

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

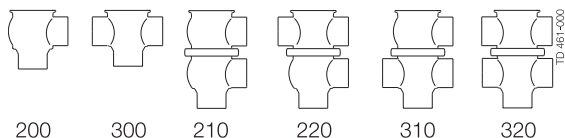
Temperature

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.

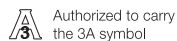


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PHYSICAL DATA

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.

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.

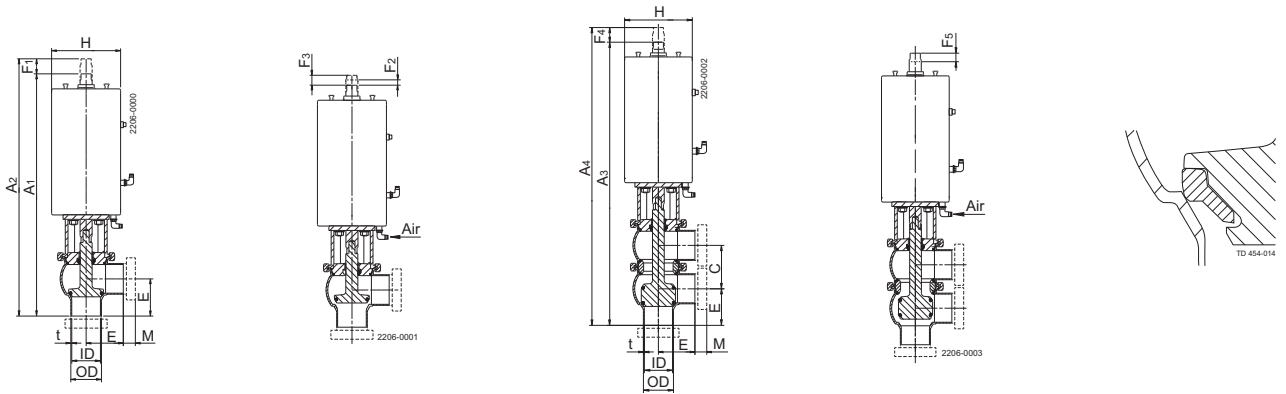
The actuator comes with a 5 years warranty

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 ₁ ¹⁾	382	395	422	458	504	384	397	422	462	506	426	452	427	452
A ₂ ¹⁾	402	420	447	488	534	404	422	447	492	536	451	477	452	477
A ₃ ¹⁾	443	469	508	557	627	448	472.5	514	569	632	500	538	503	544
A ₄ ¹⁾	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 ₁	20	25	25	30	30	20	25	25	30	30	25	25	25	25
F ₂ Min. Two step stroke	3	3	3	2.5	2.5	3	3	3	2.5	2.5	6	6	6	6
F ₃ Max. Two step stroke	6	11	11	14	14	6	11	11	14	14	9	9	9	9
F ₄	17	22	22	27	27	17	22	22	27	27	22	22	22	22
F ₅ 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		
Weight (kg)														
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

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

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



Shut-off valve closed Shut-off valve with Two step stroke activated Change-over valve closed Change-over valve with Two step stroke activated Optional PTFE plug seal (TR2)

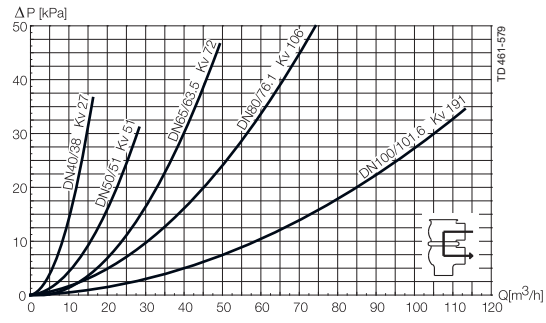
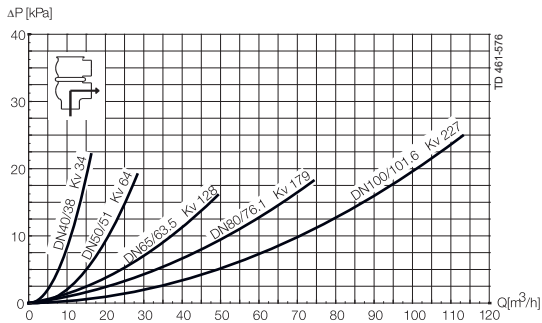
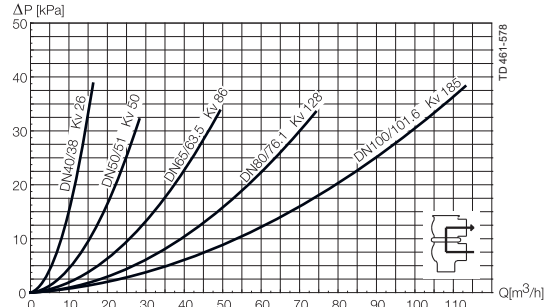
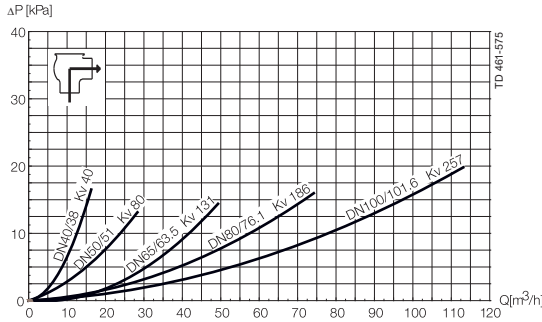
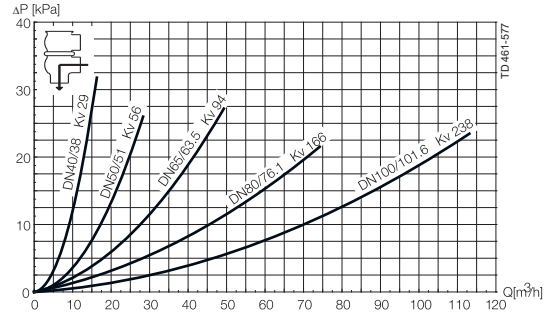
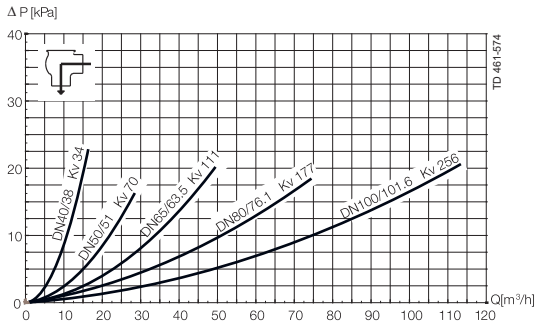
	Air consumption (litres free air) for one stroke		
Size	DN40 - DN/OD 38 mm	DN50-65 - DN/OD 51-63.5 mm	DN80100 - DN/OD 76.1101.6 mm
NO and NC	0.5 x air pressure [bar]	0.5 x air pressure [bar]	1.3 x air pressure [bar]

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.

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 m³/h.

K_v = m³/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 m³/h

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

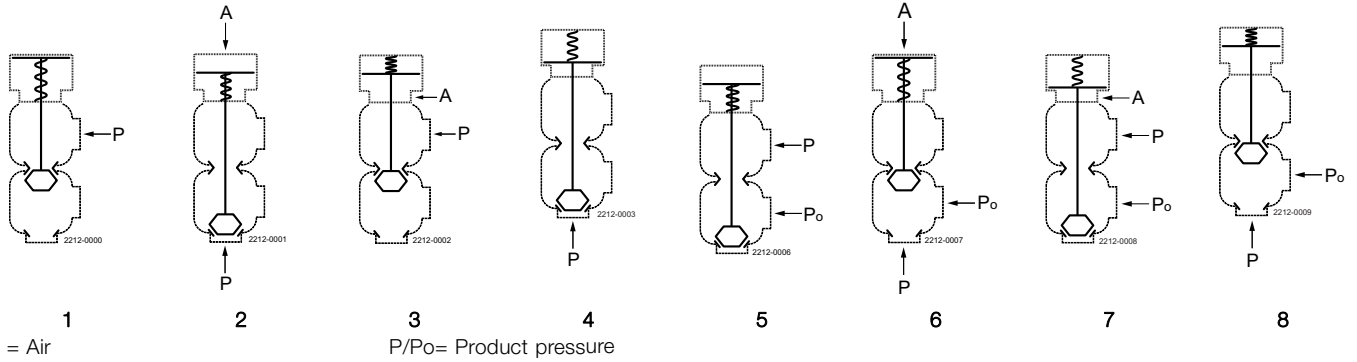
$$Q = K_v \times \sqrt{\Delta p}$$

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

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

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

Pressure data for Unique Single Seat Valve Two Step



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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

Unique SSV Two Step

Single Seat Valves

Product code: 5233

Material: 1.4404 (316L)
 Connection: ISO Welding ends
 Seals: EPDM
 Inside surface finish: Ra ≤ 0.8 μm
 Outside surface finish: Blasted
 Actuation: Pneumatic NO

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Item No.	PPL EUR	Size DN/OD (mm)	Dimension (mm)			Body combination
			A	C	E	
						Change-over valve 210
9613363184	3322	38	402.0	60.8	49.5	
9613363185	3561	51	420.0	73.8	61.0	
9613363186	3742	63.5	447.0	86.3	81.0	
9613363187	4958	76.1	488.0	98.9	86.0	
9613363188	6352	101.6	534.0	123.6	119.0	
						Change-over valve 220
9613363204	3383	38	402.0	60.8	49.5	
9613363205	3636	51	420.0	73.8	61.0	
9613363206	3824	63.5	447.0	86.3	81.0	
9613363207	5062	76.1	488.0	98.9	86.0	
9613363208	6473	101.6	534.0	123.6	119.0	

NOTE! Other body combinations - on request.

Product code: 5233

Material: 1.4404 (316L)
 Connection: ISO Welding ends
 Seals: EPDM
 Inside surface finish: Ra ≤ 0.8 μm
 Outside surface finish: Blasted
 Actuation: Pneumatic NC

Item No.	PPL EUR	Size DN/OD (mm)	Dimension (mm)			Body combination
			A	C	E	
						Shut-off valve 200
9613363256	2829	38	382.0		49.5	
9613363257	2989	51	395.0		61.0	
9613363258	3195	63.5	422.0		77.0	
9613363259	4200	76.1	458.0		81.0	
9613363260	4953	101.6	504.0		119.0	
						Shut-off valve 300
9613363276	2889	38	382.0		49.5	
9613363277	3064	51	395.0		61.0	
9613363278	3276	63.5	422.0		77.0	
9613363279	4304	76.1	458.0		81.0	
9613363280	5073	101.6	504.0		119.0	
						Change-over valve 210
9613363174	3322	38	443.0	60.8	49.5	
9613363175	3561	51	469.0	73.8	61.0	
9613363176	3742	63.5	508.0	86.3	77.0	
9613363177	4958	76.1	557.0	98.9	81.0	
9613363178	6352	101.6	627.0	123.6	119.0	
						Change-over valve 220
9613363194	3383	38	443.0	60.8	49.5	
9613363195	3636	51	469.0	73.8	61.0	
9613363196	3824	63.5	508.0	86.3	77.0	
9613363197	5062	76.1	557.0	98.9	81.0	
9613363198	6473	101.6	627.0	123.6	119.0	

NOTE! Other body combinations - on request.

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Unique SSV Two Step

Single Seat Valves

Product code: 5233

Material: 1.4404 (316L)
 Connection: DIN Welding ends
 Seals: EPDM
 Inside surface finish: Ra ≤ 0.8 μm
 Outside surface finish: Blasted
 Actuation: Pneumatic NO

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Item No.	PPL EUR	Size DIN	Dimension (mm)			Body combination
			A	C	E	
Change-over valve 210						
9613363189	3322	DN40	465.0	64.0	49.5	
9613363190	3561	DN50	496.0	76.0	62.0	
9613363191	3742	DN65	536.0	92.0	78.0	
9613363192	4958	DN80	597.0	107.0	87.0	
9613363193	6352	DN100	659.0	126.0	120.0	
Change-over valve 220						
9613363209	3383	DN40	465.0	64.0	49.5	
9613363210	3636	DN50	496.0	76.0	62.0	
9613363211	3824	DN65	536.0	92.0	78.0	
9613363212	5062	DN80	597.0	107.0	87.0	
9613363213	6473	DN100	659.0	126.0	120.0	

NOTE! Other body combinations - on request.

Product code: 5233

Material: 1.4404 (316L)
 Connection: DIN Welding ends
 Seals: EPDM
 Inside surface finish: Ra ≤ 0.8 μm
 Outside surface finish: Blasted
 Actuation: Pneumatic NC

Item No.	PPL EUR	Size DIN	Dimension (mm)			Body combination
			A	C	E	
Shut-off valve 200						
9613363261	2829	DN40	384.0		49.5	
9613363262	2989	DN50	398.0		62.0	
9613363263	3195	DN65	422.0		78.0	
9613363264	4200	DN80	463.0		87.0	
9613363265	4953	DN100	506.0		120.0	
Shut-off valve 300						
9613363281	2889	DN40	384.0		49.5	
9613363282	3064	DN50	398.0		62.0	
9613363283	3276	DN65	422.0		78.0	
9613363284	4304	DN80	463.0		87.0	
9613363285	5073	DN100	506.0		120.0	
Change-over valve 210						
9613363179	3322	DN40	448.0	64.0	49.5	
9613363180	3561	DN50	473.5	76.0	62.0	
9613363181	3742	DN65	514.0	92.0	78.0	
9613363182	4958	DN80	570.0	107.0	87.0	
9613363183	6352	DN100	632.0	126.0	120.0	
Change-over valve 220						
9613363199	3383	DN40	448.0	64.0	49.5	
9613363200	3636	DN50	473.5	76.0	62.0	
9613363201	3824	DN65	514.0	92.0	78.0	
9613363202	5062	DN80	570.0	107.0	87.0	
9613363203	6473	DN100	632.0	126.0	120.0	

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NOTE! Other body combinations - on request.