

## The Proven Mixproof Range

### SMP-SC Sanitary Mixproof Valve

#### Application

SMP-SC is a sanitary pneumatic seat valve, designed for mixproof operation when two different products flow through only one valve. The valve is for use in stainless steel pipe systems.

#### Working principle

SMP-SC is remote-controlled by means of compressed air. The valve is a normally closed (NC) valve.

The valve has two independent plug seals, forming a leakage chamber between them under atmospheric pressure during every working condition. Leaking product flows into the leakage chamber and is discharged through the leakage outlet.

When the valve is open the leakage chamber is closed. The product can then flow from one line to the other.

The valve can be cleaned by CIP (see fig. 2).

SMP-SC is fitted with a balancing cylinder in the lower part of the valve body, which makes it insensitive to high pressure and water hammer.

#### Standard design

The valve consists of two bodies, which are welded together. The seats for the upper and lower plugs are located between the bodies.

The valve has an external actuator, which is clamped to the top of the valve body.

The actuator and the internal parts can be removed without any interference with the pipelines.

All the seals and the guide rings can be serviced.

SMP-SC, sizes DN125-150 are very heavy. Therefore it is recommended to manufacture and use auxiliary lifting equipment. Guidelines are given in IM 70787. The recommended auxiliary equipment cannot be supplied by Alfa Laval.

#### Option - Three-body version

SMP-SC is available in a three-body version. The valve is for use as a mixproof change-over valve.

The valve consists of the standard actuator, the standard balancing housing, the standard clamps, the standard seals and guide rings and the standard valve body onto which the lower valve body is clamped.

The upper and the lower plugs and the balancing cylinder/plug unit are fitted with seal rings.



Fig. 1. SMP-SC valve with body combination 22-90.

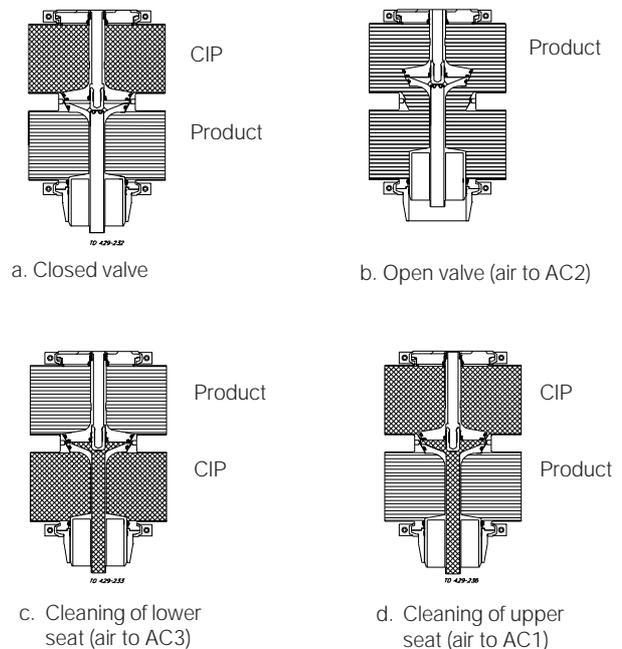
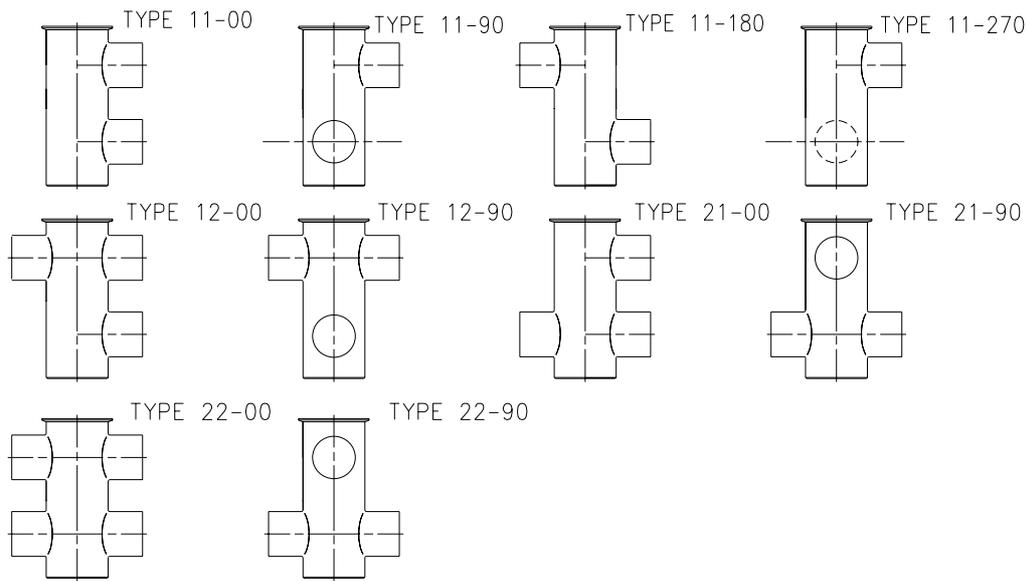


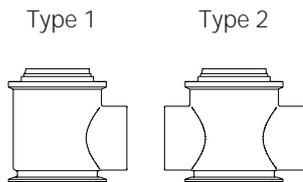
Fig. 2. Operation/cleaning.

Valve body combinations



TD 429-019

Valve body combinations for three-body version (Lower valve body)

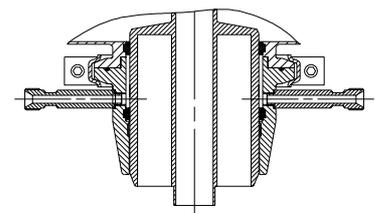


TD 429-217

Balancing housing with CIP connections - three-body version

The balancing housing of SMP-SC is available with CIP connections.

The CIP connections are screwed onto the balancing housing and fixed by means of Loctite.



TD 429-088

Ordering

Please state "CIP connections" in the valve specification.

Dimensions (mm)

Size	51	63.5	76.1	101.6	50	65	80	100	125	150
	mm	mm	mm	mm	DN	DN	DN	DN	DN	DN
A	557.2	589.2	601.2	809.7	557.2	589.2	771.7	809.7	769.7	819.7
C	82	98	104	136	82	98	117	136	167	192
OD	51	63.5	76.1	101.6	53	70	85	104	129	154
ID	48.6	60.3	72.9	97.6	50	66	81	100	125	150
t	1.2	1.6	1.6	2.0	1.5	2.0	2.0	2.0	2.0	2.0
E	128.6	134.4	140.3	177	129.3	137.3	168.5	178	180.8	193.3
F	31	31	31	36	31	31	36	36	55	55
G	110	110	110	110	110	110	110	110	150	150
H	128	128	128	166	128	128	166	166	199	199
M/ISO clamp	21	21	21	21						
M/ISO male	21	21	21	21						
M/DIN male					21	24	29	29	34	40
M/SMS male	19	23	23	34						
M/BS male	21	21	21	26						
Weight (kg)	20	20	20	41	20	20	41	41	57	58

Caution, opening/closing time:

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:

AC1, AC2, AC3: R 1/8" (BSP), internal thread.

AC1: Cleaning of upper seat.

AC2: Open valve.

AC3: Cleaning of lower seat.

Dimensions (mm) - three-body version

Size	51	63.5	76.1	101.6	50	65	80	100
	mm	mm	mm	mm	DN	DN	DN	DN
A	688	720	732	967	688	720	929	967
C	82	98	104	136	82	98	117	136
C <sub>1</sub>	120	120	120	160	120	120	160	160
Weight (kg)	24	24	24	47	24	24	47	47

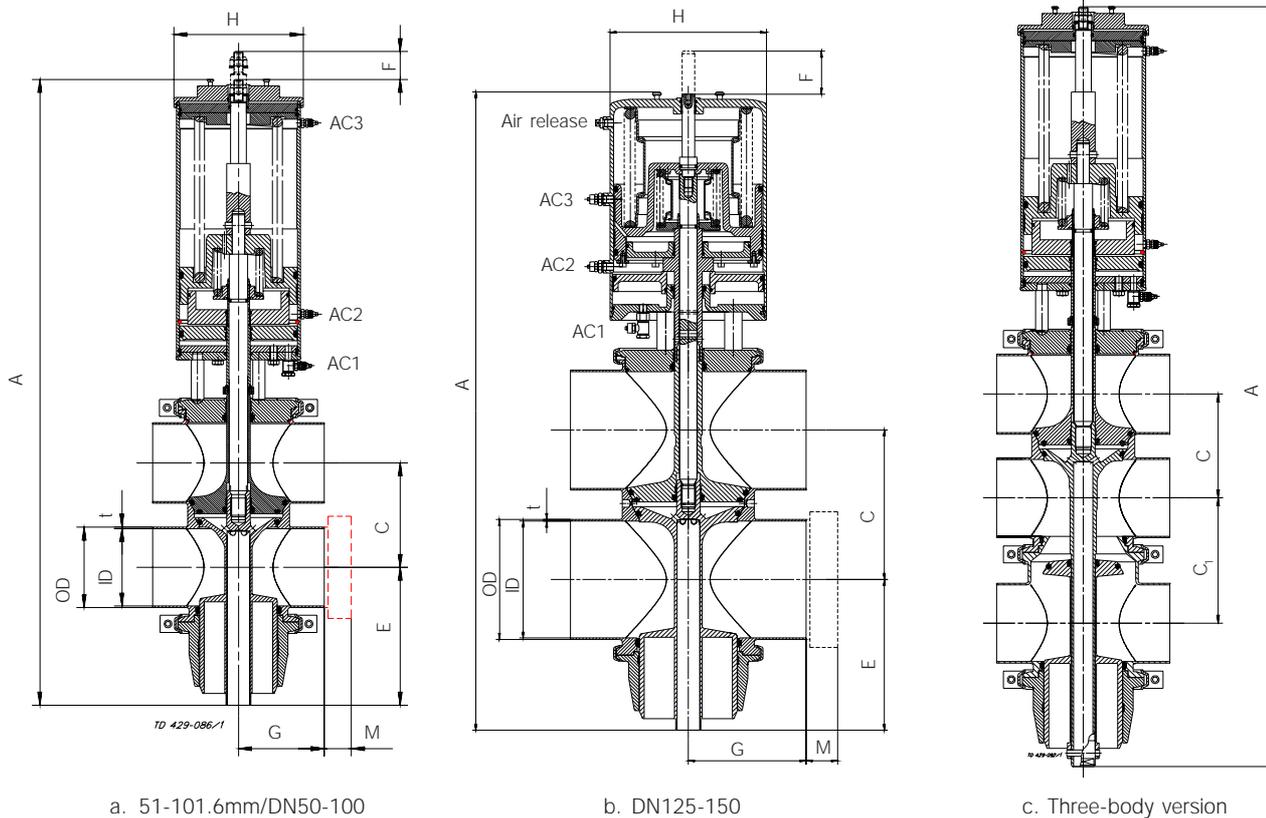
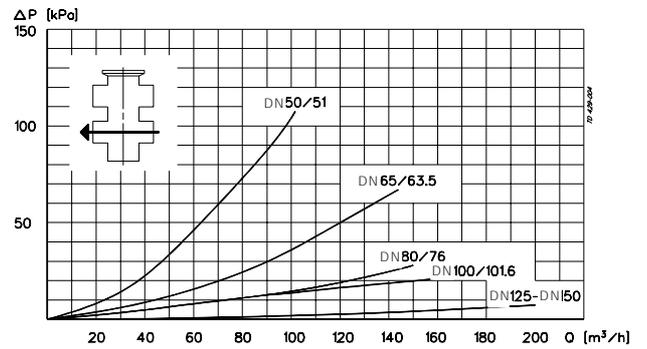
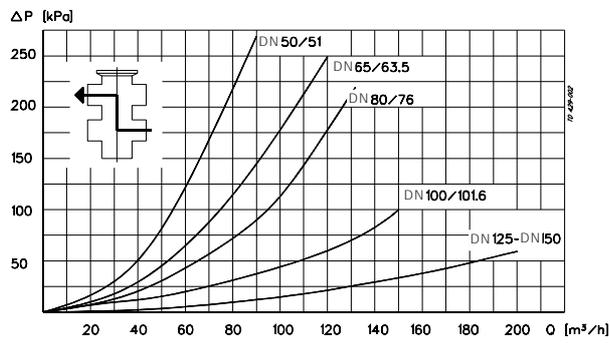
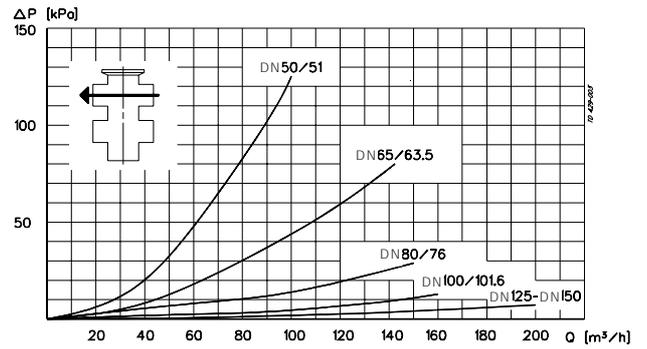
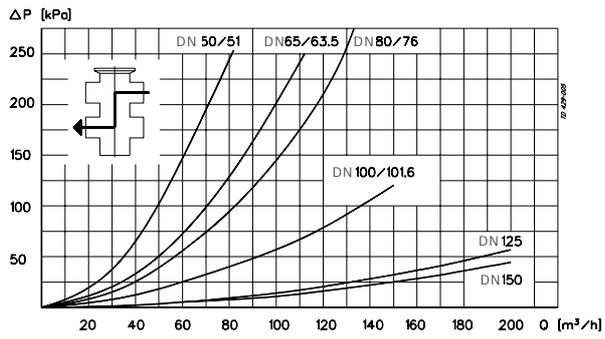
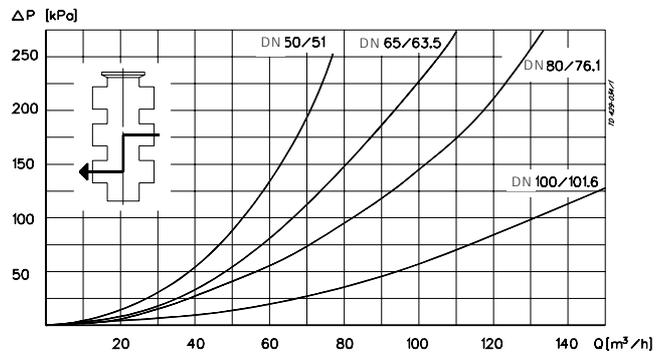
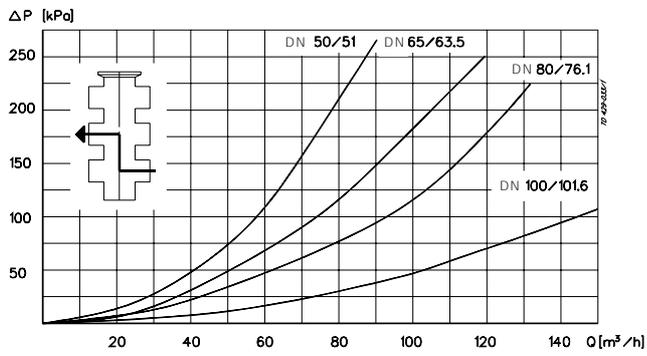


Fig. 3. Details of SMP-SC

Pressure drop/capacity diagrams



Pressure drop/capacity diagrams - three-body version



NOTE! For the diagrams the following applies:  
 Medium: Water (20°C)  
 Measurement: In according with VDI 2173.

CIP liquid capacities - Kv values			
Size	51, 63.5, 76.1 mm/DN50, 65	101.6 mm/DN80, 100	DN125, 150
Lift, upper plug	1.5	2.8	4.2
Lift, lower plug	1.2	2.2	4.0

Formula to estimate CIP flow during seat lift: (for liquids with comparable viscosity and density to water):

$$Q = K_v \cdot \sqrt{\Delta p}$$

Q = CIP - flow (m<sup>3</sup>/h).

$K_v$  =  $K_v$  value from the above table.

$\Delta p$  = CIP pressure (bar).

#### Technical data

Max. product pressure: ..... 1000 kPa (10 bar).

Min. product pressure: ..... Full vacuum.

Max. product pressure in upper line (lower line: 0 bar)

against which the valve can open (air pressure: 7 bar): ..... 700 kPa (7 bar).

650 kPa (6.5 bar) for 101.6mm/DN100.

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

Air pressure (depending on line pressure): ..... 500 to 700 kPa (5-7 bar).

Air consumption (litres free air)			
Size	51, 63.5, 76.1 mm/DN50, 65	101.6 mm/DN80, 100	DN125,150
Lift, upper plug	0.07 x Air press. (bar)	0.2 x Air press. (bar)	0.8 x Air press. (bar)
Lift, lower plug	1.30 x Air press. (bar)	3.5 x Air press. (bar)	0.7 x Air press. (bar)
Opening	0.50 x Air press. (bar)	0.9 x Air press. (bar)	2.5 x Air press. (bar)

#### Materials

Product wetted steel parts: ..... Acid-resistant steel 1.4401 (316L).

Other steel parts: ..... Stainless steel 1.4301304). (304).

Product wetted seals: ..... EPDM rubber.

Other seals: ..... Nitrile (NBR).

Finish: ..... Semi bright.

**Options**

- A) Male parts or clamp liners in accordance with required standard.
- B) *ThinkTop*<sup>®</sup>
- C) Special valve port size combinations (mix size).
- D) Balancing housing with CIP-connections.
- E) Three-bodied version (51-101.6/DN50-100 only).
- F) Surface roughness, product wetted parts:  $Ra \leq 0.8 \mu m$ .
- G) Product wetted seals of Nitrile (NBR) or Fluorinated rubber (FPM).
- H) Service tool for the actuator (51-101.6/DN50-100 only).
- I) Tool for plug seals (necessary for changing the plug seals).

**Ordering**

Please state the following when ordering:

- Valve type.
- Valve port combination: Type nos.
- Valve port size combination, (lower and upper ports).
- Connections if not welding ends.
- Other options.

Please state if the valve should be a three-body version.

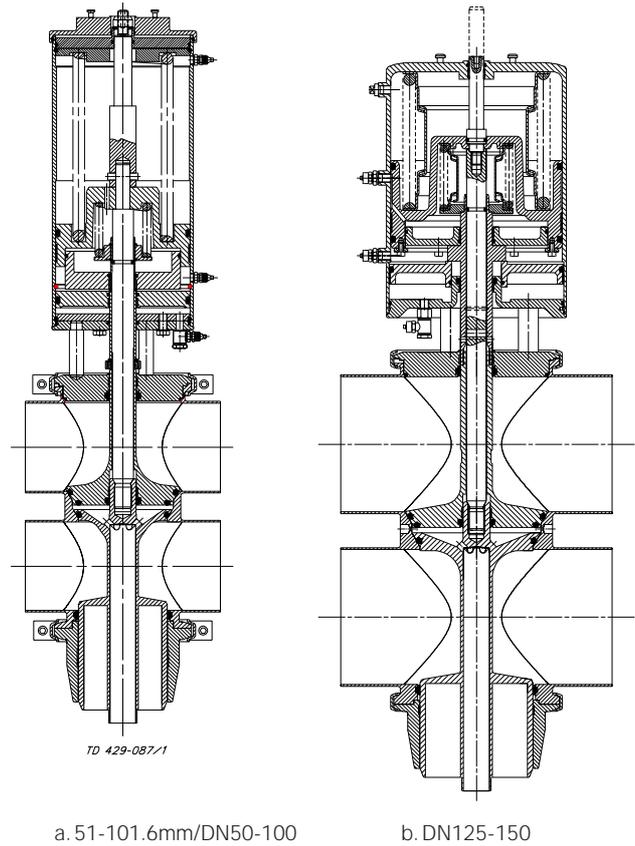


Fig. 4. Details of SMP-SC