Simply Unique Single Seat

Alfa Laval Unique SSV DN125 and DN150

Concept
Unique Single Seat DN125 and DN150 Valves are pneumatic seat valves in a hygienic and modular design giving a wide field of application, e.g. as a stop valve with two (2) or three (3) ports or as change-over valve with three (3) to five (5) ports

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 cost.

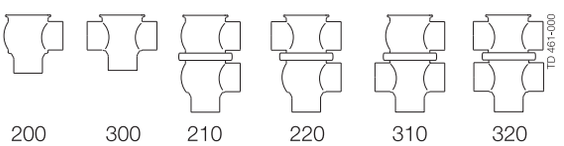
Standard Design
The Unique Single Seat DN125 and DN150 Valves come in a one or two body configuration. The actuator is connected to the valve body by means of clamp rings. To facilitate installation the valve is only partly assembled when delivered. The valve has welding ends as standard and is available with fittings as option. It is recommended, due to the valve size and weight, to use supporting equipment, handling and installing the valve. Guidelines are given in the instruction manual (ESE02590). Alfa Laval is not able to supply the recommended supporting equipment.

TECHNICAL DATA

Temperature
Temperature range, standard lip seal: . -10°C to +100°C (EPDM)
Temperature range, special lip seal: . . -10°C to +140°C (EPDM)

Pressure
Max. product pressure: . . . . . 1000 kPa (10 bar)
Min. product pressure: . . . . . Full vacuum
Air pressure, actuator
- Sizes DN125-150 . . . . . 600 to 800 kPa (6 to 8 bar)

Valve Body Combinations



Actuator function
- Pneumatic downward movement, spring return (NO-lower seat)
- Pneumatic upward movement, spring return (NC-lower seat)

Authorized to carry the 3A symbol

PHYSICAL DATA

Materials
Product wetted steel parts: 1.4401 (316L)
Other steel parts: 1.4301 (304)
Plug stem sizes DN125-150 . . . . . 1.4401 (316L)
Product wetted seals . . . . . EPDM
Other seals . . . . . NBR

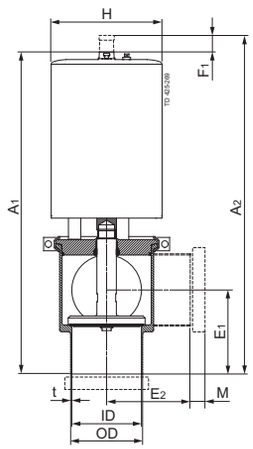
Options

A. Male parts in accordance with required standard.
B. Control and Indication (IndiTop, ThinkTop or ThinkTop Basic).
C. Surface roughness, product wetted parts: Ra ≤ 0.8 µm.
D. Product wetted seals of NBR or FPM.
E. Service tools for actuator.
F. Plug seals NBR/FPM.

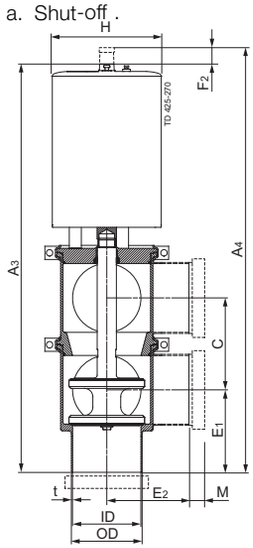
The actuator comes with a 5 years warranty

Dimensions (mm)

Nominal size	DIN DN 125		DIN DN 150	
	NC	NO	NC	NO
A_1	571	573	584	586
A_2	614	618	627	631
A_3	740	737	777	775
A_4	781	778	818	816
C	167	167	192	192
OD	129	129	154	154
ID	125	125	150	150
t	2.0	2.0	2.0	2.0
E_1	150	150	150	150
E_2	150	150	150	150
F_1	43	45	43	45
F_2	41	41	41	41
H	199	199	199	199
M/DIN male	46	46	50	50
Weight (kg) - Shut-off valve	40.3	40.3	40.9	40.9
Weight (kg) - Change-over valve	50	50	51.3	51.3



a. Shut-off .



b. 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:

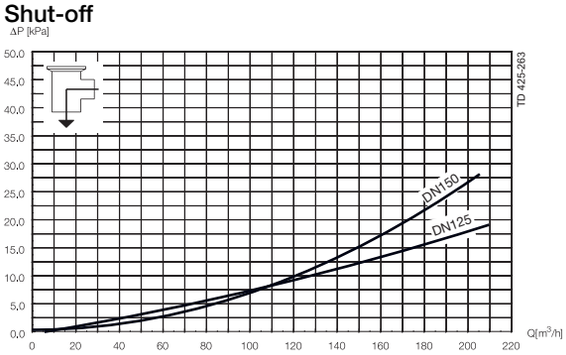
R 1/8" (BSP), internal thread.

Actuator function

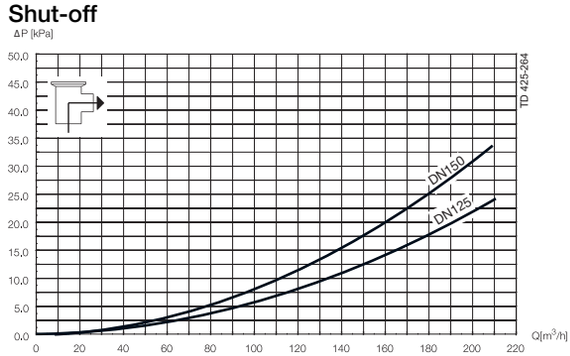
	Air consumption (litres free air) for one stroke	
Size	**DN 125-150**	**DN 125-150**
Shut-off / Change-over valve Actuator function	1.5 x Air pressure (bar) NC	2.2 x Air pressure (bar) NO
Shut-off / Change-over valve Actuator function	3.6 x Air pressure (bar) NC (Support air for closing)	2.9 x Air pressure (bar) NO (Support air for opening)

Pressure drop/capacity diagrams

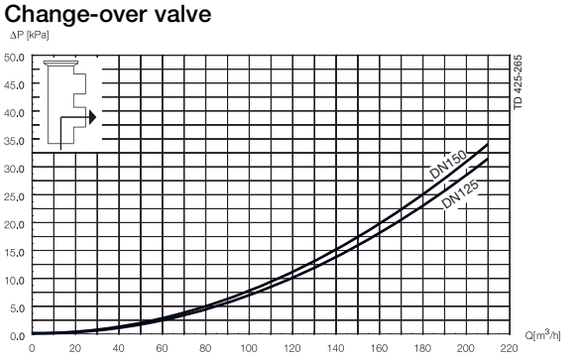
Shut-off



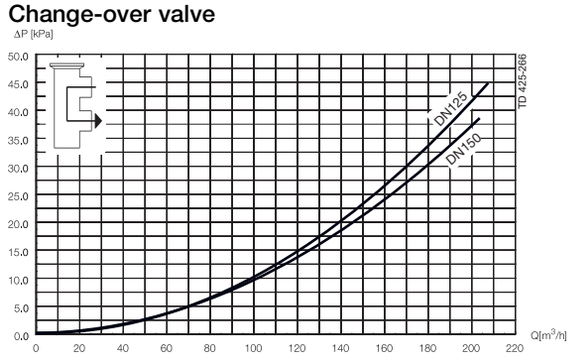
Shut-off

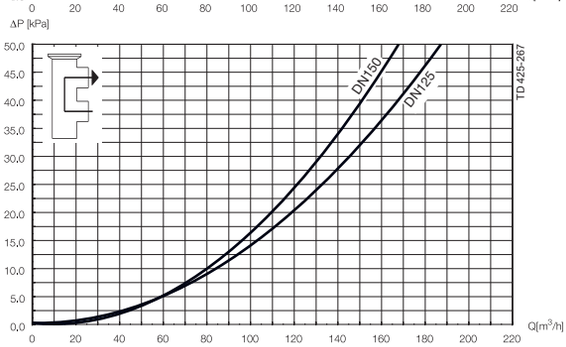


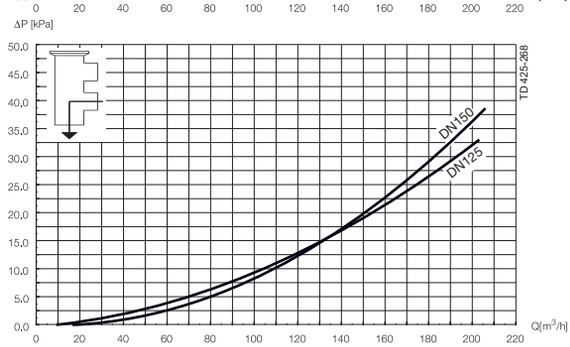
Change-over valve



Change-over valve







NOTE!
For the diagrams the following applies:
Medium: Water (20°C).
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:

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

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).

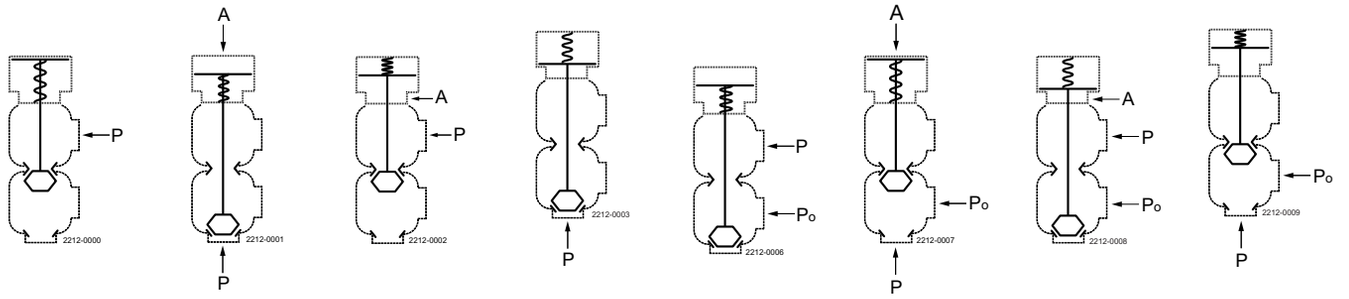
$Q = Kv \times \sqrt{\Delta p}$

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

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

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

Pressure data for Unique Single Seat Valve DN125 and DN150



1 2 3 4 5 6 7 8

A = Air P/Po= Product pressure

Actuator type / function
10. Pneumatic downward movement, spring return (NO-lower seat)
20. Pneumatic upward movement, spring return (NC-lower seat)

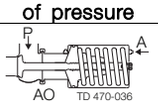
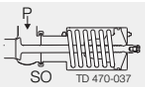
Table 1: Stop and change-over valves			Max. pressure without leakage at the valve seat	
			Valve Size	
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Type	DN 125-150
1		NO		5.2
2	5	NO	DIN	8.7
	6	NO	DIN	4.4
3	5	NC		8.1*
	6	NC		3.7
4		NC	DIN	5.2

* = Values are valid for 8 bar air pressure
ŧ = Actual product pressure

Table 2: Stop and change-over valves	The table shows the approx. static pressure (P) in bar against which the valve can open			
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Actuator type/ function	Type	DN 125-150
5		60 (NO)	DIN	8.8
6	6	10 (NO)		8.1
	6	60 (NO)		min. 10**
7	6	70 (NC)	DIN	7.8
8		20 (NC)		8.9

Table 2

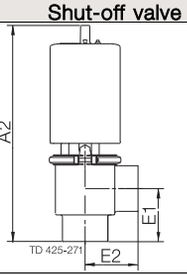
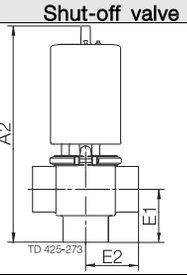
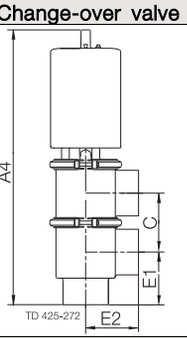
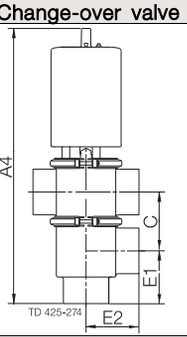
Max. pressure in psi against which the valve can open.

Actuator / Valve body combination and direction of pressure	Air pressure [psi]	Plug position	Max Pressure (psi)
	87.6	NC	145.0
		NO	145.0

A = Air
P = Product pressure
AO = Air opens
SO = Spring opens

Air-operated valves
Product code: 5233

Material: 1.4404 (316L)
Connection: DIN Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted
Actuation: Pneumatic NO

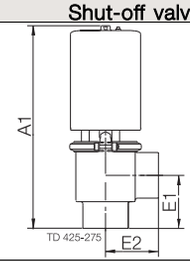
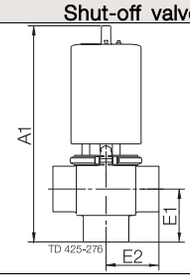
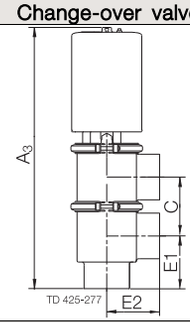
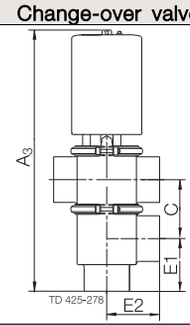
Item No.	PPL EUR	Size		Dimension (mm)				Body combination
		Inch	DIN	A_2 / A_4	C	E1	E2	Shut-off valve 200
9612486003 9612486007	**11987** **17067**		DN125 DN150	618 631		150 150	150 150	
								Shut-off valve 300
9612486004 9612486008	**12523** **17802**		DN125 DN150	618 631		150 150	150 150	
								Change-over valve 210
9612488203 9612488207	**15618** **22191**		DN125 DN150	778 816	167 192	150 150	150 150	
								Change-over valve 220
9612488204 9612488208	**15978** **22705**		DN125 DN150	778 816	167 192	150 150	150 150	

NOTE! Body combinations 31 and 32 on request.

Options - please see later this chapter.

Air-operated valves
Product code: 5231

Material: 1.4404 (316L)
Connection: DIN Welding ends
Seals: EPDM
Inside surface finish: Ra ≤ 1.6 µm
Outside surface finish: Blasted
Actuation: Pneumatic NC

Special lip seal Item No.	PPL EUR	Size		Dimension (mm)				Body combination
		Inch	DIN	A_1 / A_3	C	E1	E2	Shut-off valve 200
9612486001 9612486005	**11987** **17067**		DN125 DN150	571 584		150 150	150 150	
								Shut-off valve 300
9612486002 9612486006	**12523** **17802**		DN125 DN150	571 584		150 150	150 150	
								Change-over valve 210
9612488201 9612488205	**15618** **22191**		DN125 DN150	740 777	167 192	150 150	150 150	
								Change-over valve 220
9612488202 9612488206	**15978** **22705**		DN125 DN150	740 777	167 192	150 150	150 150	

NOTE! Body combinations 31 and 32 on request.

Options - please see later this chapter.

Options
The pneumatic valves not mentioned in the code number sheets, should be ordered as below

Item No.	PPL EUR	Nominal size		Type*		
		Inch	DIN			Male parts
	557 708		125 150	Unique SSV Unique SSV	Male parts with DIN male DIN clamp etc. Fitting of male parts included.	Please state which type of male part you want and to which outlet it should be connected.
						Seals
	0 219			All types All types	Replacement to seals of nitrile (NBR) Replacement to seals of fluorinated rubber (FPM)	
						Other equipment
9612454001	95		125-150	All types	Spanner	

Additionel price for internal polishing RA 0.8 µm

Item No.	PPL EUR	Nominal size				
		Inch	DIN			
	562		DN125		Type 20	
	728		DN150		Type 20	
	585		DN125		Type 30	
	757		DN150		Type 30	
	1127		DN125		Type 21	
	1453		DN150		Type 21	
	1164		DN125		Type 22	
	1535		DN150		Type 22	

Additionel price for internal and external polishing RA 0.8 µm

Item No.	PPL EUR	Nominal size				
		Inch	DIN			
	992		DN125		Type 20	
	1498		DN150		Type 20	
	1024		DN125		Type 30	
	1543		DN150		Type 30	
	1835		DN125		Type 21	
	2791		DN150		Type 21	
	1897		DN125		Type 22	
	2902		DN150		Type 22	

Options
The pneumatic valves not mentioned in the code number sheets, should be ordered as below

Additionel price for internal polishing RA 0.5 µm

Item No.	PPL EUR	Nominal size				
		Inch	DIN			
	646		DN125		Type 20	
	919		DN150		Type 20	
	711		DN125		Type 30	
	991		DN150		Type 30	
	1242		DN125		Type 21	
	1725		DN150		Type 21	
	1291		DN125		Type 22	
	1804		DN150		Type 22	

Additionel price for internal and external polishing RA 0.5 µm

Item No.	PPL EUR	Nominal size				
		Inch	DIN			
	1117		DN125		Type 20	
	1836		DN150		Type 20	
	1212		DN125		Type 30	
	1976		DN150		Type 30	
	2024		DN125		Type 21	
	3280		DN150		Type 21	
	2086		DN125		Type 22	
	3388		DN150		Type 22	