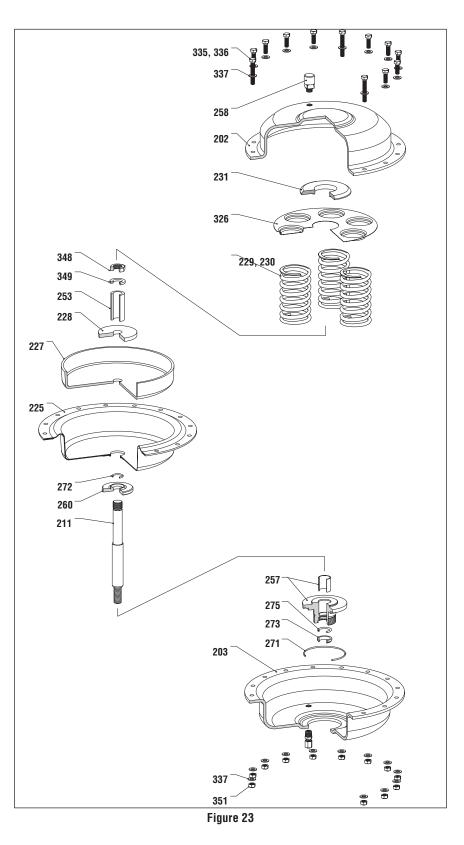


Table 9: Parts List

Part	Decignotion	Motoriolo
	Designation	Materials
203	Diaphragm Casing	1.0322 ²
202	Diaphragm Casing	1.0322 ²
335,336	Hexagon Bolt	A2-70
351	Hexagon Nut	A2-70
337	Plain Washer	A2
257	Guide Bush	1.0736 ¹
207	Plain Bearing	-
271	0-Ring	NBR 70
275	0-Ring	NBR 70
273	Scraper Ring	NBR 90
211	Stem	1.4571
253	Spacer Bush	1.0308 ¹
228	Disk	1.0736 ¹
227	Diaphragm Plate	1.0332 ¹
225	Diaphragm	NBR 60
272	0-Ring	NBR 70
260	Thrust Washer	1.0736 ¹
349	Lock Washer	Federstahl
348	Hexagon Nut	17H ¹
229, 230	Actuator Spring	1.7102
231	Distance Plate ³	1.0736 ¹
326	Spring Adjusting Plate	1.0330.03 ¹
258	Vent Plug	Polyamid



² powder coating



<u>13</u>



Actuator Dimensions and Weights

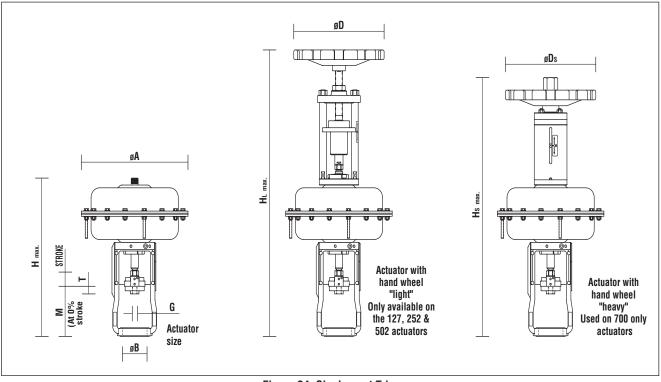


Figure 24: Single-seat Trim

Table	10:	Dimensions	and	Weights
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	Actuator Size	19 in² (1	27 cm²)	39 in² (2	52 cm²0	7	8 in² (5	02 cm ²	²)	109 in ² (700 cm ²)			
	Stroke	0.8		0.8		0.8		1.6		0.8		1.6	
Designation		in	cm	in	cm	in	cm	in	cm	in	cm	in	cm
øA		7.8	178	10.4	254	13.9	330	13.9	330	15.9	381	15.9	381
H max.		12.6	305	13.2	330	17.9	432	18.1	457	21.5	533	21.7	533
Hs max.	Hs max.			-	-	-	-	-	-	34.3	864	34.4	864
H∟ max.		23.2	584	23.4	584	33.3	838	34.3	864	-	-	-	-
øDs		-	-	-	-	-	-	-	-	13.8	330	13.8	330
øD∟		7.9	178	7.9	178	11.8	279	11.8	279	-	-	-	-
	Weight	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Actuator		20	9	31	14	64	29	64	29	88	40	88	40
With top mounted hand v	wheel "heavy"	-	-	-	-	-	-	-	-	12	5	12	5
With top mounted hand v	wheel "light"	31	14	42	19	79	36	79	36	-	-	-	-

Table 11: Yoke Dimensions

	Actuator Size	19 in² (1	27 cm²)	39 in² (2	39 in² (252 cm²0			502 cn	n²)	109 in ² (700 cm ²)			
	Stroke	2	0	2	2	0	4	10	20		40		
Designation		in	mm	in	mm	in	mm	in mm		in	mm	in	mm
øB		2.6	65	2.6	65	2.6	65	3.2	82	2.6	65	3.2	82
≈M		4.1 105		4.1	4.1 105		4.1 105		140	4.1 105		5.5	140
G		M12		M	12	M12		N	16	M12		M16	
Т		.91	23	.91	23	.91	23	.98	25	.91	23	.98	25





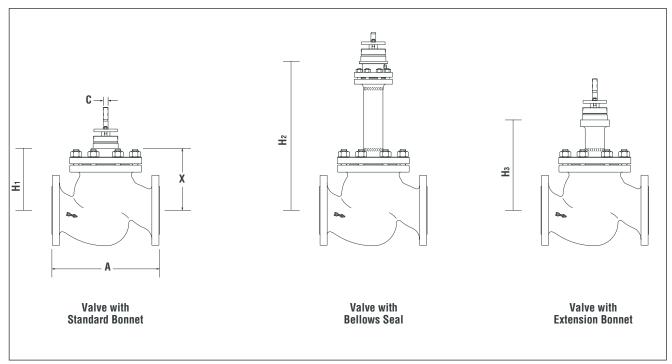


Figure 25: Single-seat Trim

Table	12:	Dimensions

Valve Size	Size Dimensions			-		(C		X Disassembly Clearance			≈H1 Standard Bonnet				≈H2 Bellows Seal				≈H3 Extended Bonnet				
	Class 150 Class 300		s 300	Class	s 150	Class	: 300	Class	s 150	Class	s 300	Class	s 150	Class	s 300	Class	s 150	Class	s 300	Class	150	Class	300	
in	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
0.5	7.25	184.2	7.5	190.5	0.472	12	0.472	12	4.6	117	4.6	117	4.6	117	4.6	117	11.8	299	11.8	299	8.6	218	8.6	218
1	7.25	184.2	7.75	196.9	0.472	12	0.472	12	5.6	142	5.6	142	4.6	117	4.6	117	11.8	299	11.8	299	8.6	218	8.6	218
1.5	8.75	222.3	9.25	235	0.472	12	0.472	12	5.6	142	5.6	142	5.4	137	5.4	137	12.1	307	12	305	8.6	218	8.6	218
2	10	254	10.5	266.7	0.472	12	0.472	12	8.0	208	8.0	208	5.5	138	5.5	138	12.1	307	12	305	8.7	220	8.7	220
3	11.75	298.5	12.5	317.5	0.63	16	0.63	16	9.0	228	9.0	229	8	203	8	203	19.7	500	20	508	12.2	310	12.2	310
4	13.88	352.6	14.5	368.3	0.63	16	0.63	16	9.0	229	9.0	229	8.1	204	8	203	19.7	500	20	508	12.3	311	12.3	311

Table13: Shipping Weights

Value		≈Weight for Valves														
Valve Size		Standar	d Bonnet	t	Be	ellows Se	al Bonn	et	Extended Bonnet							
0126	Class 150 Class 300				Clas	s 150	Clas	s 300	Class	s 150	Class 300					
in	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg				
0.5	13.7	6.2	13.9	6.3	22.5	10.2	22.7	10.3	16.6	7.5	16.8	7.6				
1	16.1	7.3	17.9	8.1	24.9	11.3	26.7	12.1	19	8.6	20.8	9.4				
1.5	29.6	13.4	34.2	15.5	38.4	17.4	43	19.5	31.4	14.2	36	16.3				
2	38.4	17.4	41	18.6	47.2	21.4	50	22.6	40.2	18.2	42.8	19.4				
3	94	42	104	47	111	50	122	55	95	43	108	49				
4	137	62	159	72	155	70	177 80		139	63	164	74				

<u>15</u>



Actuat	or Size	Stroke	Spring Code	Spring	Range	Spring Color	Number of Springs	Spring Part Number
in ²	cm ²	mm		psi	bar	1		
			A	3-15	0.2-1.0	Blue	3	SMD-28602
			В	7-28	0.5-1.9	Blue	6	SMD-28602
			D	15-35	1.0-2.4	Red	3	SMD-28604
19.4 in ²	127 cm ²	20 mm	F	29-70	2.0-4.8	Red	6	SMD-28604
			U	22-55	1.5-3.8	Blue	2	SMD-28602
			U	22-55	1.0-3.0	Red	4	SMD-28604
			V	22-40	1.5-2.7	Silver	6	SMD-37482
in²	CM ²	mm		psi	bar			
			A	3-15	0.2-1.0	Blue	3	SMD-28605
			В	7-28	0.5-1.9	Blue	6	SMD-28605
			D	15-35	1.0-2.4	Red	3	SMD-28609
38.8 in ²	252 cm ²	20 mm	F	29-70	2.0-4.8	Red	6	SMD-28609
			U	22-55	1.5-3.8	Blue	2	SMD-28605
				22-00	1.5-5.6	Red	4	SMD-28609
			V	22-40	1.5-2.7	Silver	6	SMD-37483
in ²	CM ²	mm		psi	bar			
			A	3-15	0.2-1.0	Blue	3	SMD-32097
			В	7-28	0.5-1.9	Blue	6	SMD-32097
			D	15-35	1.0-2.4	Red	3	SMD-32099
77.5 in ²	502 cm ²	20 mm	F	29-70	2.0-4.8	Red	6	SMD-32099
			U	22-55	1.5-3.8	Blue	2	SMD-32097
				22-33	1.5-5.0	Red	4	SMD-32099
			V	22-40	1.5-2.7	Silver	6	SMD-37486
in²	CM ²	mm		psi	bar			
			Α	3-15	0.2-1.0	Blue	3	SMD-28610
			В	7-28	0.5-1.9	Blue	6	SMD-28610
			D	15-35	1.0-2.4	Red	3	SMD-28612
77.5 in ²	502 cm ²	40 mm	F	29-70	2.0-4.8	Red	6	SMD-28612
			U	22-55	1.5-3.8	Blue	2	SMD-28610
			_			Red	4	SMD-28612
			V	22-40	1.5-2.7	Silver	6	SMD-37485
in ²	CM ²	mm		psi	bar			
			A	3-15	0.2-1.0	Blue	3	SMD-63752
			В	7-28	0.5-1.9	Blue	6	SMD-63752
			D	15-35	1.0-2.4	Red	3	SMD-63753
109 in ²	700 cm ²	40 mm	F	29-70	2.0-4.8	Red	6	SMD-63753
			U	22-55	1.5-3.8	Blue	2	SMD-63752
			_			Red	4	SMD-63753
			V	22-40	1.5-2.7	Silver	6	SMD-63754

Table 14: Actuator Spring



Table 15: Actuator Specifications

Description	Pneumatic Diaphragm Actuator (Spring-opposed or Springless)
Operating	Direct action: Air-to-close (air supply causes stem extension) Reverse action: Air-to-open (air supply causes stem retraction)
Signal or Spring Ranges	Standard: 3 to 15 psi (0.2 to 1.0 bar) Optional: 12 to 31 psi (0.8 to 2.2 bar)
Travel Indication	Pointer and graduated scale
Environmental Temperature	Standard: -40° to 176° F (-40° to 80° C)
Air Connections	Standard: 0.25-inch NPT female
Finish (casing)	Powder painted diaphragm halves. High temperature silicon painted yoke.
Options on Request *check factory	 Screws, nuts, diaphragm casings, etc. in stainless steel Finish resistant to seawater or tropical environment Other spring ranges Special paints: Epoxy, offshore high temperature

Table 16: Maximum Supply Pressure

Model	psi	bar
19 in ² (127 cm ²)	90	6
39 in ² (252 cm ²)	90	6
78 in ² (502 cm ²)	90	6
109 in ² (700 cm ²)	90	6

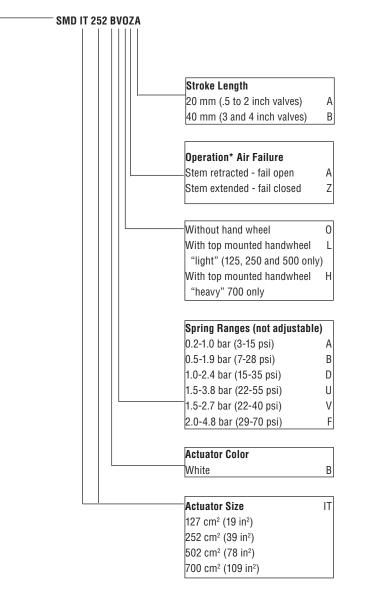


Model Codes

<u>18</u>

Vr40 DFWA 2 mehos 300 A216 WE3/00 PMIGC 42 46 316 SS Image: Consection AKSI 500 V728		Туре	Size	Class	Body/Cert	Plug	Seat	k,s	Tr	im	Actuat	or	S		
Water Model V738 ANSI 150 V738 ANSI 150 V738 ANSI 150 V738 Bidy Form Form of Connection Fampe act, to			2 inches	300		PN1GG	42		316	SS	1	Ť			
ANSI 150 V730 Bio V740 Bio V740 Bio V740 Bio V740 Bio V740 Bio V740 Form of Connection Flange co. to ANSI 15.5 Form RF F Bonnet Assembly Pressure balancing V Bio V1000 ressure balancing V Pio V1000 ressure balancing V Bio V1000 ressure balancing V Bio V1000 ressure balancing V Pio V1000 ressure balancing V Bio V1000 ressure balancing V Pio V1000 ressur			1 2 11101100						1010		L				
ANSI 150 V730 Bio V740 Bio V740 Bio V740 Bio V740 Bio V740 Bio V740 Form of Connection Flange co. to ANSI 15.5 Form RF F Bonnet Assembly Pressure balancing V Bio V1000 ressure balancing V Pio V1000 ressure balancing V Bio V1000 ressure balancing V Bio V1000 ressure balancing V Pio V1000 ressure balancing V Bio V1000 ressure balancing V Pio V1000 ressur															
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Body Form Three fange D Form of Connection Flange acc. to ANSI B16.5 Form NF Bonnet Form Without pressure balancing V Bonnet Assembly Price form, solutions, EAM A Price form, Solution, BAM B Normal Size Ho to these<															
Boly Form D 400 SS Plug. seat material Form of Connection Finange act: to ANSI B16.5 Form NF E Bonnet Form Port size 4 to 100 Bonnet Assembly N Equal percentage G Balt Standard bonnet N Equal percentage G Bonnet Assembly N Equal percentage G Baterial bonnet F Equal percentage G Port grapheticing, sociate, BAM A Port grapheticing, sociate, BAM B Prife rings, adjustade, BAM N Port grapheticing, sociate, BAM N Prife rings, adjustade, BAM N Prife rings, sociate, BAM N Prife rings, adjustade, BAM N Prife rings, adjustade, BAM N Prife rings, adjustade, BAM N Prife rings, adjustade, BAM N Prife rings, adjustade, BAM N Prife rings, adjustade, BAM N Prife rings, adjustade, BAM N Prife rings, adjustade, BAM N Normal Size ½ to 4 linches A P ASIS Class 150 150 A S <tr< td=""><td>ANSI 300 V</td><td>740-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr<>	ANSI 300 V	740-													
Three flange											-			-	
Form of Connection Fange acc. to ANSI B16.5 Form RF Bonnet Form Without pressure balancing V Bonnet Assembly Standard bonnet R Belows seal bonnet F Extension bonnet F Presting Box Assembly Pilog Caldance Pilog Standard bonnet F Presting Box Assembly Pilog Caldance Pilog Standard Bonnet P Presting Box Assembly Pilog Caldance Pilog Caldance Imear Dyre graphite rings, substated, BAM P Piler rings, non-ext, BAL N Prest rings, goal beautive, BAM P Piler rings, non-ext, BAL N Partial Alloy 6 D Filt rings, loade, BAM P Partial Alloy 6 N Partial Alloy 6 D ANSI Class 150 150 ANSI Class 150 150 ANSI Class 150 150 ANSI Class 160 mm P Prestrie al Casage Certificate P Without 0	-										400 SS			Plug, seat material	
Processor and Leakage Certificate Materials Certificate Mithout 0 ANSI Class 150 150	Three flange														
Processor and Leakage Certificate Materials Certificate Mithout 0 ANSI Class 150 150											· · ·			0.040.000	
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PTFE rings, adjustable, BAM A Pure graphite rings, adjustable, BAM N PTFE rings, toaded, BAM N Partial Alloy 6 D PTFE rings, organite core, load, "TA" 0 PTFE rings, organite core, load, "TA" R V-ring packing S Normal size ½ to 4 inches Normal size 150 150 ANSI Class 150 150 ANSI Class 150 150 ANSI Class 150 150 AISI Ches AC Naterials Certificate Without 0. acc. EN 10 204 - 2.2Z Z. acc. EN 10 204 - 2.2Z . acc. EN 10 204 - 3.1B . B	Packing Box Assembly										Τορ			1	
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acc. EN 10 204 - 2.2Z .Z acc. EN 10 204 - 3.1B .B															
acc. EN 10 204 - 3.1B .B					·										
Automatic safety valve - PED cat. IV .K	acc. EN 10 204 - 3.1B	.В													
Automatic safety valve - PED cat. IV .K															
	Automatic safety valve - PED cat. IV	.K													







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