

The Original Aseptic Seat Valve

ARC-SB Aseptic Valve with Steel Bellows

Application

ARC-SB is an air-operated valve which is available as a shut-off or divert valve for aseptic installations. The special design and selected material ensure that the valve is suited for aseptic operating conditions such as high sterilization temperatures.

Working principle

The valve is operated by means of compressed air and can be supplied with or without spring return. The stainless steel bellows combined with the stem and cover form a unit ensuring a safe sterile sealing towards the atmosphere. Optimum hygienic qualities and immediate leakage indication is achieved by the use of single-walled steel bellows. For heavy duty applications, double-walled steel bellows is optional.

Standard Design

ARC-SB consist of actuator, stem unit with stainless steel bellows and SRC valve bodies. All components are assembled by means of a clamp ring and a stem clip-system.

Materials

Product wetted steel parts: Acid-resistant steel AISI 316L
 Other steel parts: Stainless steel AISI 304
 Finish: £ 32 RA
 Product wetted seals: EPDM rubber
 Other Seals: NBR, EPDM.

Technical data

Pressure range: 0-116 PSI
 Temperature range: 14°F to 284°F
 Maximum sterilization temperature (steam - short time): 302°F - 55 PSI

Note! Vacuum is not recommended in aseptic applications.

Actuator Function

- Air to lower, spring return (NO)
- Air to raise, spring return (NC)
- Air to raise and lower (A/A)



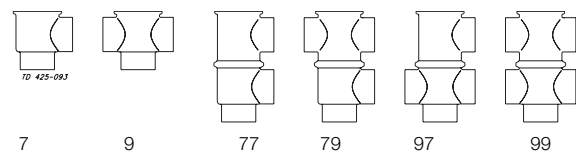
ARC-SB shut-off valve

Expected lifetime of steel bellows under normal conditions: (no pressure shocks or cavitation)

Valve Size	Shut-off Valve activations	Divert Valve activations
1.5-inch	150,000	30,000
2-inch	150,000	30,000
2.5-inch	150,000	30,000

Note! Activating the valve without internal product pressure reduces lifetime of diaphragm unit.

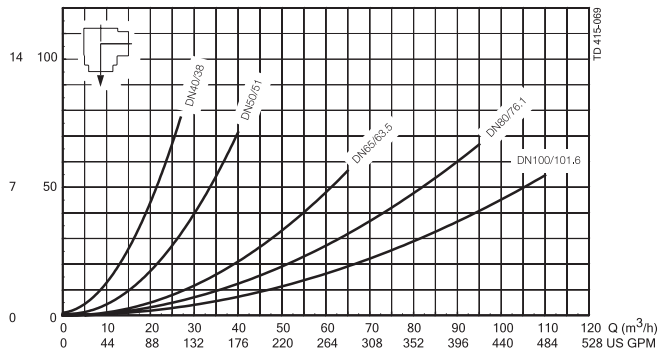
Valve body combinations



Pressure drop/capacity diagrams

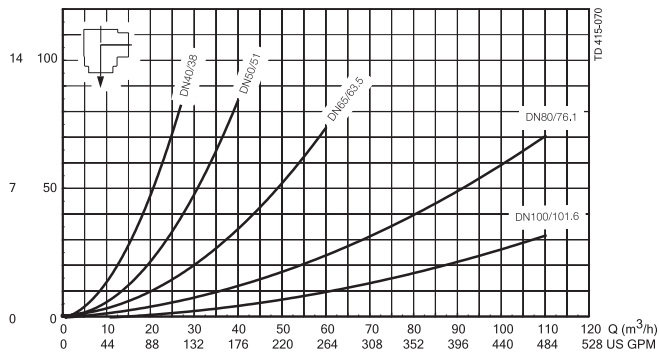
Shut-off Valve 1.5-inch - 2.5-inch

PSI ΔP (kPa)



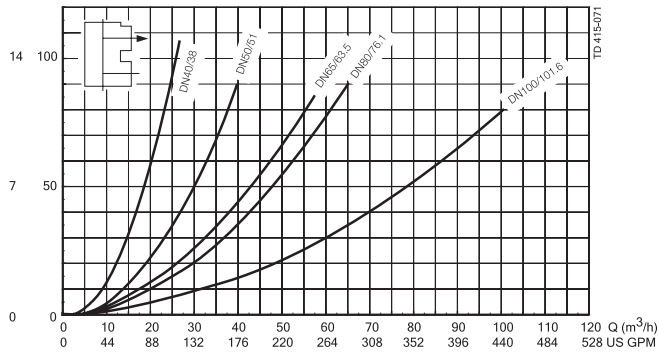
Divert Valve 1.5-inch

PSI ΔP (kPa)



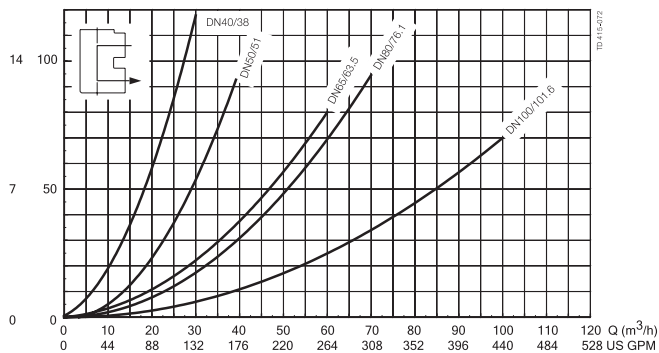
2-inch

PSI ΔP (kPa)



2.5-inch

PSI ΔP (kPa)



NOTE!

For the diagrams the following applies:

Medium: Water (68 °F).

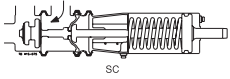
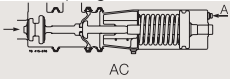
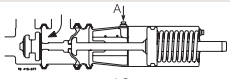
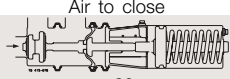
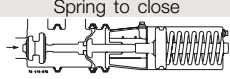
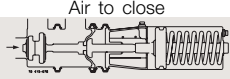
Measurement: In accordance with VDI 2173

Pressure Data for ARC-SB

Actuator type / function

- 10. Air to lower, spring return (NO-lower seat)
- 20. Air to raise, spring return (NC-lower seat)
- 30. Air to raise and lower (A/A)

Table 1: Standard Valves - maximum static pressure in PSI without leakage at the valve seat.

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Actuator type/ function	Valve size			Air consumption (Cubic in. free air) P= air press. in PSI
			1.5-inch	2-inch	2.5-inch	1.5-inch - 2.5-inch
 Spring to close SC		10(NO)	65	65	43	0.84 x Air pressure (PSI)
 Air to close AC	72 87	10(NO)	101 145*	58 79*	43 58*	0.84 x Air pressure (PSI)
 Air to close AC	72 87	20(NC)	65 94*	65 94*	43 58*	0.84 x Air pressure (PSI)
 Spring to close SC		20(NC)	101	58	36	0.84 x Air pressure (PSI)
 Spring to close SC	72 87	30(A/A)	130 145*	130 145*	116	0.84 x Air pressure (PSI)
 Air to close SC	72 87	30(A/A)	145 145*	130 145*	116 101*	0.84 x Air pressure (PSI)

* = Values are valid for air pressure of 87 PSI

->Actual product pressure

Table 2: Standard Valves - Approximate static pressure in bar against which the valve plug can open by means of the spring or air pressure.

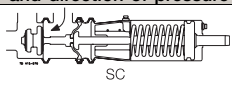
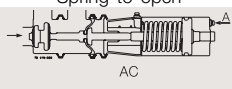
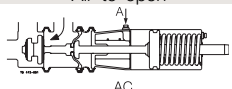

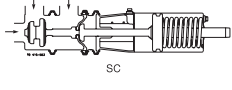
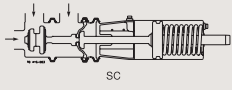
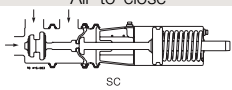

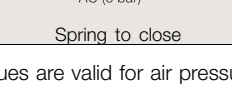
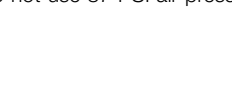
Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Actuator type/ function	Valve size		
			1.5-inch	2-inch	2.5-inch
 SC Spring to open		10(NO)	130	87	58
 AC Air to open	87	10(NO)	108	108	79
 AC Air to open	87	20(NC)	145	108	72
 SC Spring to open		20(NC)	37	101	58

Table 3: Valves with reinforced spring or larger actuator - maximum static pressure in bar without leakage at the valve seat.

Actuator / Valve body combination and direction of pressure	Air pressure (PSI)	Actuator type/ function	Valve size			Larger Actuator Valve Size		
			1.5-inch	2-inch	2.5-inch	1.5-inch	2-inch	2.5-inch
 sc Spring to close		10 (NO)	94	94	58	130	130	87
 sc Air to close	72	10(NO)	29	0	0	145	123	87
 sc Air to close	87		29*	29*	14*	**	**	**
 sc Spring to close	72	20 (NC)	0	0	0	130	130	87
 AC (6 bar) Spring to close	87		29*	29*	14*	**	**	**
 AC (6 bar) Spring to close		20 (NC)	130	79	50	134	130	87

* = Values are valid for air pressure of 87 PSI

** = Do not use 87 PSI air pressure

Dimensions (inches)

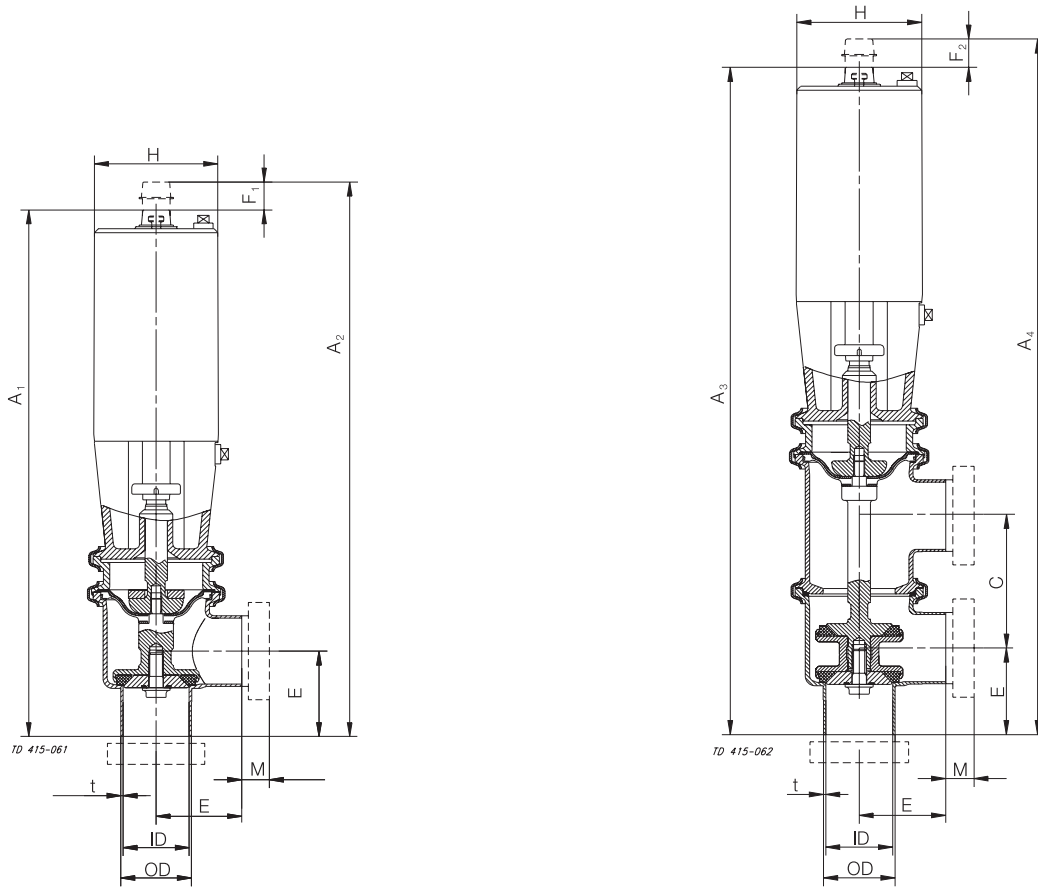
Size	1.5-inch	2-inch	2.5-inch
A ¹	14.6	15.0	15.3
A ²	15.1	15.5	15.8
A ³	16.4	17.7	19.7
A ⁴	17.0	18.4	20.7
C	3.1	3.7	4.4
OD	1.5	2.0	2.5
ID	1.4	1.9	2.4
t	0.1	0.1	0.1
E	2.0	2.4	3.2
F ¹	0.6	0.7	1.0
M/ISO clamp	0.8	0.8	0.8
M/ISO male	0.8	0.8	0.9
M/SMS male	0.8	0.8	0.9
M/BS male	0.9	0.9	0.9
Weight (lbs)			
Shut-off Valve	13.2	14.3	15.4
Divert valve	14.32	15.4	16.5

Caution, opening/closing time:

Opening/closing time will be effected by the following:

- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

Figure 2. Dimensions



a. Shut-off valve

b. Divert valve

Options**Equipment**

- A. Male parts or clamp liners in accordance with required standard
- B. Top unit
- C. Laterally fitted indication unit
- D. Damper against water hammer
- E. Actuator with stronger spring
- F. Larger actuator for valve size 1.5" - 2.5"
- G. Steel bellows with double wall
- H. NOT-element for extra air pressure supply (spring-closed position)
- I. Kit for rebuilding SRC or ARC into ARC-SB

Materials Grades

- Product wetted seals of Nitrile (NBR), Fluorinated rubber (FPM) or PTFE

Tools

- Service tool for actuator
 - Lifting tool
 - Turning tool

Ordering

Please state the following when ordering:

- Connections if not welding ends.
- Size.
- Valve body combination.
- Actuator function NC, NO or A/A.
- Options.