



# Simply Unique Single Seat

## Alfa Laval Unique SSV Two Step

### Concept

The Unique Single Seat Two Step valve meets the highest demands of your process in terms of hygiene and safety. Built on the well-proven Unique SSV platform it can be used for reducing pressure hammers and dosing e.g. in connection with filling of a vessel where an exact volume is required. The degree of opening for the intermediate position can be adjusted by removing spacer rings inside the actuator. Unique Single Seat Valve - Two Step as Change over (NC and NO) can be used for drainage of two pipes simultaneously or in closing/filling applications.

### Working principle

The valve is a pneumatic seat valve in a hygienic and modular design 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 Two Step 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

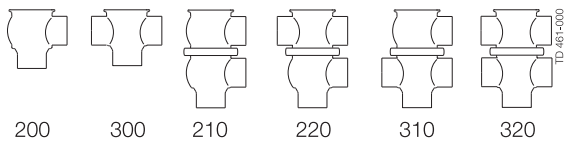
#### Temperature

Temperature range . . . . . -10°C to +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

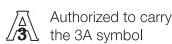
- Pneumatic downward movement, spring return.
- Pneumatic upward movement, spring return.



### 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  
 Other product wetted seals: . . . . . EPDM  
 Other seals: . . . . . NBR



### Options

- A. Male parts or clamp liners in accordance with the 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. High pressure actuator (only ISO51, ISO63.5 and DN50, DN65).
- F. External surface finish bright.

### Note!

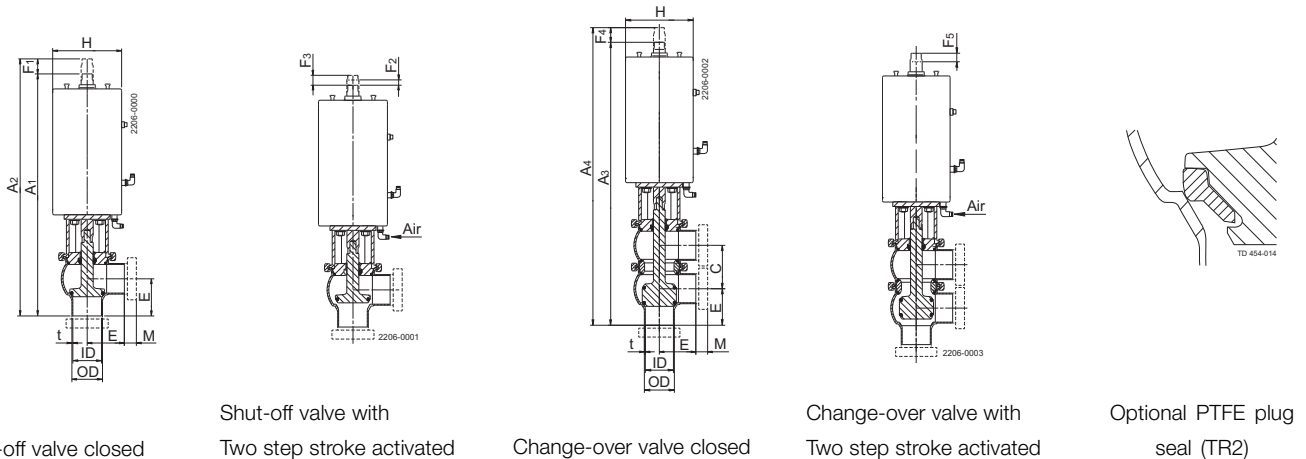
For further details, see instruction ESE00505.

### Dimensions (mm)

Nominal size	Inch tubes					DIN tubes					High Pressure			
	DN/OD					DN					Inch tubes		DIN tubes	
	38	51	63.5	76.1	101.6	40	50	65	80	100	51	63.5	50	65
A <sub>1</sub> <sup>1)</sup>	382	395	422	458	504	384	397	422	462	506	426	452	427	452
A <sub>2</sub> <sup>1)</sup>	402	420	447	488	534	404	422	447	492	536	451	477	452	477
A <sub>3</sub> <sup>1)</sup>	443	469	508	557	627	448	472.5	514	569	632	500	538	503	544
A <sub>4</sub> <sup>1)</sup>	460	491	530	584	654	465	495	536	596	659	522	560	525	566
C	60.8	73.8	86.3	98.9	123.6	64	76	92	107	126	73.8	86.3	76	92
OD	38	51	63.5	76.1	101.6	41	53	70	85	104	51	63.5	53	70
ID	34.8	47.8	60.3	72.9	97.6	38	50	66	81	100	47.8	60.3	50	66
t	1.6	1.6	1.6	1.6	2	1.5	1.5	2	2	2	1.6	1.6	1.5	2
E	49.5	61	81	86	119	49.5	61	78	86	120	61	81	61	78
F <sub>1</sub>	20	25	25	30	30	20	25	25	30	30	25	25	25	25
F <sub>2</sub> Min. Two step stroke	3	3	3	2.5	2.5	3	3	3	2.5	2.5	6	6	6	6
F <sub>3</sub> Max. Two step stroke	6	11	11	14	14	6	11	11	14	14	9	9	9	9
F <sub>4</sub>	17	22	22	27	27	17	22	22	27	27	22	22	22	22
F <sub>5</sub> Two step stroke	6.5	11	11	14	14	6.5	11	11	14	14	9	9	9	9
H	115	115	115	154	154	115	115	115	154	154	154	154	154	154
M (ISO clamp)	21	21	21	21	21						21	21		
M (DIN clamp)	-	-	-	-	-	21	21	28	28	28			21	28
M (DIN male)	-	-	-	-	-	22	23	25	25	30			23	25
M (SMS male)	20	20	24	24	35						20	24		
<b>Weight (kg)</b>														
Stop valve	7	7.3	8.3	14.4	16.7	7	7.3	8.3	14.9	16.7	8.6	9.6	8.6	9.6
Change-over valve	8	8.9	10.3	17	21	8.2	8.9	10.5	17.9	21	10.2	11.6	10.2	11.8

<sup>1)</sup> For exact A<sub>1</sub> - A<sub>4</sub> dimensions, please refer to informations in Anytime configurator.

**Air Connections:** R 1/8" (BSP), internal thread.



Air consumption (litres free air) for one stroke			
Size	DN40 - DN/OD 38 mm	DN50-65 - DN/OD 51-63.5 mm	DN80100 - DN/OD 76.1101.6 mm
NO and NC	0.5 x air pressure [bar]	0.5 x air pressure [bar]	1.3 x air pressure [bar]

### Please note!

Opening/closing time will be affected by the following:

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

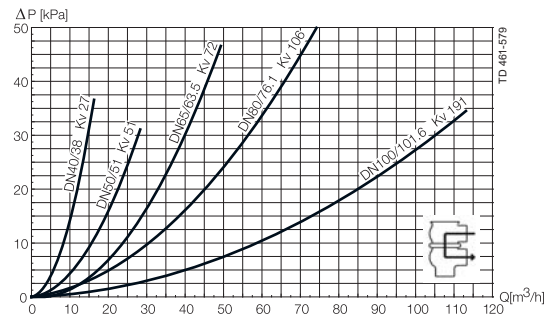
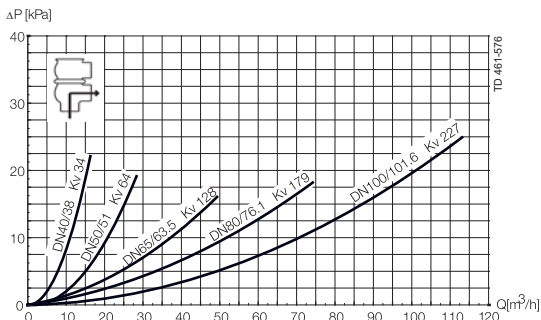
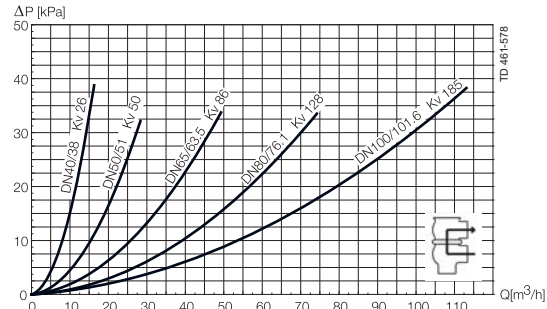
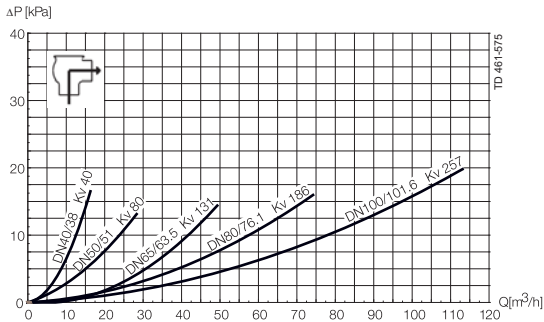
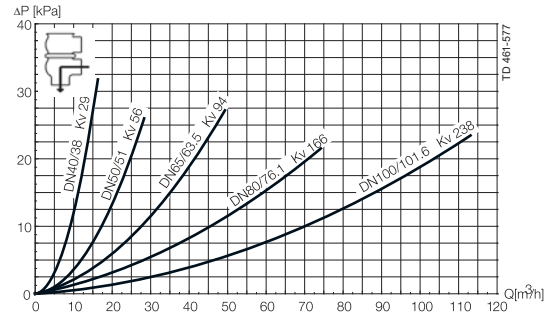
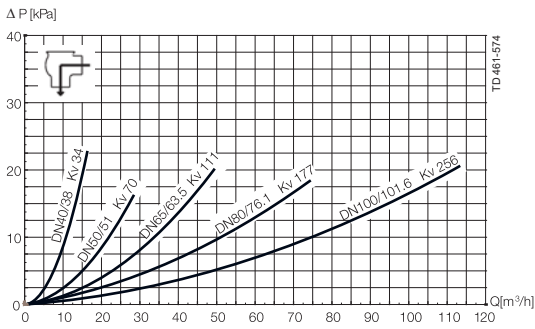
### Other valves in the same basic design

The valve range includes several purpose built valves. 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.

- Aseptic valve.
- Tank Outlet valve.

The actuator comes with a 5 years warranty

## Pressure drop/capacity diagrams



### Note!

For the diagrams the following applies:

Medium: Water (20°C)

Measurement: In accordance with VDI 2173

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<sup>3</sup>/h.

K<sub>v</sub> = m<sup>3</sup>/h at a pressure drop of 1 bar (see table above).

Δ p = 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<sup>3</sup>/h

2.5" shut-off valve, where K<sub>v</sub> = 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 Two Step

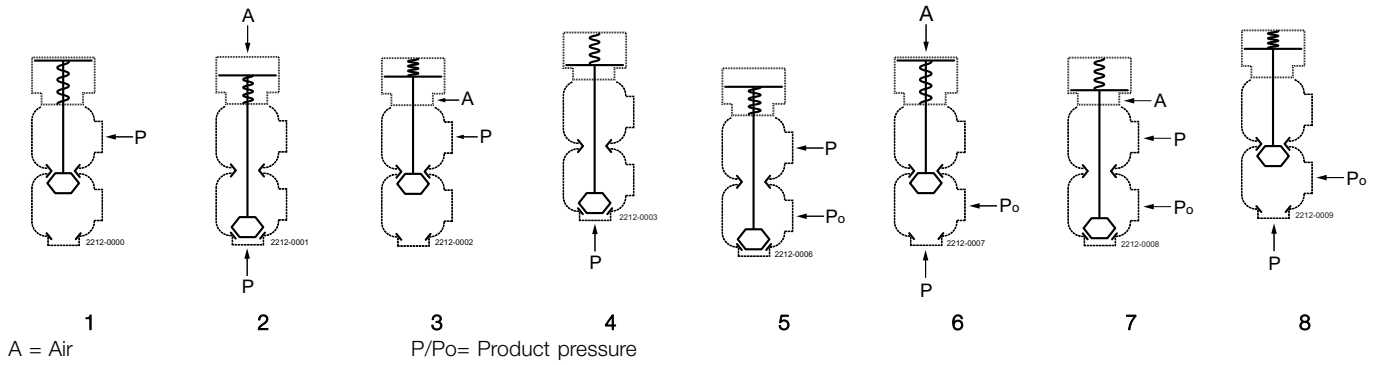


Table 1 - Shut-off and Change-over valves

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 40 DN/OD	DN50 DN/OD	DN 65 DN/OD	DN 80 DN/OD	DN 100 DN/OD
			38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
1		NO	10.0	8.4	4.5	6.8	4.4
2	6	NO	10.0	9.6	5.6	7.2	4.8
3	6	NC	10.0	10.0	6.1	7.7	5.0
4		NC	10.0	7.2	4.2	6.4	4.2

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 40 DN/OD	DN50 DN/OD	DN 65 DN/OD	DN 80 DN/OD	DN 100 DN/OD
			38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
5		NO	10.0	10.0	7.4	9.7	6.3
6	6	NO	10.0	10.0	8.3	9.9	6.6
7	6	NC	10.0	10.0	9.0	10.0	6.9
8		NC	9.7	10.0	6.8	9.1	6.1

Table 3 - Shut-off and Change-over valves with high pressure actuator option (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	
			DN50 DN/OD	DN 65 DN/OD
			51 mm	63.5 mm
1		NO	10.0	10.0
2		NO	10.0	10.0
3	6	NC	10.0	10.0
4		NC	10.0	10.0

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