



# Simply Unique Single Seat

## Alfa Laval Unique SSV Standard

### Concept

Unique SSV meets the highest demands of your process in terms of hygiene and safety. It is built on a well-proven platform from an installed base of more than one million valves.

### 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 Single Seat Standard valve comes in a one or two body configuration. To ensure a high degree of flexibility the valve seat between the two bodies in the Change-over version is loose. 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

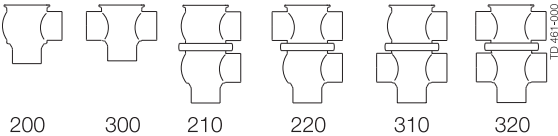
#### Temperature

Temperature range . . . . . 10°C to +140°C (EPDM)

#### Pressure

Max. product pressure . . . . . 1000 kPa (10 bar)  
Min. product pressure . . . . . Full vacuum  
Air pressure . . . . . 500 to 700 kPa (5 to 7 bar)

#### Valve Body Combinations



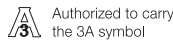
#### Actuator function

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

### PHYSICAL DATA

#### Materials

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



## Options

- A. Male parts or clamp liners in accordance with required standard.
- B. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
- C. Product wetted seals in HNBR or FPM.
- D. Plug seals HNBR, FPM or TR2 plug (floating PTFE design).
- E. External surface finish bright.

## Note

For further details, see instruction ESE00202.

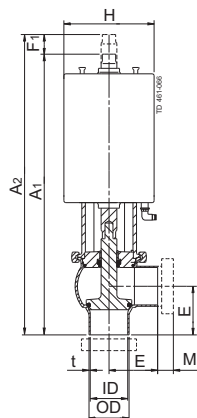
## Other valves in the same basic design

The Unique SSV valve range includes several purpose built valves.

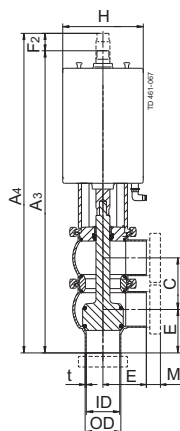
## Dimensions (mm)

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 <sub>1</sub>	313	314	363	389	422	467	315	315	364	389	426	470
A <sub>2</sub>	328	334	388	414	452	497	330	335	389	414	456	500
A <sub>3</sub>	360	374.3	436	475	521	591	367	379	439.6	481	533	596
A <sub>4</sub>	372	391	458	497	548	618	379	396	462	503	560	623
A <sub>1</sub> High pressure	350	350	391	417	535	579	354	353	393	423	539	580
A <sub>2</sub> High pressure	364	370	416	442	563	608	368	373	418	448	567	610
A <sub>3</sub> High pressure	396	411	464	503	633	703	401	414	467	509	645	706
A <sub>4</sub> High pressure	408	428	486	525	658	728	401	414	467	509	670	732
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 <sub>1</sub>	50	49.5	61	81	86	119	50	49.5	61	78	86	120
E <sub>2</sub>	50	49.5	61	81	86	119	50	49.5	61	78	86	120
F <sub>1</sub>	15	20	25	25	30	30	15	20	25	25	30	30
F <sub>1</sub> High pressure	14	20	25	25	29	29	14	20	25	25	29	29
F <sub>2</sub>	12	17	22	22	27	27	12	17	22	22	27	27
F <sub>2</sub> High pressure	12	17	22	22	26	26	-	-	-	-	26	26
H	85	85	115	115	157.5	157.5	85	85	115	115	157.5	157.5
H High pressure	115	115	157.5	157.5	157.5	157.5	115	115	157.5	157.5	157.5	157.5
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)												
Stop 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
Stop Valve: High pressure	4.7	4.8	9.5	10.0	9.8	14.2	4.8	4.9	9.5	10.1	10.2	14.2
Change-over valve: High pressure	4.9	5.1	10.1	10.8	10.9	16.5	5.1	5.3	10.1	11.1	11.8	16.4

For exact high pressure actuator dimension (A and F) - please refer to information in Anytime configurator



Shut-off valve



Change-over valve

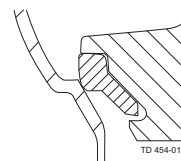
## Please note!

### 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.



PTFE plug seal (TR2)

Replaceable elastomer plug seal

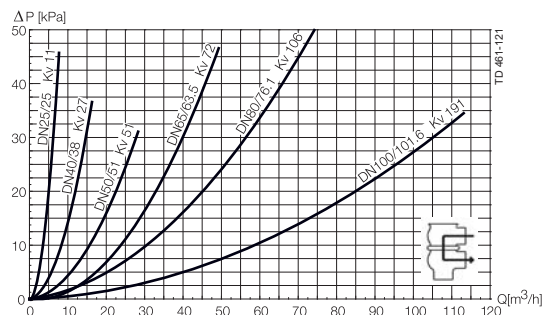
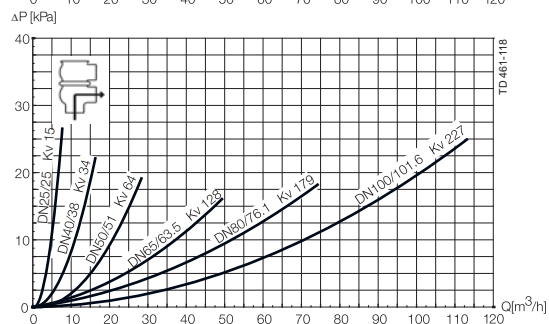
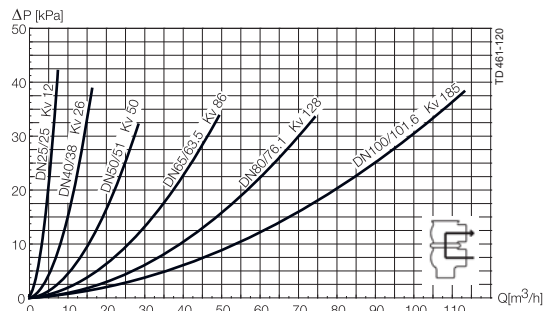
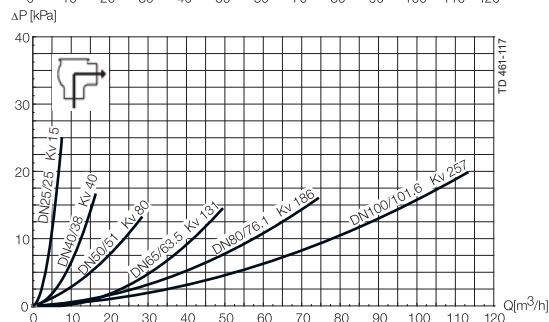
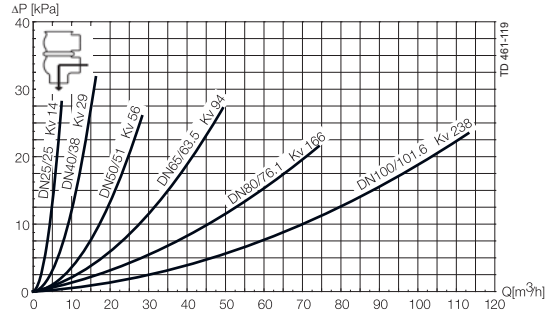
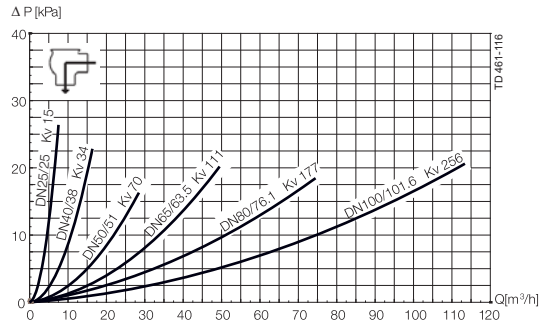
Below are some of the valve models available, though please use the Alfa Laval computer aided selection tool (Anytime configurator) for full access to all models and options.

- Reverse acting valve.
- Long stroke valve.
- Manually operated valve.
- Tank Outlet valve.
- Two Step valve.
- Tangential valve.

The actuator comes with a 5 years warranty

Air consumption (litres free air) for one stroke			
Size	DN25-40	DN50-65	DN80100
	DN/OD 25-38 mm	DN/OD 51-63.5 mm	DN/OD 76.1101.6 mm
NO and NC	0.2 x air pressure [bar]	0.5 x air pressure [bar]	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



### 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 m³/h.

Kv = m³/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 m³/h

2.5" shut-off valve, where Kv = 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 Valve standard

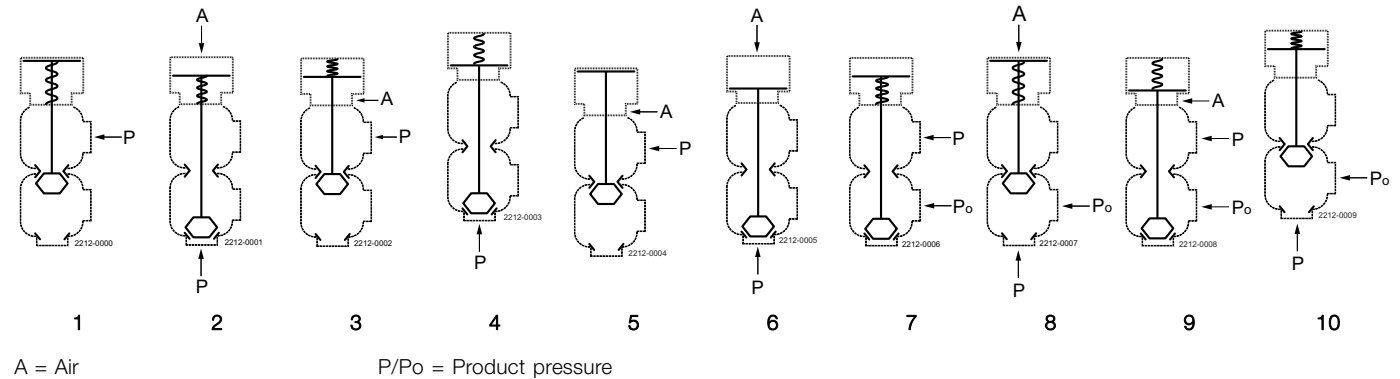


Table 1 - Shut-off and Change-over valves			Max. pressure in bar without leakage at the valve seat					
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size					
			DN 25 DN/OD	DN 40 DN/OD	DN50 DN/OD	DN 65 DN/OD	DN 80 DN/OD	DN 100 DN/OD
			25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
1		NO	10.0	8.2	8.4	4.5	6.8	4.4
	5		9.2	4.4	5.9	3.4	4.4	2.9
2	6	NO	10.0	7.6	9.6	5.6	7.2	4.8
	7		10.0	10.0	10.0	7.8	10.0	6.7
3	5	NC	10.0	5.7	6.8	3.7	4.7	3.0
	6		10.0	9.8	10.0	6.1	7.7	5.0
4	7	NC	10.0	10.0	10.0	8.5	10.0	6.9
	5		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		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		10.0	10.0	10.0	10.0	10.0	9.1
	6	A/A	10.0	10.0	10.0	10.0	10.0	10.0
	7		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		NO	10.0	10.0	10.0	7.4	9.7	6.3
	5		10.0	7.8	10.0	6.1	7.1	4.7
8	6	NO	10.0	10.0	10.0	8.3	9.9	6.6
	7		10.0	10.0	10.0	10.0	10.0	8.5
9	5	NC	10.0	10.0	10.0	6.6	7.5	4.9
	6		10.0	10.0	10.0	9.0	10.0	6.9
	7	NC	10.0	10.0	10.0	10.0	10.0	8.8
	5		10.0	9.7	10.0	6.8	9.1	6.1

Table 3 - Shut-off and Change-over valves with high pressure actuator option			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		NO	10.0	10.0	10.0	10.0	-	-
2	6	NO	10.0	10.0	10.0	10.0	-	-
3	6	NC	10.0	10.0	10.0	10.0	5.0	3.0
4		NC	10.0	10.0	10.0	9.6	10.0	7.0