



SED[®]

SED Flow Control

HIGH PURITY

**DIAPHRAGM
VALVES**

SED

Distribution Group, LLC
process Solutions & Engineered Designs

815-609-3844 • Fax 815-609-3836
www.sed4valves.com



SED Flow Control

Mission

SED Distribution Group, LLC was established with a mission to provide high quality process valves and components to the high purity marketplace. It is the exclusive distributor of the SED® Flow Control, GmbH, High Purity Diaphragm Valves for North America. The High Purity Diaphragm Valve has been marketed in North America since 1997, and now carries the global trademark name SED®. Our High Purity Products are designed to meet the demanding process requirements of the pharmaceutical, bio-processing, cosmetics, food, and beverage industries where aseptic and hygienic conditions are required.



Letters of Conformity are available upon request for diaphragm materials including FDA Code of Federal Regulations and United States Pharmacopoeia.

Commitment to Quality

The complete satisfaction of the customer is the prime measurement of quality. The quality concept is applied comprehensively to all areas of the business including development, manufacturing, suppliers, services, and our sales team. Quality control is our number one goal. Our valve components are subject to strict testing and acceptance utilizing a profilometer for surface finish, delta ferrite testing, porosity testing by liquid penetration, X-ray testing, dry cycle testing, boroscope, and in-house cycle testing and qualification of diaphragm materials with saturated steam. All valves and components are individually inspected, assembled, and tested to assure a leak tight seal and optimal performance.

**The complete
satisfaction of the
customer is the prime
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Innovative Design

Years of research and continuous development have led to modular valve designs that many experts agree are far superior to other types of valve offerings. SED® High Purity Diaphragm Valves meet the demands of ASME BPE-2002 and exceed current Good Manufacturing Practices (cGMP) through innovative designs, and creative solutions. The 3D-CAD-CAM network connects all CAD workstations with the CNC machining facilities bringing our products from conception to development.

**Our innovative designs and
creative solutions solve the
more demanding process
problems.**

Validation

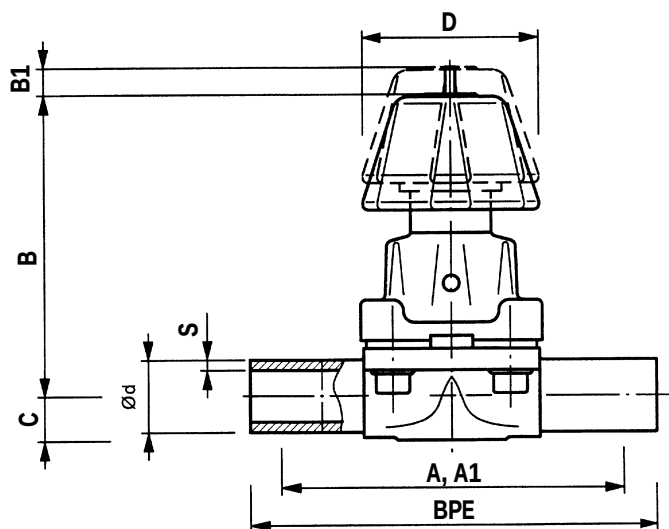
All SED® High Purity Diaphragm Valve bodies and BPE compliant materials used in fabrications contain a heat number that is traceable to the material properties and physical composition. SED Distribution Group supplies Material Test Reports with every valve or fabrication shipped.

Bodies

All SED® High Purity Diaphragm Valve bodies are produced from ASTM A-182 Grade 316L and DIN 17440, 1.4435 forged stainless steel resulting in a lower ferrite content. One-piece solid block, wrought body, and other alloys are available to meet all your required process needs. 3D computer aided 5 axis machining along with skilled polishing technicians provide a porosity free mechanically polished surface. Electro polishing the interior and exterior of the valve bodies is available as an option.



Manual	1/4"
	3/8"
Type 290 Manual	1/2"



	Clamp A	Weld A 1	BPE A 2	Close B	Open B 1	C	D	S	Weight lbs	CV GPM
SIZE 1/4"	2.50	2.52	4.26	2.24	2.44	0.31	1.25	0.035	0.35	1.05
3/8"	2.50	2.52	4.26	2.24	2.44	0.31	1.25	0.035	0.37	2.00
1/2"	2.50	2.52	4.26	2.24	2.44	0.31	1.25	0.065	0.40	2.60

Standard Features

- Compact Design
- Forged 316L Stainless Steel Body
- 25 Ra (180 Grit) Interior Mechanical Polish
- Clamp or Buttweld Ends
- Electro Polished Stainless Steel Bonnet
- IXEF® Thermoplastic Handwheel
- Handwheel Locked to Stem
- Visual Position Indicator
- Non-Corrosive Sanitary Internal Components
- Bottom Entry Stainless Steel Bolting
- Encapsulated Button Diaphragm
- One Bonnet and Compressor for All Diaphragms

Options

- Electro Polished Stainless Steel Bonnet and Handwheel
- Interior Mechanical Polish to 10 Ra (320 Grit)
- Electro Polished Interior and Exterior
- Variety of End Connections

FDA Compliant Diaphragms

- EPDM Grade 18
- PTFE/EPDM One Piece
- TFM/EPDM One Piece

- * Maximum Working Pressure: 90 psi
- * Maximum Working Temperature: 320° F

1/4"

Automated

3/8"

1/2"

**Type 190(NC)-191(DA)-192(NO)
SS-190S Actuated Pneumatic**

Standard Features

- Compact Design
- Forged 316L Stainless Steel Body
- 25 Ra (180 Grit) Interior Mechanical Polish
- Clamp or Buttweld Ends
- Stainless Steel Bonnet
- IXEF® Thermoplastic Piston Actuator
- Visual Position Indicator with Stem Cover
- Non-Corrosive Sanitary Internal Components
- Bottom Entry Stainless Steel Bolting
- Encapsulated Button Diaphragm
- One Actuator and Compressor for All Diaphragms

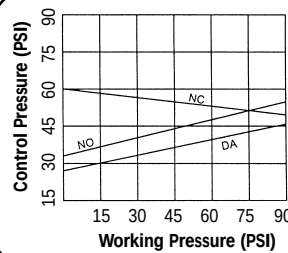
Options

- Stainless Steel Normally Closed Piston Actuator
- Interior Mechanical Polish to 10 Ra (320 Grit)
- Electro Polished Interior and Exterior
- Variety of End Connections
- Autoclavable
- Adjustable Travel Stop
- Stroke Limiter
- Limit Switches

FDA Compliant Diaphragms

- EPDM Grade 18
- PTFE/EPDM One Piece
- TFM/EPDM One Piece

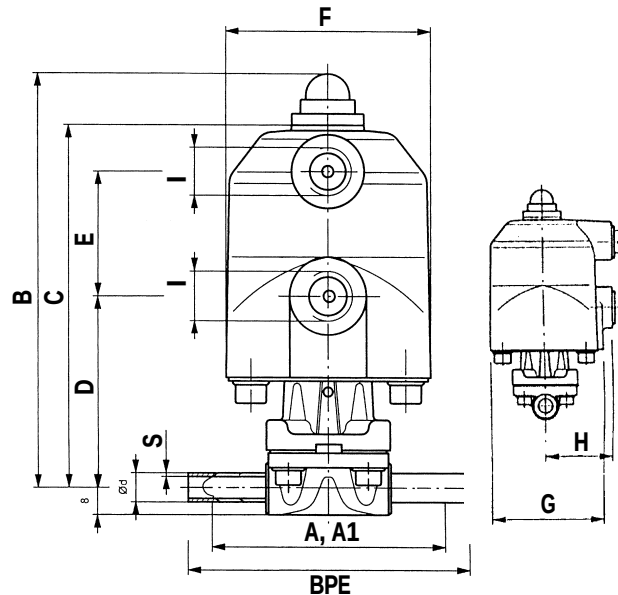
- * Maximum Working Pressure: 120 psi*(190S Actuator)
- * Maximum Working Temperature: 320° F
- * Maximum Working Air Pressure: 100 psi



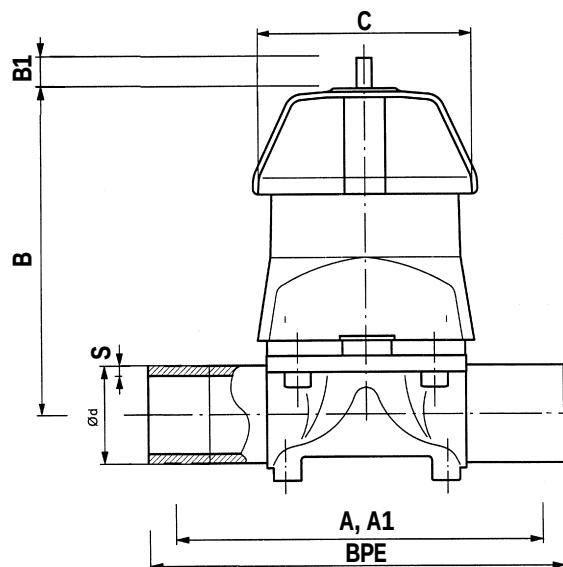
Control pressure in relation to working pressure for

Type 190 normally closed (NC)
Type 191 double acting (DA)
Type 192 normally open (NO)

NC Indication of control-pressure refers to max stroke of valve



	Clamp A	Weld A1	BPE A2	B	C	D	E	F	G	H	S	I	Weight lbs	CV GPM
1/4"	2.50	2.52	4.26	4.49	3.86	2.13	1.34	2.20	2.00	1.38	0.035	0.25	1.01	1.05
3/8"	2.50	2.52	4.26	4.49	3.86	2.13	1.34	2.20	2.00	1.38	0.035	0.25	1.03	2.00
1/2"	2.50	2.52	4.26	4.49	3.86	2.13	1.34	2.20	2.00	1.38	0.065	0.25	1.06	2.60



	Clamp A	Weld A 1	BPE A2	Close B	Open B 1	C	S	Weight lbs	CV GPM
SIZE 1/2"	3.50	4.25	5.20	3.00	3.22	2.20	0.065	1.00	4.05
3/4"	4.00	4.25	5.20	3.00	3.22	2.20	0.065	1.00	5.80

Manual	1/2"
Type 289 Manual	3/4"

Standard Features

- Compact Design
- Forged 316L Stainless Steel Body
- 25 Ra (180 Grit) Interior Mechanical Polish
- Clamp or Buttweld Ends
- IXEF® Thermoplastic Handwheel
- Stainless Steel Visual Position Indicator
- Non-Rising Handwheel
- Encapsulated Diaphragm
- Non-Corrosive Sanitary Internal Components
- Bottom Entry Stainless Steel Bolting
- Stainless Steel Threaded Stud Diaphragms
- One Bonnet and Compressor for All Diaphragms

Options

- Stainless Steel Bonnet and IXEF® Handwheel
- Stainless Steel Bonnet and Stainless Steel Handwheel
- Interior Mechanical Polish to 10 Ra (320 Grit)
- Electro Polished Interior and Exterior
- Variety of End Connections
- Autoclavable
- Sealed Bonnet
- Adjustable Travel Stop

FDA Compliant Diaphragms

- EPDM Grade 18
- PTFE/EPDM One Piece
- TFM/EPDM One Piece

* Maximum Working Pressure: 90 psi

* Maximum Working Temperature: 320° F

1/2"

Automated

3/4"

Type 187(NO)-188(NC)-189 (DA)
Actuated Pneumatic

Standard Features

- Compact Design
- Forged 316L Stainless Steel Body
- 25 Ra (180 Grit) Interior Mechanical Polish
- Clamp or Butt Weld Ends
- IXEF® Thermoplastic Piston Actuator
- Visual Position Indicator with Stem Cover
- Non-Corrosive Sanitary Internal Components
- Encapsulated Diaphragm
- Bottom Entry Stainless Steel Bolting
- Stainless Steel Threaded Stud Diaphragm
- One Actuator and Compressor for All Diaphragms

Options

- Stainless Steel Normally Closed Piston Actuator
- Interior Mechanical Polish to 10 Ra (320 Grit)
- Electro Polished Interior and Exterior
- Variety of End Connections
- Autoclavable
- Adjustable Travel Stop
- Stroke Limiter
- Limit Switches
- Stainless Steel Distance Piece
- Spring Lever Manual Handle

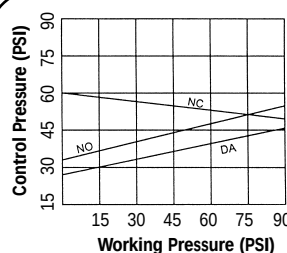
FDA Compliant Diaphragms

- EPDM Grade 18
- PTFE/EPDM One Piece
- TFM/EPDM One Piece

* Maximum Working Pressure: 120 psi* (188S Actuator)

* Maximum Working Temperature: 320° F

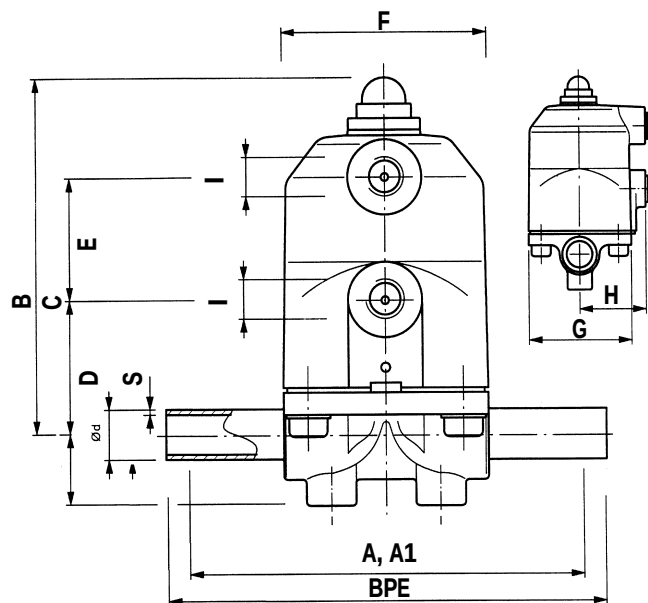
* Maximum Working Air Pressure: 100 psi



Control pressure in relation to working pressure for

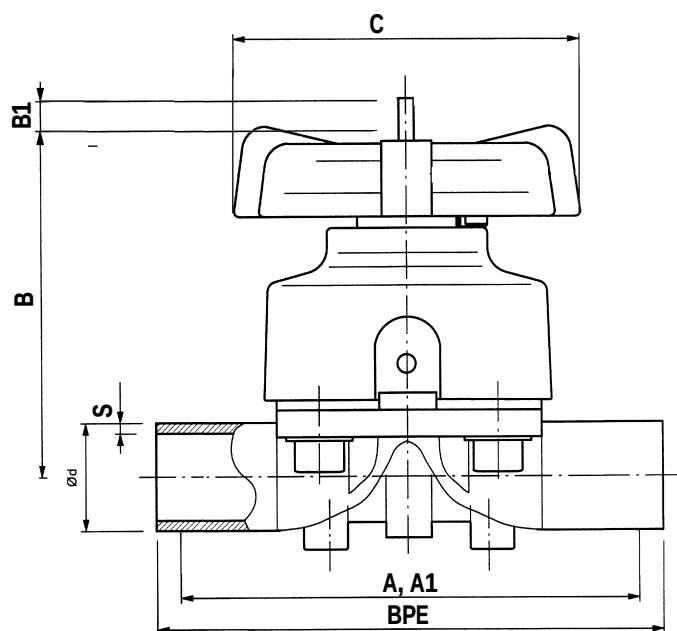
Type 187 normally open (NO)
Type 188 normally closed (NC)
Type 189 double acting (DA)

NC Indication of control-pressure refers to max stroke of valve



		Clamp A	Weld A 1	BPE A 2	B	C	D	E	F	G	H	S	I	Weight lbs	CV GPM
SIZE	1/2"	3.50	4.25	5.20	3.85	2.81	1.48	1.34	2.20	2.00	1.38	0.065	0.25	1.13	4.05
	3/4"	4.00	4.25	5.20	3.85	2.81	1.48	1.34	2.20	2.00	1.38	0.065	0.25	1.17	5.80

Manual 1"
1-1/2"
Type 985 Manual 2"



SIZE	Clamp A	Weld A 1	BPE A2	Close B	Open B1	C	S	Weight lbs	CV GPM
	1"	4.50	4.72	5.68	3.30	3.74	0.065	3.74	13.50
	1-1/2"	5.50	6.02	6.62	4.52	4.96	0.065	7.92	47.00
	2"	6.25	6.81	7.33	5.39	5.83	0.065	13.86	69.00

Standard Features

- Forged 316L Stainless Steel Body
- 25 Ra (180 Grit) Interior Mechanical Polish
- Clamp or Buttweld Ends
- IXEF® Thermoplastic Bonnet
- Stainless Steel Visual Position Indicator
- Non-Rising Handwheel
- Encapsulated Diaphragm
- Non-Corrosive Sanitary Internal Components
- Bottom Entry Stainless Steel Bolting
- Stainless Steel Threaded Stud Diaphragms
- One Bonnet and Compressor for All Diaphragms

Options

- Stainless Steel Bonnet and IXEF® Handwheel
- Stainless Steel Bonnet and Stainless Steel Handwheel
- Interior Mechanical Polish to 10 Ra (320 Grit)
- Electro Polished Interior and Exterior
- Variety of End Connections
- Autoclavable
- Sealed Bonnet
- Adjustable Travel Stop

FDA Compliant Diaphragms

- EPDM Grade 18
- PTFE/EPDM One Piece
- TFM/EPDM One Piece
- PTFE/EPDM Two Piece
- TFM/EPDM Two Piece

- * Maximum Working Pressure: 150 psi
- * Maximum Working Temperature: 350° F

1" 1-2" 2"

Automated

Type 385(NC)-386(DA)-387(NO)
Actuated Pneumatic

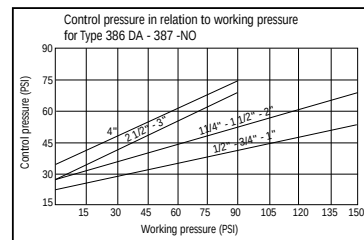
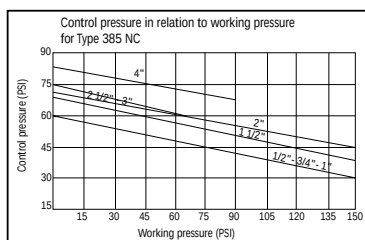
Standard Features

- Forged 316L Stainless Steel Body
- 25 Ra (180 Grit) Interior Mechanical Polish
- Clamp or Butt Weld Ends
- IXEF® and PP Thermoplastic Diaphragm Actuator
- Non-Corrosive Sanitary Internal Components
- Bottom Entry Stainless Steel Bolting
- Encapsulated Diaphragm
- Stainless Steel Threaded Stud Diaphragms
- One Actuator and Compressor for All Diaphragms



Options

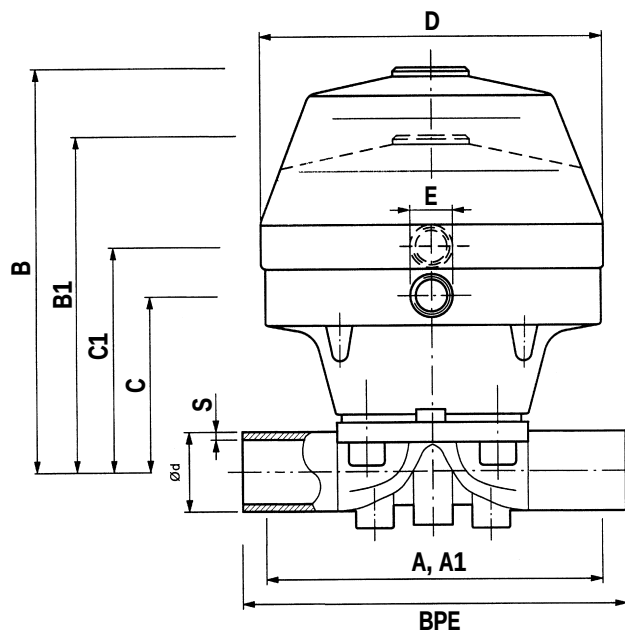
- Stainless Steel Normally Closed Piston Actuator
- Interior Mechanical Polish to 10 Ra (320 Grit)
- Electro Polished Interior and Exterior
- Variety of End Connections
- Visual Position Indicator with Stem Cover
- Autoclavable
- Adjustable Travel Stop
- Stroke Limiter
- Manual Override
- Limit Switches
- Positioner
- Stainless Steel Distance Piece



FDA Compliant Diaphragms

- EPDM Grade 18
- PTFE/EPDM One Piece
- TFM/EPDM One Piece
- PTFE/EPDM Two Piece
- TFM/EPDM Two Piece

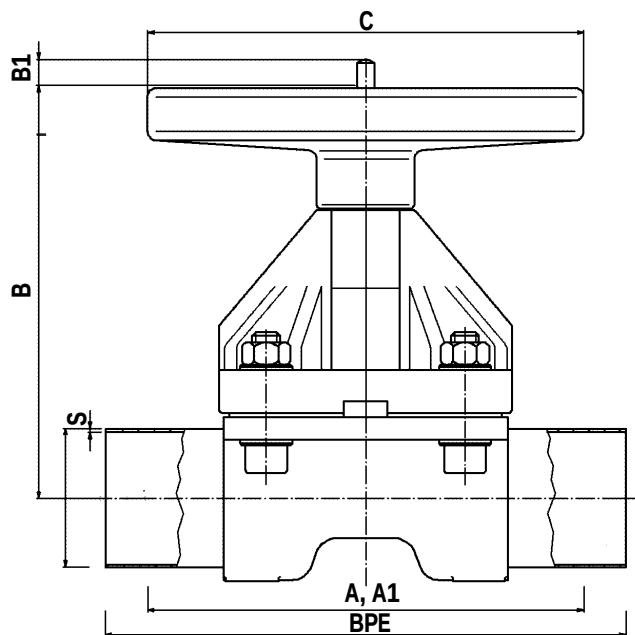
- * Maximum Working Pressure: 150 psi
- * Maximum Working Temperature: 350° F
- * Maximum Working Air Pressure: 90 psi



	Clamp A	Weld A 1	BPE A 2	385 B	386/387 B 1	C	C 1	D	S	E	Weight lbs	CV GPM
1"	4.50	4.72	5.68	5.75	5.26	2.58	4.51	5.12	0.065	0.25	5.06	13.50
1-1/2"	5.50	6.02	6.62	7.83	6.54	3.96	5.57	6.34	0.065	0.25	10.78	47.00
2"	6.25	6.81	7.33	9.65	7.72	4.78	6.28	8.55	0.065	0.25	18.92	69.00

Manual 2-1/2"
3"
4"

Type 985 Manual



SIZE	Clamp A	Weld A 1	BPE A2	Close B	Open B1	C	S	Weight lbs	CV GPM
	2-1/2"*	8.75	6.81	7.33	5.39	5.83	0.065	14.00	79.00
	2-1/2"***	8.75	10.00	9.92	8.81	9.25	0.065	23.00	96.00
	3"	8.75	10.00	9.92	8.81	9.25	0.065	23.00	158.00
	4"	11.50	12.52	13.25	10.52	11.02	0.083	37.00	356.00

* Machined from 2.0" Forged Body

** Machined from 3.0" Forged Body

Standard Features

- Forged 316L Stainless Steel, Investment Cast or Wrought Body
- 25 Ra (180 Grit) Interior Mechanical Polish
- Clamp or Buttweld Ends
- IXEF® Thermoplastic Bonnet
- Stainless Steel Visual Position Indicator
- Non-Rising Handwheel
- Encapsulated Diaphragm
- Non-Corrosive Sanitary Internal Components
- Bottom Entry Stainless Steel Bolting or Studs
- Stainless Steel Threaded Stud Diaphragm
- One Bonnet and Compressor for All Diaphragms

Options

- Stainless Steel Bonnet and IXEF® Handwheel
- Interior Mechanical Polish to 10 Ra (320 Grit)
- Electro Polished Interior and Exterior
- Variety of End Connections
- Sealed Bonnet
- Adjustable Travel Stop

FDA Compliant Diaphragms

- EPDM Grade 18
- PTFE/EPDM Two Piece
- TFM/EPDM One Piece
- TFM/EPDM Two Piece

* Maximum Working Pressure: 150 psi

* Maximum Working Temperature: 320° F

2-1/2"

Automated

3"

Type 385(NC)-386(DA)-387(NO)
Actuated Pneumatic

4"

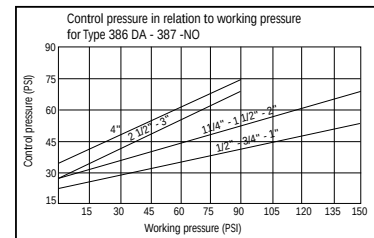
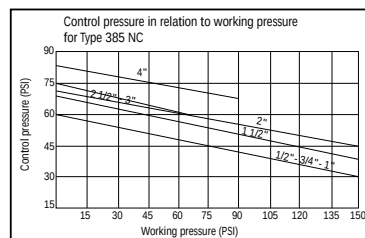
Standard Features

- Forged 316L Stainless Steel, Investment Cast, or Wrought Body
- 25 Ra (180 Grit) Interior Mechanical Polish
- Clamp or Buttweld Ends
- IXEF® and PP Thermoplastic Diaphragm Actuator
- Stainless Steel Distance Piece on 4.0"
- Non-Corrosive Sanitary Internal Components
- Bottom Entry Stainless Steel Bolting or Studs
- Encapsulated Diaphragm
- Stainless Steel Threaded Stud Diaphragms
- One Actuator and Compressor for All Diaphragms



Options

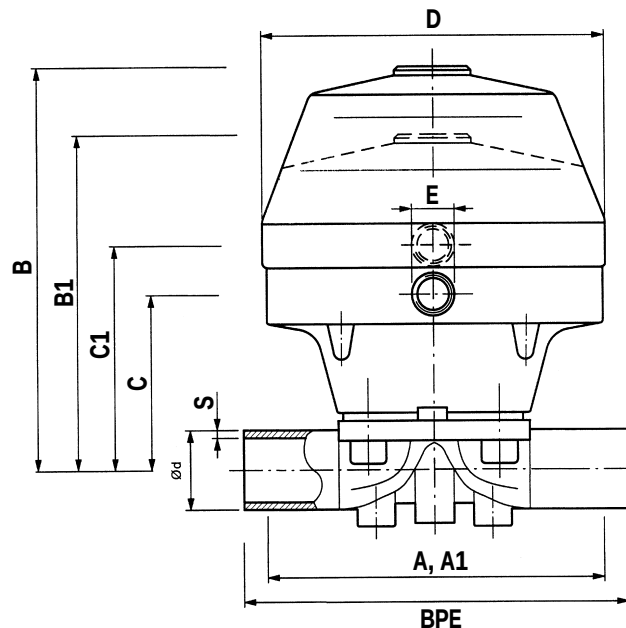
- Interior Mechanical Polish to 10 Ra (320 Grit)
- Electro Polished Interior and Exterior
- Variety of End Connections
- Visual Position Indicator with Stem Cover
- Adjustable Travel Stop
- Stroke Limiter
- Manual Override
- Limit Switches
- Positioner
- Stainless Steel Distance Piece



FDA Compliant Diaphragms

- EPDM Grade 18
- PTFE/EPDM Two Piece
- TFM/EPDM One Piece
- TFM/EPDM Two Piece

- * Maximum Working Pressure: 150 psi* (4.0" 495/496/497 90 psi)
- * Maximum Working Temperature: 320° F
- * Maximum Working Air Pressure: 90 psi

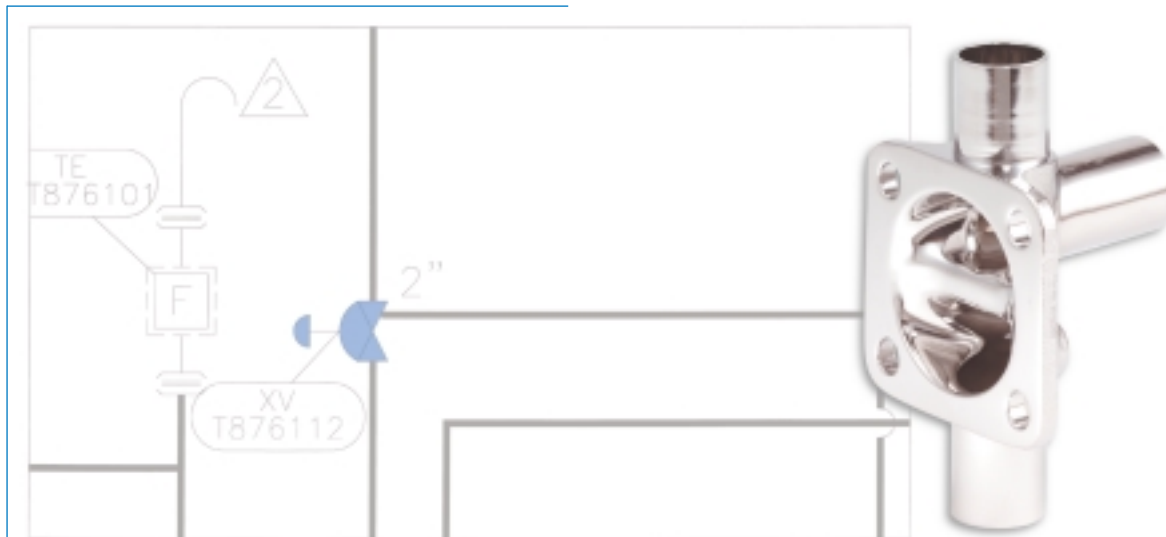


	Clamp A	Weld A 1	BPE A 2	385 B	386/387 B 1	495	496/497	C	C 1	D	S	E	Weight lbs	CV GPM
SIZE 2-1/2"	8.75	6.81	7.33	9.65	7.72			4.78	6.28	8.55	0.065	0.25	19	79.00
2-1/2"	8.75	10.00	9.92	12.51	11.66			6.68	8.26	10.44	0.065	0.25	45	96.00
3"	8.75	10.00	9.92	12.51	11.66			6.68	8.26	10.44	0.065	0.25	45	158.00
4"	11.50	12.52	13.25			15.41	13.78	9.57	7.95	10.44	0.083	0.25	66	356.00

* Machined from 2.0" Forged Body

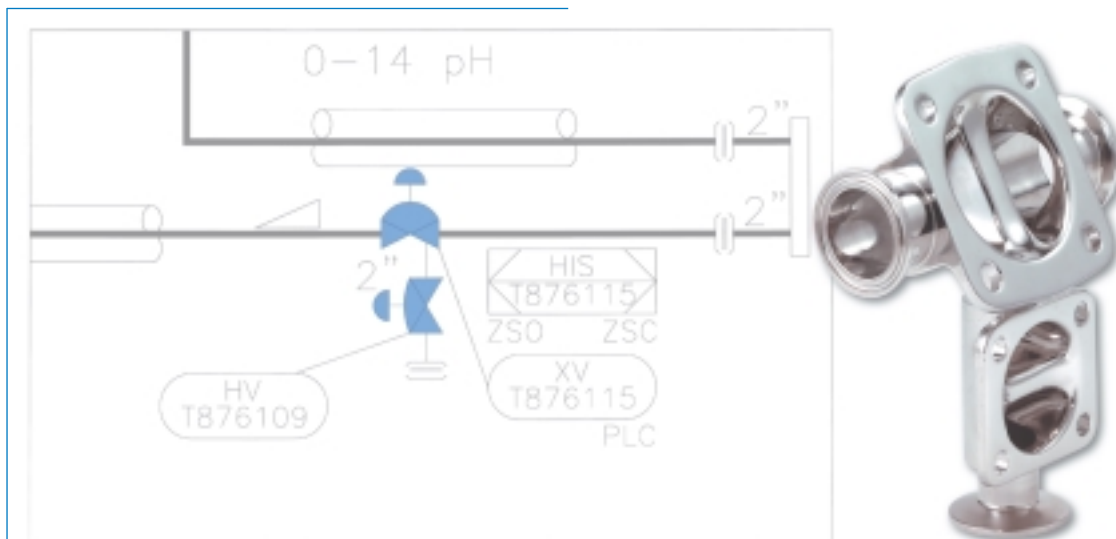
** Machined from 3.0" Forged Body

Zero Dead Leg "L" Pattern



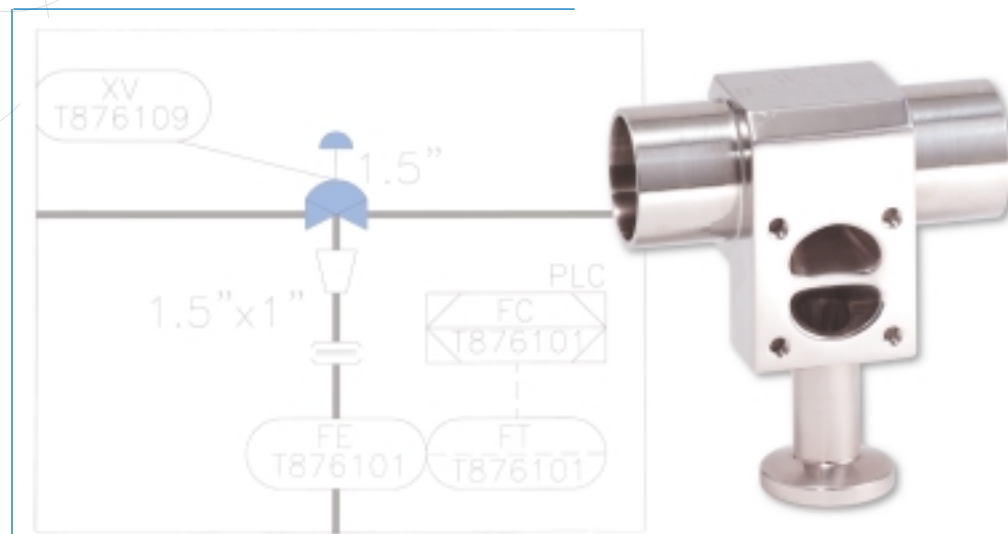
The Zero Dead Leg "L" Pattern Fabrication is utilized in a vertical piping system to eliminate dead legs in point-of-use applications of typical WFI and USP water systems or any other distribution system. This valve design serves as a 90-degree elbow for the piping system. When the valve is opened it provides a sample untainted by bacterial growth or process contamination. The "L" Pattern fabrication is also available in a valve-by-valve configuration. The size range available is .50" to 4.0" main valve size by .50" to 4.0" main tube port or valve port.

Sterile Access



The Sterile Access Fabrication is utilized in a horizontal piping system where the main valve is orientated at the self-draining angle and the access port is at the lowest drainable point of the waterway. The Sterile Access may be used for applications including sampling, steam, condensate, or divert port. The Sterile Access Fabrication is available with either a tube port or a vertical or horizontal valve port. The size range offered is .50" to 4.0" main valve by .50" to 4.0" tube port or valve port.

Zero Static "T" Pattern



The Zero Static "T" Pattern is utilized in a horizontal piping system to minimize dead legs in point-of-use, sampling, draining, or diverting applications of critical process fluids. This configuration is available as a body, tube ends, and outlet port that is machined from a single 316L stainless steel solid block body. In certain sizes the Zero Static "T" Pattern is available with a direct mounted manual or pneumatic actuator without the use of a spool piece. The size range available is .50" to 4.0" main line tube size by .50" to 4.0" main valve size.

Zero Static "U" Bend



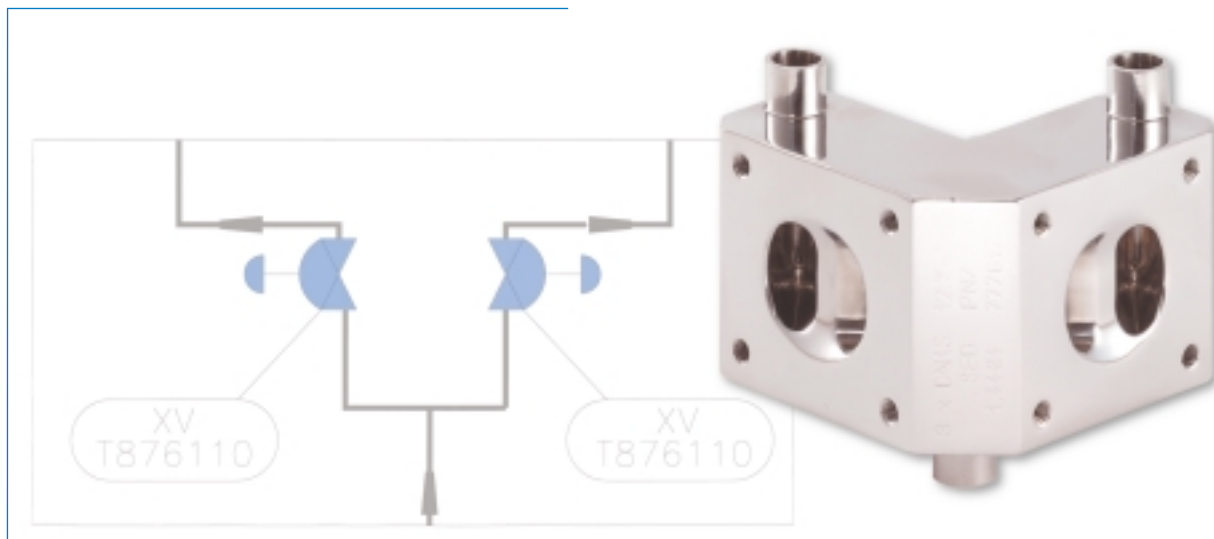
The Zero Static "U" Bend is a modification of the Zero Static "T" Pattern incorporating a "U" bend drop, minimizing dead legs in point-of-use, sampling, draining, or diverting applications of critical process fluids. This configuration is available as a body, tube ends, and outlet port that is machined from a single 316L stainless steel solid block body and welded "U" bend tube end connections. The size range available is .50" to 4.0" "U" bend by .50" to 4.0" main valve size.

Zero Static "U" Bend with Sample Port or Air Bleed Port



The Zero Static "U" Bend with Sample Port or Air Bleed Port offers the features of our standard Zero Static "U" Bend incorporating an integral sample or air bleed valve port machined into the body. The sample port is machined above the point-of-use weir to sample process fluid prior to the point-of-use requirements. The air bleed port is machined below the weir to sterilize the point-of-use outlet piping prior to distribution or to serve as a sterile air bleed port after the point-of-use requirements. This configuration is available as a body, tube ends, point-of-use port, and sample or air bleed port that is machined from a single 316L stainless steel solid block body. The size range available is .50" to 4.0" main line tube with a .50" to 4.0" point-of-use valve and a .50" to 1.0" integral sample port or air bleed port.

Multiport Divert Valves



The SED® Multiport Divert Valves reduce dead legs in typical diverting or mixing process applications. The divert valve is machined out of a single 316L stainless steel solid block body including all ports and butt-welded end connections reducing the number of welds associated with multi-valve divert applications. The Multiport Divert Valves are designed for stringent space requirements by reducing the overall envelope dimensions and reducing contact surfaces and hold up volume thus eliminating the potential for process contamination. Available two-way to six-way, the Multiport Divert Valves may be installed in vertical and or horizontal piping systems and still achieve optimum drainability. All SED® Multiport Divert Valves are available with a complete range of end connections including 90 degrees, straight, or offset outlets. The size range available is .50" to 4.0"

Tank Bottom Diaphragm Valve



The SED® Tank Bottom Diaphragm Valve is designed for applications in the Pharmaceutical and Bio-Processing Industry offering a pocket-free interior surface, eliminating entrapment areas and minimizing flow resistance thus reducing the potential for process contamination. The SED® Tank Bottom Diaphragm Valve incorporates the same features and performance of a standard diaphragm valve utilizing the same valve components for a flush mounted bottom tank valve or side mounted sample tank valve. The tank bottom valve body and outlet butt weld port are machined out of 316L stainless steel solid bar stock. The tank bottom valve is also available with a sample or sterilization port option. Heat numbers and Mill Test Reports are available upon request for the valve body, tube ends, ferrule, weld rod, and fasteners in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division #1, for full traceability and validation requirements. Size range available is .50" to 4.0".

Innovative Custom Fabrications



SED® Innovative Custom Fabrications solve the more demanding process problems and unique process applications in the Pharmaceutical and Bio-Processing Industries. These fabrications include modular valve assemblies, valve clusters, valve manifolds, sterile barriers, and machined block body multiport valves. Our goal is to meet your process needs with our innovative design capabilities. We can accomplish the impossible, it just takes longer.

Diaphragm Selection

SED® offers a variety of diaphragms for a wide range of process applications with service temperatures up to 350° F. Many options are available that conform to both the FDA Code of Federal Regulations Title 21 and USP XXIV Class VI. The unique floating suspension of the diaphragm spindle connection eliminates point loading with our two-piece diaphragms. Elastomer and PTFE diaphragms may be interchanged without changing the diaphragm spindle and compressor.

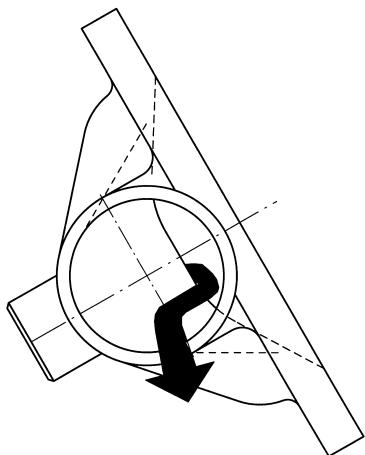


Code	Material	Inches	Temperature °F	Compliance
30	EPDM Grade 18	1/4" - 4.0"	(-)22 to 320	FDA-USP
31	PTFE/EPDM One-Piece	1/4" - 2.0"	(-)22 to 266	FDA
32	PTFE/EPDM Two-Piece	1.0" - 4.0"	(-)22 to 320	FDA
33	TFM/EPDM One-Piece	1/4" - 4.0"	(-)22 to 320	FDA-USP
33	TFM/EPDM Two-Piece	1.0" - 2.0"	(-)22 to 350	FDA-USP

Other Diaphragm Materials Available Upon Request

Self Draining Angles

The inner contours of all the SED® High Purity Diaphragm Valves are cavity-free and self-draining to eliminate process entrapment. It is essential that the valves be installed at a specific angle for optimum drainability. The appropriate self-draining angle is marked with a hash mark on every forged and investment cast two way body.

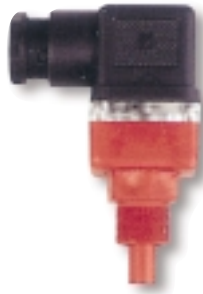


Size Bio-Series	Tube OD	Forging OD Tubing	Investment Cast OD Tubing
1/4"	.35"	30°	22°
3/8"	.35"	26°	22°
1/2"	.35"	22°	22°
Medium Body			
1/2"	.65"	31°	25°
3/4"	.65"	19°	19°
Large Body			
1/2"	.65"	47°	54°
3/4"	.65"	40°	47°
1.0"	.65"	32°	43°
1.5"	.65"	26°	26°
2.0"	.65"	24°	23°
2.5"*	.65"	15°	17°
2.5"**	.65"	28°	NA
3.0"	.65"	22°	24°
4.0"	.83"	20°	23°

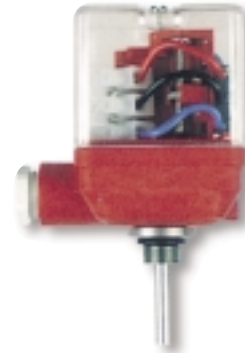
2.5"* machined from a 2.0" body, 2.5"** machined from a 3.0" body



Limit Switch Options



Limit Switch with Single
Mechanical Position
#671



Limit Switch with Two
Mechanical Positions up to 2"
#672

Limit Switch with Two
Proximity Positions up to 2"
#673



Limit Switch with Two Mechanical
Positions 1" to 4"
#674

Limit Switch with Two Proximity
Positions 1" to 4"
#675



Limit Switch with Two
Proximity Positions ASI
#676



Visual Position Indicator
#63



Stroke Limiter
#64



Stroke Limiter with
Visual Position
Indicator
#65



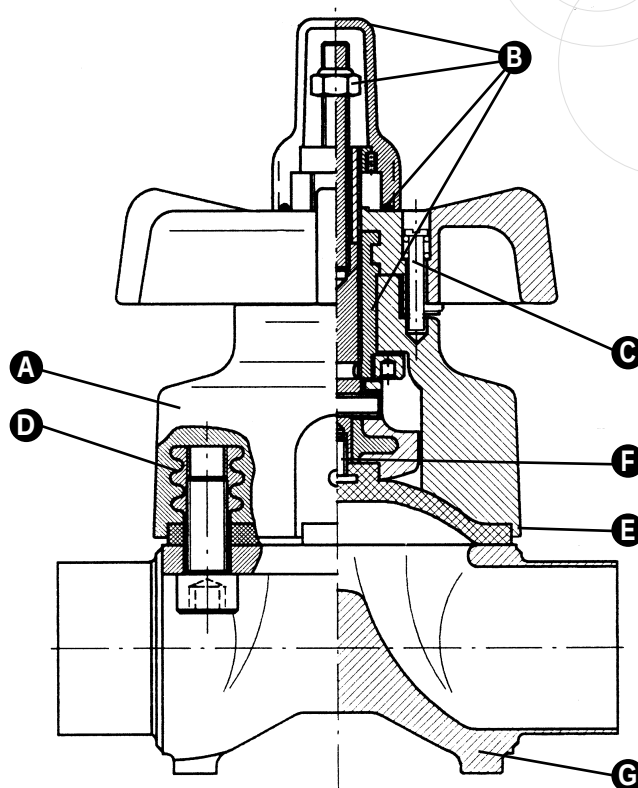
Stroke Limiter with
Visual Position
Indicator and Manual
Override up to 2"
#66



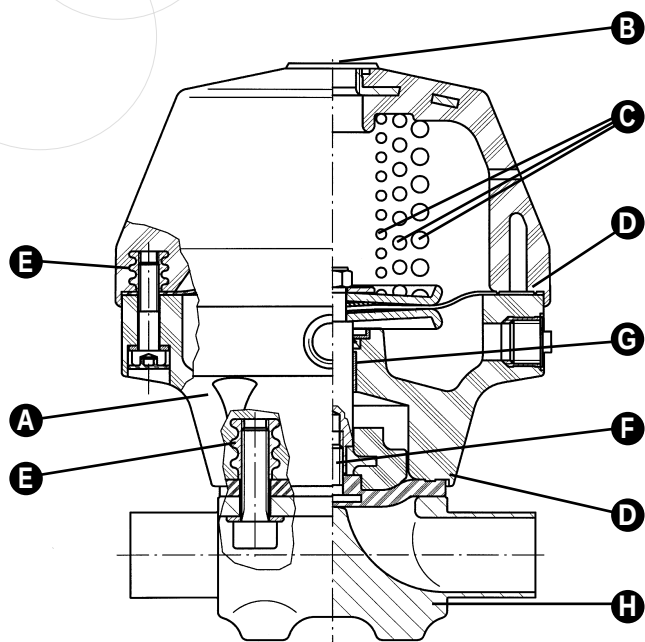
Pneumatic Positioner
(3 to 15 PSI Instrument Air)
#68
Electro-Pneumatic Positioner
(4-20 MA)
#69

Manual Bonnets

- A** IXEF® thermoplastic bonnet and non-rising handwheel with a maximum temperature of 350° F (depending on diaphragm material selection). Optional stainless steel bonnet with an IXEF® handwheel or stainless steel handwheel. Non-corrosive sanitary internal components are standard.
- B** Standard stainless steel visual position indicator with optional adjustable travel stop, protective cap, sealed bonnet, and autoclavable.
- C** Optional adjustable locking device for the handwheel.
- D** Stainless steel molded in fastener nut allows for bottom assembly and eliminates cavities or pockets of wash down fluids.
- E** Partial encapsulation of the valve diaphragm prevents the elastomer from extruding beyond the body bonnet flange.
- F** Floating suspension of the diaphragm spindle connection eliminates point loading with two-piece diaphragms. This compressor assembly allows interchangeability of all diaphragm materials.
- G** Large selection of valve bodies and fabrications.



Actuated Bonnets



- A** IXEF® thermoplastic lower air motor cover and PP glass fiber reinforced thermoplastic upper air motor cover offer a maintenance free diaphragm actuator available with a maximum working temperature of 350° F (depending on the diaphragm material selection). Available in normally closed, double acting, and normally open. Options include a stainless steel distance piece for assembly with block body fabrications. Non-corrosive sanitary internal components are standard.
- B** A large selection of mechanical and electrical accessories that may be fitted at any time.
- C** Plastic coated spring sets have optimum corrosion resistance and reliable spring performance.
- D** Partial encapsulated air motor and valve diaphragm prevents the elastomer from extruding beyond the air motor components and body bonnet flange.
- E** Stainless steel molded in fastener nuts allows for bottom assembly and eliminates cavities or pockets of wash down fluids.
- F** Floating suspension of the diaphragm spindle connection eliminates point loading with two-piece diaphragms. This compressor assembly allows interchangeability of all diaphragm materials.
- G** Highly polished stainless steel spindle guarantees a long lifespan (high cycles) for the actuator.
- H** Large selection of bodies and fabrications.

Stainless Steel Piston Actuator

- Actuator diameter does not exceed the diaphragm dimensions.
- Stainless steel compressor assembly is standard.
- Partial encapsulated valve diaphragm.
- Stainless steel bottom entry bolting.
- Air connection can be rotated 90°.
- Clean smooth exterior finish.
- A large selection of mechanical and electrical accessories available.
- Available in Bio Series to 2.0".

Size					
Size	Fraction	DN	Size	Fraction	DN
.25 Bio Series	1/4	8	1.0	1	25
.38 Bio Series	3/8	10	1.5	1 1/2	32/40
0.5 Bio Series	1/2	15	2.0	2	50
0.5	1/2	15	2.5 (machined from 2.0 forged body)	2 1/2	65
.75	3/4	20	2.5L (machined from 2.0 forged body)	2 1/2	65
0.5L (machined from 1.0)	1/2	15	3.0	3	80
.75L (machined from 1.0)	3/4	20	4.0	4	100

Bonnets - Manual	
290	Bio Series Stainless Steel Bonnet, IXEF® Handwheel, Sanitary Internals
290S	Bio Series Stainless Steel Bonnet/Hdwl, Sanitary Internals, Autoclavable, Travel Stop, Sealed
289	0.5-.75 IXEF® Bonnet and Handwheel, Sanitary Internals
289A	0.5-.75 IXEF® Bonnet and Handwheel, Sanitary Internals, Autoclavable, Travel Stop, Sealed
295	0.5-.75 Stainless Bonnet, IXEF® Handwheel, Sanitary Internals
295A	0.5-.75 Stainless Bonnet, IXEF® Handwheel, Sanitary Internals, Autoclavable, Travel Stop, Sealed
295S	0.5-.75 Stainless Bonnet and Handwheel, Sanitary Internals, Autoclavable, Travel Stop, Sealed
985	1.0-4.0 IXEF® Bonnet and Handwheel, Sanitary Internals
985A	1.0-2.0 IXEF® Bonnet and Handwheel, Sanitary Internals Autoclavable, Travel Stop, Sealed
995	1.0-4.0 Stainless Bonnet, IXEF® Handwheel, Sanitary Internals
995A	1.0-2.0 Stainless Bonnet, IXEF® Handwheel, Sanitary Internals, Autoclavable, Travel Stop, Sealed
995S	1.0-2.0 Stainless Bonnet, Handwheel, Sanitary Internals, Autoclavable, Travel Stop, Sealed
Bonnets - Actuators	
190-	Bio Series Stainless Distance Piece, IXEF® Cover, Normally Closed
191-	Same as above, Double Acting
192-	Same as above, Normally Open
190S-	Bio Series Stainless Piston Actuator, Normally Closed
187-	0.5-.75 IXEF® Cover, Normally Open
188-	0.5-.75 IXEF® Cover, Normally Closed
189-	0.5-.75 IXEF® Cover, Double Acting
188S-	0.5-.75 Stainless Piston Actuator, Normally Closed, for assembly with 2-way Standard Valves

195-	0.5-.75 Stainless Distance Piece, IXEF® Cover, Normally Closed
196-	Same as above, Double Acting
197-	Same as above, Normally Open
195S-	0.5-.75 Stainless Piston Actuator, Normally Closed, for assembly with Block Body or Bar Stock Body
385-	1.0-3.0 IXEF® Cover, Normally Closed
386-	1.0-3.0 IXEF® Cover, Double Acting
387-	1.0-3.0 IXEF® Cover, Normally Open
385S-	1.0-2.0 Stainless Piston Actuator, Normally Closed, for assembly with 2-way Standard Valves
495-	1.0-4.0 Stainless Distance Piece, IXEF® Cover, Normally Closed
496-	1.0-4.0 Same as above, Double Acting
497-	1.0-4.0 Same as above, Normally Open
495S-	1.0-2.0 Stainless Piston Actuator, Normally Closed, for assembly with Block Body or Bar Stock Body

Body Material	
16-	316L Forged Stainless Steel
17-	316L Investment Cast Stainless Steel
18-	316L Stainless Steel Block Body or Bar Stock Body
19-	Special Alloy

End Connections	
20-	Clamp Ends
21-	Buttweld Ends .035 wall - Standard Dimension
22-	Buttweld Ends .049 wall - Standard Dimension
23-	Buttweld Ends .065 wall - Standard Dimension
24-	Buttweld Ends .083 wall - Standard Dimension
25-	Special Ends
26-	Tube End Extensions Meeting ASME BPE 2002
27-	Tube End Extensions (#26) x Clamp End (#20)
28-	Tube End Extensions 1.0" to 3.0"
29-	Tube End Extensions (#28) x Clamp End (#20)

Diaphragm	
30-	EPDM
31-	PTFE/EPDM One-Piece
32-	PTFE/EPDM Two-Piece
33-	TFM®/EPDM Two-Piece 1.0-2.0; One-Piece 0.5, .75, 3.0 & 4.0
34-	Viton
35-	Silicon
36-	Buna-N
37-	PTFE/Viton Bonded One-Piece

Finish (Polish)		
	Grit	Ra
40-	150	35
41-	150	35 Electro Polished
42-	180	25
43-	180	25 Electro Polished
44-	240	20
45-	240	20 Electro Polished
46-	320	10
47-	320	10 Electro Polished
48-	Special	

Options	
00-	Standard Valve No Options
50-	Tank Bottom
51-	Zero Static "T" Pattern
52-	Zero Static "U" Bend
53-	Zero Dead Leg "L" Pattern
54-	Sterile Access
55-	Special
56-	Multiport Divert Valve
57-	Zero Static "U" Bend and Sample Port Above Weir
58-	Zero Static "U" Bend and Air Purge Valve Below Weir
59-	Standard Body x Zero Static Block Body Tee Minimum Distance
61-	Locking Handwheel
62-	Adjustable Travel Stop Manual Bonnet
63-	Visual Position Indicator
64-	Stroke Limiter
65-	Stroke Limiter, Visual Position Indicator
66-	Above with Manual Override up to 2.0
671-	Limit Switch/Single Mechanical Position
672-	Limit Switch/Two Mechanical Positions up to 2.0
673-	Limit Switch/Two Proximity Positions up to 2.0
674-	Limit Switch/Two Mechanical Positions 1.0 to 4.0
675-	Limit Switch/Two Proximity Positions 1.0 to 4.0
676-	Limit Switch/Two Proximity Positions ASI
68-	Pneumatic Positioner (3-15 PSI)*
69-	Electro-Pneumatic Positioner (4-20 MA)*
70-	Solenoid

Example XXX XXXX XX XX XX XX XX XX/XX
 Size Bonnet Body Material Ends Diaphragm Finish Options/Options

* 0.5 and .75 Actuated Valves with Fig. No. 68 & 69 positioners are machined from a 1.0 body and require topworks and components for a 1.0 valve body. Use 0.5L and .75L bodies.

Angle Seat Valves

Sanitary Clamp, Buttweld, NPT, and Flanged Ends.
Size Range 0.5 to 4.0



Industrial & Plastic Diaphragm Valves

Stainless Steel, Cast and Ductile Iron, PFA and PP Lined, PVC, CPVC, PVDF and PP.
Size Range from .375 to 8.0



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