



# Simply Unique Single Seat

## Unique SSV Reverse Acting

### Concept

The Unique Single Seat Reverse Acting valve meets the highest demands of your process in terms of hygiene and safety. Built on the well-proven Unique SSV platform it provides multiple solutions to prevent pressure shocks when the pipe work does not permit closing against product flow with standard single seat 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 four (4) ports or as a change-over valve with three (3) to six (6) ports. The valve is remote-controlled by means of compressed air.

### Standard Design

The Unique SSV Reverse Acting valve comes in a two or three 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, standard lip seal: . . . -10°C to +140°C (EPDM)

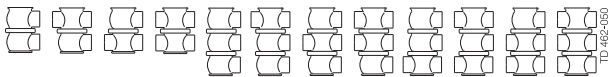
#### Pressure

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



011 012 021 022 111 112 121 122 211 212 221 222

#### 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 seal . . . . . 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. High pressure actuator
- F. Maintainable actuator
- G. External surface finish bright

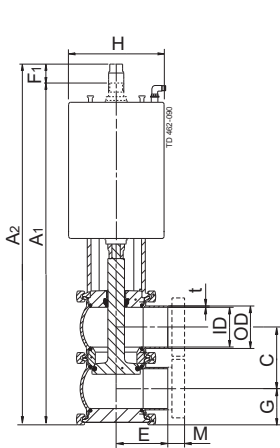
### Note!

For further details, see instruction ESE00202.

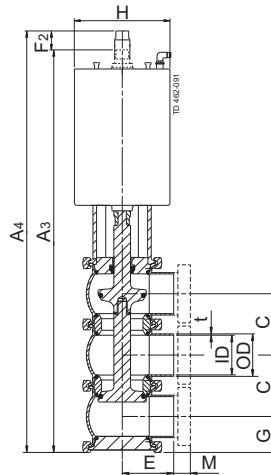
### Dimensions (mm)

Nominal size	Inch tubes DN/OD						DIN tubes DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
A <sub>1</sub> <sup>1)</sup>	338	355	411	436	483	532	346	361	416	448	500	538
A <sub>2</sub> <sup>1)</sup>	350	376	437	462	514	563	358	382	442	474	531	569
A <sub>3</sub> <sup>1)</sup>	386	420	489	526	586	660	398	429	496	544	611	668
A <sub>4</sub> <sup>1)</sup>	397	436	511	548	613	687	409	445	518	566	638	695
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 <sub>1</sub>	12	21	26	26	31	31	12	21	26	26	31	31
F <sub>2</sub>	11	16	22	22	27	27	11	16	22	22	27	27
G	23.9	30.4	36.9	43.15	49.45	62	26	32	38	46	53.5	63
H	85	85	ø115	ø115	ø155	ø155	85	85	ø115	ø115	ø155	ø155
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	-	-	-	-	-	-
<b>Weight (kg)</b>												
Shut-off valve	4.3	4.4	7.3	8.9	14.4	18.3	4.4	4.6	7.3	9.2	15.3	18.2
Change-over valve	5.2	5.4	8.7	11.0	17.1	22.6	5.4	5.7	8.7	11.4	18.5	22.5

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



Shut-off valve



Change-over valve

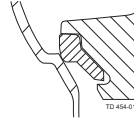
### Please note!

#### 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)

Size	Air consumption (litres free air) for one stroke		
	DN25-40	DN50-65	DN80-100
	DN/OD 25-38 mm	DN/OD 51-63.5 mm	DN/OD 76.1-101.6 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]

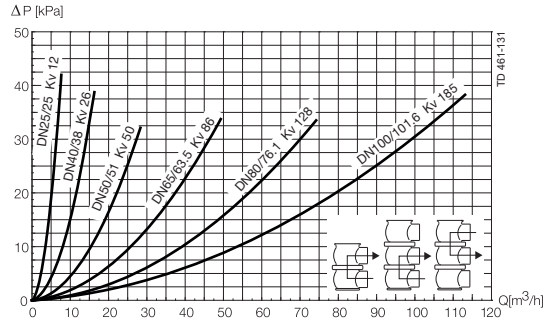
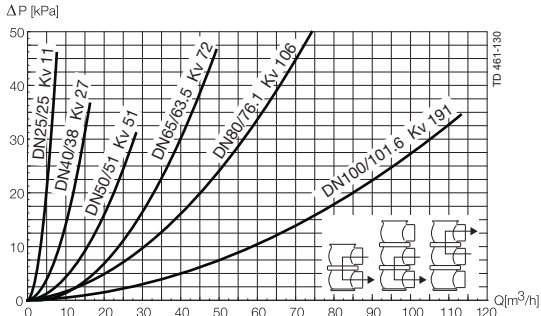
### Other valves in the same basic design

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.

- Long stroke valve.
- Manually operated valve.

The actuator comes with a 5 years warranty

## Pressure Drop/Capacity Diagrams



### Notel

For the diagrams the following applies:

Medium: Water (20°C)

Measurement: In accordance with VDI2173

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 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 Reverse Acting

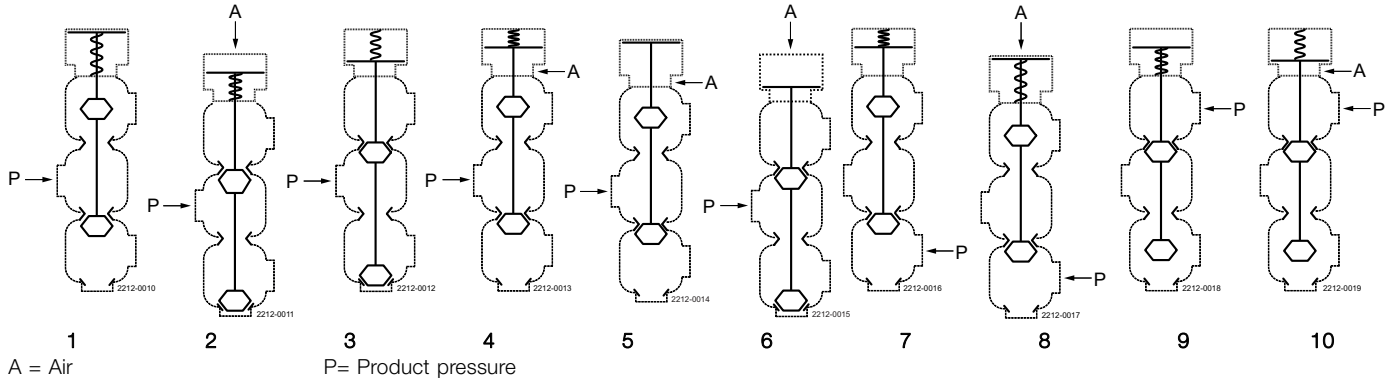


Table 1 - Shut-off and Change-over valves.

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					
			DN25	DN40	DN50	DN65	DN80	DN100
			DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD
Change-over valve			25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
1		NC	10.0	8.2	8.4	4.5	6.8	4.4
2	6	NC	10.0	7.6	9.6	5.6	7.2	4.8
3		NO	10.0	6.3	7.2	4.2	6.4	4.2
4	6	NO	10.0	10.0	10.0	6.1	7.7	5.0
5	6	A/A	10.0	10.0	10.0	10.0	9.0	5.8
6	6	A/A	10.0	10.0	10.0	10.0	8.5	5.6

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					
			DN25	DN40	DN50	DN65	DN80	DN100
			DN/OD	DN/OD	DN/OD	DN/OD	DN/OD	DN/OD
Change-over valve			25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
7		NC	10.0	9.7	10.0	6.8	4.6	3.1
8	6	NC	10.0	10.0	10.0	8.3	9.9	6.6
9		NO	10.0	10.0	10.0	7.4	4.9	3.2
10	6	NO	10.0	10.0	10.0	9.0	10.0	6.9

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