

Alfa Laval Unique SSV DN125 and DN150

Single seat valves

Introduction

The Alfa Laval Unique SSV DN125 and DN150 Valves are versatile and reliable pneumatic single seat valves with a single contact surface between the plug and the seat to minimize the risk of contamination.

With a modular, hygienic design, the single seat valve meets the highest process demands in terms of hygiene and safety. Few moving parts ensure high reliability and low maintenance costs. A wide range of optional features enables customization to specific process requirements.

Application

The Alfa Laval Unique SSV DN125 and DN 150 is designed for use in a broad range of hygienic applications across the dairy, food, beverage, brewery and many other industries.

Benefits

- Cost effective and versatile
- Easily handles highly viscous fluids and large particles
- Durable, long-lasting construction
- Compliant with 3-A and hygienic standards

Standard design

The Alfa Laval Unique SSV DN125 and DN150 range is available in a one- or two-body configuration, with easy-to-configure valve bodies, plugs, actuator and clamp rings. The valve can be configured as a shutoff valve with two or three working ports and as a changeover valve with up to five ports.

To ensure flexibility, the valve seat that sits between the two bodies in the changeover version is provided for assembly. The valve seals are optimized for durability. The actuator is connected to the valve body using a yoke, and all components are assembled with clamp rings.

To facilitate installation the valve is partially assembled when delivered. The standard valve has weld ends; it is also available with optional fittings. Due to the valve size and weight, the use of support equipment is recommended when handling and installing the valve (see the instruction manual for guidelines). However, Alfa Laval is not able to supply the recommended support equipment.

The valve can also be fitted with the Alfa Laval ThinkTop V70 for sensing and control of the valve.



Working principle

The Alfa Laval Unique SSV is operated by means of compressed air from a remote location. The actuator smooths operation and protects process lines against pressure peaks. The valve can be controlled using an Alfa Laval ThinkTop®.

TECHNICAL DATA

Temperature

Temperature range: -10 °C to +140 °C (EPDM)

Pressure

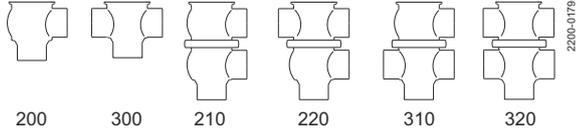
Max. product pressure: 1000 kPa (10 bar)

Min. product pressure: Full vacuum

Air pressure, actuator: 600 to 800 kPa (6 to 8 bar)

- Sizes DN125-150

Valve body combinations



Actuator function

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

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

- Male parts in accordance with required standard
- Control and Indication (ThinkTop)
- Surface roughness, product wetted parts: $Ra \leq 0.8 \mu m$
- Product wetted seals of NBR or FPM
- Service tools for actuator
- Plug seals NBR/FPM

Dimensions (mm)

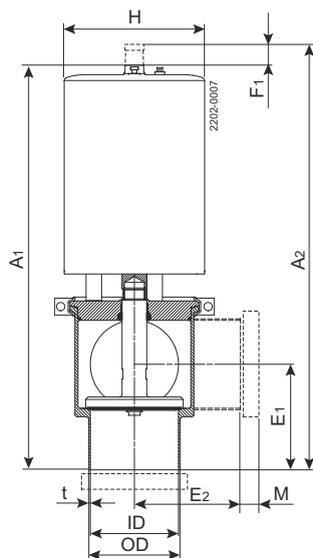


Figure 1. Shut-off

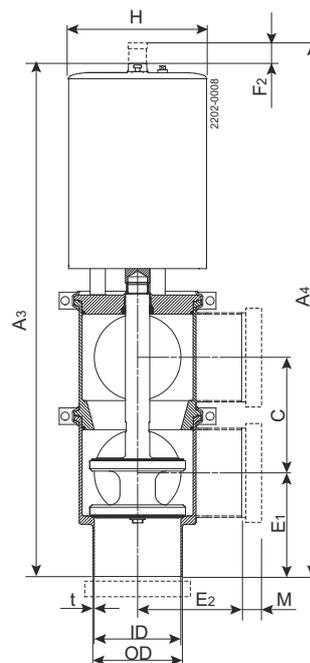


Figure 2. Change-over valve

Nominal size	DIN DN			
	125		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

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)	2.2 x Air pressure (bar)
	NC	NO
Shut-off / Change-over valve Actuator function	3.6 x Air pressure (bar)	2.9 x Air pressure (bar)
	NC (Support air for closing)	NO (Support air for opening)

Pressure drop/capacity diagrams

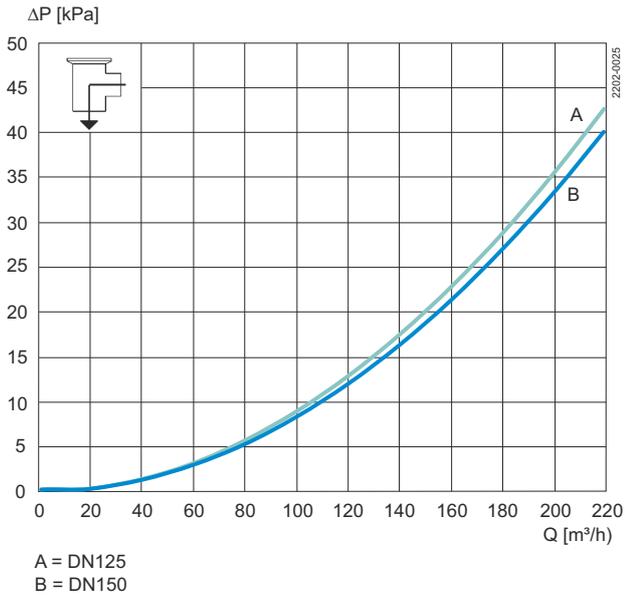


Figure 3. Shut-off

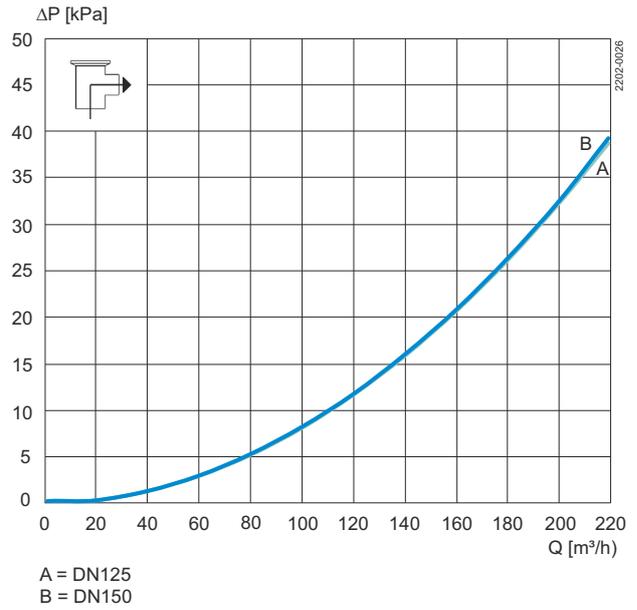


Figure 4. Shut-off

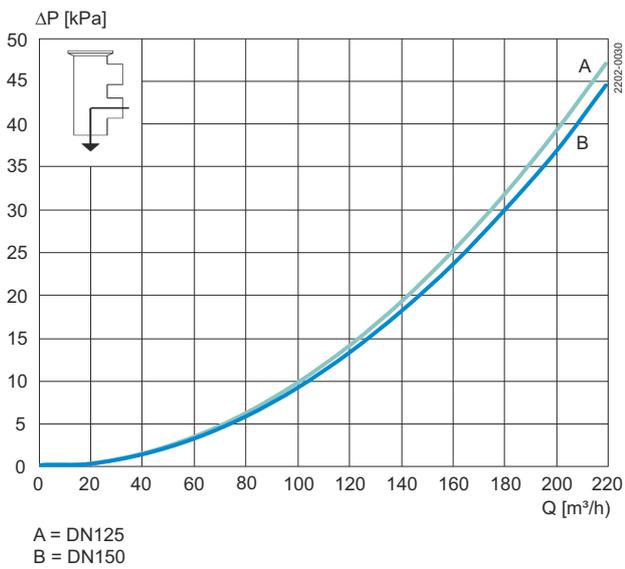


Figure 5. Change-over valve

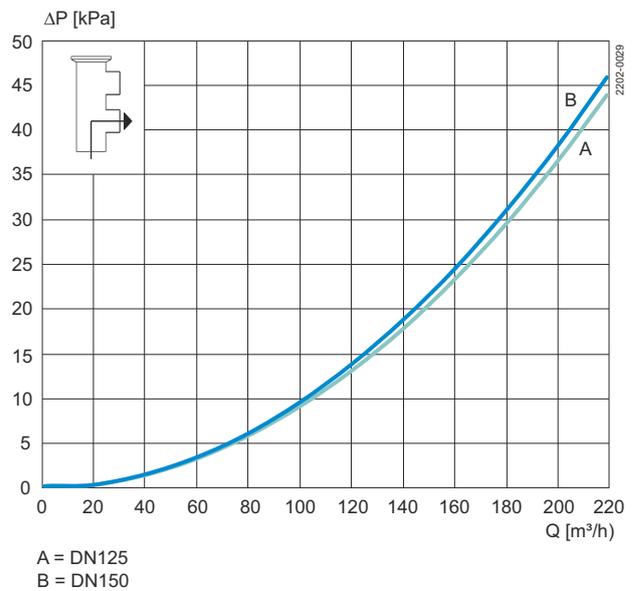


Figure 6. Change-over valve

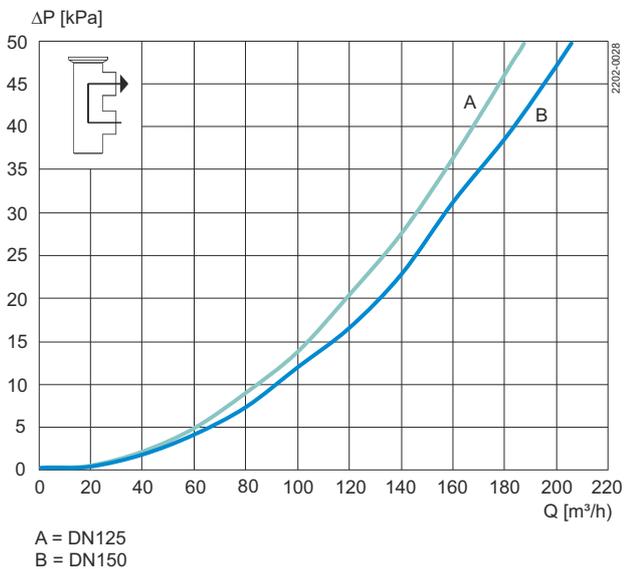


Figure 7. Change-over valve

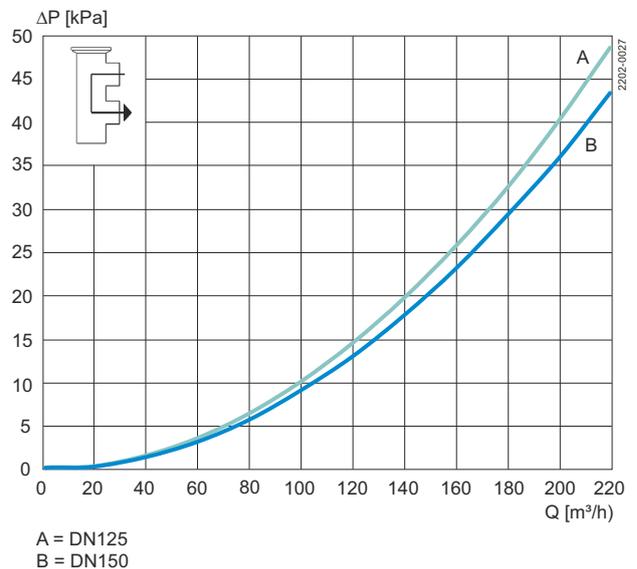


Figure 8. Change-over valve

Pressure data for Unique Single Seat Valve DN125 and DN150

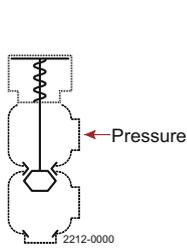


Figure 9. 1

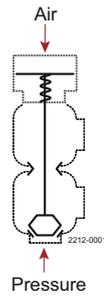


Figure 10. 2

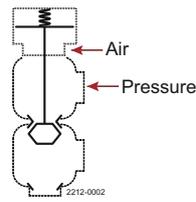


Figure 11. 3

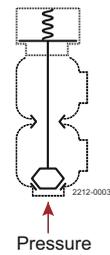


Figure 12. 4

Shut-off and Change-over valves

Actuator / Valve body combination and direction of pressure	Max. pressure without leakage at the valve seat		
	Air pressure (bar)	Actuator type/function	Valve Size DN 125-150
Figure 9. 1		NO	5.2
Figure 10. 2	8	NO	8.7
Figure 11. 3	6	NO	4.4
Figure 11. 3	8	NC	8.1
Figure 12. 4	6	NC	3.7
Figure 12. 4		NC	5.2

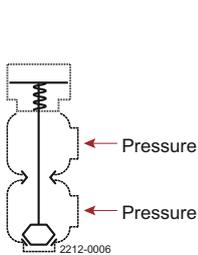


Figure 13. 5

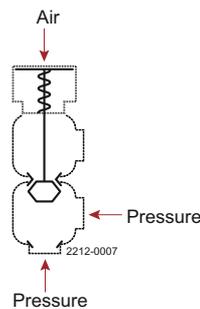


Figure 14. 6

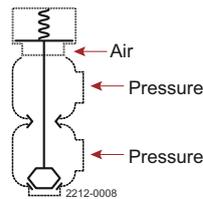


Figure 15. 7

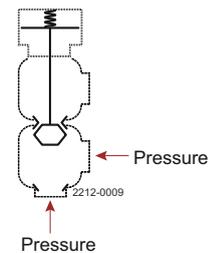


Figure 16. 8

Shut-off and Change-over valves

Actuator / Valve body combination and direction of pressure	Max. pressure in bar against which the valve can open		
	Air pressure (bar)	Actuator type/function	Valve size DN 125-150
Figure 13. 5		NO	8.8
Figure 14. 6	6	NO	8.1
Figure 14. 6	6	NO	min. 10
Figure 15. 7	6	NC	7.8
Figure 16. 8		NC	8.9

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