

# Advantage<sup>®</sup> 2.1 Actuator

**P** The Advantage 2.1 actuator is the latest evolution in performance of the time-tested Advantage actuator series, the mainstay of the bioprocessing industry for the past 20 years. The Advantage 2.1 has an innovative patent pending compressor attachment method that allows for interchangeability between PTFE and elastomer diaphragms without actuator disassembly.



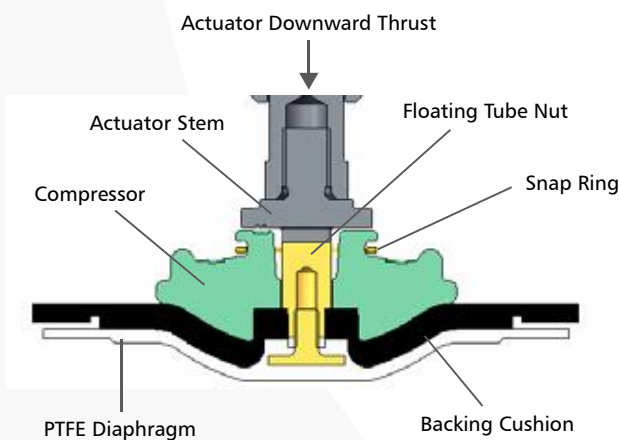
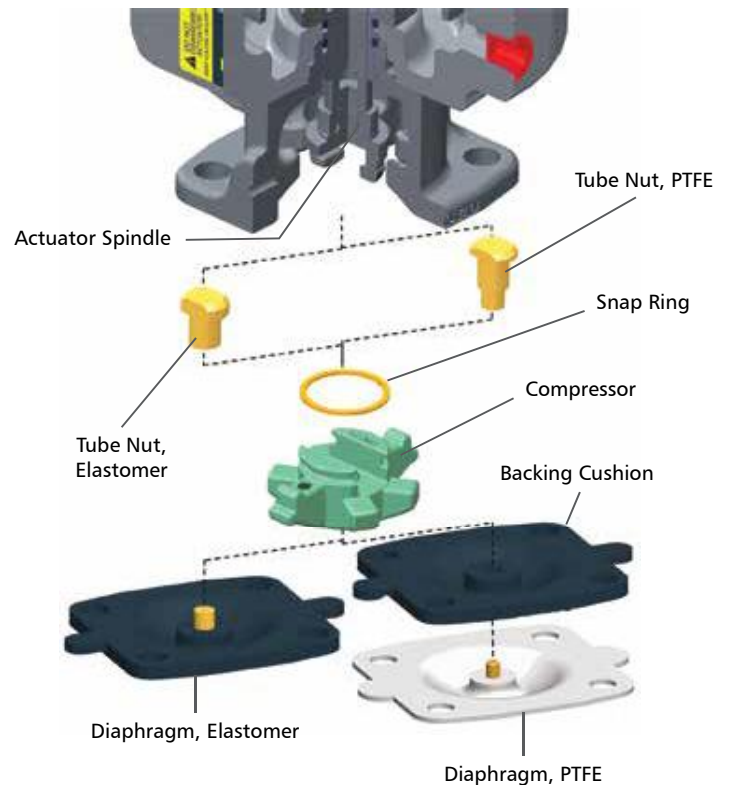
Type: Diaphragm Actuator  
 Size Range: 0.5–2" (DN15–DN50)  
 Operating Modes: Fail close, fail open, double acting  
 Max Service Pressure: 10.3 bar (150 psig)  
 See sizing charts on pages G3–G5 for exact shutoff pressures  
 Max Service Temperature: 300°F (150°C)  
 Max Actuator Chamber Pressure: 6.2 bar (90 psig)  
 Corrosion Resistance: Resists alcohol, chloride and most caustic washdowns  
 Autoclavable<sup>1</sup>

<sup>1</sup> Steam at 257°F (125°C) for 25 minutes.

## Diaphragm Compressor Attachment

Advantage 2.1 and ACS feature a modular compressor design for quick changeover between PTFE and elastomer diaphragms. No actuator disassembly is required for diaphragm type changes. The modular design is compatible with all Pure-Flo diaphragm types.

The modular compressor design features a stainless steel compressor and tube. The key to the modular system is a robust stainless steel tube nut that allows compressor float, ensuring even distribution of actuation closing forces. This concept minimizes diaphragm point loading. Diaphragm change over kits will be available.

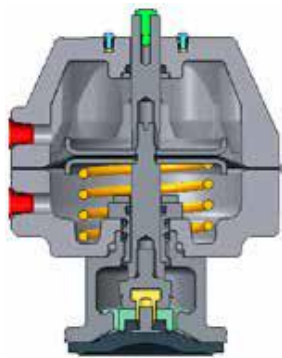


Note: Patent Pending Compressor Design

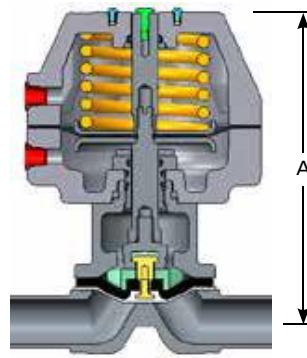
# Advantage<sup>®</sup> 2.1 Weights & Dimensions

## Dimensions

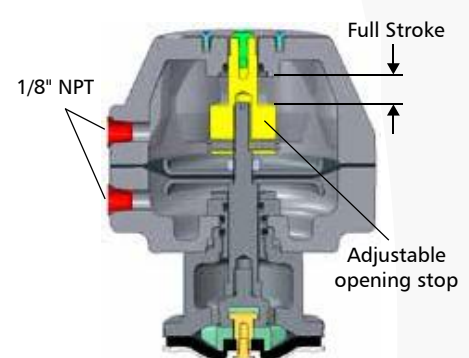
Valve Size		A Valve Open		C		D	
Inch	DN	in	mm	in	mm	in	mm
0.25	6	4.31	109,5				
0.38	10	4.31	109,5				
0.50	15	4.31	109,5				
0.50	15	4.87	123,7	3.34	85	3.00	76
0.75	20	6.06	153,9	4.56	116	3.88	98
1.00	25	6.56	166,6	4.56	116	3.88	98
1.50	40	10.42	264,7	6.41	163	5.94	151
2.00	50	11.16	283,5	6.41	163	5.94	151



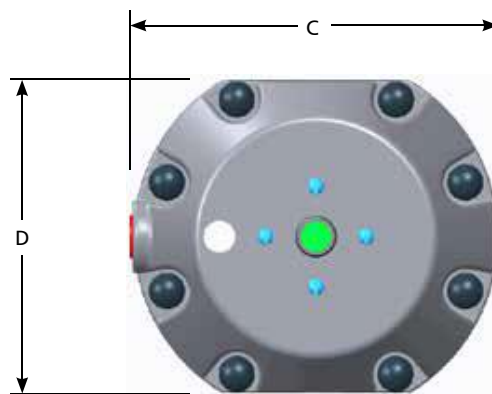
Fail Open  
(Spring-to-Open, Air-to-Close)



Fail Close  
(Air-to-Open, Spring-to-Close)



Optional Adjustable Opening Stop  
(AOS)



## Actuator Weights (Less Body)

Valve Size		Double Acting		Fail Open		Fail Close	
Inch	DN	Lbs.	Kg.	Lbs.	Kg.	Lbs.	Kg.
0.50	15	2.00	0,91	2.09	0,95	2.34	1,06
0.75	20	3.69	1,67	3.78	1,71	4.34	1,97
1.00	25	4.47	2,03	4.59	2,08	5.16	2,34
1.50	40	12.10	5,49	12.60	5,71	16.44	7,46
2.00	50	15.16	6,88	15.66	7,10	19.50	8,84

# Advantage<sup>®</sup> Compact Stainless (ACS)

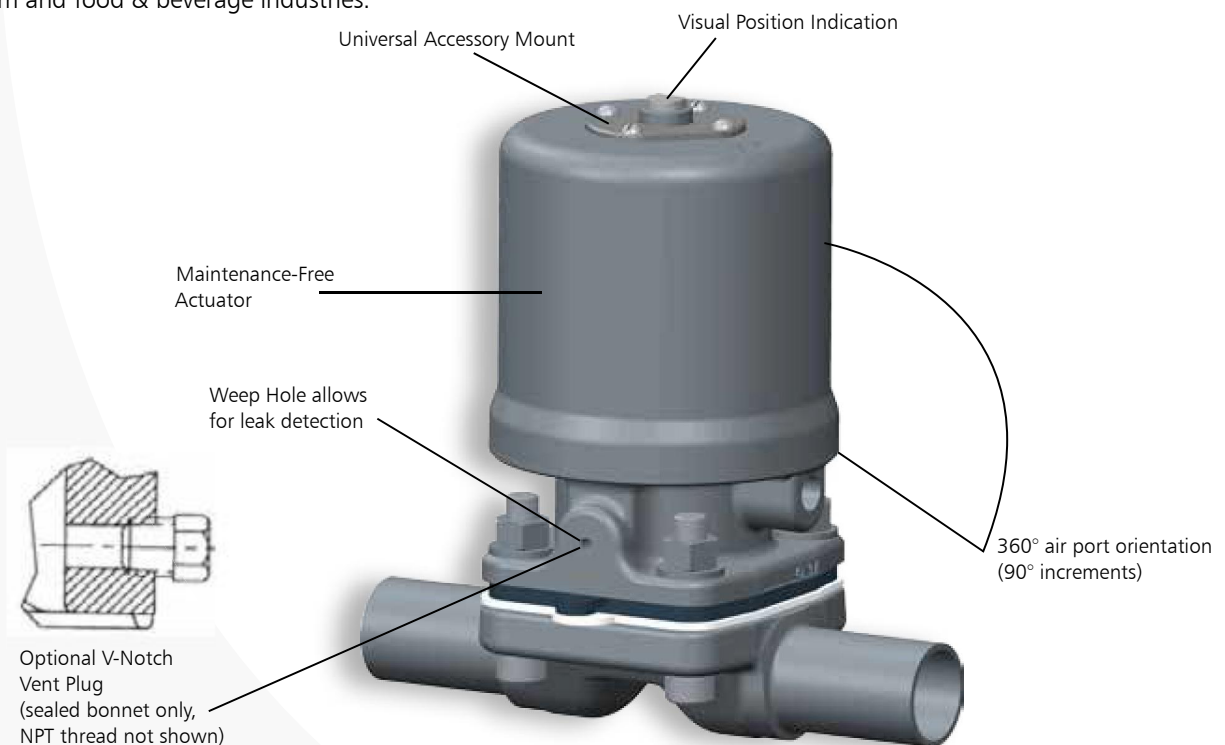
**P** The Advantage<sup>®</sup> Compact Stainless (ACS) is the latest addition to the process proven Advantage Actuator product line. Designed as a maintenance-free actuator, it is engineered to handle the most demanding requirements of the bioprocessing and pharmaceutical industries. The stainless steel construction of the ACS is suited for severe duty applications, such as SIP and high-cycle applications. It has been subjected to extensive life-cycle testing that far exceeds industry requirements.

The compact size of the ACS provides the utmost in design flexibility. It allows for space-saving system designs, further minimizing holdup volumes that are critical to increasing efficiency and saving time and money. Engineering improvements in the ACS offer a cost-effective alternative for clean-room use, lab environments and other critical applications. With a stainless steel exterior, the ACS is perfect for clean-room applications requiring both aesthetics and washdown compatibility.

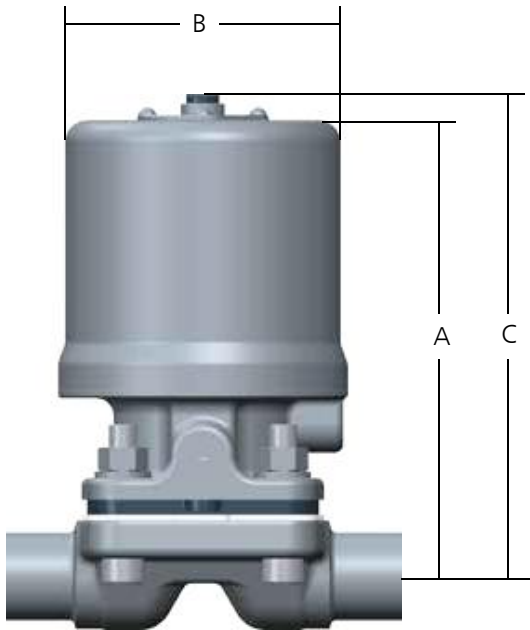
All of this makes the ACS a versatile, feature-packed, cost-effective option for the demanding biopharm and food & beverage industries.



Type: Piston Actuator  
Size Range: 0.25–2" (DN6–DN50) (Bio-Pure size)  
Operating Modes: Fail close, fail open, double acting  
Max Service Pressure: 10.3 bar (150 psig)  
See sizing charts on pages G6–G8 for exact shutoff pressures  
Max Service Temperature: 300°F (150°C)  
Max Autoclave Temperature: 273°F (134°C)  
Max Actuator Chamber Pressure: 6.2 bar (90 psig)  
Corrosion Resistance: Resists alcohol, chloride and most caustic washdowns



# ACS Weights & Dimensions



## Dimensions with Forged Body & Weights (less body)

Valve Size		A		B		C		Actuator Weight (less body)					
Inch	DN	in	mm	in	mm	in	mm	Fail Close		Fail Open		Double Acting	
								Lbs.	Kg	Lbs.	Kg	Lbs.	Kg
BP	BP	3.55	90,2	1.75	44,5	3.9	99,1	1.2	0,55	1.2	0,55	1.2	0,55
0.50	15	4.24	107,7	2.62	66,5	4.49	114,0	2.4	1,1	2.1	1,0	2.3	1,0
0.75	20	5.18	131,6	3.12	79,2	5.56	141,2	3.5	1,6	3.0	1,4	3.3	1,5
1.00	25	5.44	138,2	3.12	79,2	5.94	150,9	4.0	1,8	3.1	1,4	3.4	1,5
1.50	40	9.05	229,9	4.62	117,3	9.86	250,4	14.3	6,5	10.3	4,6	10.9	4,9

# Series 33 Advantage<sup>®</sup> Actuator

**P** The Series 33 Advantage Actuators extend the size range of the Advantage Actuator product line to 3" and 4" valves. The Series 33 Advantage Actuators have been introduced to further reduce the dimensional envelope and weight for installations in the Pharmaceutical/ Bioprocessing industries. The Series 33 4" Spring to Close actuator is 25% smaller in diameter, has 22% reduction in height and offers a 32% reduction in weight than a comparable 4" Series 47 actuator.

Type: Series 33 Advantage Actuator

Size Range: 3–4" (DN80–DN100)

Operating Modes:

Fail Close\*, Fail Open, Double Acting

Max Service Pressure/Temperature:

150 psig (10.34 bar)

300°F (149°C)

External Temperature Limitations:

150°F (66°C)

Actuator Cover Material:  
Vinyl-Ester Thermoset  
(FDA compliant)

Bonnet Material:  
Nylon coated ductile iron

Corrosion Resistance:  
Resists alcohol, chloride and most caustic washdowns.  
For specific chemical resistance, consult factory.



Standard Features:

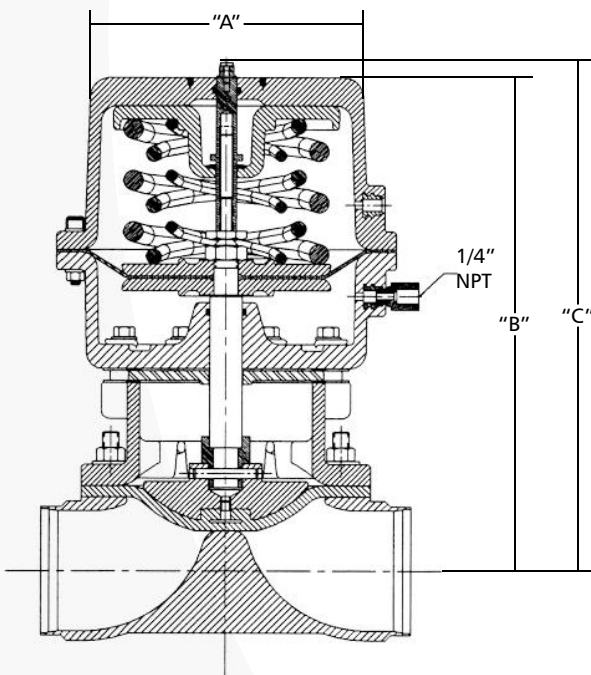
- Visual position indicator
- O-ring seals
- Switch mounting bolt pattern

Optional Features:

- Hygienic internals
- Solenoids available

\*Springs self-contained (Fail close only)

Note: See page G-3 - G-5 for actuator sizing.



## Dimensions & Actuator Weights (less body)

Valve Size		A		B		C		Double Acting		Fail Open		Fail Close			
Inch	DN	Inch	mm	Inch	mm	Inch	mm	Lbs.	Kg.	Lbs.	Kg.	60#		90#	
												Lbs.	Kg.	Lbs.	Kg.
3.00	80	7.95	201,9	14.2	360,7	16.41	416,8	39.00	17,69	42.30	19,19	54.20	24,59	58.00	26,31
4.00	100	7.95	201,9	15.82	401,8	18.00	452,2	44.00	19,96	47.30	21,46	59.20	26,85	63.00	28,58

# Series 47 Advantage<sup>®</sup> Actuator

**P** The Series 47 Advantage Actuators extend the size range of the Advantage Actuator product line to 3" and 4" valves. Similar to the smaller valve sized Advantage Actuators, the 3–4" series 47 (DN80–DN100) actuator is also diaphragm driven, o-ring furnished and available in three modes of operation. The actuator design features the same dimensional envelope regardless of operation mode.

Type: Series 47 Advantage Actuator

Size Range: 3–4" (DN80–DN100)

Operating Modes:

Fail Close\*, Fail Open, Double Acting

Max Service Pressure/Temperature:

150 psig (10.34 bar)

300°F (149°C)

External Temperature Limitations:

150°F (66°C)

Actuator Cover Material:

Vinyl-Ester Thermoset (FDA compliant)

Bonnet Material:

Nylon coated ductile iron

Corrosion Resistance:

Resists alcohol, chloride and most caustic washdowns.

For specific chemical resistance, consult factory.

Standard Features:

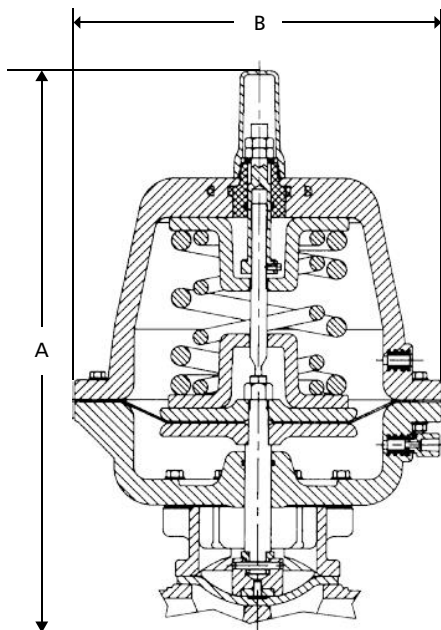
- Visual position indicator
- O-ring seals
- Adjustable Opening Stop (AOS)
- Adjustable Travel Stop (ATS)
- Switch mounting bolt pattern

Optional Features:

- Hygienic internals
- Solenoids available

\*Springs self-contained (Fail close only)

Note: See page G3-G-5 for actuator sizing.



Reverse Acting

## Dimensions & Actuator Weights (includes body)

Valve Size		A		B		Actuator Weights (includes body)					
						Double Acting		Fail Open		Fail Close	
Inch	DN	Inch	mm	Inch	mm	Lbs.	Kg.	Lbs.	Kg.	Lbs.	Kg.
3.00	80	21.28	540,5	14.00	356	72.09	32,70	75.39	34,20	107.49	48,76
4.00	100	22.90	581,7	14.00	356	82.50	37,42	85.80	38,92	117.50	53,30

# Dia-Flo<sup>®</sup> Actuator

**P** The Dia-Flo actuator, diaphragm driven and pneumatically operated, is a process proven actuator suitable for both the Pure-Flo and Dia-Flo product lines. The Dia-Flo actuator is recommended as an alternative to the Advantage Actuator for applications in which the line pressure or available plant air pressure is not within the advantage actuator parameters.

Type: Dia-Flo

Size Range:

Available in seven interchangeable sizes and can be readily mounted to any size valve with the proper size bonnet. See Dia-Flo catalog DV for actuator sizing

Actuator Materials:

Aluminum

Ductile iron - optional

Corrosion Resistant Coatings:

White epoxy

PVDF

Nylon

Bonnet Materials:

Ductile iron

Stainless steel – optional

Actuator Air Pressure:

5.9 bar (85 psi) max

Options:

- Adjustable opening stop
- Adjustable travel stop<sup>1</sup>
- Hygienic internals
- Visual position indicator
- Wrench or handwheel operated
- Manual overrides
- Solenoids available

<sup>1</sup>Adjustable travel stop is standard on all fail close actuators (except 3212)

## Dualrange<sup>®</sup> Control Valve

The Dualrange control valve is the first diaphragm valve designed expressly for control work. Available in 1–6" sizes, it combines all the advantages of ITT weir-type diaphragm valves with greatly improved throttling characteristics. The Dualrange utilizes the Dia-Flo actuator and has greater rangeability than other diaphragm valves, due to the dual nested compressors unique to Pure-Flo. Refer to the Dia-Flo catalog DV at [www.engvalves.com](http://www.engvalves.com) for more information.

