



SÜDMO SVP SELECT SINGLE SEAT VALVES

SVP SELECT

SINGLE SEAT VALVE SERIES

Pentair Südmö's SVP Select single seat valve line provides solutions for the most stringent hygienic and aseptic processes requirements in the beverage, food, dairy and pharmaceutical industries.

Why choose Südmö SVP Select Single Seat Valves?

The valve series provides the best basis for efficient and safe production processes due to the wide variety of options provided by our modular system, ease of maintenance, cleanability, and the options for the valves to meet the latest hygiene and aseptic requirements.

GENERAL REQUIREMENTS OF SINGLE SEAT VALVES

- Implementation of various process functions within the hygienic and aseptic sectors
- Cleanability of all product wetted surfaces

PROCESS FUNCTIONS

- **Shutting off** pipelines (right angle and angular seat valves) on tanks (seat valves)
- **Connecting** pipelines (double right angle, cross and straight way valves)
- **Removing** from pipelines and ring circuits (sampling valves)
- **Mixing and distributing** (change over valves)



INNOVATIVE FLEXIBLE EASY TO MAINTAIN

INNOVATIVE SEALING SOLUTIONS

Seat area

- O-rings
- PEEK* as axial sealing element
- RSC** as radial sealing element

Spindle area

- Profile seal
- P³ diaphragm

COMPREHENSIVE MODULAR SYSTEM

- Wide range of housings
- Hygienic and aseptic options
- Manual and pneumatic actuators
- Booster
- 3-position actuator
- Feedback systems

HIGHEST QUALITY

- Body machined from a solid piece of bar stock
- High quality surface finish
- Sump and dome clearance
- Designed for easy cleaning

SERVICE & OPERATION

- Easy to maintain
- No special tools required
- Simple to operate due to compact construction
- Low maintenance costs (OPEX)

OPTIMIZED ACTUATOR & CONTROL SOLUTIONS

- Durable actuator seals
- Chambered spring
- Monitoring of all valve positions; e.g. with the IntelliTop 2.0 control top

CERTIFICATIONS

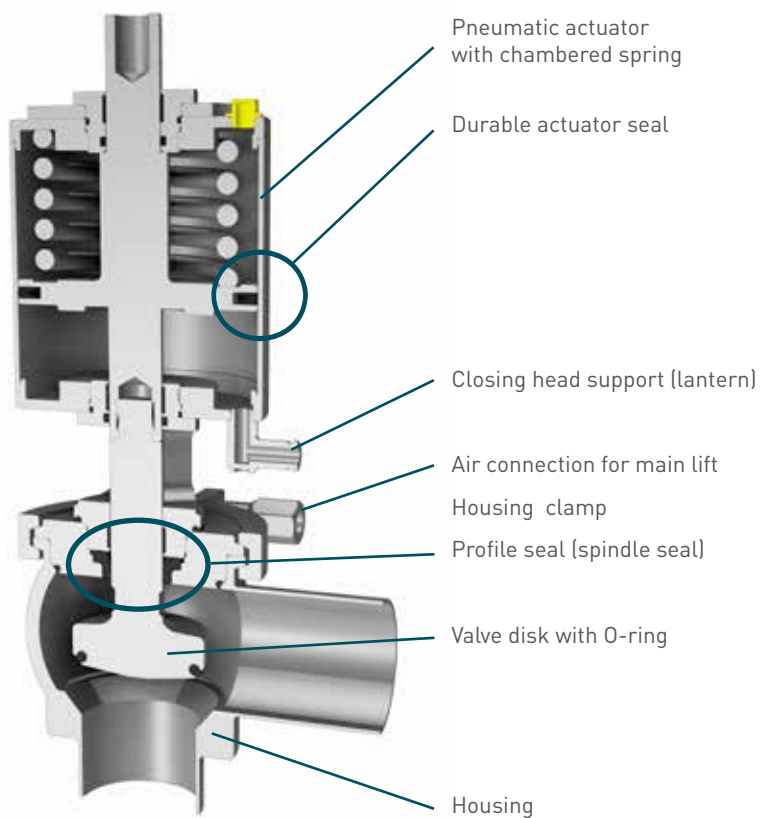
- EHEDG
- 3-A
- ATEX
- CRN
- Seals conform to FDA requirements
- Optional USP Class VI



* Polyether ether ketone

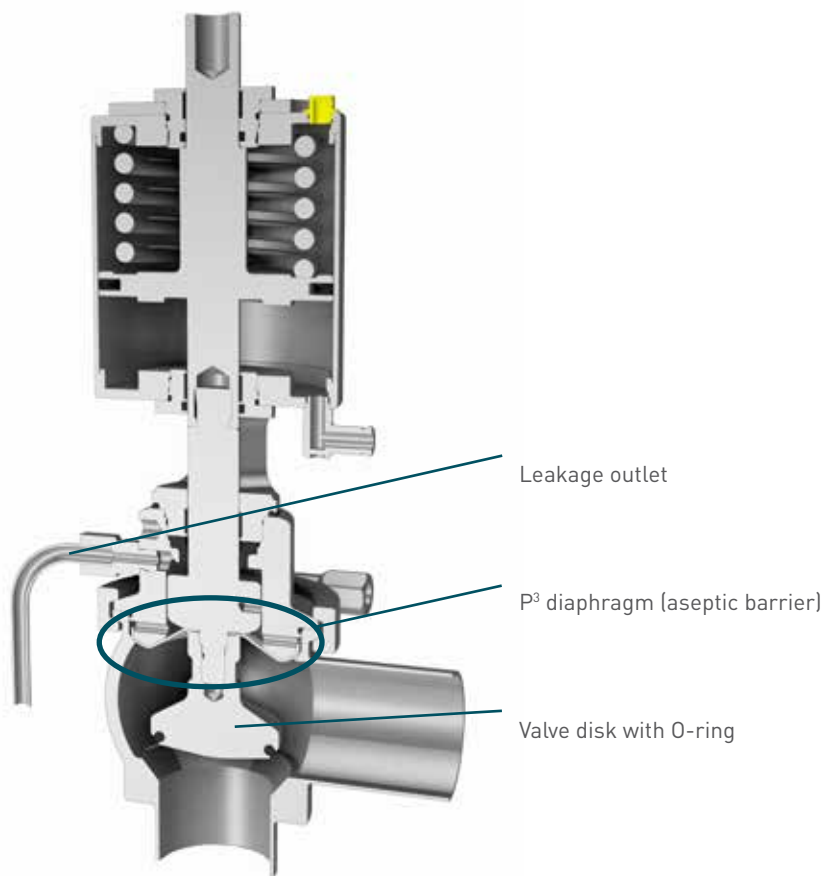
**Radial seal complete

HYGIENIC SINGLE SEAT VALVE CONSTRUCTION



EXAMPLE: RIGHT ANGLE VALVE S370E

ASEPTIC SINGLE SEAT VALVE CONSTRUCTION



EXAMPLE: RIGHT ANGLE VALVE A370D-E



PEEK disc version
A370D-PEEK



PEEK ring version
A370D-PR

HYGIENIC VALVE TECHNOLOGY WITH PROFILE SEAL

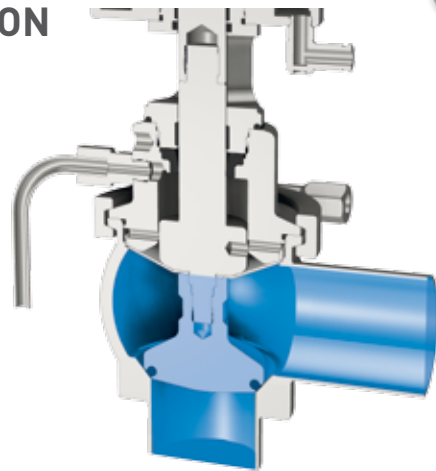


Profile seal separates the product area and atmosphere

ASEPTIC VALVE TECHNOLOGY WITH P³ DIAPHRAGM

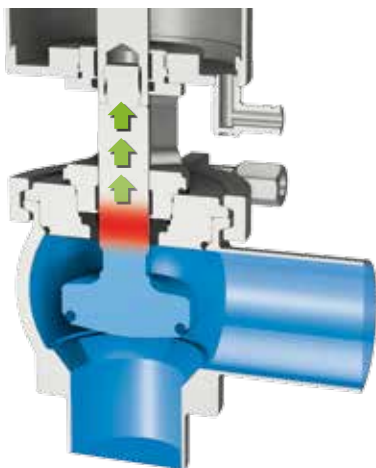


VALVE POSITION CLOSED



The P³ diaphragm provides an aseptic barrier between the product area and atmosphere

OPENING THE VALVE

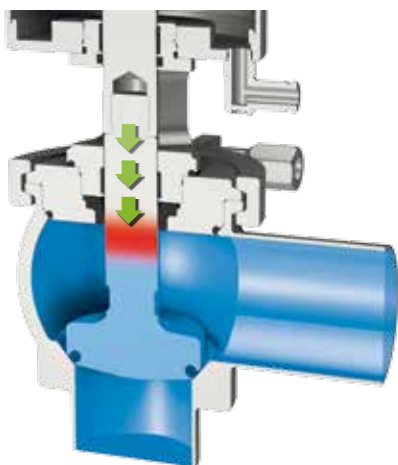


Elevator effect: When the valve is opening, product sticking onto the stem can be carried over behind the profile seal



The aseptic barrier prevents the elevator effect

CLOSING THE VALVE



Elevator effect: When the valve is closing, product contamination due to carrying over cannot be ruled out



The aseptic barrier prevents the shuttle effect

HYGIENIC VALVE TECHNOLOGY

Applications

- Plant areas before pasteurization
- Hot filling
- CIP areas



Products - Beverages

- Beer
- Spirits
- Wine
- Soft drinks
- Ice tea
- Fruit juices
- Water



Products - Basic Ingredients

- Syrups for soft drinks
- Flavor compounds
- Concentrates



Products - Dairy & Food

- Cheese
- Yogurt
- Milk
- Whey products



ASEPTIC VALVE TECHNOLOGY

Applications

- Plant areas after pasteurization
- Cold aseptic filling (CAF)
- Pharmaceutical / biochemical plants



Products - Abrasive

- Lactose
- Instant coffee



Products - Dairy & Food

- Fruit purees
- Vegetable purees
- Tomato ketchup
- Mayonnaise
- Yoghurt with fruit
- Cream
- Desserts



Products - Pharmaceutical

- Water for Injection (WFI)
- Cough Syrup
- Gel for cachets



WIDE RANGE OF APPLICATIONS

(The decision to use either hygienic or aseptic valves is based on many factors and should be considered on a case-by-case basis)



INCREASING PRODUCT QUALITY & SYSTEM PRODUCTIVITY

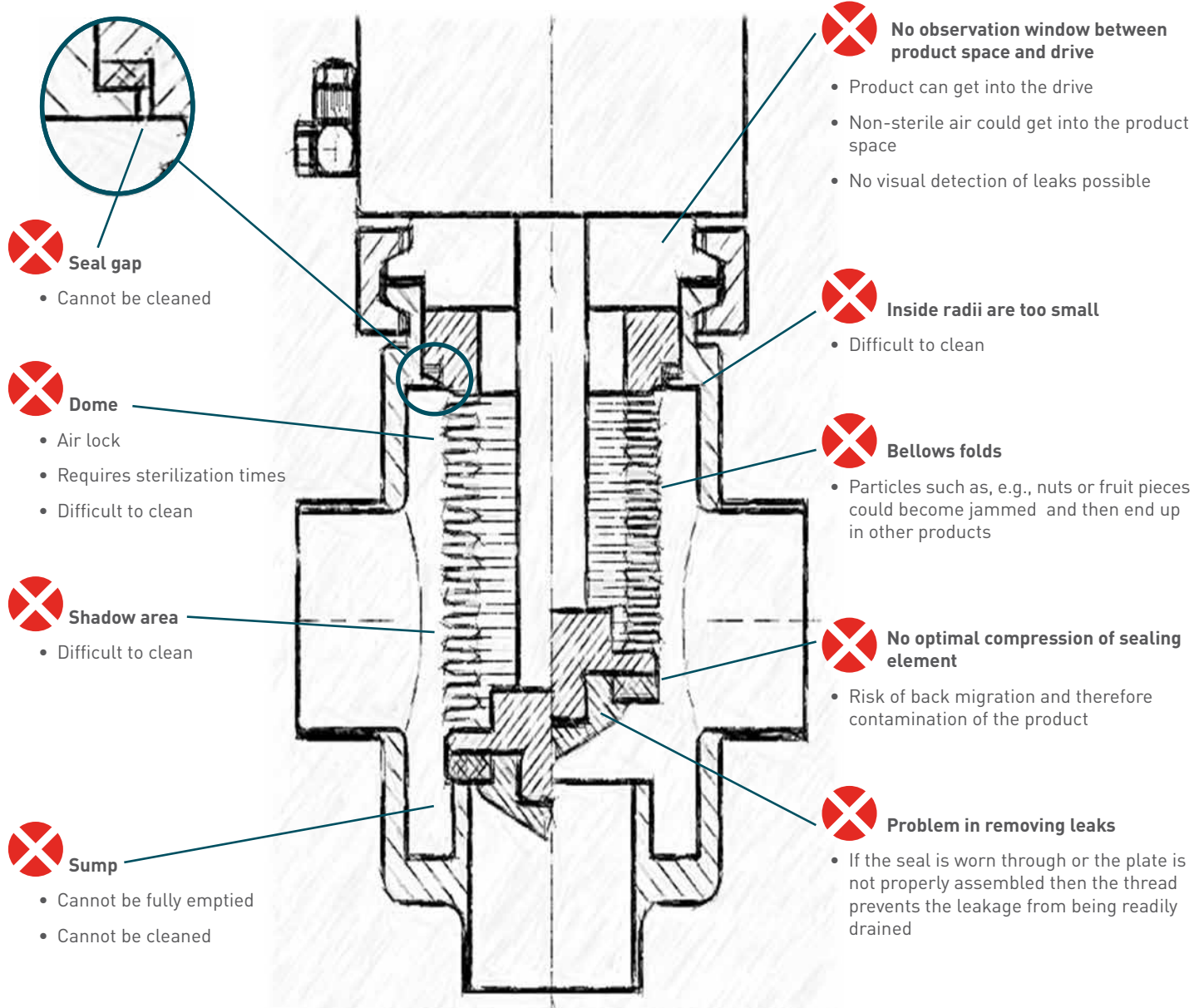
- Increased "product life" and extended shelf life
- Germ-free products
- Microbiological integrity
- Improved and stabilized product quality
- No chemical preservatives
- Neutral taste
- Increased cost reduction
- Increased pressure while maintaining quality requirements
- Prevention of production rejects and product recalls

Valves have a key function in process plants and are important components in satisfying the ever-increasing stringent market requirements. The following features should be considered when selecting valves for your process plant:

- **Provide optimal cleanability**
- **Designed with no dead space**
- **Can be completely emptied**
- **No influence/migration on end product**
- **Offer high durability**
- **Easy to maintain**
- **Fast, available spare parts supply**
- **Current authorizations and certifications**



The below drawing shows exemplary possible weaknesses that may be found in the design of valves. These could have a negative effect on product quality, valve performance and operating costs.



Pentair Sudmo's advanced engineering team has ensured that the above potential problem areas are not part of our valves design.

Pentair Südmö Valves have been designed to meet the highest requirements.



Product safety

- Separation of the actuator and product space provides an inspectable clear leakage path from both the actuator and product sides
- Very easy to clean



Very easy to clean with:

- Front-flush seals prevent contamination behind the seal
- Sump and dome clearance
- Can be completely emptied (take note of installation position)
- No dead space
- Open construction prevents dead areas during cleaning
- Readily cleanable inner contours (radii)



It is critically important that valves, as well as other equipment, meet industry standards. Two well-known and very important of these are the 3-A Sanitary Standards (USA) and the EHEDG (European Hygienic Engineering & Design Group).

Pentair Sudmo's SVP Select Valves hold the 3-A Sanitary Standard 53-06 and meet EHEDG Type EL - Class 1.



FEEDBACK SYSTEMS



IntelliTop 2.0



Proximity switches

VALVE ACTUATORS



NC

Pneumatic
air opened /
spring closed



NO

Pneumatic
spring opened /
air closed



AA

Pneumatic
air opened /
air closed



LS

Pneumatic
long stroke

VALVE INSERTS - STEM SEAL



Hygienic
profile seal

VALVE INSERTS - SEAT SEAL



O-ring



PEEK ring



PEEK plate

SHUT-OFF VALVES

VALVE HOUSINGS



Right-Angle



Double Right-Angle



Cross



Sampling



Straight-way



Angular Seat

ADDITIONAL ACTUATORS



Booster



3-position actuator



EAF+
Pneumatic
Adjustable spring
force



Manual actuator
Standard



Manual actuator
Bevelled wheel
drive



Aseptic
P³ diaphragm

FOR CHANGE-OVER VALVES



Mixer
RSC / O-ring



Distributor
RSC / RSC



Bottom Seat
90° angle



Bottom Seat
30° angle

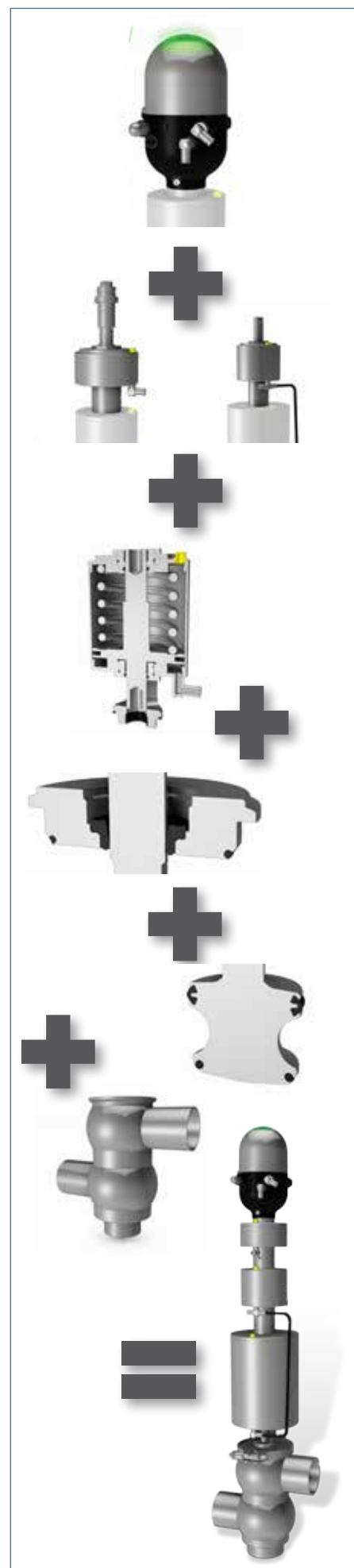


Change-over
Mixer

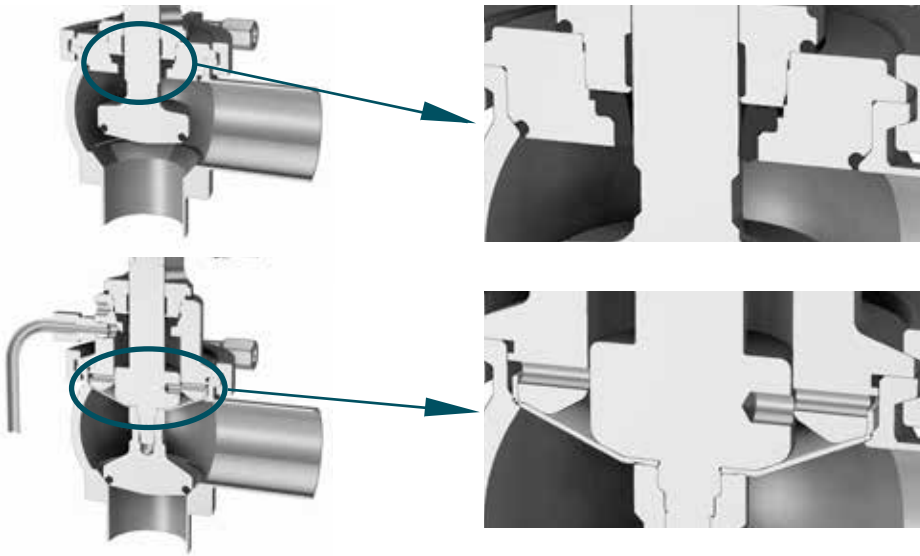


Change-over
Distributor

EXAMPLE



INNOVATIVE SEALING SOLUTION - STEM AREA



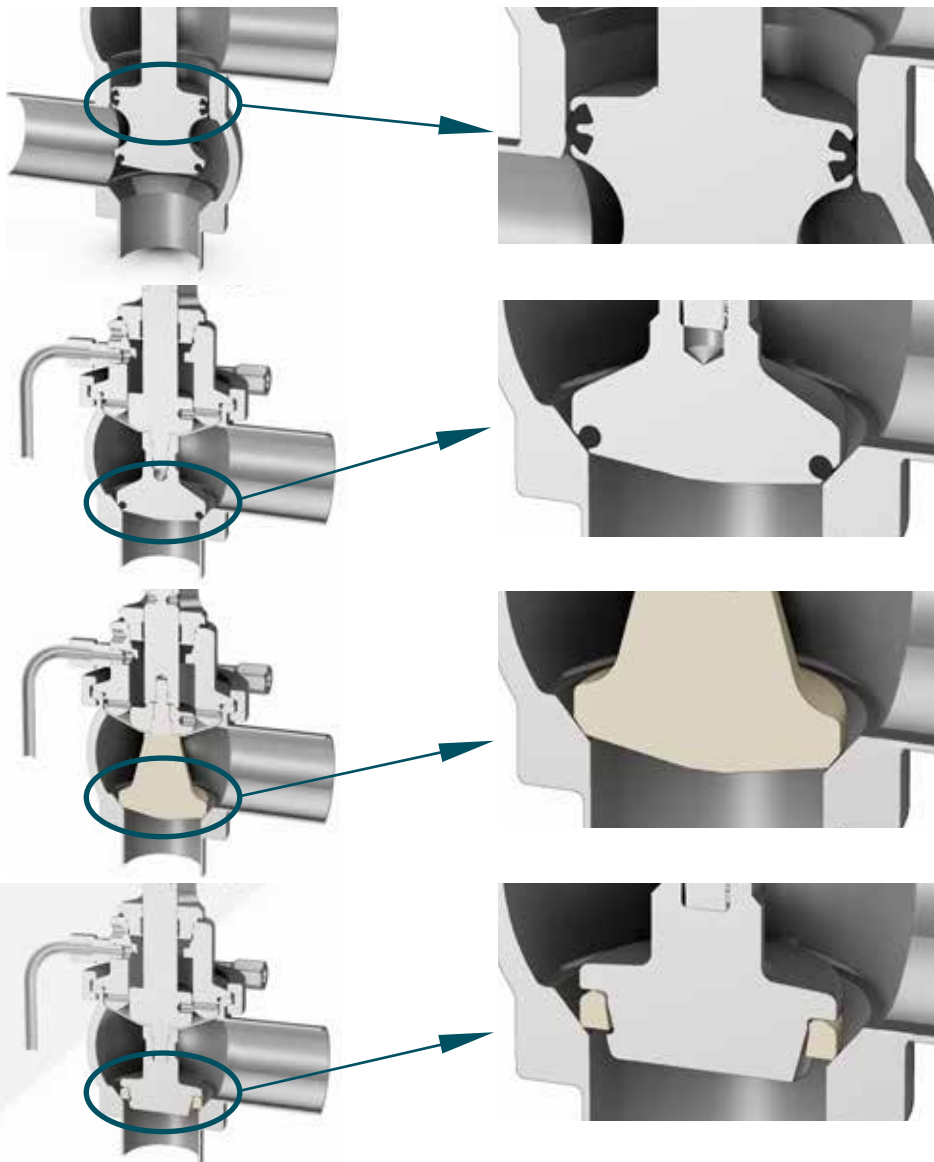
Profile seal (hygienic design)

- Wiper effect
- Easy maintainance
- Various elastomers available (EPDM/ HNBR/FKM)

P³ diaphragm (aseptic design)

- No elevator effect
- Easy to maintain
- P³ material with excellent properties
 - Very good chemical resistance
 - Temperature resistant up to 150°C
 - Dynamic pressure stability up to 10 bar

INNOVATIVE SEALING SOLUTION - SEAT AREA



RSC* seal as radial seals

- Small contact area (optimized friction characteristics)
- High durability
- Very good source compensation
- Various elastomers available (EPDM/HNBR/FKM)
- Easy to maintain

O-ring as axial seals

- Flexible sealing material
- Various elastomers available (EPDM/HNBR/FKM)
- Easy to maintain

PEEK plate as axial seals

- Hard sealing material
- High-performance plastic PEEK**
- Very good chemical resistance
- Temperature-resistant up to 150°C
- Does not tend to attract residues
- Elastomer-free product space combined with P³ sleeve
- Easy to maintain

PEEK ring as axial seals

- Cost-effective alternative to PEEK plates
- Not recommended for products with solids (fibers/pieces) content

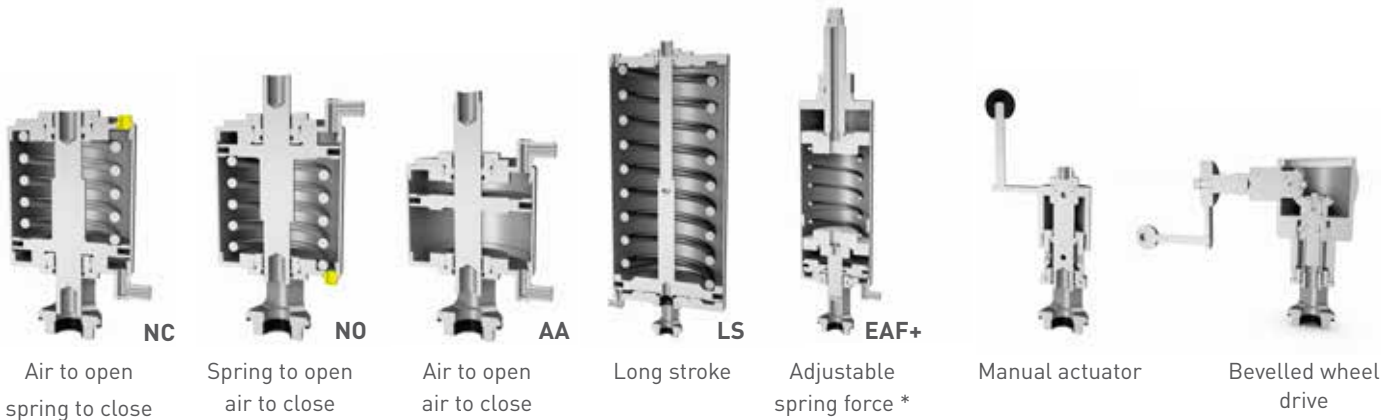
*Radial seal complete

**Polyether ether ketone

ACTIVATION

PNEUMATIC ACTUATORS

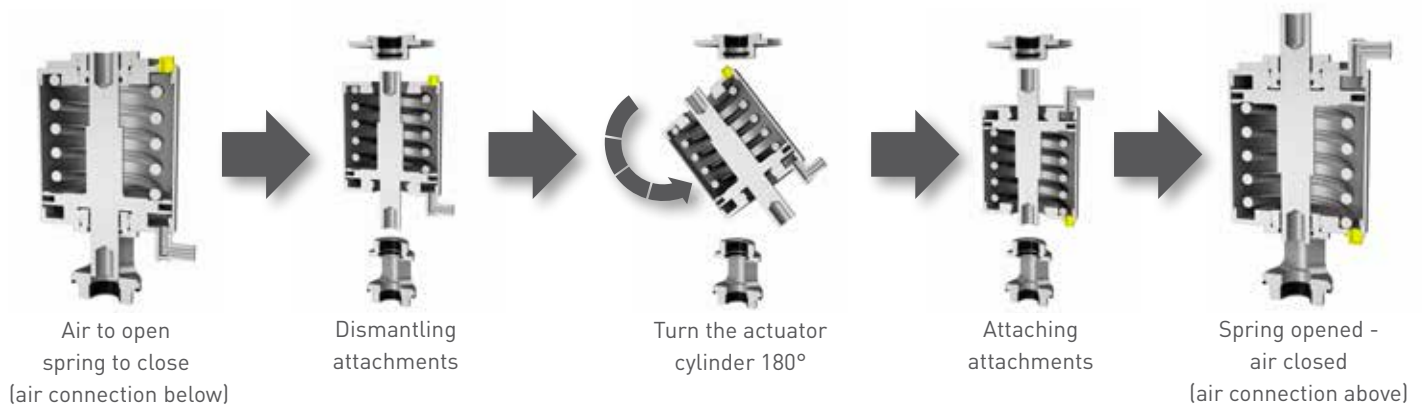
MANUAL ACTUATORS



* Adjustable holding pressure - for further information see the SVP Select Overflow Valves brochure

REVERSIBLE PNEUMATIC ACTUATORS

Converting the operating mode from air to open to spring to open (and vice-versa) is possible without additional parts



FEEDBACK SYSTEMS

ADDITIONAL ACTUATORS



Proximity Switch ON/OFF

- Proximity sensor M12
- Hand guard prevents injuries



IntelliTop 2.0

- Decentralized control unit
- Valve actuation system
- Position monitoring
- Valve/PLC interface



Booster

- Support of main lift function
- Use with lower control air pressure



3-position actuator

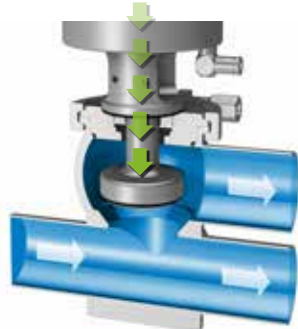
- Implementation of a third position
- Adjustable intermediate position

FLOW DIRECTIONS

FLOW DIRECTION DURING THE SWITCHING PROCEDURE FOR VARIOUS HOUSING TYPES



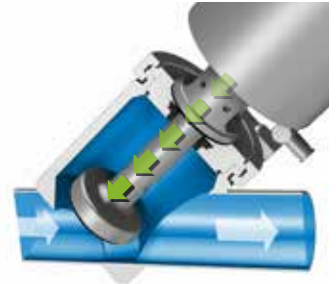
Right-Angle Valve



Sampling Valve



Bottom Seat Valve



Angular Seat Valve



Change-Over Valve - Mixer

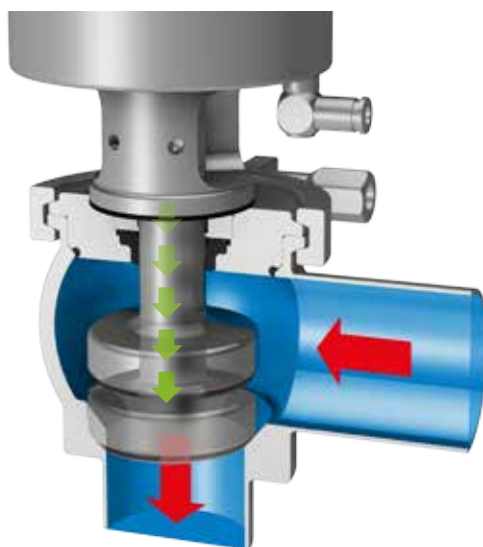


Change-Over Valve - Distributor

Key: Flow direction Closing direction

Switching of the valve only permitted within the stated flow direction.
If this is not possible, the flow velocity v has to be 0 m/s (ft/s).

Caution – Risk of pressure shocks when closing with the flow!



Pressure shock!!!
 $P > \text{allowed operating pressure}$

Vacuum shock!!!

Attention:

If the the media flow has to go against the allowed direction for process reasons, the flow velocity v while switching has to be 0 m/s (ft/s)!

Key: Flow direction Closing direction

TECHNICAL INFORMATION

MATERIAL

Product contact area

1.4404 (AISI 316L)

Non-product contact area

1.4301 (AISI 304) / 1.4307 (AISI 304 L)

Optional

High-quality materials

Sealing materials *

Elastomers: EPDM/HNBR/FKM

Plastics: P³/PEEK

* FDA compliant

PRESSURES

Control air pressure

Standard 6 bar (87 psi) – 8 bar (116 psi)

Operating pressure

10 bar (145 psi) in case of nominal sizes:
DN 10-20, OD tube 0.5"/0.75", ISO 08-15

6 bar (87 psi) in case of nominal sizes:
DN 25-100, OD tube 1" -4", ISO 20-80

5 bar (72.5 psi) in case of nominal sizes:
DN 125-150, OD tube 6", ISO 100-125

Higher pressures on request

SURFACES

Product contact

Ra ≤ 0.8 µm

Non-product contact

Ra ≤ 1.6 µm

Optional

High-quality surface finish, electropolished

CONNECTIONS

Pipe connections in accordance with

– DIN 11850-2 (DIN 11866-A)

– ASTM A270 (DIN 11866-C) (ASME BPE-2009)

– DIN EN ISO 1127 (DIN 11866-B)

OPERATING TEMPERATURES - ELASTOMERS

EPDM

Standard



Hot water

95 °C (203 °F) continuous

Steam

130 °C (266° F) continuous

150 °C (300° F) brief sterilization (15-20 minutes)

Cold water

1 to 2 °C (33.8 – 35.6°F) continuous

HNBR

optional



Hot water

95 °C (203 °F) continuous

Steam

121° C (250° F) continuous

140 °C (284° F) brief sterilization (15-20 minutes)

Cold water

1 to 2 °C (33.8 – 35.6°F) continuous

FKM

optional



Hot water

+80 °C (176 °F) continuous

Steam

121 °C (250° F) brief sterilization (15-20 minutes)

Cold water

1 to 2 °C (33.8 – 35.6°F) continuous

OPERATING TEMPERATURES - PLASTICS

P³ DIAPHRAGM



Hot water

95 °C (203 °F) continuous

Steam

150° C (300° F) continuous

150 °C (300° F) brief sterilization (15-20 minutes)

Cold water

1 to 2 °C (33.8 – 35.6°F) continuous

PEEK

(in combination with
P³ sleeve)



Hot water

95 °C (203 °F) continuous

Steam

150° C (300° F) continuous

150 °C (300° F) brief sterilization (15-20 minutes)

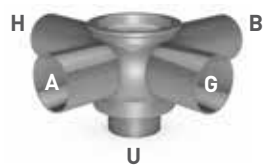
Cold water

1 to 2 °C (33.8 – 35.6°F) continuous

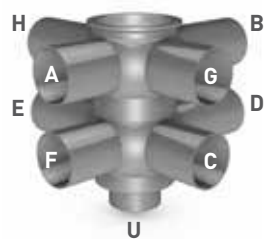
Further information regarding media and CIP tolerance can be found in the Südmo sealing guide.



PORT CONFIGURATIONS ON DEMAND



Right /
Double Right Angle Valve



Change-Over Valve
Mixer



Change-Over Valve
Distributor

ADDITIONAL BROCHURES

Please take a look at our other marketing materials:

- SVP Select Overflow Valves
- SVP Select Control Valves
- IntelliTop 2.0
- P³ diaphragm



PENTAIR SÜDMO GMBH

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