



# Alfa Laval Unique SSV Long Stroke

Simply Unique

## Concept

The Unique Single Seat Series is an innovative new generation of single seat valves that are designed to meet the highest process demands of hygiene and safety. They're built on a well-proven, platform from an installed base of more than one million valves.

## Working principle

The valve is remote-controlled by means of compressed air. It has few and simple moveable parts which results in a very reliable valve and low maintenance costs.

## Standard Design

The Unique SSV valve is designed to deliver years of reliability and performance you've come to expect with all products. Its flexible design consists of either one or two bodies that are clamped together. The TR2 seat ring with enhanced CIP capabilities and hygiene comes standard with all Unique SSV series valves. For added confidence, the valve can be supplied with a controlled compression elastomer seat ring. The actuator comes with a five year warranty. The Unique SSV Long Stroke valve sizes range from 1½" to 4".



## TECHNICAL DATA

### Temperature

Temperature range: . . . . . 14°F to +284°F (EPDM)

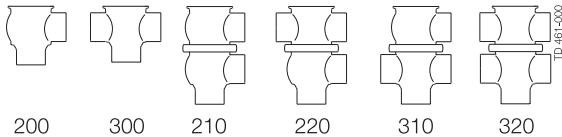
### Pressure

Max. product pressure (depending on valve specifications): . . . . . 145 psi (10 bar).

Min. product pressure . . . . . Full vacuum

Air pressure: . . . . . 72.5 to 101.5 psi (5 to 7 bar)

### Valve body combinations



### Actuator function

- Pneumatic downward movement, spring return.
- Pneumatic upward movement, spring return.
- Pneumatic upward and downward movement (AA).

## PHYSICAL DATA

### Materials

- Product wetted steel parts: . . . . . AISI 316L (internal Ra < 32 μ inch)
- Other steel parts: . . . . . AISI 304
- Plug seal: . . . . . PTFE (TR2) (standard)
- Optional elastomer plug seal: . . . . . EPDM, HNBR or FPM
- Optional productwetted seals: . . . . . HNBR or FPM.
- Other productwetted seals: . . . . . EPDM (standard)
- Other seals: . . . . . NBR

**Options**

- A. Weld ends or connection types other than Tri-Clamp.
- B. Control and Indication: ThinkTop and ThinkTop Basic
- C. Product wetted seals in HNBR or FPM
- D. Replaceable elastomer plug seals.
- E. External surface finish blasted.

**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.

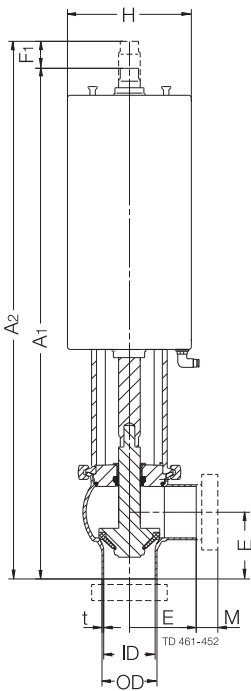
- Reverse acting valve.
- Manually operated valve.
- Tank Outlet valve.
- Tangential valve.

The actuator comes with a 5 years warranty

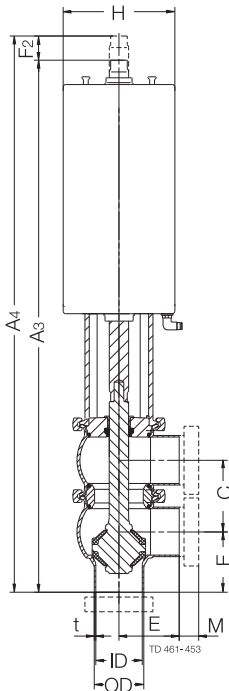
**Dimensions**

Nominal Size	1½"	2"	Inch 2½"	3"	4"
A <sub>1</sub>	16.37	16.76	17.36	21.23	23.32
A <sub>2</sub>	17.31	18.06	19.09	23.5	25.84
A <sub>3</sub>	17.8	19.02	20.55	24.76	28.07
A <sub>4</sub>	18.75	20.32	22.32	27	30.59
C	2.39	2.91	3.4	3.89	4.87
OD	1.5	2	2.5	3	4
ID	1.37	1.88	2.37	2.87	3.84
t	0.06	0.06	0.06	0.06	0.08
E <sub>1</sub>	1.95	2.44	3.23	3.43	4.72
E <sub>2</sub>	0.94	1.30	1.73	2.24	2.52
F <sub>1</sub>	0.98	1.30	1.77	2.24	2.52
F <sub>2</sub>	3.35	4.52	4.52	6.18	6.18
H	4.52	6.18	6.18	6.18	6.18
M (Tri-Clamp)	0.50	0.50	0.50	0.50	0.63
<b>Weight (lb)</b>					
Shut-off valve	13.4	14.7	16.8	33.2	38.8
Change-over valve	15	17.4	21	38.8	49.5

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



Shut-off valve.



Change-over valve.

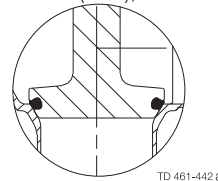
**Please note!**

Opening/closing time will be affected 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.

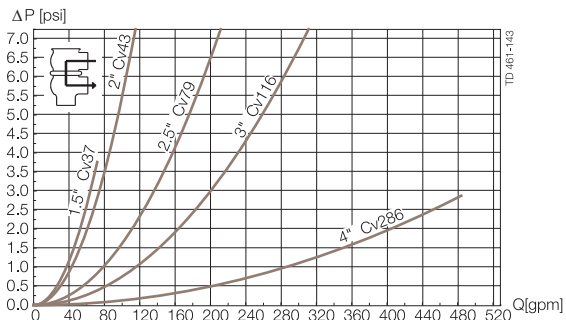
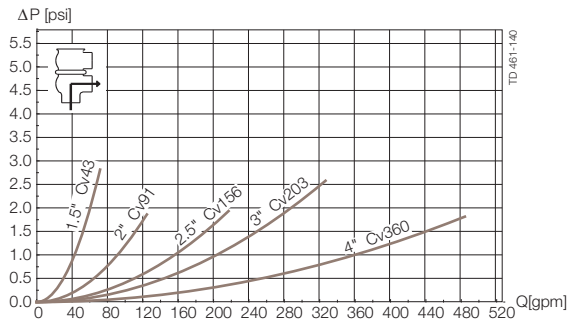
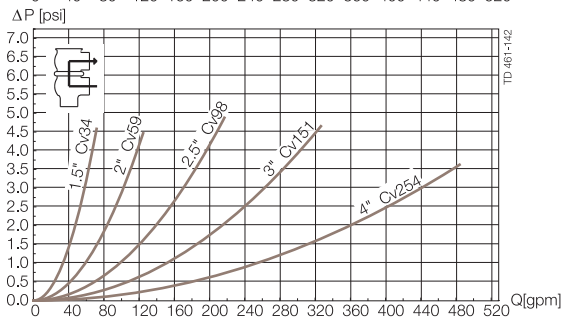
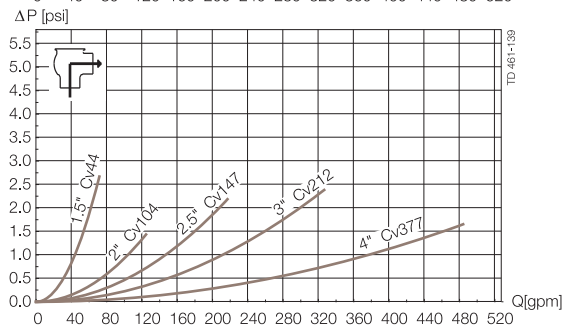
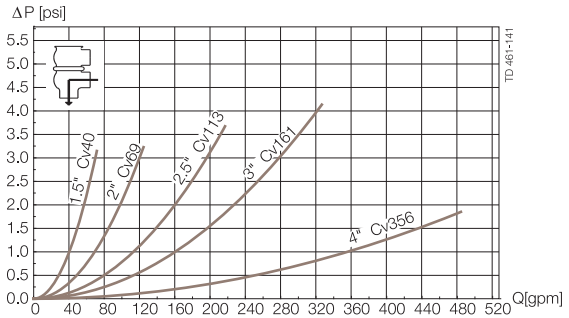
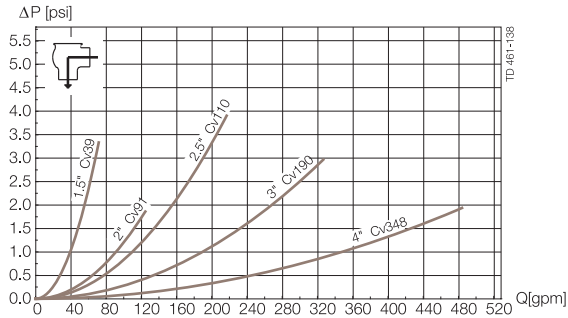


Replaceable elastomer plug seal

Max. size of solids (inch)	Valve size (DN/OD)				
	1½"	2"	2½"	3"	4"
Shut-off valve	0.51	0.94	1.30	1.77	2.05
Change-over valve (plug up/lower body)	0.51	0.94	1.34	1.77	2.05
Change-over valve (plug down)	0.47	0.59	0.91	1.18	1.57

Air consumption (ln³ free air) for one stroke		
Size	1½" - 2½"	3" - 4"
NO and NC	0.8 x air pressure [PSI]	2 x air pressure [PSI]
A/A	1.4 x air pressure [PSI]	3.9 x air pressure [PSI]

**Pressure drop/capacity diagrams**



For the diagrams the following applies:

**Note!**

For the diagrams the following applies:

Medium: Water 68° F

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:

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

Where

Q = Flow (gallon/minute).

Cv = gallon/minute at a pressure drop of 14.5 psi (see table above).

Δ p = Pressure drop in psi over the valve.

2.5" shut-off valve, where Cv = 128 (See table above).

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

$$160 = 128 \times \sqrt{\Delta p}$$

$$\Delta p = \left(\frac{160}{128}\right)^2 = 1,6 \text{ psi}$$

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

## Pressure data for Unique Single Seat Valve Long Stroke

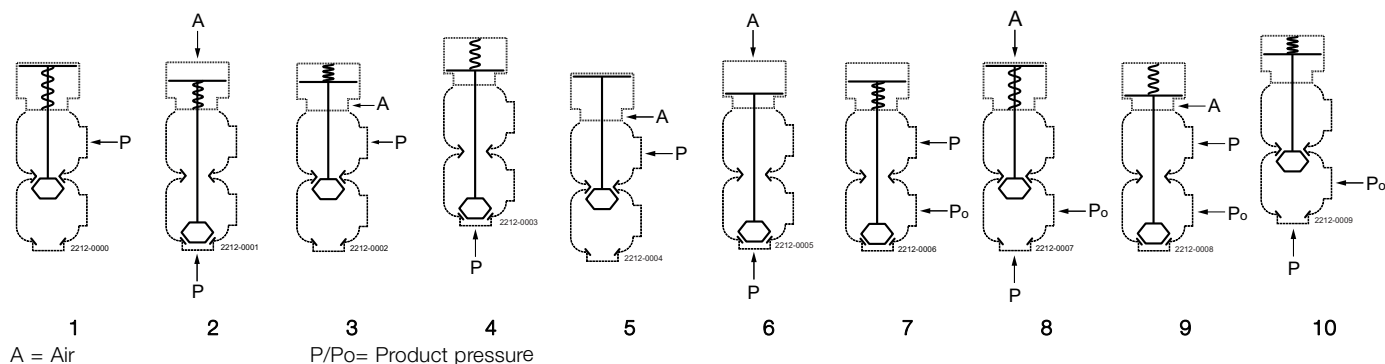


Table 1 - Shut-off and Change-over valves

Max. pressure in PSI without leakage at the valve seat

Actuator / Valve body combination and direction of pressure	Air pressure (psi)	Plug position	Valve size				
			DN 40 DN/OD	DN50 DN/OD	DN 65 DN/OD	DN 80 DN/OD	DN 100 DN/OD
			1½"	2"	2½"	3"	4"
1		NO	145	129	70	103	67
2	87	NO	145	125	73	99	64
3	87	NC	145	144	78	104	67
4		NC	145	110	64	97	64
5	87	A/A	145	145	145	145	145
6	87	A/A	145	145	145	145	145

Table 2 Shut-off and Change-over valves

Max. pressure in PSI 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
			1½"	2"	2½"	3"	4"
7		NO	0.39	145	117	145	97
8	6	NO	0.39	145	116	141	94
9	6	NC	0.39	145	126	145	97
10		NC	0.39	145	109	139	93

Alfa Laval reserves the right to change specifications without prior notification.

**How to contact Alfa Laval**

Contact details for all countries are continually updated on our website. Please visit [www.alfalaval.us](http://www.alfalaval.us) to access the information direct.