Simply Unique Single Seat

Unique SSV Tank Outlet

Concept

The Unique Single Seat Tank Outlet valve meets the highest demands of your process in terms of hygiene and safety. Built on the well-proven Unique SSV platform it is suitable for a wide field of applications, e.g. as a shut-off version closing up against the tank or as a reverse acting valve opening into the tank.

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 Tank Outlet valve comes in a one body configuration, which can be delivered with or without a tank flange. 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. The body can be turned in any position if the clamps are slightly loosened. The tank flange is welded directly into the tank.

TECHNICAL DATA

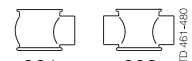
Temperature

Max. product pressure in tank: 1000 kPa (10 bar) if max. 20°C
. . . . . 850 kPa (8.5 bar) if max. 100°C
. . . . . 750 kPa (7.5 bar) if max. 150°C
Temperature range: . . . . . -10°C to +140°C (EPDM)

Pressure

Max. product pressure in pipeline: . . . . . 1000 kPa (10 bar)
Min. product pressure: . . . . . Full vacuum
Air pressure: . . . . . 500 to 700 kPa (5 to 7 bar)

Valve Body Combinations



001 010(RA) 002 020(RA)

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

CERTIFIED HYGIENIC ENGINEERING & DESIGN EUROPEAN EHEDG TYPE EL OCTOBER 2008

Options

A. Male parts or clamp liners in accordance with required standard.
B. Weld ends or connection types other than Tri-Clamp
C. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
D. Product wetted seals in HNBR or FPM.
E. Plug seals HNBR, FPM or TR2 plug (floating PTFE design).
F. High pressure actuator.
G. Long stroke actuator (not available for Reverse Acting version).
H. Maintainable actuator.
I. External surface finish bright.

Note!

For further details, see instruction ESE00305.

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.

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

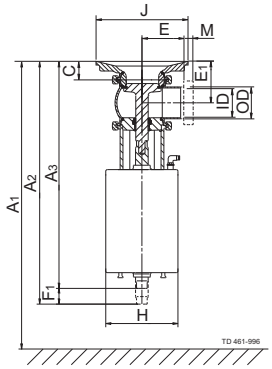
The actuator comes with a 5 years warranty

Dimensions (mm)

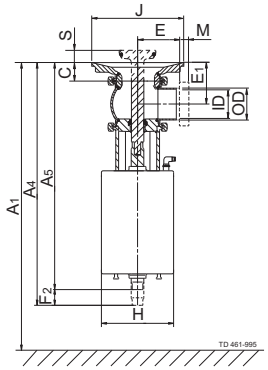
Size	51 mm	63.5 mm	76.1 mm	101.6 mm	DN 50	DN 65	DN 80	DN 100
A_1 1)	425	438	478	502	429	445	487	506
A_2 1)	392	405	445	469	396	412	454	473
A_3 1)	367	380	415	439	371	387	424	443
A_4 1)	389	402	442	466	393	409	451	470
A_5 1)	363	376	411	435	367	383	420	439
C	30	30	30	30	30	30	30	30
OD	51	63.5	76.1	101.6	53	70	85	104
ID	47.8	60.3	72.9	97.6	50	66	81	100
t	1.6	1.6	1.6	2	1.5	2	2	2
E	61	81	86	119	62	82	87	120
E_1	67	73	79	92	68	76	84	93
F_1	25	25	30	30	25	25	30	30
F_2	26	26	31	31	26	26	31	31
H	ø115	ø115	ø155	ø155	ø115	ø115	ø155	ø155
J	148	163	178	198	148	163	178	198
S	16	16	21	21	16	16	21	21
M/ISO clamp	21	21	21	21	-	-	-	-
M/DIN clamp	-	-	-	-	21	28	28	28
M/DIN male	-	-	-	-	23	25	25	30
M/SMS male	20	24	24	35	-	-	-	-
Weight (kg)								
Standard	7.1	8.3	13.3	15.9	7.1	8.5	13.8	15.9
Reverse Acting	7.2	8.4	13.5	16.1	7.2	8.6	14	16

A1= min. Installation measure to allow that valve can be lifted out of the tank flange / valve body (if Indication Unit is mounted, height must be added)

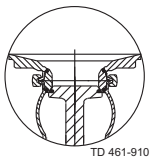
1) For exact A_1 - A_4 dimensions, please refer to informations in CAS.



Standard



Reverse Acting



PTFE plug seal (TR2)

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.

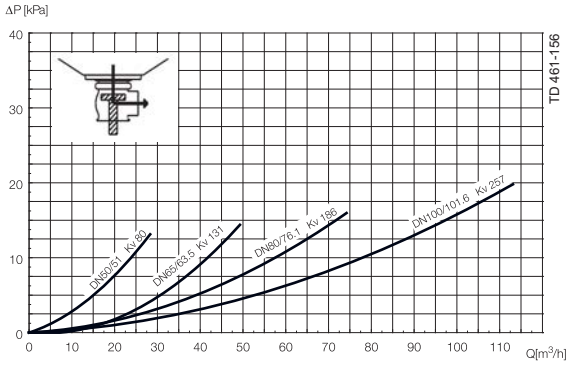
Air Connections Compressed air:

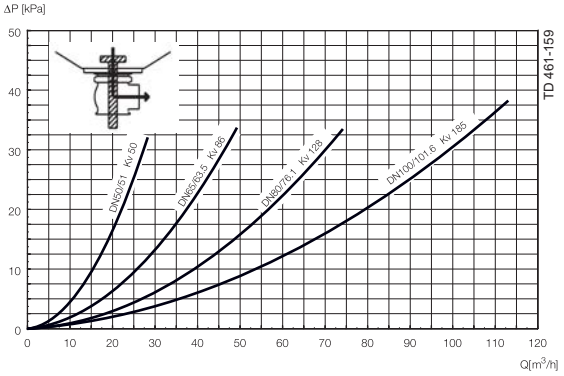
R 1/8" (BSP), internal thread.

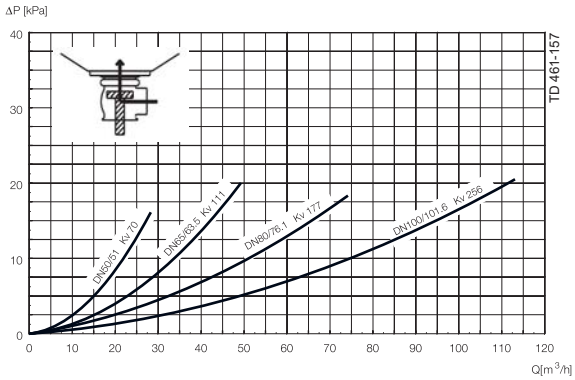
Actuator function

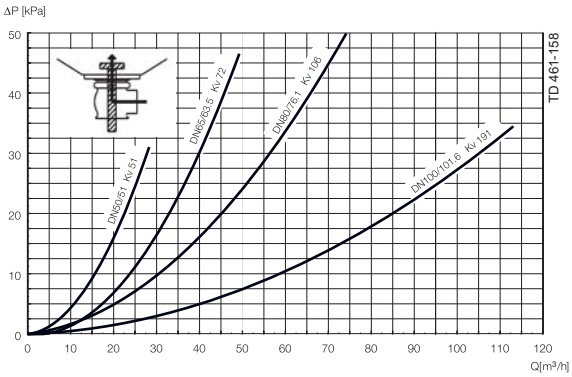
Air consumption (litres free air) for one stroke	
DN50-65 DN/ OD 51-63.5 mm	DN80-100 DN/ OD 76.1-101.6 mm
0.5 x air pressure [bar]	1.3 x air pressure [bar]

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 CAS.

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.

How to calculate the pressure drop for an ISO 2.5" shut-off valve if the flow is 40 m^3/h

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

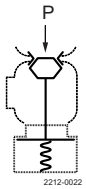
$Q = Kv \times \sqrt{\Delta p}$

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

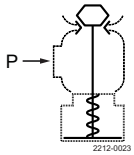
$$\Delta p = \left(\frac{40}{111}\right)^2 = 0.13 \text{ bar}$$

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

Pressure data for Unique Single Seat Valve Tank Outlet



1



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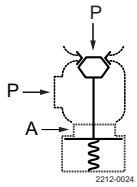

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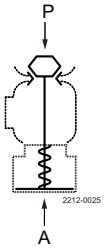

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A = Air

P= Product pressure

Table 1 - Shut fully closed. **Max. pressure in bar without leakage at the valve seat**

Actuator / Valve body combination and direction of pressure	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	7.2	4.2	6.4	4.2
2	8.4	4.5	6.8	4.4

Table 2 **Max. pressure in bar against which the valve can open**

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	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
3	6	10.0	9.0	10.0	6.9
4	6	10.0	8.3	9.9	6.6

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