



Alfa Laval Unique SSV ATEX Standard

ATEX Addendum to Unique SSV

Concept

The Unique Single Seat ATEX valve meets the highest demands of your process in terms of hygiene and safety. Built on the well-proven Unique SSV platform it is ATEX certified to be used in environments with an explosive atmosphere.

Working principle

The valve is a pneumatic seat valve in a hygienic and modular design for a wide field of duties, e.g. as a shut-off valve with two (2) or three (3) ports or as a change-over valve with three (3) to five (5) ports. The valve is remote-controlled by means of compressed air. It has few and simple moveable parts which results in a very reliable valve and low maintenance cost.

Standard design

The Unique SSV ATEX valve comes in a one or two body configuration. With its module built structure it is designed for flexibility and easy customization through the electronic configurator. The valve features an optimized life span of the seals through a defined compression design. The actuator is connected to the valve body using a yoke and all components are assembled with clamp rings.



TECHNICAL DATA

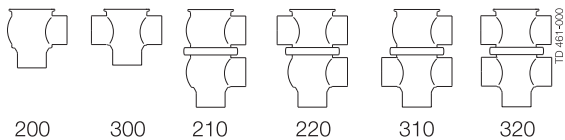
Temperature

Temperature range -10°C to +135°C (EPDM)
 Air pressure, actuator 500 to 700 kPa (5 to 7 bar)
 Ambient temperature 10°C to +40°C

Pressure

Max. product pressure 1000 kPa (10 bar)
 Min. product pressure Full vacuum

Valve Body Combinations



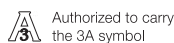
Actuator function

- Pneumatic downward movement, spring return.
- Pneumatic upward movement, spring return.
- Pneumatic upward and downward movement A/A.

PHYSICAL DATA

Materials - valve/actuator

Product wetted steel parts 1.4404 (316L)
 Other steel parts 1.4301 (304)
 External surface finish Semi-bright (blasted)
 Internal surface finish Bright (polished), Ra < 0.8 µm
 Product wetted seals EPDM
 Other seals NBR
 Actuator stem PAGG PAGI/GT, MH, 14-250, CF40
 Spring Coated steel



Options

- A. Male parts or clamp liners in accordance with required standard.
- B. Control and Indication: ThinkTop Basic Intrinsically Safe.
- C. Product wetted seals in HNBR or FPM (Note! Temperature range 10°C to +135°C for ATEX Versions).
- D. Plug seals in HNBR or FPM (Note! Temperature range 10°C to +135°C for ATEX Versions).
- E. External surface finish bright.

Note!

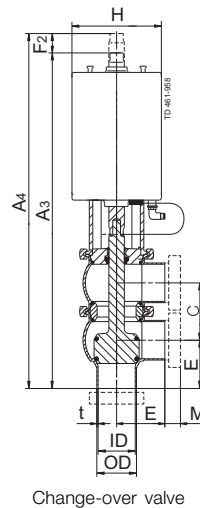
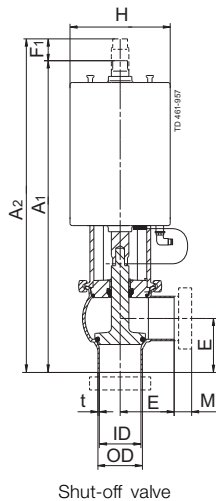
For further details, see instruction manual ESE00674.

Dimensions (mm)

Nominal size	Inch tubes						DIN tubes					
	DN/OD						DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
A ₁ 1)	313	314	363	389	422	467	315	315	365	389	427	470
A ₂ 1)	328	334	388	414	452	497	330	335	390	414	457	500
A ₃ 1)	360*	374	436	475	521	591	367*	379	440.6	481	534	596
A ₄ 1)	372*	391	458	497	548	618	379*	396	463	503	561	623
C	47.8	60.8	73.8	86.3	98.9	123.6	52	64	76	92	107	126
OD	25	38	51	63.5	76.1	101.6	29	41	53	70	85	104
ID	21.8	34.8	47.8	60.3	72.9	97.6	26	38	50	66	81	100
t	1.6	1.6	1.6	1.6	1.6	2	1.5	1.5	1.5	2	2	2
E	50	49.5	61	81	86	119	50	49.5	62	78	87	120
F ₁	15	20	25	25	30	30	15	20	25	25	30	30
F ₂	12*	17	22	22	27	27	12*	17	22	22	27	27
H	85	85	∅115	∅115	∅155	∅155	85	85	∅115	∅115	∅155	∅155
H (high pressure)	85	∅115	∅155	∅155	∅155	∅155	85	∅115	∅155	∅155	∅155	∅155
M (ISO clamp)	21	21	21	21	21	21	-	-	-	-	-	-
M (DIN clamp)	-	-	-	-	-	-	21	21	21	28	28	28
M (DIN male)	-	-	-	-	-	-	22	22	23	25	25	30
M (SMS male)	20	20	20	24	24	35	-	-	-	-	-	-
Weight (kg)												
Shut-off valve	3.1	3.3	5.5	6.5	11.3	13.6	3.2	3.4	5.5	6.6	11.8	13.6
Change-over valve	3.9	4.2	7.1	8.5	14	18	4.1	4.5	7.2	8.8	14.9	17.9

* = only available with replaceable elastomer plug seal.

1) For exact A₁ - A₄ dimensions, please refer to information in Anytime configurator.



Please Note!

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.

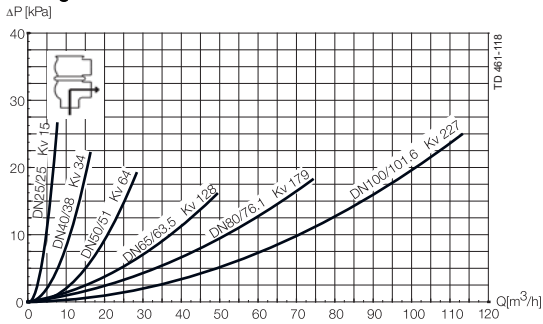
Air Connections Compressed air:

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

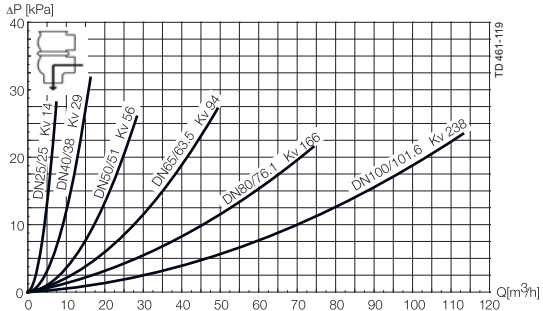
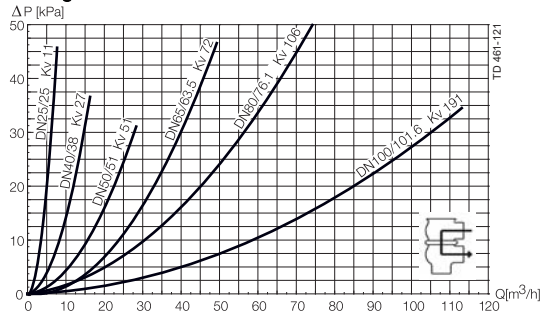
Size	Air consumption (litres free air) for one stroke		
	DN25-40	DN50-65	DN80100
NO and NC	DN/OD 25-38 mm 0.2 x air pressure [bar]	DN/OD 51-63.5 mm 0.5 x air pressure [bar]	DN/OD 76.1-101.6 mm 1.3 x air pressure [bar]
A/A	0.5 x air pressure [bar]	1.1 x air pressure [bar]	2.7 x air pressure [bar]

Pressure drop/capacity diagrams

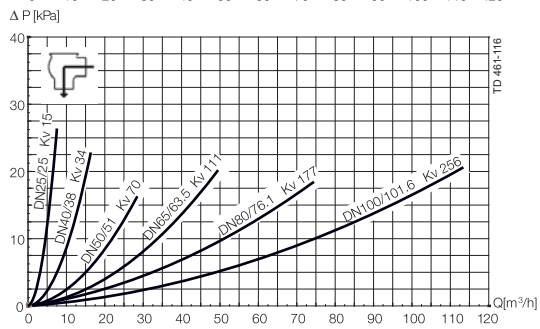
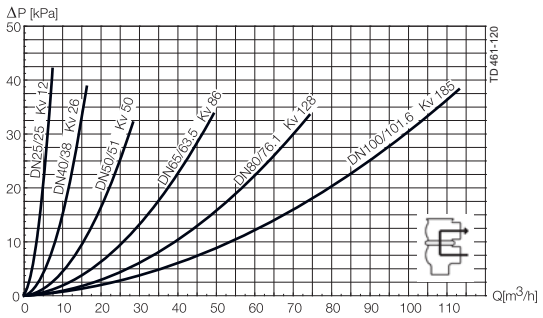
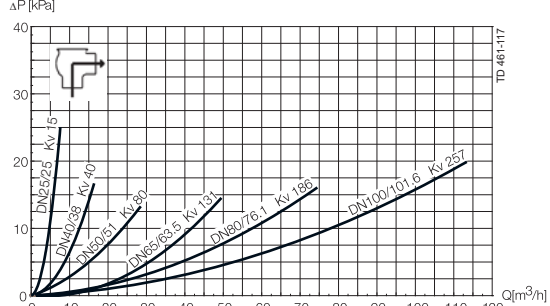
Change-over Valves



Change-over Valves



Shut-off Valves



Note

For the diagrams the following applies:

Medium: Water (20°C)

Measurement: In accordance with VDI2173

Pressure drop can also be calculated in Anytime configurator

Pressure drop can also be calculated with the following formula:

$$Q = K_v \times \sqrt{\Delta p}$$

Where

Q = Flow in m^3/h .

K_v = m^3/h at a pressure drop of 1 bar (see table above).

Δp = Pressure drop in bar over the valve.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is 40 m^3/h

2.5" shut-off valve, where $K_v = 111$ (See table above).

$$Q = K_v \times \sqrt{\Delta p}$$

$$40 = 111 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{40}{111}\right)^2 = 0.13 \text{ bar}$$

(This is approx. the same pressure drop by reading the y-axis above)

Pressure data for Unique Single Seat ATEX Valve

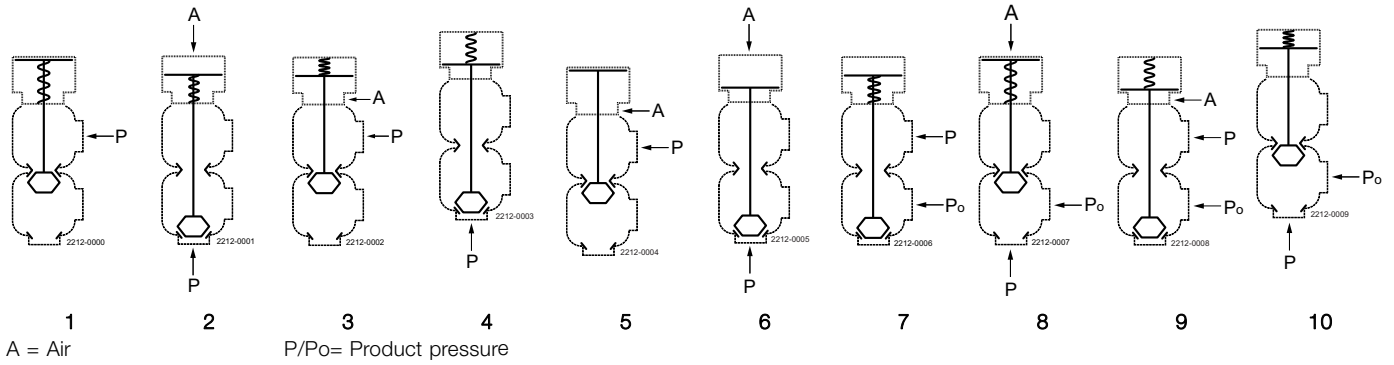


Table 1 - Shut-off and Change-over valves

Max. pressure in bar without leakage at the valve seat

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size					
			DN 25 DN/OD	DN 40 DN/OD	DN50 DN/OD	DN 65 DN/OD	DN 80 DN/OD	DN 100 DN/OD
			25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
1	5	NO	10.0	8.2	8.4	4.5	6.8	4.4
	6	NO	9.2	4.4	5.9	3.4	4.4	2.9
2	7	NO	10.0	7.6	9.6	5.6	7.2	4.8
	5	NO	10.0	10.0	10.0	7.8	10.0	6.7
3	6	NC	10.0	5.7	6.8	3.7	4.7	3.0
	7	NC	10.0	9.8	10.0	6.1	7.7	5.0
4	5	NC	10.0	10.0	10.0	8.5	10.0	6.9
	6	NC	10.0	6.3	7.2	4.2	6.4	4.2
5	5	A/A	10.0	10.0	10.0	10.0	10.0	9.4
	6	A/A	10.0	10.0	10.0	10.0	10.0	10.0
6	7	A/A	10.0	10.0	10.0	10.0	10.0	10.0
	5	A/A	10.0	10.0	10.0	10.0	10.0	9.1
	7	A/A	10.0	10.0	10.0	10.0	10.0	10.0

Table 2 - Shut-off and Change-over valves

Max. pressure in bar against which the valve can open

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size					
			DN 25 DN/OD	DN 40 DN/OD	DN50 DN/OD	DN 65 DN/OD	DN 80 DN/OD	DN 100 DN/OD
			25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
7	5	NO	10.0	10.0	10.0	7.4	9.7	6.3
	6	NO	10.0	7.8	10.0	6.1	7.1	4.7
8	7	NO	10.0	10.0	10.0	8.3	9.9	6.6
	5	NO	10.0	10.0	10.0	10.0	10.0	8.5
9	6	NC	10.0	10.0	6.8	6.6	7.5	4.9
	7	NC	10.0	10.0	10.0	9.0	10.0	6.9
10	5	NC	10.0	10.0	10.0	10.0	10.0	8.8
	6	NC	10.0	9.7	10.0	6.8	9.1	6.1

Alfa Laval reserves the right to change specifications without prior notification.

How to contact Alfa Laval

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