When Size Matters

Unique SSSV

Concept

The Small Single Seat Valve with its sanitary and modular design is applicable for a wide range of tasks either as a stop valve with two (2) or three (3) ports or as a change-over valve with three (3) to five (5) ports. The valve is suitable for use in food, beverage, dairy and pharmaceutical industries.

Working principle

The valve is remote-controlled by means of compressed air or manually operated. The small single seat valve is very reliable due to its simple design and few moving parts.

Standard Design

The Small Single Seat Valve comes as a pneumatic or manual operated in either a one or two body configuration. The plug is a PVDF plug. All components are assembled by means of clamp rings, whereas the piston and valve plug have a threaded connection. In order to facilitate installation the valve is only partly assembled when delivered. The valve has welding or clamp ends as standard. The Unique Small Single Seat Valve range covers the sizes DN/OD 12.7 mm and 19 mm.
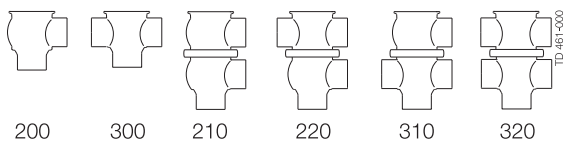
TECHNICAL DATA

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

Pressure
Max. product pressure: . . . . . 1000 kPa (10 bar)
Min. product pressure: . . . . . Full vacuum
Air pressure: . . . . 100 to 700 kPa (1 to 7 bar)

Valve Body Combinations

| 200 | 300 | 210 | 220 | 310 | 320 |

Actuator function
- Pneumatic downward movement, spring return (NO).
- Pneumatic upward movement, spring return (NC).
- Manually operated.

Air consumption (litres free air) for one stroke	
Size	12.7-19 mm
Stop valve/Change-over valve	0.06 x Air pressure (bar)
Actuator function	NO and NC

PHYSICAL DATA

Product wetted steel parts: . . . Acid-resistant steel 1.4404 (316L)
Other steel parts: . . . . Stainless steel 1.4307 (304L)
External surface finish   . . . . . . Semi-bright (blasted)
Internal surface finish: . . . . . . Ra ≤ 0.5µm
Product wetted seals: . . . . . . EPDM
Other seals: . . . . NBR
Plug: . . . . PVDF

Authorized to carry the 3A symbol

CERTIFIED
EHEDG
TYPE EL
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Options

A. 3.1.B Certificate.
B. Adapter for IndiTop, ThinkTop and ThinkTop Basic.
C. Control and Indication: IndiTop, ThinkTop or ThinkTop Basic.
D. Product wetted seals of HNBR or FPM.
E. Stainless steel seal disc replacing standard lip seal.
F. Clamp with wingnut.
G. Clamp connection.

Note!

For further details, see also PD 65036 and instruction IM 70860.

The actuator comes with a 5 years warranty

Dimensions (mm)

| Nominal Size	Remote-controlled		Manually operated	
	DN/OD		DN/OD	
	12.7mm	19mm	12.7mm	19mm
A_1	172.2	171.2	109.7	112.7
A_2	179.2	182.2	116.7	123.7
A_3	200.2	209.2	141.7	150.7
A_4	207.2	220.2	148.7	161.7
C	32.3	38.1	32.3	38.1
OD	12.7	19.0	12.7	19.0
ID	9.5	15.8	9.5	15.8
t	1.6	1.6	1.6	1.6
E_1	29.8	29.9	29.8	29.9
E_2	45.0	45.0	45.0	45.0
F_1	7.0	11.0	7.0	11.0
F_2	7.0	11.0	7.0	11.0
H	57.0	57.0	35.0	35.0
Weight (kg) - Stop valve	1.07	1.10	0.5	0.53
Weight (kg) - Change-over valve	1.36	1.41	0.8	0.85

(900-233)
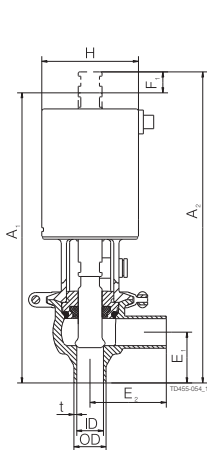
Stop valve
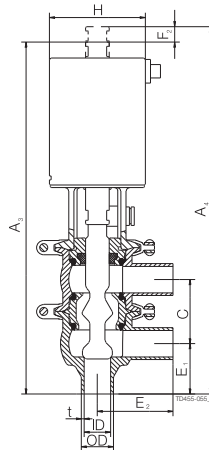
Change over valve
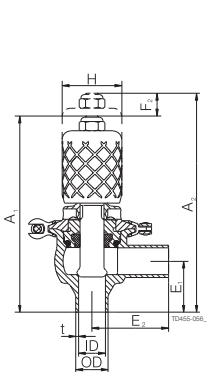
Manual stop valve
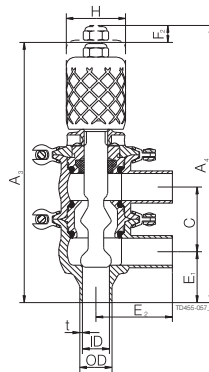
Manual change-over valve

Please note!

### Opening/closing time will be affected by the following:
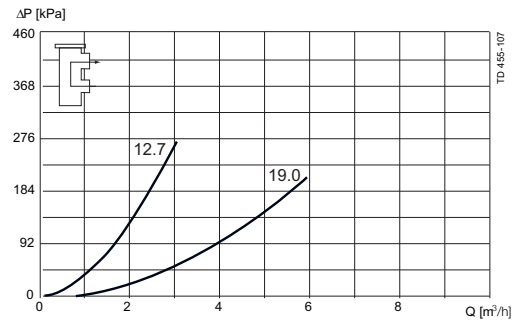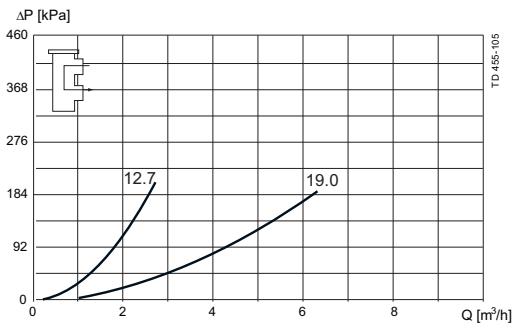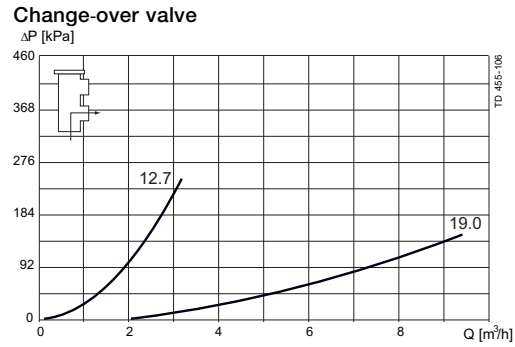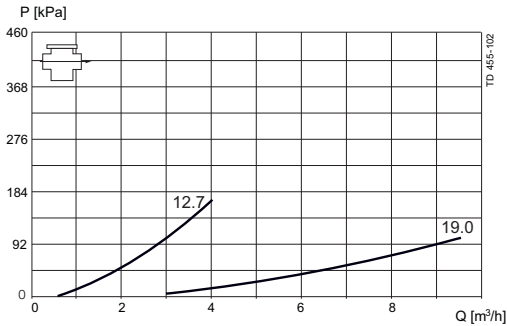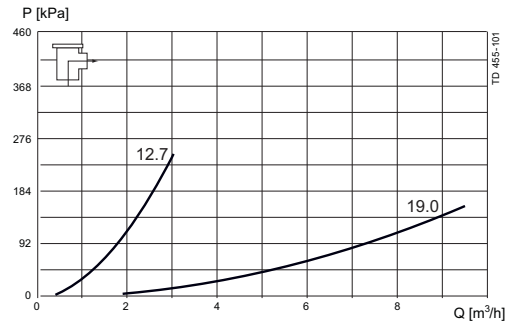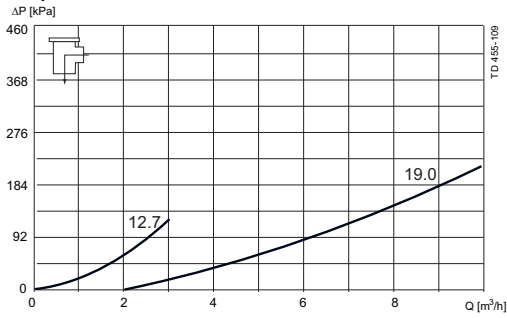
- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Air Connections Compressed air:

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

Pressure drop/capacity diagrams

Stop valve

Change-over valve
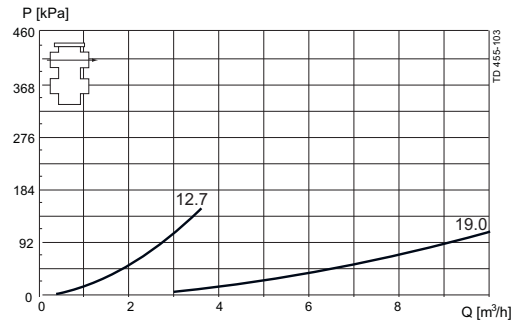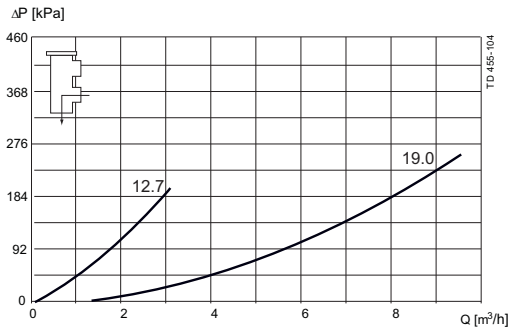
Note!

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 m³/h.

Kv = m³/h at a pressure drop of 1 bar (see table above).

Δp = 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 m³/h

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

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

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

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

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

Pressure data for Unique Small Single Seat Valve

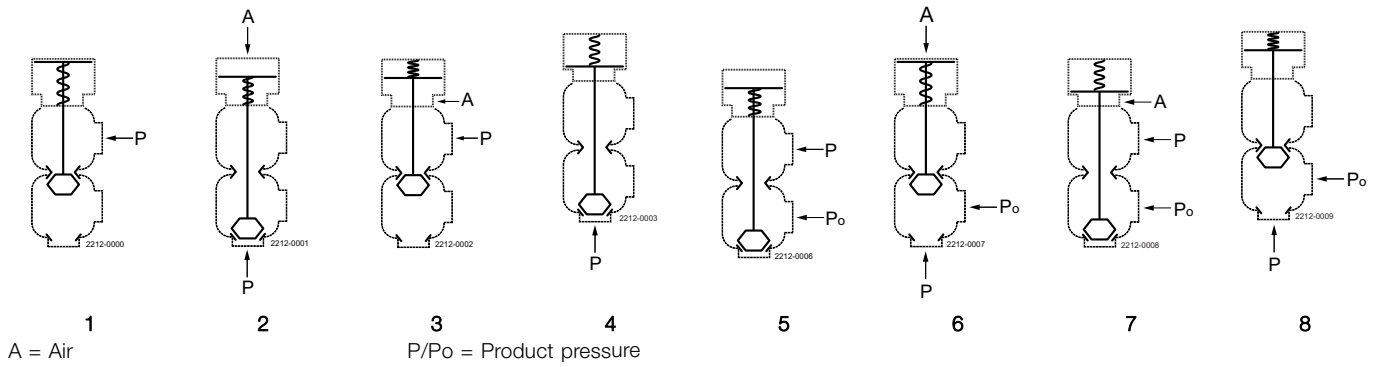A = Air   P/Po = Product pressure

Table 1 - Shut-off and change-over valves

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Plug position	Valve size	
			DN/OD 12.7 mm	DN/OD 19 mm
1		NO	Min. 10.0	Min. 10.0
2	2	NO	2.0	-
	3	NO	Min. 10.0	3.0
	4	NO		Min. 10.0
3	2	NC	9.0	-
	3	NC	Min. 10.0	Min. 10.0
4		NC	Min. 10.0	Min. 10.0

Table 2 - Stop and change-over valve. 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)	Plug position	Valve size	
			DN/OD 12.7 mm	DN/OD 19 mm
5		NO	Min. 10.0	Min. 10.0
6	2	NO	9.0	-
	3	NO	Min. 10.0	6.0
	4	NO	-	Min. 10.0
7	2	NC	Min. 10.0	Min. 10.0
8		NC	Min. 10.0	Min. 10.0

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