Simply Unique Single Seat

Alfa Laval Unique SSV Tangential

Concept

The Unique Single Seat Tangential valve meets the highest demands of your process in terms of hygiene and safety. Built on the well-proven Unique SSV platform it offers complete drainability of the valve body on horizontally mounted valves. It can be configured as a shut-off valve with two (2) or three (3) ports or as a change-over valve with three (3) to five (5) ports.

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 Tangential 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

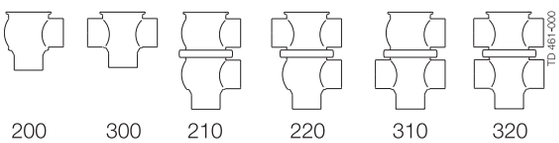
Temperature

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 (5-7 bar)

Valve Body Combinations



200 300 210 220 310 320

Actuator function

- Pneumatic downward movement, spring return.
- Pneumatic upward movement, spring return.
- Pneumatic upward and downward movement (A/A).
- Actuator for intermediate position of the valve plug (optional)

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

Authorized to carry the 3A symbol

Options

A. Weld ends or connection types other than Tri-Clamp.
B. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
C. Product wetted seals in HNBR or FPM.
D. Plug seal HNBR, FPM or TR2 (floating PTFE design).
E. High pressure actuator.
F. NO or A/A actuator.
G. Maintainable actuator.
H. External surface finish bright.

Note!

For further details, see instruction ESE00609.

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.

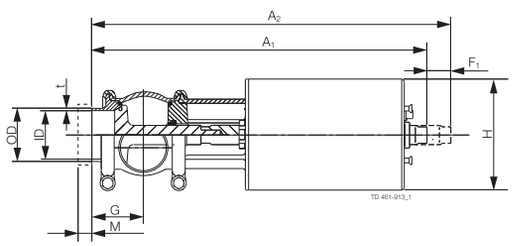
- Reverse acting valve.
- Long stroke valve.
- Manually operated valve.
- Aseptic valve.

The actuator comes with a 5 years warranty

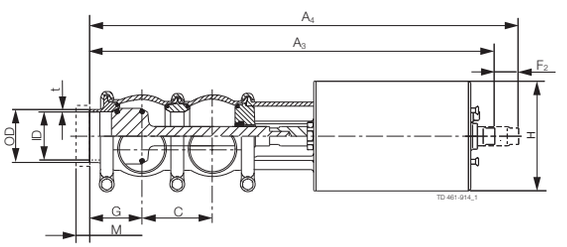
Dimensions

	Nominal Size			
	DN/OD 51 mm	DN/OD 63.5 mm	DN/OD 76.1 mm	DN/OD 101.6 mm
A_1 [1)]	361	374	409	433
A_2 [1)]	386	399	439	463
A_3 [1)]	435	460	507	557
A_4 [1)]	457	482	534	584
C	73.8	86.3	98.9	123.6
OD	51	63.5	76.1	101.6
ID	47.8	60.3	72.9	97.6
t	1.6	1.6	1.6	2
E	61	81	86	119
G	59.9	66.2	72.5	84.8
F_1	25	25	30	30
F_2	22	22	27	27
H	114.9	114.9	154.3	154.3
N	14.3	17.9	21.5	25
M/ISO Clamp	21	21	21	21
M/SMS male	20	24	24	35
Weight (kg)				
Shut-off valve	5.8	6.8	11.7	14.1
Change-over valve	7.4	9	14.5	18.8

[1)] For exact A_1 - A_4 dimensions, please refer to informations in Anytime configurator.



Shut-off valve



Change-over valve

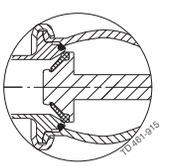
Please note!

Opening/closing time will be effected by the following:

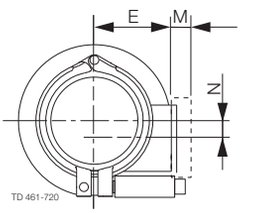
- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Air Connections Compressed air:

R 1/8" (BSP). Internal thread.

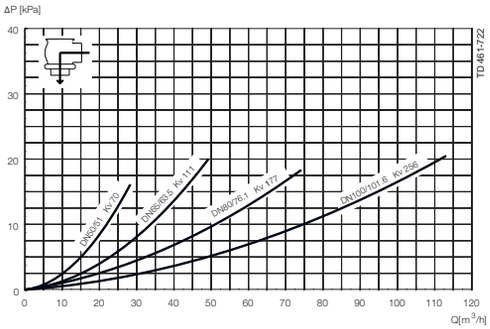


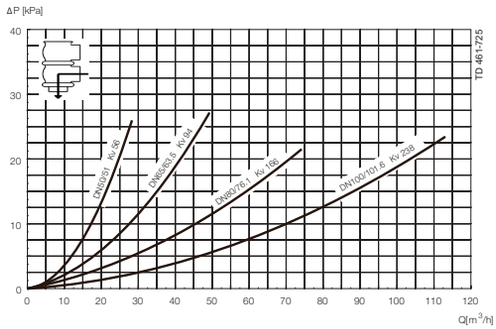
PTFE plug seal (TR2)

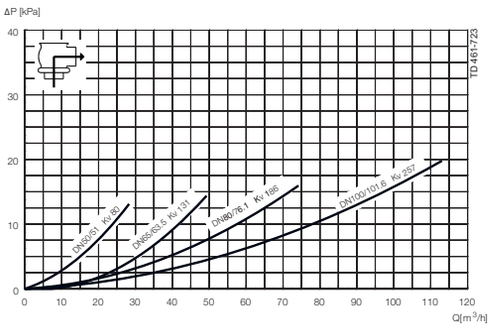


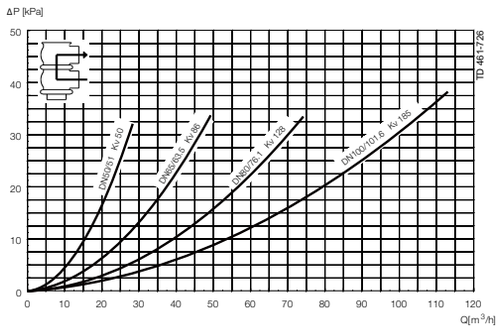
Air Consumption (Litres free air) for one stroke		
Size	**DN/OD 51 - 63.5 mm**	**DN/OD 76.1 - 101.6 mm**
NO and NC	0.15 x air pressure [bar]	1.3 x air pressure [bar]
A/A	1.1 x air pressure [bar]	2.7 x air pressure [bar]

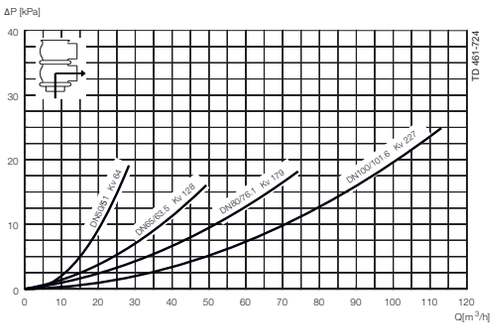
Pressure drop/capacity diagrams

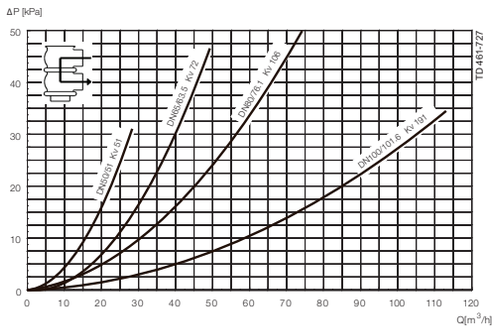












Note!

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:

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

Where

Q = Flow in m^3/h.

Kv = m^3/h at a pressure drop of 1 bar (see table above).

Δ p = Pressure drop in bar over the valve.

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Kv = m^3/h at a pressure drop of 1 bar (see table above).

Δ p = Pressure drop in bar over the valve.

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

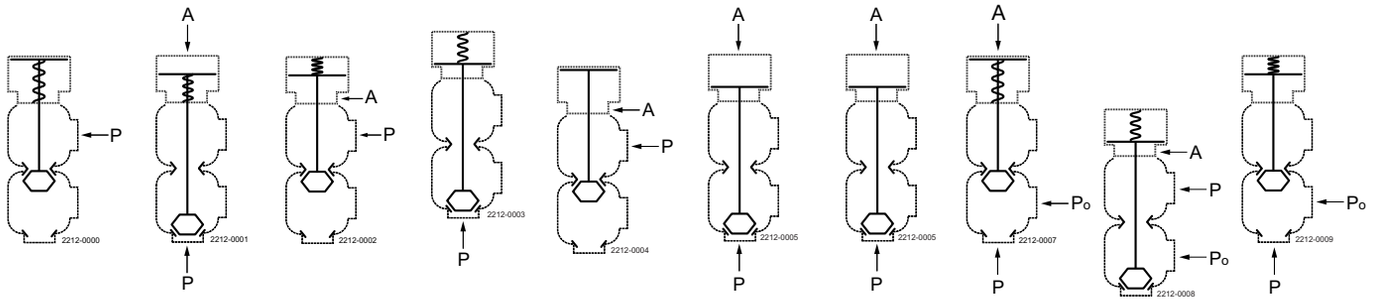
$Q = Kv \times \sqrt{\Delta p}$

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

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

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

Pressure data for Unique Single Seat Valve Tangential body/Tank valve



A = Air P/Po= Product pressure

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 DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
1		NO	8.4	4.5	6.8	4.4
2	6	NO	9.6	5.6	7.2	4.8
3	6	NC	10.0	6.1	7.7	5.0
4		NC	7.2	4.2	6.4	4.2
5	6	A/A	10.0	10.0	10.0	10.0
6	6	A/A	10.0	10.0	10.0	10.0

Table 2- Shut-off and change-over valves — Max. pressure in bar against which the valve can open

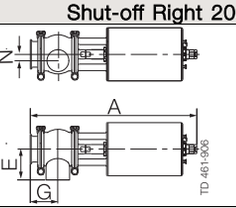
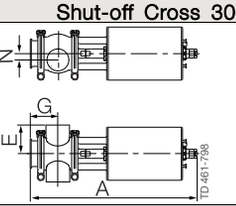
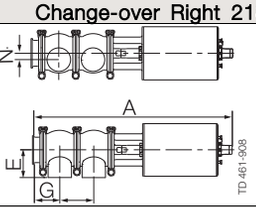
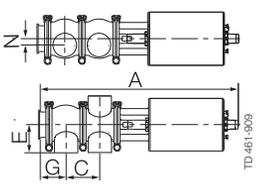
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
7		NO	10.0	7.7	9.7	6.3
8	6	NO	10.0	6.3	9.9	6.6
9	6	NC	10.0	9.0	10.0	6.9
10		NC	10.0	6.8	9.1	6.1

Table 3- Shut-off and change-over valves with high pressure actuator option — 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 DN50 DN/OD 51 mm	DN 65 DN/OD 63.5 mm	DN 80 DN/OD 76.1 mm	DN 100 DN/OD 101.6 mm
1		NO	10.0	10.0	-	-
2	6	NO	10.0	10.0	-	-
3	6	NC	10.0	10.0	5.0	3.0
4		NC	10.0	10.0	10.0	7.0

Product code: 5247

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) A	C	E	G	N	Body combination
								Shut-off Right 208
9613363312	**2061**	51.0	386		62	59.9	14.3	
9613363313	**2308**	63.5	399		82	66.2	17.9	
9613363314	**2967**	76.1	439		87	72.5	21.5	
9613363315	**3874**	101.6	463		120	84.8	25	
								Shut-off Cross 309
9613363316	**2151**	51.0	386		62	59.9	14.3	
9613363317	**2406**	63.5	399		82	66.2	17.9	
9613363318	**3093**	76.1	439		87	72.5	21.5	
9613363319	**4019**	101.6	463		120	84.8	25	
								Change-over Right 218
9613363320	**2748**	51.0	457	73.8	62	59.9	14.3	
9613363321	**2967**	63.5	482	86.3	82	66.2	17.9	
9613363322	**3881**	76.1	534	98.9	87	72.5	21.5	
9613363323	**5559**	101.6	584	123.6	120	84.8	25	
								Change-over Right 228
9613363234	**2838**	51.0	457	73.8	62	59.9	14.3	
9613363235	**3065**	63.5	482	86.3	82	66.2	17.9	
9613363236	**4005**	76.1	534	98.9	87	72.5	21.5	
9613363324	**5704**	101.6	584	123.6	120	84.8	25	

NOTE! Other body combinations - on request.