



Simply Unique Single Seat

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

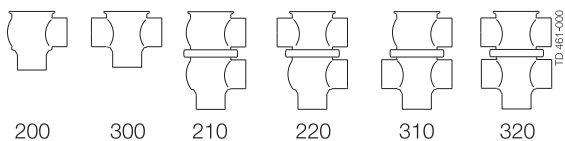
Temperature

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

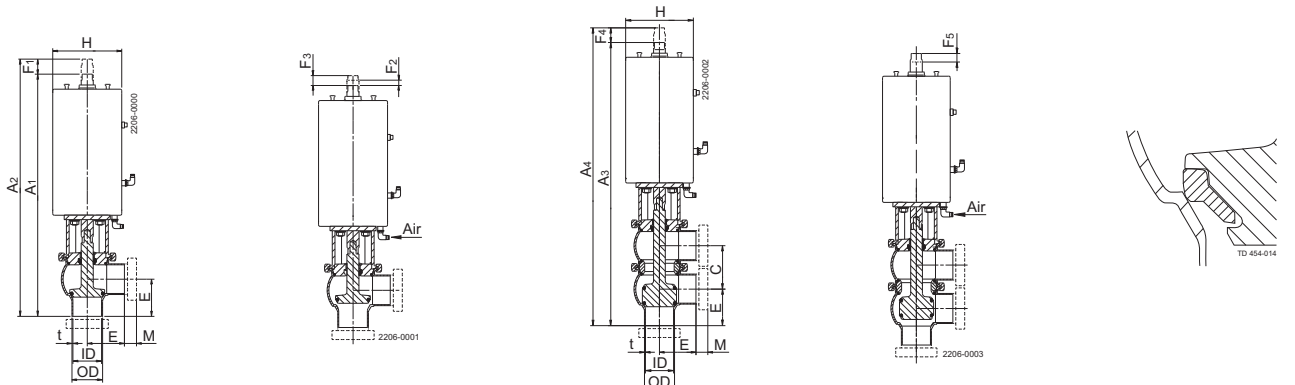
For further details, see instruction ESE00505.

Dimensions (mm)

Nominal size	Inch tubes DN/OD					DIN tubes DN					High Pressure			
											Inch tubes DN/OD		DIN tubes DN	
	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	398	422	463	506	426	452	428	452
A ₂ ¹⁾	402	420	447	488	534	404	423	447	493	536	451	477	453	477
A ₃ ¹⁾	443	469	508	557	627	448	473,5	514	570	632	500	538	504	544
A ₄ ¹⁾	460	491	530	584	654	465	496	536	597	659	522	560	526	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	62	78	87	120	61	81	62	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	ø155	ø115	ø155	ø155	ø155	ø115	ø115	ø115	ø155	ø155	ø155	ø155	ø155	ø155
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 CAS.

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	DN80-100 - DN/OD 76.1-101.6 mm
NO and NC	0.5 x air pressure [bar]	0.5 x air pressure [bar]	1.3 x air pressure [bar]

Other valves in the same basic design

The Unique SSV 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 (CAS) for full access to all models and options.

- Aseptic valve.
- Tank Outlet valve.

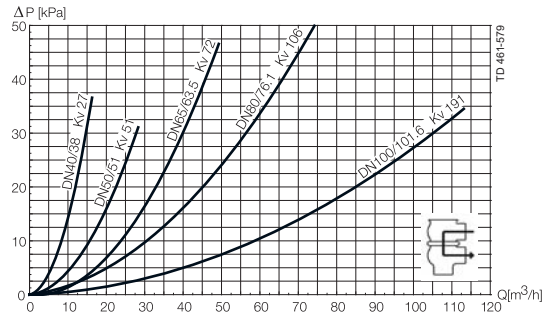
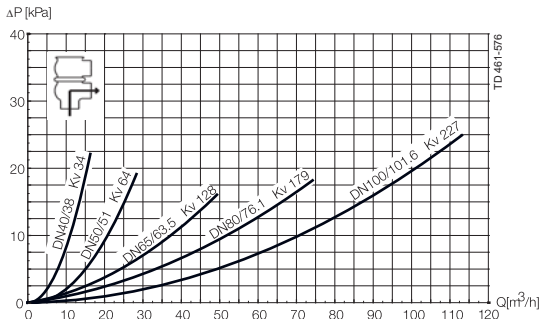
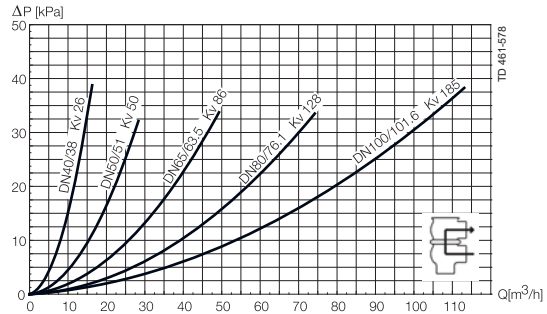
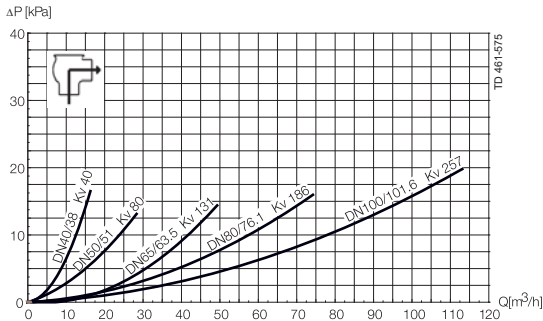
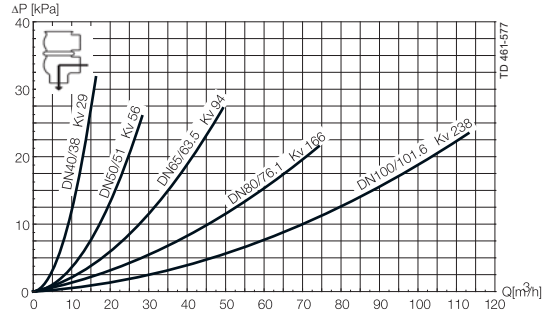
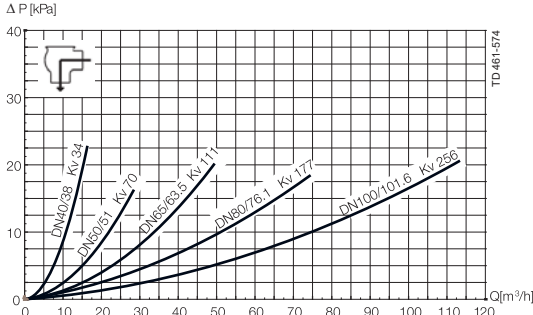
The actuator comes with a 5 years warranty

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 CAS.

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).

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 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 Two Step

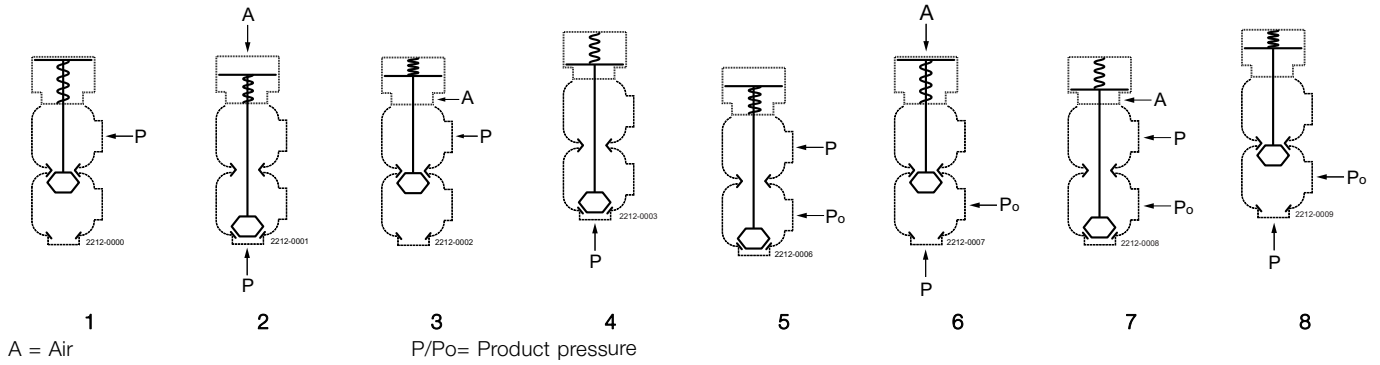


Table 1 - Shut-off and Change-over valves

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	6	NO	10.0	10.0
3	6	NC	10.0	10.0
4		NC	10.0	10.0

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