

# Simply Unique Single Seat

## Alfa Laval 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.



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**TECHNICAL DATA**

**Temperature**

Temperature range, standard lip seal: . -10°C to +140°C (EPDM)

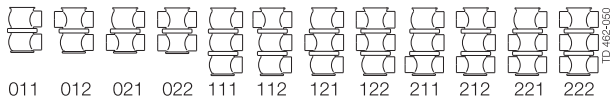
**Pressure**

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**



**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)

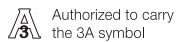
Other steel parts . . . . . 1.4301 (304)

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.

**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 (Anytime configurator) for full access to all models and options.

- Long stroke valve.
- Manually operated valve.
- Extended stroke available for 4"

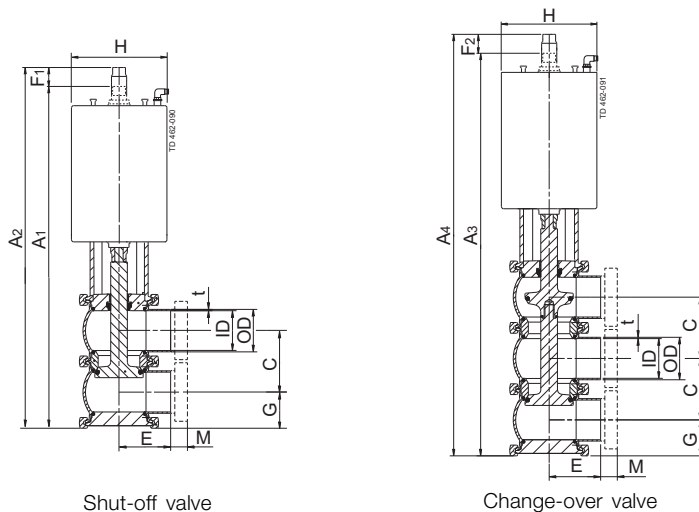
The actuator comes with a 5 years warranty

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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>	338	355	411	436	483	532	346	361	416	448	500	538
A <sub>2</sub>	350	376	437	462	514	563	358	382	442	474	531	569
A <sub>3</sub>	386	420	489	526	586	660	398	429	496	544	611	668
A <sub>4</sub>	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	ø85	ø85	ø115	ø115	ø157	ø157	ø85	ø85	ø115	ø115	ø157	ø157
H (high pressure)	ø85	ø115	ø157	ø157	ø157	ø157	ø85	ø115	ø157	ø157	ø157	ø157
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

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



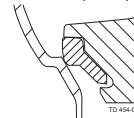
**Please note!**

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:**

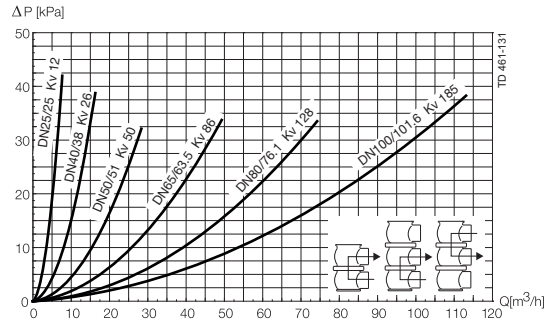
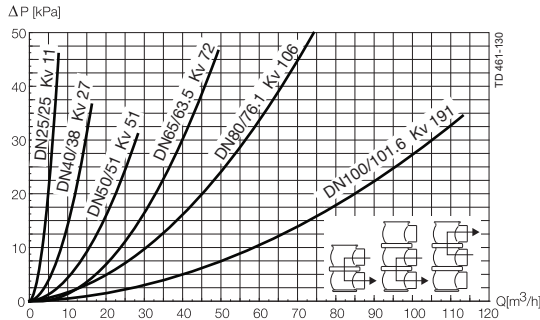
R 1/8" (BSP), internal thread.



PTFE plug seal (TR2)

Size	Air consumption (litres free air) for one stroke		
	DN25-40 DN/OD 25-38 mm	DN50-65 DN/OD 51-63.5 mm	DN80100 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 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).

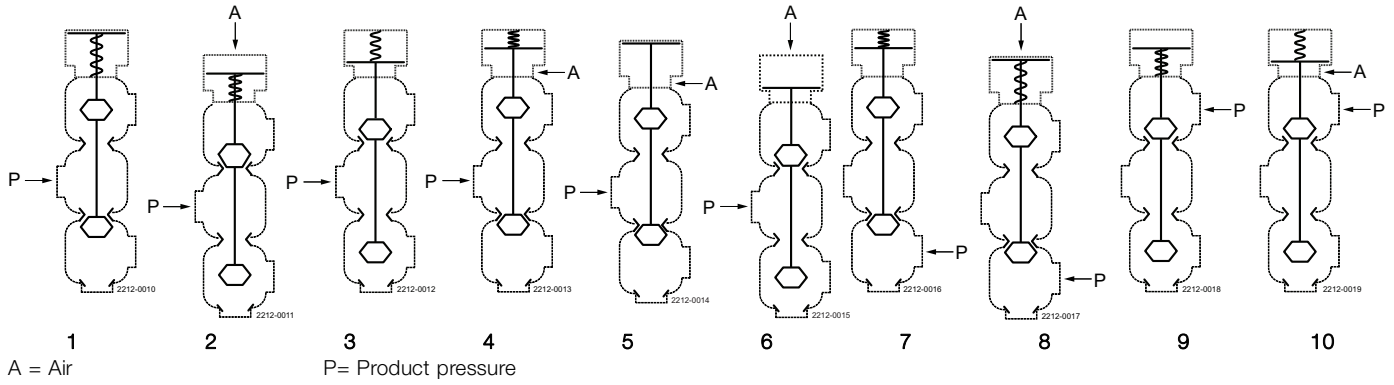
$$Q = K_v \times \sqrt{\Delta p}$$

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

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

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

Pressure data for Unique Single Seat Valve Reverse Acting



2.11

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

Max. pressure in bar without leakage at the valve seat

Actuator/valve body		Valve size						
combination and direction of pressure	Air pressure (bar)	Plug position	DN25 DN/OD	DN40 DN/OD	DN50 DN/OD	DN65 DN/OD	DN80 DN/OD	DN100 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		Valve size						
combination and direction of pressure	Air pressure (bar)	Plug position	DN25 DN/OD	DN40 DN/OD	DN50 DN/OD	DN65 DN/OD	DN80 DN/OD	DN100 DN/OD
Change-over valve			25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm
7		NO	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		NC	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

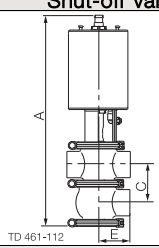
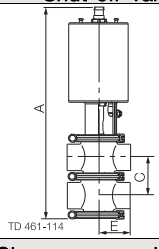
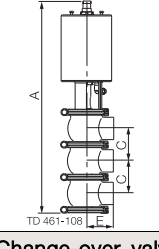
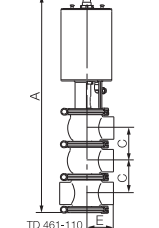
# Unique SSV Reverse Acting

# Single Seat Valves

Product code: 5233  
Inch Tubes

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

2.11

Item No.	PPL EUR	Size DN/OD (mm)	Dimension (mm)			Body combination
			A	C	E	
						<b>Shut-off valve 012</b>
9613360420	2355	25.0	350	47.8	50.0	 <p>TD 461-112</p>
9613360421	2451	38.0	376	60.8	49.5	
9613360422	2707	51.0	438	73.8	61.0	
9613360423	2925	63.5	463	86.3	81.0	
9613360424	3820	76.1	515	98.9	86.0	
9613360425	5437	101.6	564	123.6	119.0	
						<b>Shut-off valve 022</b>
9613360444	2414	25.0	350	47.8	50.0	 <p>TD 461-114</p>
9613360445	2512	38.0	376	60.8	49.5	
9613360446	2782	51.0	438	73.8	61.0	
9613360447	3007	63.5	463	86.3	81.0	
9613360448	3924	76.1	515	98.9	86.0	
9613360449	5558	101.6	564	123.6	119.0	
						<b>Change-over valve 111</b>
9613360468	2741	25.0	397	47.8	50.0	 <p>TD 461-108</p>
9613360469	2883	38.0	436	60.8	49.5	
9613360470	3203	51.0	512	73.8	62.0	
9613360471	3391	63.5	549	86.3	82.0	
9613360472	4474	76.1	614	98.9	87.0	
9613360473	6716	101.6	688	123.6	120.0	
						<b>Change-over valve 211</b>
9613360492	2800	25.0	397	47.8	50.0	 <p>TD 461-110</p>
9613360493	2943	38.0	436	60.8	49.5	
9613360494	3278	51.0	512	73.8	61.0	
9613360495	3473	63.5	549	86.3	81.0	
9613360496	4578	76.1	614	98.9	86.0	
9613360497	6837	101.6	688	123.6	119.0	

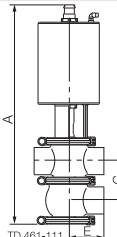
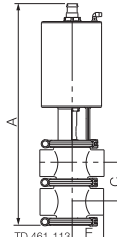
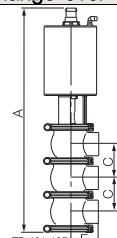
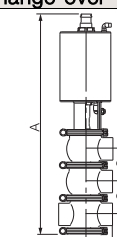
NOTE! Other body combinations - on request.

# Single Seat Valves

# Unique SSV Reverse Acting

Product code: 5233  
Inch Tubes

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	
						<b>Shut-off valve 012</b>
9613360408	<b>2355</b>	25.0	338	47.8	50.0	
9613360409	<b>2451</b>	38.0	355	60.8	49.5	
9613360410	<b>2707</b>	51.0	412	73.8	61.0	
9613360411	<b>2925</b>	63.5	437	86.3	81.0	
9613360412	<b>3820</b>	76.1	484	98.9	86.0	
9613360413	<b>5437</b>	101.6	533	123.6	119.0	
						<b>Shut-off valve 022</b>
9613360432	<b>2414</b>	25.0	338	47.8	50.0	
9613360433	<b>2512</b>	38.0	355	60.8	49.5	
9613360434	<b>2782</b>	51.0	412	73.8	61.0	
9613360435	<b>3007</b>	63.5	437	86.3	81.0	
9613360436	<b>3924</b>	76.1	484	98.9	86.0	
9613360437	<b>5558</b>	101.6	533	123.6	119.0	
						<b>Change-over valve 111</b>
9613360456	<b>2741</b>	25.0	386	47.8	50.0	
9613360457	<b>2883</b>	38.0	420	60.8	49.5	
9613360458	<b>3203</b>	51.0	490	73.8	61.0	
9613360459	<b>3391</b>	63.5	527	86.3	81.0	
9613360460	<b>4474</b>	76.1	587	98.9	86.0	
9613360461	<b>6716</b>	101.6	661	123.6	119.0	
						<b>Change-over valve 211</b>
9613360480	<b>2800</b>	25.0	386	47.8	50.0	
9613360481	<b>2943</b>	38.0	420	60.8	49.5	
9613360482	<b>3278</b>	51.0	490	73.8	61.0	
9613360483	<b>3473</b>	63.5	527	86.3	81.0	
9613360484	<b>4578</b>	76.1	587	98.9	86.0	
9613360485	<b>6837</b>	101.6	661	123.6	119.0	

NOTE! Other body combinations - on request.

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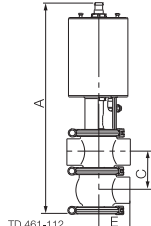
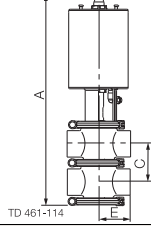
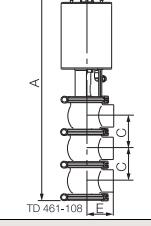
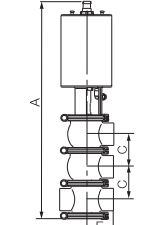
# Unique SSV Reverse Acting

# Single Seat Valves

Product code: 5233  
DIN Tubes

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

2.11

Item No.	PPL	Size DIN	Dimension (mm)			Body combination
	EUR		A	C	E	
<b>Shut-off valve 012</b>						
9613360426	2355	DN25	358	52	50.0	 <p>TD 461-112</p>
9613360427	2451	DN40	382	64	49.5	
9613360428	2707	DN50	442	76	62.0	
9613360429	2925	DN65	474	92	78.0	
9613360430	3820	DN80	531	107	87.0	
9613360431	5437	DN100	569	126	120.0	
<b>Shut-off valve 022</b>						
9613360450	2414	DN25	358	52	50.0	 <p>TD 461-114</p>
9613360451	2512	DN40	382	64	49.5	
9613360452	2782	DN50	442	76	62.0	
9613360453	3007	DN65	474	92	78.0	
9613360454	3924	DN80	531	107	87.0	
9613360455	5558	DN100	569	126	120.0	
<b>Change-over valve 111</b>						
9613360474	2741	DN25	409	52	50.0	 <p>TD 461-108</p>
9613360475	2883	DN40	445	64	49.5	
9613360476	3203	DN50	518	76	62.0	
9613360477	3391	DN65	566	92	78.0	
9613360478	4474	DN80	638	107	87.0	
9613360479	6716	DN100	695	126	120.0	
<b>Change-over valve 211</b>						
9613360498	2800	DN25	409	52	50.0	 <p>TD 461-110</p>
9613360499	2943	DN40	445	64	49.5	
9613360500	3278	DN50	518	76	62.0	
9613360501	3473	DN65	566	92	78.0	
9613360502	4578	DN80	638	107	87.0	
9613360503	6837	DN100	695	126	120.0	

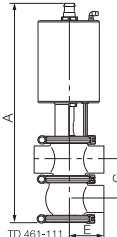
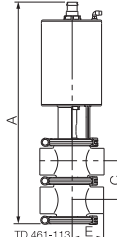
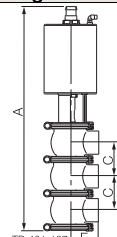
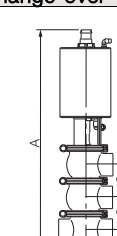
NOTE! Other body combinations - on request.

# Single Seat Valves

# Unique SSV Reverse Acting

Product code: 5233  
DIN Tubes

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	
<b>Shut-off valve 012</b>						
9613360414	<b>2355</b>	DN25	346	52	50.0	 <p>TD 461-111</p>
9613360415	<b>2451</b>	DN40	361	64	49.5	
9613360416	<b>2707</b>	DN50	416	76	62.0	
9613360417	<b>2925</b>	DN65	448	92	78.0	
9613360418	<b>3820</b>	DN80	500	107	87.0	
9613360419	<b>5437</b>	DN100	538	126	120.0	
<b>Shut-off valve 022</b>						
9613360438	<b>2414</b>	DN25	346	52	50.0	 <p>TD 461-113</p>
9613360439	<b>2512</b>	DN40	361	64	49.5	
9613360440	<b>2782</b>	DN50	416	76	62.0	
9613360441	<b>3007</b>	DN65	448	92	78.0	
9613360442	<b>3924</b>	DN80	500	107	87.0	
9613360443	<b>5558</b>	DN100	538	126	120.0	
<b>Change-over valve 111</b>						
9613360462	<b>2741</b>	DN25	398	52	50.0	 <p>TD 461-107</p>
9613360463	<b>2883</b>	DN40	429	64	49.5	
9613360464	<b>3203</b>	DN50	496	76	62.0	
9613360465	<b>3391</b>	DN65	544	92	78.0	
9613360466	<b>4474</b>	DN80	611	107	87.0	
9613360467	<b>6716</b>	DN100	668	126	120.0	
<b>Change-over valve 211</b>						
9613360486	<b>2800</b>	DN25	398	52	50.0	 <p>TD 461-109</p>
9613360487	<b>2943</b>	DN40	429	64	49.5	
9613360488	<b>3278</b>	DN50	496	76	62.0	
9613360489	<b>3473</b>	DN65	544	92	78.0	
9613360490	<b>4578</b>	DN80	611	107	87.0	
9613360491	<b>6837</b>	DN100	668	126	120.0	

2.11

NOTE! Other body combinations - on request.