

The Original Seat Valve

SRC Sanitary Remote-Controlled Valve

Application

SRC is an air-operated seat valve in a sanitary and flexible design giving a wide field of application, e.g. as a stop valve with two or three ports or as change-over valve with three to five ports

Working principle

The valve is remote-controlled by means of compressed air. It has few and simple moveable parts which results in a very reliable valve.

Standard Design

SRC consists of actuator, lip seal, plug and valve bodies. All components are assembled by means of clamp rings and a stem clip-system. For sizes DN125 and DN150, the piston and valve plug are screwed together. In order to facilitate installation the valve is only partly assembled when delivered. The valve has welding ends as standard.

SRC, sizes DN125 and DN150 are very heavy. Therefore it is recommended to manufacture and use auxiliary handling equipment. Guidelines are given in IM 70007. The recommended auxiliary equipment cannot be supplied by Alfa Laval.

Actuator function

- Pneumatic downward movement, spring return (NO).
- Pneumatic upward and downward movement (A/A) sizes 25-101.6mm/DN25-100.
- Actuator for intermediate position of the valve plug as option sizes 25-101.6mm/DN25-100.
- Actuator for intermediate position of the valve plug as option sizes 25-101.6mm/DN25-100.

Other valves in the same basic design:

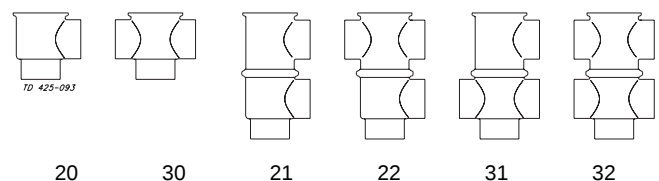
- Aseptic Manual and Remote controlled valve, type ARC/AMO.
- Sanitary Long Stroke valve, type SRC-LS.
- Sanitary Manual valves, type SMO/SMO-R.
- Sanitary Reverse Closing valve, type SRC-RC.

See also PD 60789, PD 65142, PD 65143 and PD66320.



SRC valve with valve body combination 21.

Valve body combinations

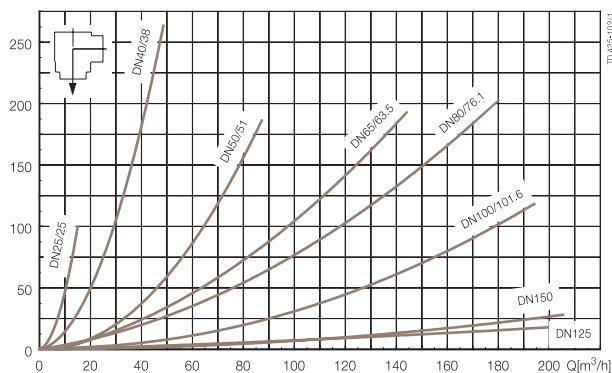


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Pressure drop/capacity diagrams

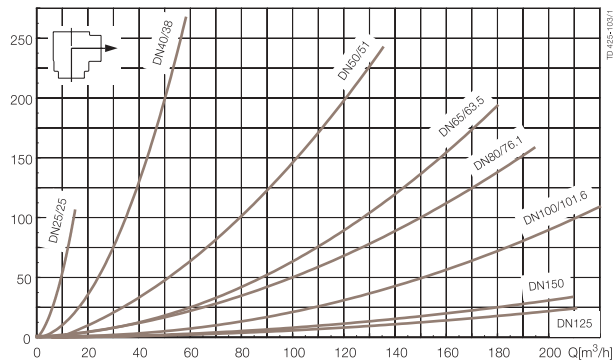
Stop valve

ΔP [kPa]



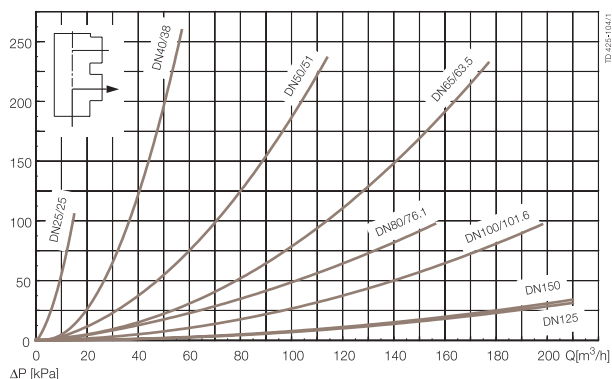
Stop valve

ΔP [kPa]



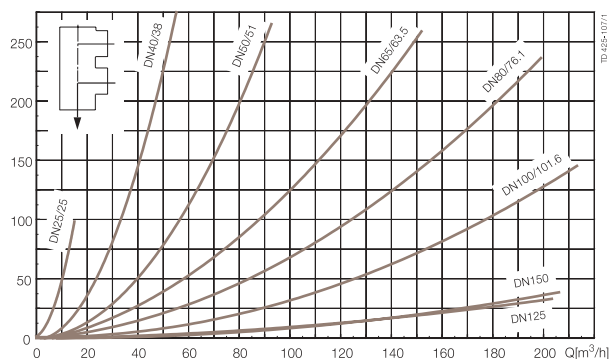
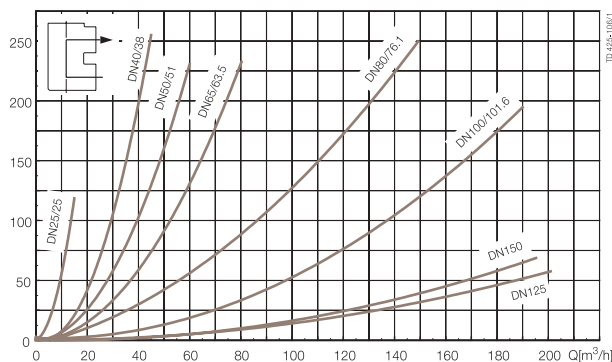
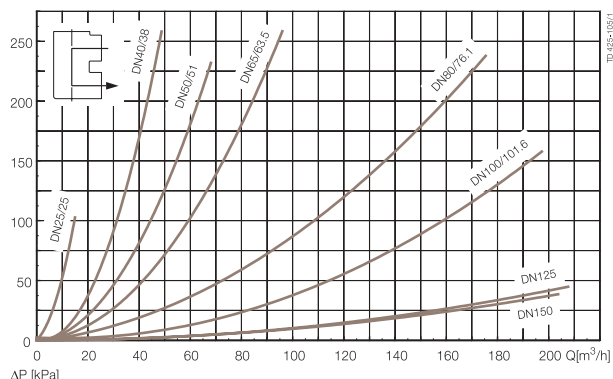
Change-over valve

ΔP [kPa]



Change-over valve

ΔP [kPa]



NOTE!

For the diagrams the following applies:

Medium: Water (20°C).

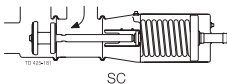
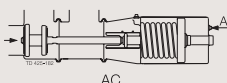
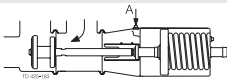
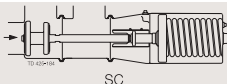
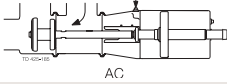
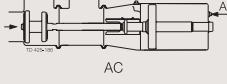
Measurement: In accordance with VDI 2173

Pressure data for SRC

Actuator type / function

- 10. Pneumatic downward movement, spring return (NO-lower seat)
- 20. Pneumatic upward movement, spring return (NC-lower seat)
- 30. Pneumatic upward and downward movement (A/A), (not sizes DN125 and DN150).
- 60. Three-positions (NO-lower seat) (not sizes DN125 and DN150)
- 70. Three-positions (NC-lower seat) (not sizes DN125 and DN150).

Table 1: Stop and change-over valves - Max. pressure without leakage at the valve seat

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Actuator type/ function	Valve Size								
			Type	DN25 25 mm	DN40 38 mm	DN50 51mm	DN65 63.5mm	76.1mm	DN80	DN100 101,6 mm	DN 125- 150
 SC		10(NO)		9.5	4.5	4.5	3.0	5.0	5.0	3.5	5.2
		60(NO)		9.5	4.5	4.5	3.0	5.0	5.0	3.5	5.2
 AC	5	10(NO)	ISO	Min.10	7.0	4.0	3.0	4.0	3.2	2.5	8.7
	5	10(NO)	DIN	Min.10	6.0	3.6	3.0	4.0	3.2	2.5	8.7
	6	10(NO)	ISO	Min.10	10.0	5.5	4.0	6.0	4.8	4.0	4.4
	6	10(NO)	DIN	Min.10	8.5	5.0	4.0	6.0	4.8	4.0	4.4
 AC	5	20(NC)		9.5	4.5	4.5	3.0	4.5	4.5	2.5	8.1*
	6	70(NC)		Min.10	6.5	6.5	4.0	7.0	7.0	4.0	3.7
 SC		20(NC)	ISO	Min.10	7.0	4.0	2.5	5.0	4.0	3.5	5.2
		70(NC)	DIN	Min.10	6.0	3.6	2.5	5.0	4.0	3.5	5.2
 AC	5	30(A/A)		Min.10	9.0	9.0	8.0	Min.10	Min.10	7.5	
	6	30(A/A)		Min.10	Min.10	Min.10	9.0	Min.10	Min.10	9.0	
 AC	5	30(A/A)	ISO	Min.10	10.0	9.0	6.0	Min.10	8.0	7.5	
	5	30(A/A)	DIN	Min.10	8.5	8.2	6.0	Min.10	8.0	7.5	
	6	30(A/A)	ISO	Min.10	Min.10	Min.10	7.0	Min.10	9.4	9.0	
	6	30(A/A)	DIN	Min.10	9.1	8.5	7.0	10	9.4	9.0	

AC = Air closes

SC = Spring closes

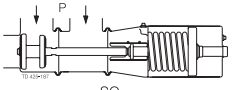
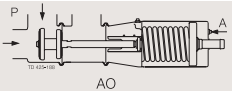
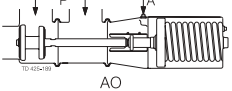
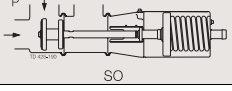
A = Air

* = Values are valid for 8 bar air pressure

← = Actual product pressure

Pressure data for SRC

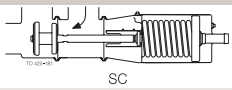
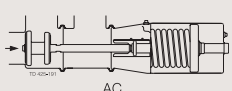
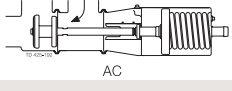
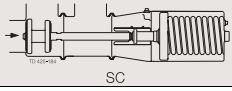
Table 2: Stop and change-over valves. The table shows the approx. static pressure (P) in bar against which the valve can open.

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Actuator type/ function	Type	Valve size							
				DN25 25 mm	DN40 38 mm	DN50 51mm	DN65 63.5mm	76.1mm	DN80	DN100 101.6 mm	DN 125-150
 SO		10(NO)	ISO	Min.10	9.0	6.0	4.0	7.5	6.5	5.0	8.8
		60(NO)	DIN	Min.10	7.7	5.5	4.0	7.5	6.5	5.0	8.8
 AO	6	10(NO)		Min.10	7.5	7.5	5.5	9.0	7.5	6.0	8.1
	6	60(NO)		Min.10	7.5	7.5	5.5	9.0	7.5	6.0	min. 10**
 AO	6	20(NC)	ISO	Min.10	10.0	7.5	5.0	9.0	7.5	6.0	7.8
	6	70(NC)	DIN	Min.10	8.5	6.8	5.0	9.0	7.5	6.0	7.8
 SO		20(NC)		Min.10	6.0	6.0	5.0	7.5	6.5	5.0	8.9
		70(NC)		Min.10	6.0	6.0	5.0	7.5	6.5	5.0	8.9

AO = Air opens

SO = Spring opens

Table 3: Stop and change-over valves with extra strong springs or special cylinder (not for sizes DN125-150) - Max. pressure without leakage at the valve seat

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Actuator type/ function	Type	Extra strong spring Valve size in DN								Spec. actuator (dia. 133 mm) Valve size in DN		
				DN40 38 mm	DN50 51mm	DN65 63.5mm	76.1mm	DN80	DN100 101.6 mm	40 38 mm	50 51 mm	65 63.5 mm		
 SC		10(NO)		6.5	6.5	4.0	7.0	7.0	4.5	9.0	9.0	6.0		
		60(NO)												
 AC	5	10(NO)	ISO	2.0	0.0	0.0	0.0	0.0	0.0	10.0	8.5	6.0		
	5	10(NO)	DIN	1.7	0.0	0.0	0.0	0.0	0.0	8.5	7.7	6.0		
	6	60(NO)	ISO	2.0	2.0	1.0	1.0	1.0	1.0	*	*	*		
	6	60(NO)	DIN	1.7	1.8	1.0	1.0	1.0	1.0	*	*	*		
 AC	5	20(NC)		0.0	0.0	0.0	0.0	0.0	0.0	9.0	9.0	6.0		
	6	70(NC)		2.0	2.0	1.0	1.0	1.0	1.0	*	*	*		
 SC		20(NC)	ISO	9.0	5.5	3.5	7.0	5.0	4.5	10.0	9.0	6.0		
		70(NC)	DIN	7.7	5.0	3.5	7.0	5.0	4.5	8.5	8.2	6.0		

AC = Air closes

SC = Spring closes

A = Air

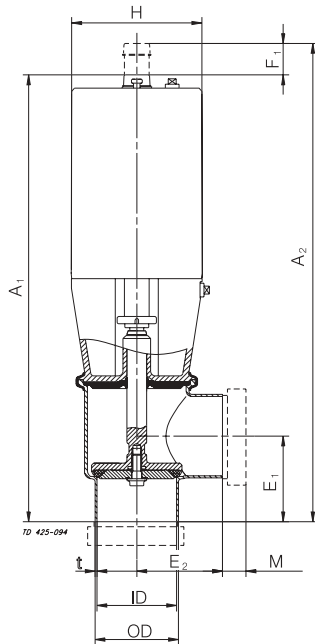
P = Product

**= Values are valid for air pressure of 8 bar.

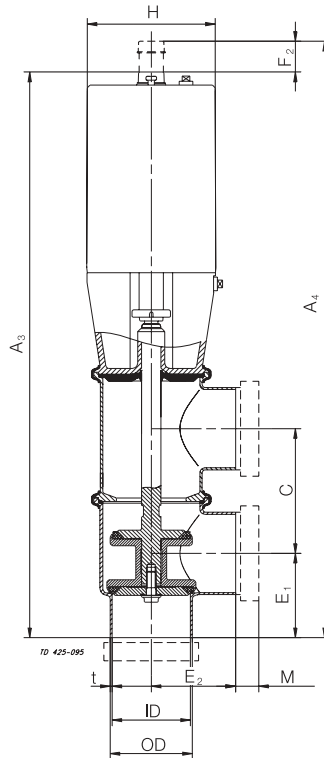
* = Do not exceed 5 bar air pressure.

Dimensions (mm)

Nominal size	Inch DN/OD						DIN DN									
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100	125		150	
													NC	NO	NC	NO
A ¹	311	345	355	389	455	527	311	343	354	386	456	526	571	573	584	586
A ²	332	370	380	414	487	559	332	368	379	411	488	558	614	618	627	631
A ³	365	416	449	500	584	677	365	414	448	497	585	676	740	737	777	775
A ⁴	387	441	474	525	616	709	387	439	473	522	617	708	781	778	818	816
C	55.6	79	94	113	129	163	55.6	79	94	113	129	160	167	167	192	192
OD	25.2	38.1	50.8	63.5	76.1	101.6	29	41	53	70	85	104	129	129	154	154
ID	22.2	34.9	47.6	60.3	72.1	97.6	26	38	50	66	81	100	125	125	150	150
t	1.5	1.6	1.6	1.6	2.0	2.0	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
E ¹	30.1	49.5	62	82	87	134	32	49.5	62	82	87	134	150	150	150	150
E ²	57	49.5	62	82	87	134	57	49.5	62	82	87	134	150	150	150	150
F ¹	21	25	25	25	32	32	21	25	25	25	32	32	43	45	43	45
F ²	20	25	25	25	32	32	20	25	25	25	32	32	41	41	41	41
H	87	87	87	87	133	133	87	87	87	87	133	133	199	199	199	199
M/ISO clamp	21	21	21	21	21	21										
M/DIN clamp							21	21	21	21	21	21				
M/ISO male	21	21	21	21	21	21										
M/DIN male							22	22	23	25	25	30	46	46	50	50
M/SMS male	20	20	20	24	24	35										
M/BS male	22	22	22	22	22	27										
Weight (kg)																
Stop valve:	5.0	4.9	5.0	5.4	12.4	13.0	5.0	4.9	5.0	5.4	12.4	13.0	40.3	40.3	40.9	40.9
Change-over valve:	5.8	5.9	6.1	6.8	14.6	15.9	5.8	5.9	6.1	6.8	14.6	15.9	50	50	51.3	51.3



a. Stop valve.



b. Change-over valve.

Fig 2. Dimensions.

Caution, opening/closing time:

Opening/closing time will be affected 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.

Air Connections Compressed air:

R 1/8" (BSP), internal thread.

Technical data

Max. product pressure:1000 kPa (10 bar).
 Min. product pressure:Full vacuum.
 Temperature range, standard lip seal:-10°C to +100°C (EPDM)
 Temperature range, special lip seal:-10°C to +140°C (EPDM)

Air pressure, actuator

- Sizes 25-101.6mm /DN25-100500 to 700 kPa (5 to 7 bar)
 - Sizes DN125-150600 to 800 kPa (6 to 8 bar)

Air consumption (litres free air) for one stroke				
Size	25-63.5 mm DN 25-65	76-101.6 mm DN 80-100	DN 125-150	DN 125-150
Stop valve/ Change-over valve	0.2 x Air pressure (bar)	0.7 x Air pressure (bar)	1.5 x Air pressure (bar)	2.2 x Air pressure (bar)
Actuator function	NO and NC	NO and NC	NC	NO
Stop valve/ Change-over valve	0.4 x Air pressure (bar)	1.3 x Air pressure (bar)	3.6 x Air pressure (bar)	2.9 x Air pressure (bar)
Actuator function	A/A	A/A	NC (Support air for closing)	NO (Support air for opening)

Materials

Product wetted steel parts:Acid-resistant steel 1.4401 (316L).
 Finish:Semi bright.
 Other steel parts:Stainless steel 1.4301 (304).
 Plug stem

- Sizes 25-101.6 mm/DN25-1001.4401 (316L) with hard chrome plated stem surface
 - Sizes DN125-1501.4401 (316L)
 Product wetted sealsEPDM (standard)
 Other sealsNitrile (NBR)
 Alternative product wetted sealsNitrile (NBR) and Fluorinated rubber (FPM), PTFE/FEP

Options

- A. Male parts or clamp ends in accordance with required standard.
- B. Control and Indication (see chapter in Product Catalogue).
- C. Damper against water hammer applicable for sizes 25 - 101.6 mm/DN25 - 100.
- D. Actuator with stronger spring applicable for sizes 38 - 101.6 mm/DN40 - 100 .
- E. Larger actuator for valve sizes 38-51mm, DN 40-65.
- F. Stainless steel seal disc replacing standard lip seal.
- G. Two-step or three-position actuator applicable for sizes 25 - 101.6 mm/DN25 - 100
- H. Tangential side port valve.
- I. Surface roughness, product wetted parts: Ra 0.8 µm.
- J. Product wetted seals of Nitrile (NBR), Fluorinated rubber (FPM) or PTFE.
- K. Service tools for actuator.

Ordering

Please state the following when ordering:

- Size.
- Connections if not welding ends.
- Valve body combination.
- Actuator function, NC, NO or A/A, A/A for sizes 25 - 101,6 mm/DN25 - 100.
- Options.

Note!

For further details, see also PD 65036, PD 65152 and instruction IM 70007.

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The Original Aseptic Seat Valve

ARC Aseptic Remote-Controlled Valve with PTFE Diaphragm

Application

ARC is an air-operated aseptic seat valve with PTFE diaphragm. It is available as a shut-off or divert valve. The valve is suited for aseptic operating conditions such as high sterilization temperatures. ARC is characterized by excellent cleanability.

Working principle

ARC is operated by means of compressed air and can be supplied with or without spring return. Sterile stem sealing towards the atmosphere is ensured by a special designed PTFE/rubber diaphragm unit. The PTFE diaphragm does not allow stem travel outside the product zone.

Standard Design

ARC is based on the SRC valve design. It consists of actuator, valve bonnet, stem with diaphragm unit and valve bodies. The divert version is a two-body design. The valve is assembled by means of clamps and a stem clip system for easy maintenance.

Actuator function

- Pneumatic downward movement, spring return (NO).
- Pneumatic upward movement, spring return (NC).
- Pneumatic upward and downward movement (A/A).

Other valves in the same basic design

Sanitary Remote-Controlled valve, type SRC.
Sanitary Long-Stroke valve, type SRC-LS.
Sanitary Manual valve, type SMO.
Aseptic Remote-Controlled Valve with steel bellows, type ARC-SB.

Expected lifetime of diaphragm unit under normal conditions (no pressure shocks or cativation)

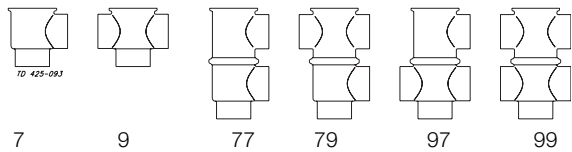
Size/Type	Shut-off valve activations	Divert valve activations
1½	25,000	10,000
2	25,000	10,000
2½	25,000	5,000
3	5,000	5,000
4	5,000	5,000

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



ARC with valve body combination 7
ARC diaphragm stem seal.

Valve body combinations

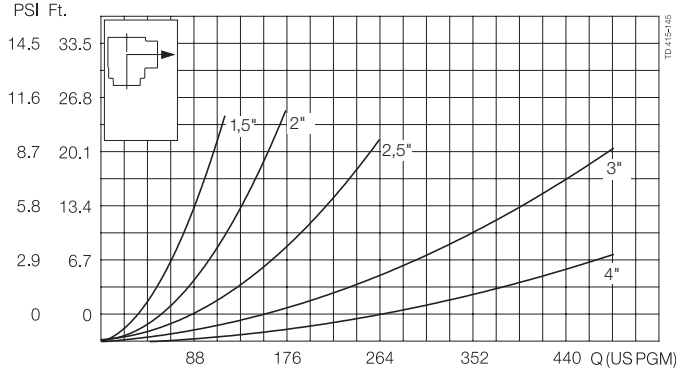
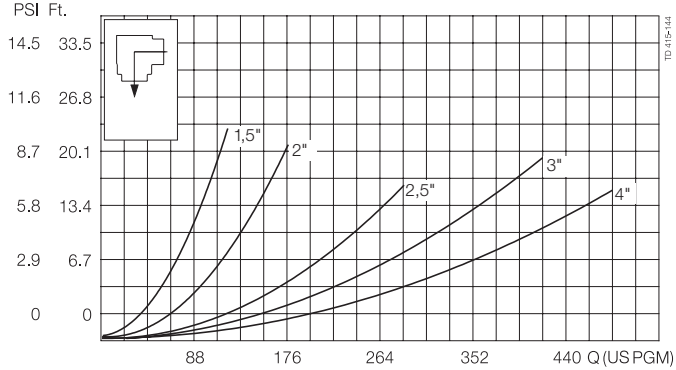


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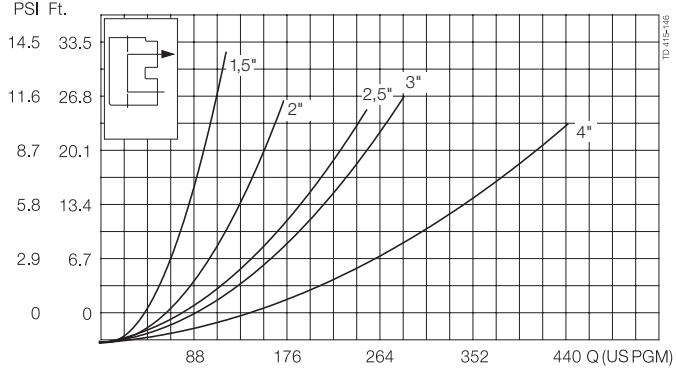
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Pressure drop/capacity diagrams

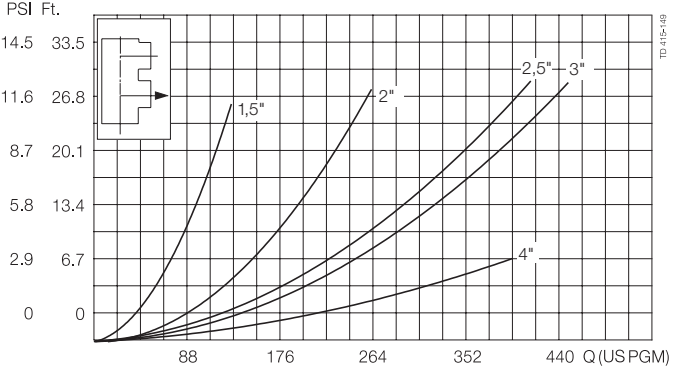
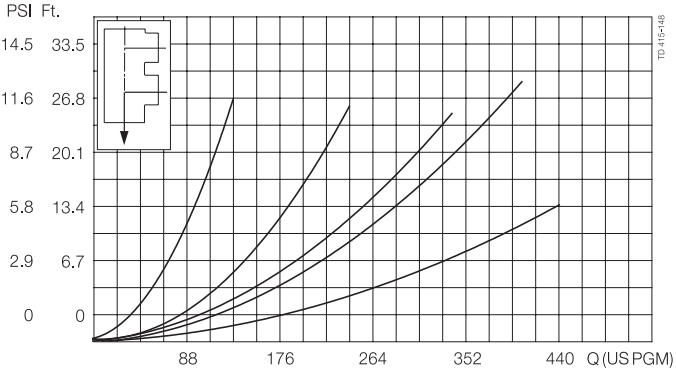
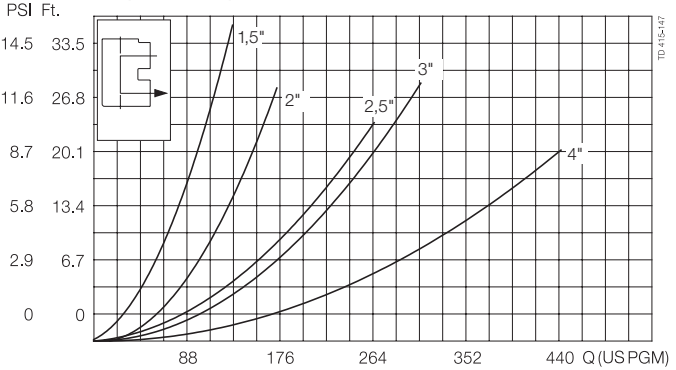
Shut-off valve



Divert valve



Divert valve (continued)



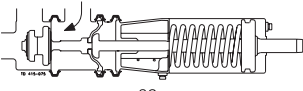
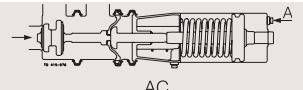
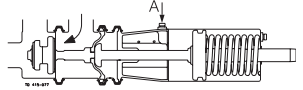
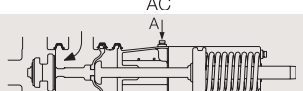
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Pressure data for ARC**Actuator type / function**

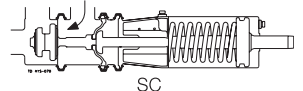
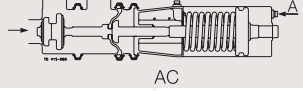
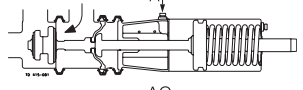
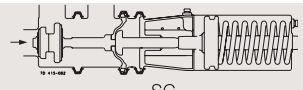
10. Air to lower, spring return (NO-lower seat)
 20. Air to raise, spring return (NC-lower seat)
 30. Air to raise and lower (A/A)
 60. Three-position (NO-lower seat)
 70. Three-position (NC-lower seat)

Table 1: Standard Valves - Max. static pressure in PSI without leakage, valve seat fully closed.

Actuator / Valve body combination and direction of pressure	Air pressure PSI	Actuator type/ function	Valve size				
			1½"	2"	2½"	3"	4"
 SC		10 (NO)					
		60 (NO)	145	145	145	145	116
 AC	72	10 (NO)	100	58	44	58	36
	87	60 (NO)	145	80	58	87	58
 AI	72	20 (NC)	145	145	145	145	87
	87	70 (NC)	145	145	145	145	138
 AC		20 (NC)					
		70 (NC)	10	58	36	72	50

-> = actual product pressure

Table 2: Valves with reinforced spring or larger actuator - max. static pressure in PSI without leakage, valve seat fully closed.

Actuator/valve body combination and direction of liquid pressure	Air pressure PSI	Actuator type/ function	Reinforced spring					Larger actuator		
			1½"	2"	2½"	3"	4"	1½"	2"	2½"
 SC		10 (NO)								
		60 (NO)	145	145	145	145	116	130	130	87
 AC	72	10 (NO)	29	0	0	0	0			
	87	60 (NO)	29	29	14	14	14	145	123	87
 AI	72	20 (NC)	29	29	29	0	0			
	87	70 (NC)	145	145	145	145	137	145	145	145
 SC		20 (NC)								
		70 (NC)	130	79	50	101	65	145	130	87

-> = actual product pressure

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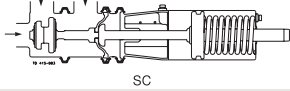
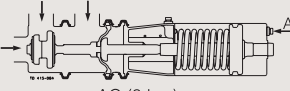
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* = Max. pressure in PSI for ARC standard valves.

** = Max. pressure in PSI for ARC with reinforced spring.

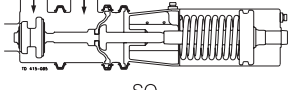
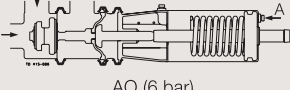
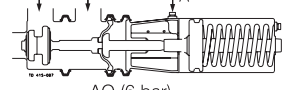
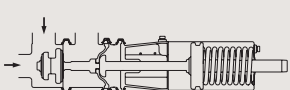
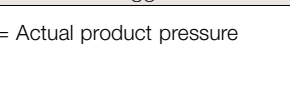
*** = Max. pressure in PSI for ARC with larger actuator.

Table 3: The valve is in the closing phase. Approx. max. pressure at which the valve plug can close by means of the spring or air pressure.

Actuator/valve body combination and direction of pressure	Actuator type/function	Valve size				
		1½"	2"	2½"	3"	4"
 SC	20 (NC)	45*	58*	69*	145*	145*
	70 (NC)	70**	97**	100**	145**	145**
 AC (6 bar)	10 (NO)	107***	122***	139***		
	60 (NO)	67*	78*	94*	145*	145*
		29**	36**	42**	145**	145**
		123***	130***	136***		

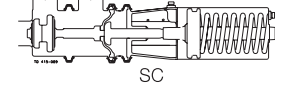
-> = Actual product pressure

Table 4: Standard valves - Approx. static pressure in PSI against which the valve plug can open by means of the spring or air pressure.

Actuator/valve body combination and direction of pressure	Actuator type/function	Valve size				
		1½"	2"	2½"	3"	4"
 SO	10 (NO)	145*	145*	145*	145*	145*
	60 (NO)	145**	145**	145**	145**	145**
 AO (6 bar)	10 (NO)	145***	145***	145***		
	60 (NO)	138*	80*	65*	145*	138*
 AO (6 bar)	10 (NO)	109**	109**	80**	145**	145**
	60 (NO)	145***	145***	145***		
 AO (6 bar)	20 (NO)	145*	145*	145*	145*	137*
	70 (NO)	145**	145**	145**	145**	145**
 SO	10 (NO)	145***	145***	145***		
	60 (NO)	145*	145*	116*	145*	130*
		87**	87**	72**	123**	87**
		145***	145***	145***		

-> = Actual product pressure

Table 5: The valve is closed - at these liquid pressures the valve will open.

Actuator/valve body combination and direction of pressure	Actuator type/function	Valve size				
		1½"	2"	2½"	3"	4"
 SC Spring closes	20(NC)	5.9*	8*	8*	8*	8*
	70(NC)	8**	8**	8**	8**	8**
 AC (6 bar) Air closes (87 PSI)	10(NO)	8***	8***	8***		
	60(NO)	8*	8*	8*	8*	8*
		3.5**	8**	8**	8**	8**
		8***	8***	8***		

-> = Actual product pressure

Dimensions

Size	1½"	2"	2½"	3"	4"
A ¹	14.60	15.00	16.34	18.98	21.81
A ²	15.07	15.47	16.81	19.76	22.59
A ³	17.40	18.70	20.71	24.06	27.72
A ⁴	7.99	19.45	21.61	24.96	28.62
C	3.11	3.70	4.45	5.08	6.42
OD	1.50	2.00	2.50	3.00	4.00
ID	1.37	1.87	2.37	2.83	3.84
t	0.063	0.063	0.063	0.078	0.078
E	1.81	2.44	3.23	3.43	5.28
F ¹	0.47	0.47	0.47	0.78	0.78
F ²	0.59	0.75	0.90	0.90	0.90
H	3.43	3.43	3.43	5.24	5.24
M/GC-Clamp	0.83	0.83	0.83	0.83	0.83

Weight (lbs)	1½"	2"	2½"	3"	4"
Shut-off valve	13.2	14.3	15.4	29.7	31.9
Divert	14.3	15.4	16.5	37.4	38.5

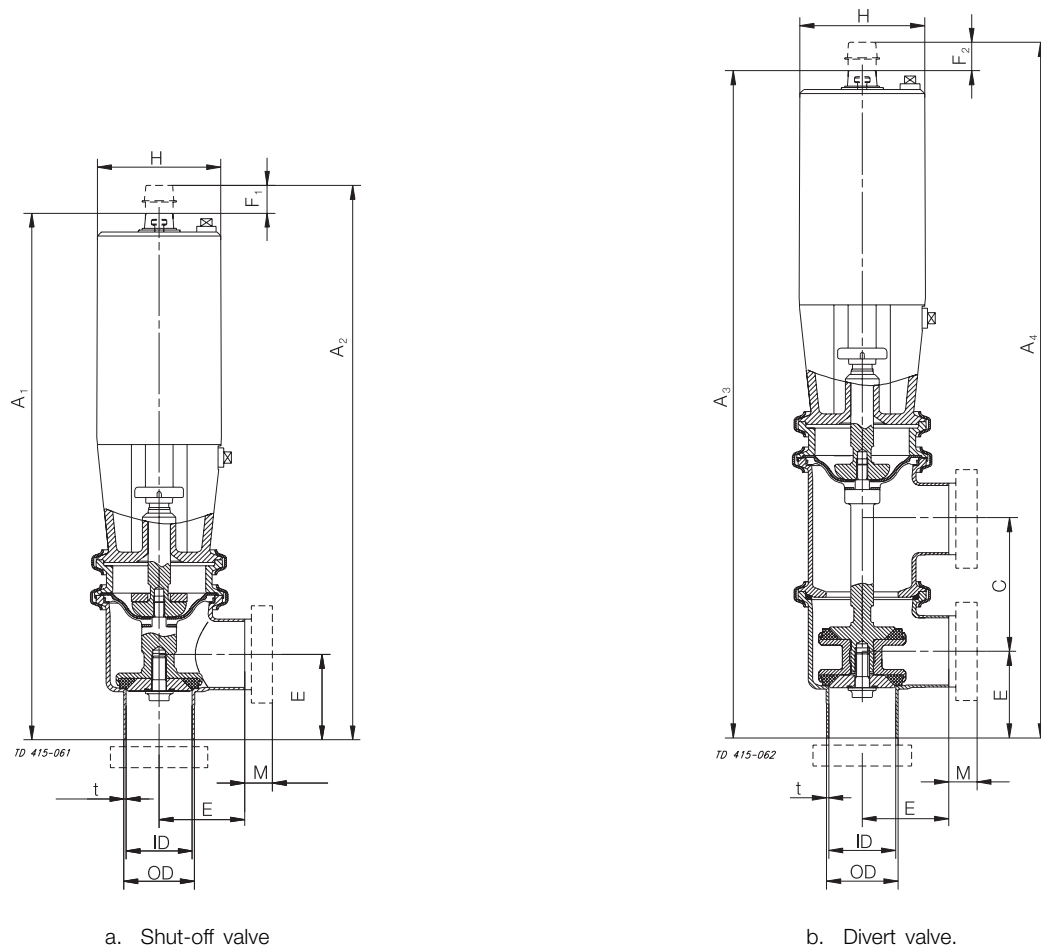


Fig. 3. Dimensions.

Materials

Product wetted steel parts:	Stainless steel AISI 316L
Other steel parts:	Stainless steel AISI 304
Finish:	Polished Ra 32 microinches
Product wetted seals:	EPDM, PTFE
Other Seals:	NBR, EPDM

Technical data

Pressure range:	0-116 psi (0-8 bar).
Temperature range:	15 °F to 285 °F (EPDM).
Optimum process conditions:	>7 psi (0.5 bar), > 68 °F
Max. sterilization temperature (steam - short time):	302 °F/55 psi (3.8 bar).
Air pressure:	72-116 psi (5-8 bar).

Note! Vacuum is not recommended in aseptic applications.

Options**Equipment**

- Alternative connections (Tri-Clamp® is standard)
- Control & Indication
- Damper against water hammer
- Actuator with stronger spring
- Larger actuator for valve size 1½" - 2½"
- Two-step or three-position actuator
- Tangential side port valve
- Product wetted seals of Nitrile (NBR) or Fluorinated rubber (FPM)
- Service tool for actuator

Materials grades

- Product wetted seals of Nitrile (NBR) or fluorinated rubber (FPM)

Tools

- Service tool for actuator

Ordering

Please state the following when ordering:

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

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