

# SV1, SV2: ASEPTIC 2-WAY DIAPHRAGM VALVE

Standard, Compact, Manual or Pneumatically Actuated

## SPECIFICATIONS AND FEATURES\*

### Available Sizes:

- » Compact Valve: 1/4", 3/8", 1/2" (DN8, DN10, DN15)
- » Standard Valve: 1/2" - 4" (DN15 - DN100)

### Connection Type:

- » All forged 2-way valves have integral tri-clamp or weld end connections - no welding required during manufacture
- » Compact Valve: Tri-clamp, Extended Tube End, standard; optional connections including Hose Barb upon request
- » Standard Valve: Tri-clamp, Extended Tube End

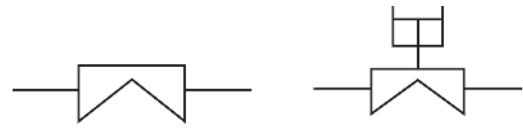
### Materials:

- » Standard: Forged EN 10272:2000 GR 1.4435 316L
- » Optional: Contact factory

### Surface Finish:

- » Wetted Interior:
  - Standard:
    - ASME BPE SF1, 20 Ra  $\mu\text{m}$  (0,5 Ra  $\mu\text{m}$ )
    - ASME BPE SF5, 20 Ra  $\mu\text{m}$  (0,5 Ra  $\mu\text{m}$ ), Electropolish
  - Optional:
    - ASME BPE SF4, 15 Ra  $\mu\text{m}$  (0,4 Ra  $\mu\text{m}$ ) Electropolish. Better finish upon request.
- » Exterior:
  - Standard: 63 Ra  $\mu\text{m}$  (1,6 Ra  $\mu\text{m}$ )

\* See page 6 & 7 for GENERAL FEATURES and GENERAL SPECIFICATIONS regarding features and specifications that apply to all diaphragm valves



## APPLICATIONS

Single Valve Wier Manual on/off or Air Actuated Flow Control of Drug Process Additives, Drug Product and Clean Utilities

- » Upstream:
  - Bioreactor/Fermenter: For control of WFI, growth media, intermediate drug product, clean dry air and gas, clean steam and clean utility fluids
  - Perfused Bioreactors: Retentate or permeate fluid control
- » Downstream:
  - For control of WFI, buffers, solvent, intermediate and finished drug product, clean dry air and gas, clean steam, and clean utility fluids in the following production area
    - Separation
    - Filtration
    - Chromatography
    - Formulation
    - Fill Finish
- » Buffer and Media prep:
  - For control of WFI, buffers, growth media, clean steam and clean utility fluids

## BONNET / ACTUATOR SPECIFICATIONS

### Manual Bonnet Assembly:

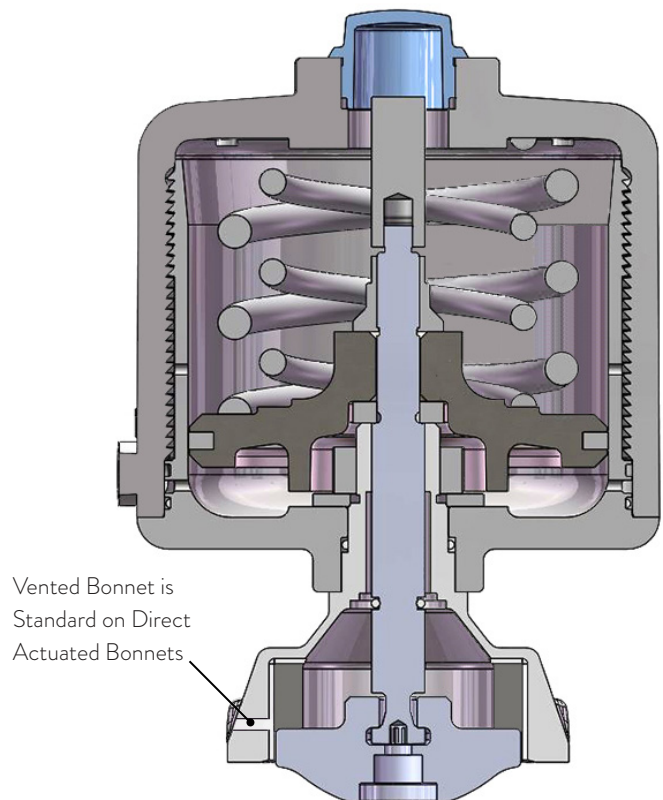
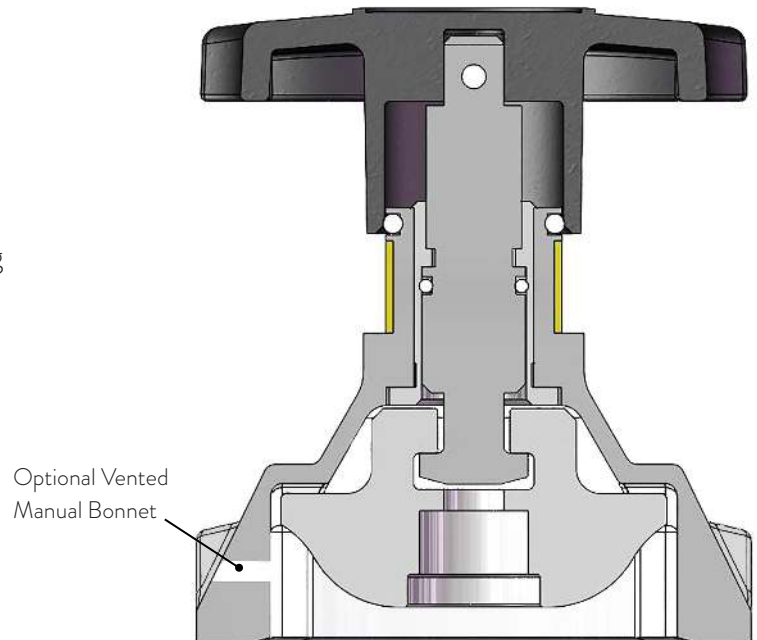
- » Available for sizes: 1/2" - 4" (DN15 - DN100)
- » Closing Stop: adjustable
- » Bright visual position indicator
- » Options: contact factory for proximity switches, locking devices and stroke limiter

### Bonnet Materials

- » Bonnet: electropolished Stainless Steel
- » Compressor: Stainless Steel
- » Insert: brass
- » Thrust Washer: PTFE
- » Compressor Pin: Stainless Steel
- » Indicator: Polyolefin
- » Stem: Stainless Steel
- » Handwheel: PPS (1/4" - 2") (DN8 - DN50); Stainless Steel (2-1/2" - 4") (DN65 - DN100)

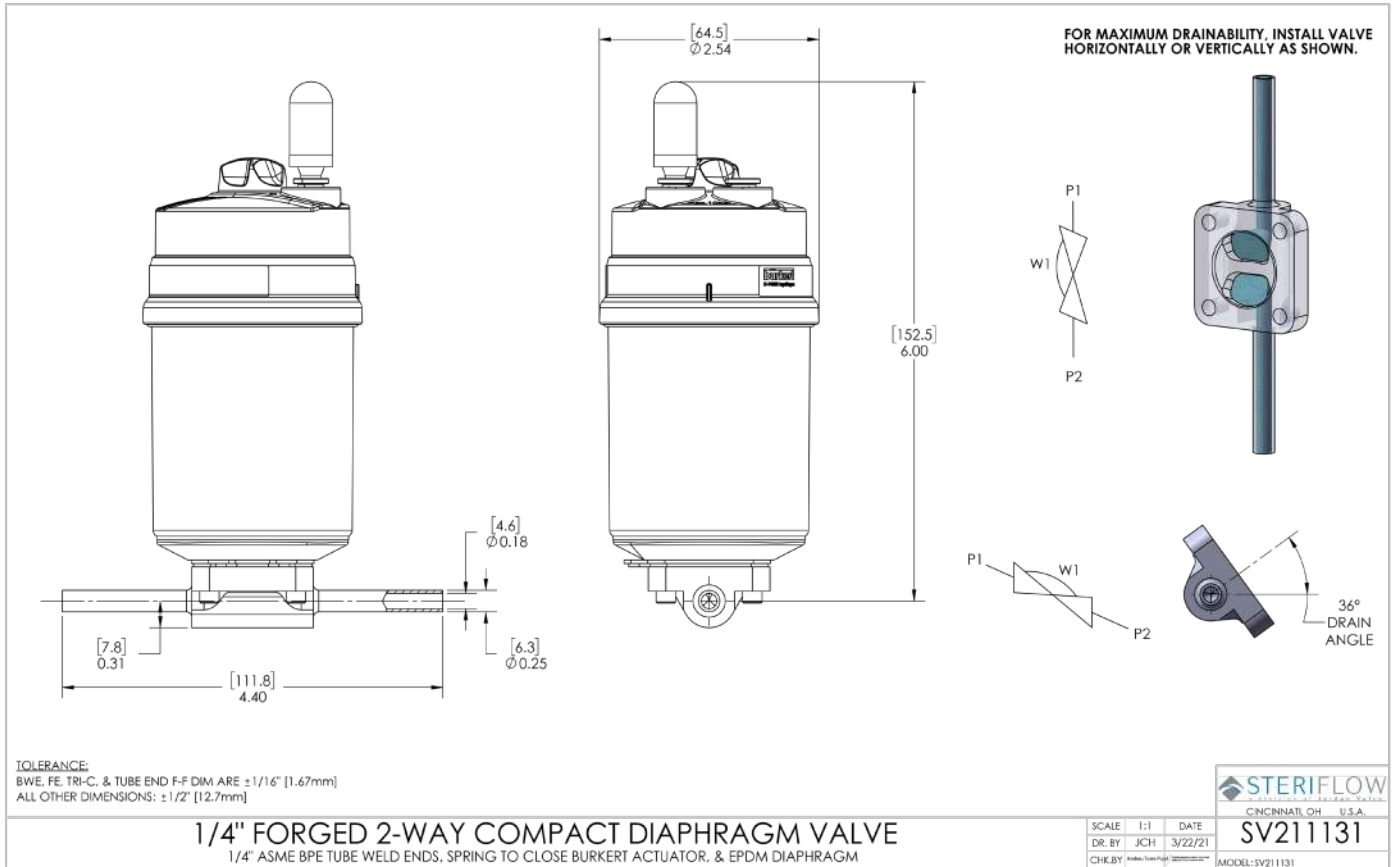
### Air Actuated Bonnets:

- » Available for sizes: 1/2" - 2" (DN15 - DN50) standard
- » Air Actuator Materials: Polyamide, Stainless Steel, Stainless Steel base standard for all configurations
- » Actuator Seal: Actuator springs and seals can be replaced without exposing process
- » Orientation: Swivel feature allows 360° orientation of air inlet
- » Air Connections: NPT Stainless Steel base standard for all configurations
- » Function: Change from Normally Open or Normally Closed by inverting the actuator housing
- » Control System Interface: Available with optional switch packages for on/off control or with positioners for flow control and modulation



# DIMENSIONS

Example drawing of some available configurations

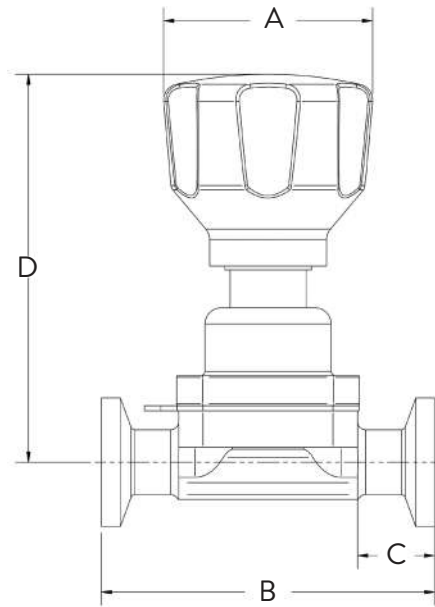


## DIMENSIONS (WITH MANUAL ACTUATOR)

INCHES				
SIZE	A	B	C	D
1/4"	1.609	2.563	0.594	2.989
1/2"	1.609	2.563	0.594	2.989

METRIC				
SIZE	A	B	C	D
DN8	40,87	65,10	15,09	75,9
DN10	40,87	65,10	15,09	75,9

## 1/4" -1/ 2" TRI-CLAMP ENDS



## DIMENSIONS (WITH MANUAL ACTUATOR)

INCHES				
SIZE	A	B	C	D
1/2"	3.0	3.5	13/16	3.61
3/4"	3.0	4.0	27/32	4.00
1"	3.0	4.5	31/32	4.41
1-1/2"	4.75	5.5	15/16	6.72
2"	4.75	6.25	1.0	7.67

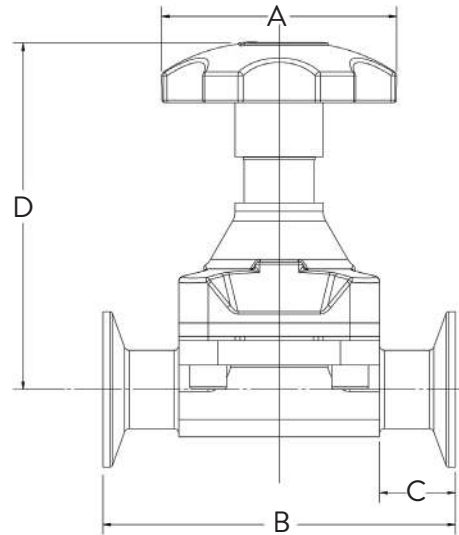
METRIC				
SIZE	A	B	C	D
DN15	76,2	88,9	20,6	91,6
DN20	76,2	101,6	21,4	101,6
DN32	76,2	114,3	24,6	112,0
DN40	120,7	139,7	23,8	170,7
DN50	120,7	158,8	25,4	194,8

INCHES				
SIZE	A	B	C	D
2-1/2"	8.0	8.25	1.0	9.5
3"	8.0	8.75	1.25	10.09
4"	10.0	11.5	1.2	11.44

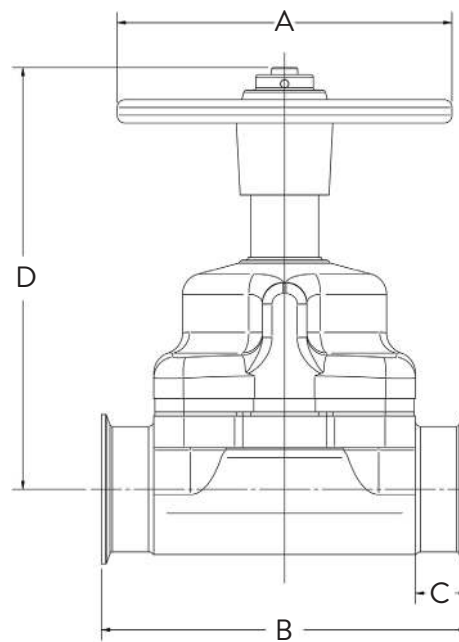
METRIC				
SIZE	A	B	C	D
DN65	203	210	25,4	241
DN80	203	222	31,75	256
DN100	254	292	30,48	291

Please Contact Factory for dimensions of Compact Forged 2-way valves.

### 1/2" - 2" TRI-CLAMP ENDS



### 2-1/2" - 4" TRI-CLAMP ENDS



## DIMENSIONS (WITH MANUAL ACTUATOR)

INCHES				
SIZE	A	B	C	D
1/2"	3.0	4.25	1.1875	3.61
3/4"	3.0	4.625	1.1563	3.98
1"	3.0	5.0	1.2188	4.31
1-1/2"	4.75	6.25	1.3125	6.76
2"	4.75	7.25	1.5	7.61

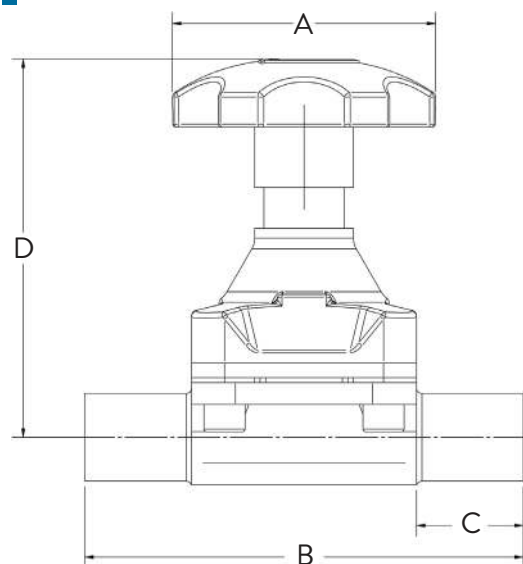
METRIC				
SIZE	A	B	C	D
DN15	76,2	108	30,16	91,6
DN20	76,2	117	29,37	101,1
DN32	76,2	127	30,96	109
DN40	120,7	159	33,34	178
DN50	120,7	184	38,1	193

INCHES				
SIZE	A	B	C	D
2-1/2"	8.0	9.25	1.5	10.09
3"	8.0	10.0	1.875	10.09
4"	10.0	12.5	1.7	11.44

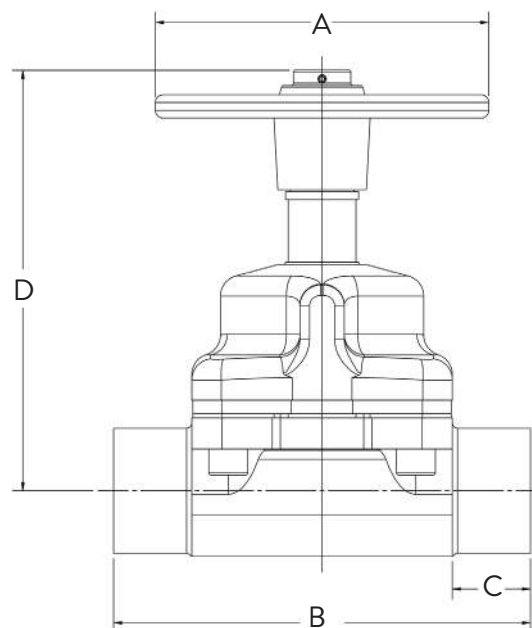
METRIC				
SIZE	A	B	C	D
DN65	203	235	38,1	256
DN80	203	254	47,6	256
DN100	254	318	43,2	290

Please Contact Factory for dimensions of Compact Forged 2-way valves.

### 1/2" - 2" TUBE ENDS



### 2-1/2" - 4" TUBE ENDS

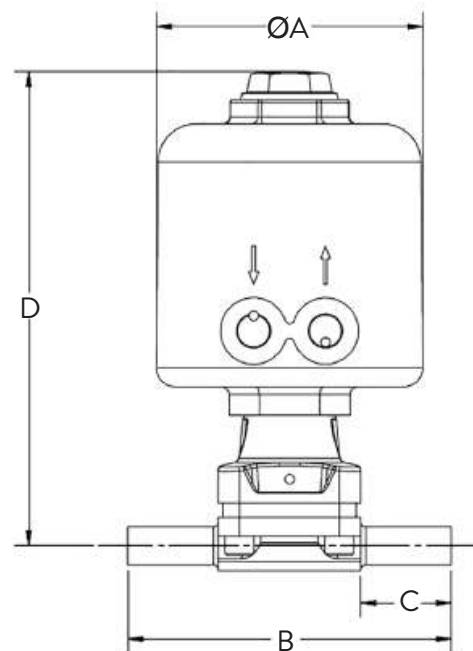


## DIMENSIONS (WITH ECLIPSE PNEUMATIC ACTUATOR)

INCHES				
SIZE	A	B	C	D
1/2"	3.5	4.25	1.1875	6.23
3/4"	4.3	4.625	1.1563	6.84
1"	4.3	5.0	1.2188	7.25
1-1/2"	6.13	6.25	1.3125	9.88
2"	6.13	7.25	1.5	10.83

METRIC				
SIZE	A	B	C	D
DN15	88,9	108	30,16	158,2
DN20	109,22	117	29,37	173,7
DN32	109,2	127	30,96	184,2
DN40	155,7	159	33,34	251
DN50	155,7	184	38,1	275

### 1/2" - 2" TUBE ENDS

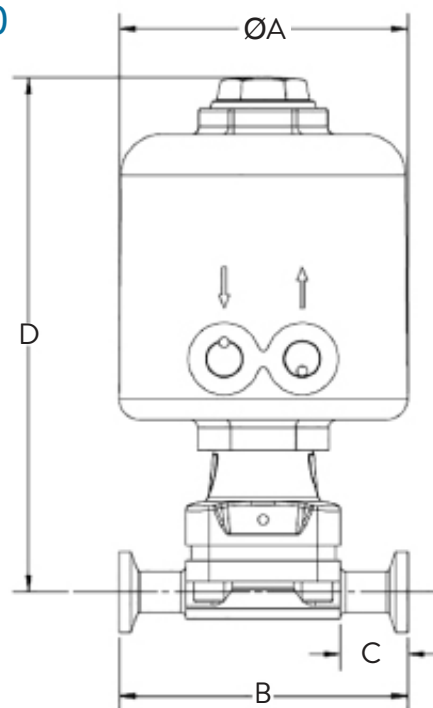


### 1/2" - 2" TRI-CLAMP ENDS

## DIMENSIONS (WITH ECLIPSE PNEUMATIC ACTUATOR)

INCHES				
SIZE	A	B	C	D
1/2"	3.5	3.5	13/16	6.23
3/4"	4.3	4.0	27/32	6.84
1"	4.3	4.5	31/32	7.25
1-1/2"	6.13	5.5	15/16	9.88
2"	6.13	6.25	1.0	10.83

METRIC				
SIZE	A	B	C	D
DN15	88,9	88,9	20,6	158,2
DN20	109,22	101,6	21,4	173,7
DN32	109,2	114,3	24,6	184,2
DN40	155,7	139,7	23,8	251
DN50	155,7	158,8	25,4	275



## ORDERING SCHEMATIC (STANDARD & COMPACT FORGED 2 WAY VALVES)

MODEL	TYPE	SIZE	CONNECTION	FINISH	ACTUATION	DIAPHRAGM	ACCESSORIES	CE/PED COMPLIANCE
SV								

1	TYPE
1	Standard Forged 2-Way
2	Compact Forged 2-Way

2	SIZE
1	1/4" Compact
2	3/8" Compact
3	1/2" Compact
4	1/2"
5	3/4"
6	1"
7	1-1/2"
8	2"
9	2-1/2"
A	3"
B	4"

3	CONNECTION
1	OD Tube
2	Clamp
3	OD Tube x Clamp
Z	Non-standard

4	INTERNAL SURFACE FINISH
1	SF1 20Ra µin
2	SF4 15Ra µin (0,4 Ra µm) EP
3	SF5 20Ra µin (0,5 Ra µm) EP
Z	Non-standard, consult factory

5	ACTUATION
1	Manual
2	Manual Vented
3	2 1/2" - 4", and Compact Actuator, Spring to Close
4	2 1/2" - 4", and Compact Actuator, Spring to Open
5	Eclipse Actuator, Double Acting (1/2" - 2" standard)
6	Eclipse Actuator, Spring to Close (1/2" - 2" standard)
7	Eclipse Actuator, Spring to Open (1/2" - 2" standard)

6	DIAPHRAGM
1	EPDM
2	TFM/EPDM
Z	Non-standard

7	ACCESSORIES
1	Switch 2 Position
2	Positioner 4-20 mA
Z	Non-standard, consult factory

8	CE/PED COMPLIANCE
OG	SEP (0.25" to 1")
OF	CE Category 1 (1-1/2" to 4")



# SANITARY DIAPHRAGM VALVES

Manual or Air Actuated Forged 2-way or Cast 2-way, Ported and Tandem valves. Barstock Zero Static T-Block, Point of Use T-Block, Divert Tank Bottom and Custom Block Body valves

## FEATURES

- » Body & Trim Material: traceable ASME and DIN grade of 316L and Super-Austenitic Stainless Steel and Super Alloys readily available
- » Size Range: 1/4" - 4" (DN8 - DN100)
- » Manual or Air Actuated
- » Surface Finish:
  - Wetted Interior: ASME BBE SF5 20 Ra  $\mu\text{m}$  (0.5 Ra  $\mu\text{m}$ ). Electropolish standard, SF4 and better finish available
  - Exterior: See individual model specifications
- » Diaphragm: All FDA, FDA/USP <88>, <87> Class VI, ADI-TSE Free
  - TFM/EPDM Backer
  - EPDM - Peroxide Cured

## DOCUMENTATION



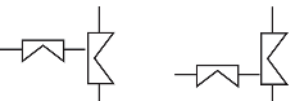
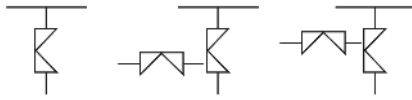
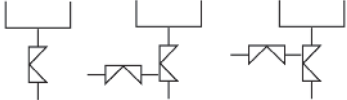
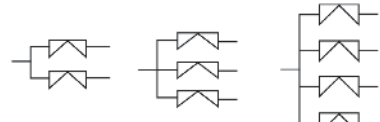

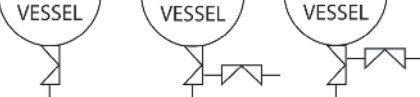
- » Steriflow Unicert; Certificate of Compliance for:
  - Material, including MTR's
  - Surface Finish
  - FDA/USP <88>, <87> Class VI
  - ADI/TSE Free cert available upon request
- » Each Unicert document lists the order's individual valve Serial/Suffix numbers and wetted component Heat numbers. MTR's for each Heat number follow on attached pages. The Serial numbers and Heat numbers are directly traceable to each individual valve
- » Valve Sizing information with quotation
- » Signed valve Leak Test report upon request

## CERTIFICATION

- » CRN No.: 0C22893.5



## VALVE TYPE BY APPLICATION

- » 2 - Ways 
- » Ported 
- » Tandem Access 
- » Zero Static T-Block 
- » Zero Static POU 
- » Divert Block 
- » Custom Blocks 
- » Tank Bottom 

## GENERAL VALVE SPECIFICATIONS\*

Line Size: 1/4" - 4" (DN8 - DN100)

End Connections: ASME BPE, DIN, ISO, Contact Factory

- » Tri-Clamp
- » Tube Weld End

### Body Materials

- » Forgings: EN 10272:2000 GR 1.4435 316L standard
- » Bar Stock: ASME SA479 316L (UNS 31603) standard; EN 10272:2000 GR 1.4435, AL-6XN®, Hastelloy® C-22 and others readily available options

Diaphragm Material/Max Temperature: all diaphragms are FDA, USP <88> Class VI and <87> compliant and ADI-free

- » TFM/EPDM Backer / -14°F to 266°F (-26°C to 130°C) ≤300°F (150°C) at 50 psig (3,45 barg) max during SIP
- » EPDM Peroxide Cured / -14°F to 266°F (-26°C to 130°C) ≤300°F (150°C) at 50 psig (3,45 barg) max during SIP

Surface Finish: see individual valve specifications

Pressure at Maximum Temperature: 50 psig @ 300°F (3,45 barg @ 150°C)

### Maximum Operating Pressure:

- » 1/4" - 1": 200 psi @ 100°F (13,8 bar @ 38°C)
- » 1-1/2" - 2": 175 psi @ 100°F (12,1 bar @ 38°C)
- » 2-1/2" - 4": 150 psi @ 100°F (10,3 bar @ 38°C)

Seat Leakage: ANSI FCI Class VI

## FLOW COEFFICIENT CV (KV)

CONNECTION SIZE	VALVE DESCRIPTION	FLOW COEFFICIENT CV (KV)
1/4" - 1/2"	Compact valve/weir	1.16 (1,0)
1/2"	Any standard forged, barstock or cast body valve with catalog standard weir	5.2 (4,5)
3/4"		8.7 (7,52)
1"		13.9 (12,02)
1-1/2"		34.8 (30,1)
2"		59.7 (51,6)
3"		185 (160)
4"		272 (235)

## BONNET/ACTUATOR SPECIFICATIONS\*

### Manual Bonnet Assembly:

- » Available for valve sizes: 1/2" - 4" (DN15 - DN100)
- » Closing Stop: Adjustable
- » Bright visual position indicator
- » Options: Contact factory for proximity switches, locking devices and stroke limiter

### Bonnet Materials

- » Bonnet: Electropolished Stainless Steel
- » Compressor: Stainless Steel
- » Insert: Brass
- » Thrust Washer: PTFE
- » Compressor Pin: Stainless Steel
- » Indicator: Polyolefin
- » Bushing: Brass
- » Stem: Stainless Steel
- » Handwheel: PPS (1/4" - 2"); Stainless Steel (2-1/2" - 4")

### Air Actuated Bonnets:

- » Available for sizes: 1/2" - 2" (DN15 - DN50) standard; 3" & 4" (DN80 & DN100) optional
- » Air Actuator Materials: Polyamide, Stainless Steel, Stainless Steel base standard for all configurations
- » Actuator Seal: Actuator springs and seals can be replaced without exposing process
- » Orientation: Swivel feature allows 360° orientation of air inlet
- » Air Connections: NPT Stainless Steel base standard for all configurations
- » Function: Change from Normally Open or Normally Closed by inverting the actuator housing
- » Control System Interface: Available with optional switch packages for on/off control or with positioners for flow control and modulation

\* Most valves meet all of these general features and specifications. However, sizes may vary depending upon product selected. See individual product page for specific details about each model.