



# 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
- P<sup>3</sup> diaphragm

## SERVICE & OPERATION

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

## COMPREHENSIVE MODULAR SYSTEM

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

## OPTIMIZED ACTUATOR & CONTROL SOLUTIONS

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

## HIGHEST QUALITY

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

## CERTIFICATIONS

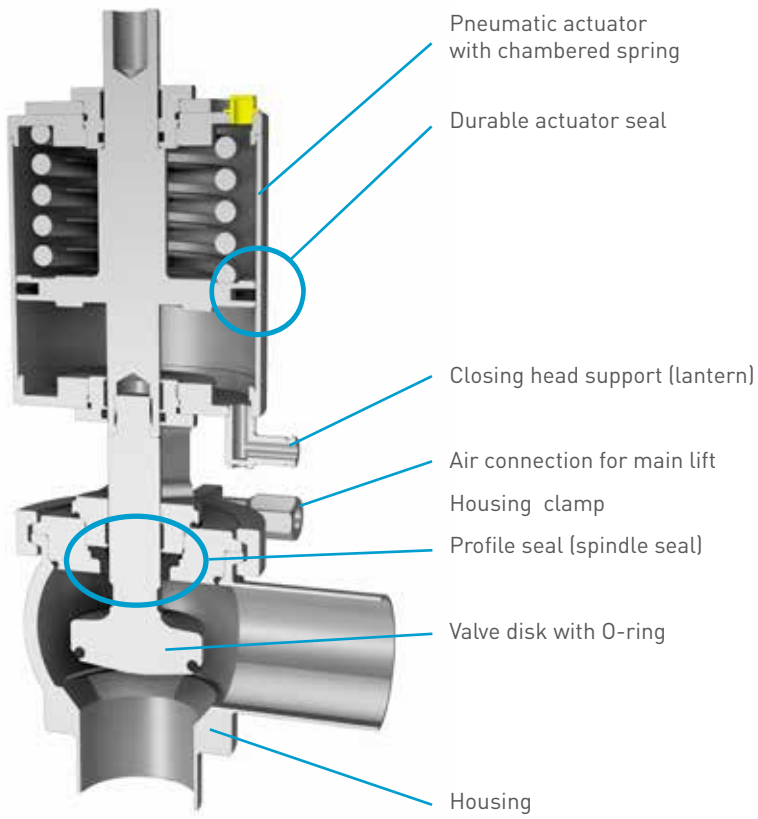
- EHEDG
- 3-A
- ATEX
- CRN
- Seals conform to FDA requirements
- Optional USP Class VI



\* Polyether ether ketone

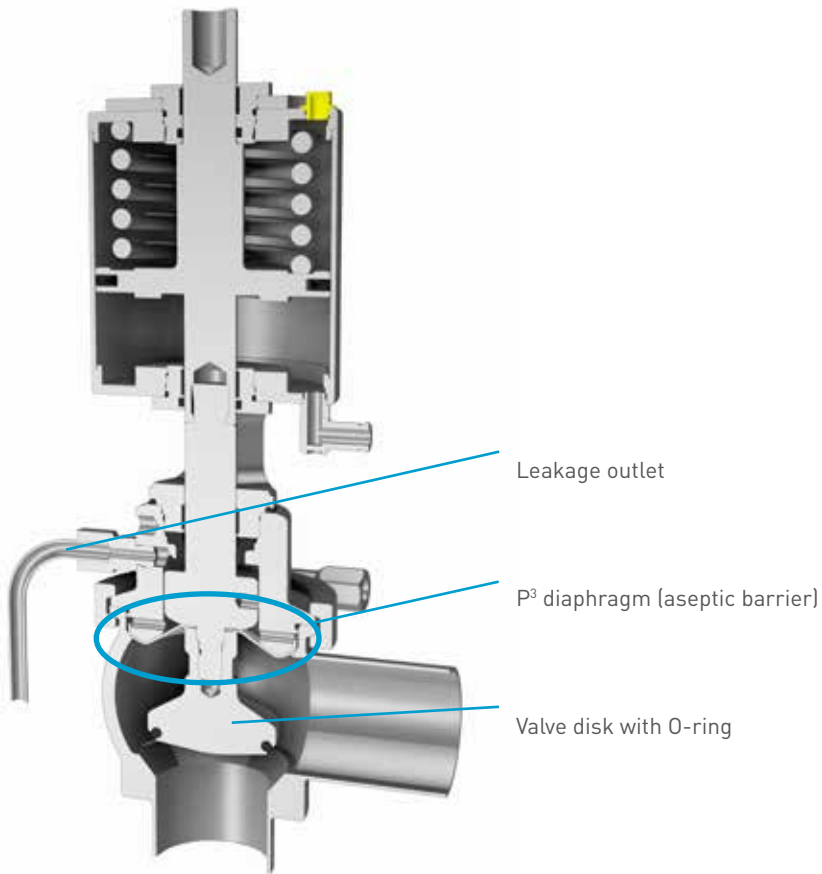
\*\*Radial seal complete

**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

### ASEPTIC VALVE TECHNOLOGY WITH P<sup>3</sup> DIAPHRAGM

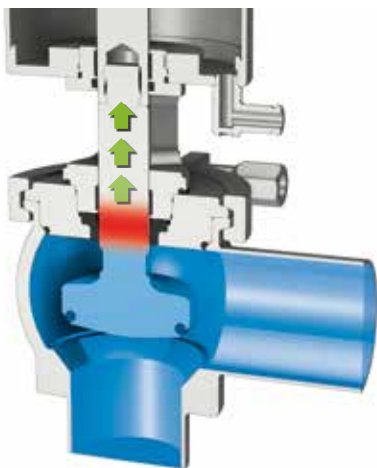


#### VALVE POSITION CLOSED



Profile seal separates the product area and atmosphere

The P<sup>3</sup> diaphragm provides an aseptic barrier between the product area and atmosphere

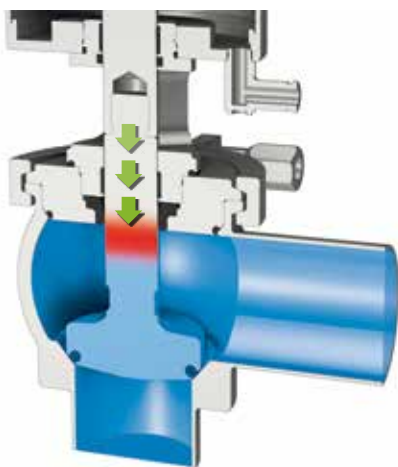


#### OPENING THE VALVE



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

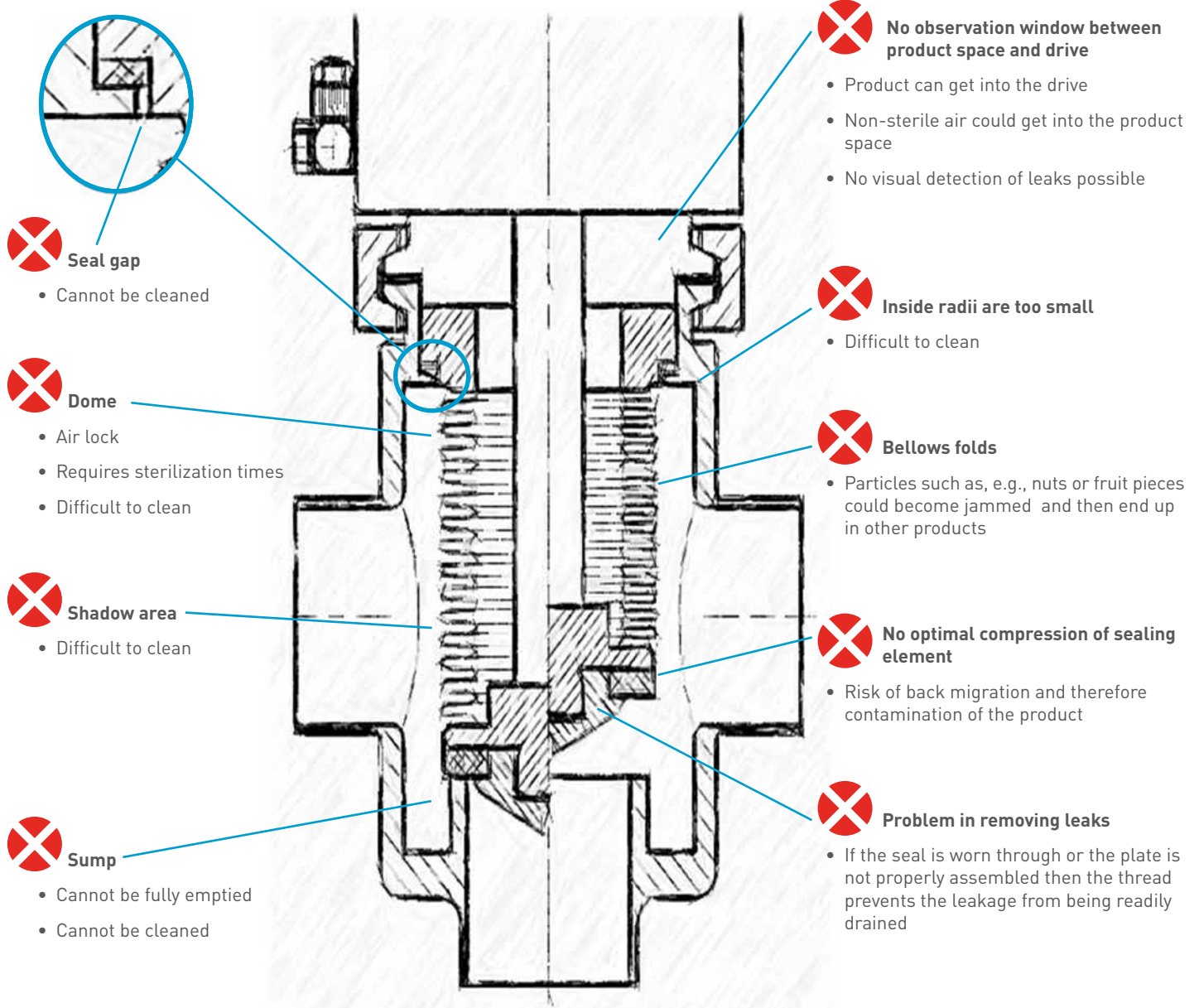
Valves have a key function in process plants and are important components in satisfying the ever-increasing stringent market requirements. The following features should be considered when selecting valves for your process plant:

- **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**



**WEAKNESSES IN VALVE DESIGN THAT NEED TO BE AVOIDED**

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 Südmo 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

SHUT-OFF VALVES



PEEK ring



PEEK plate

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**  
P<sup>3</sup> diaphragm

**FOR CHANGE-OVER VALVES**



**Mixer**  
RSC / O-ring



**Distributor**  
RSC / RSC



**Bottom Seat**  
90° angle



**Bottom Seat**  
30° angle

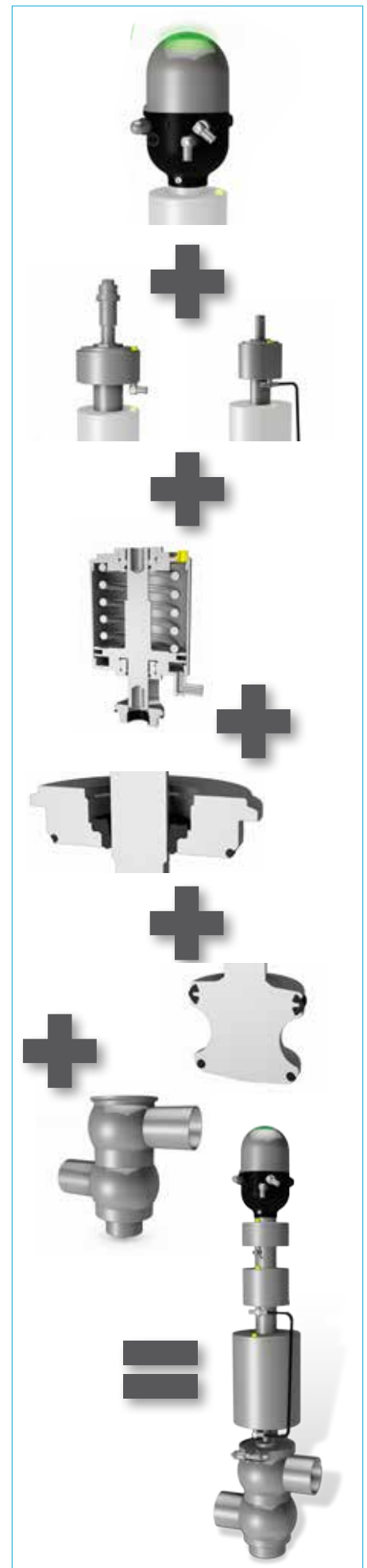


**Change-over**  
Mixer

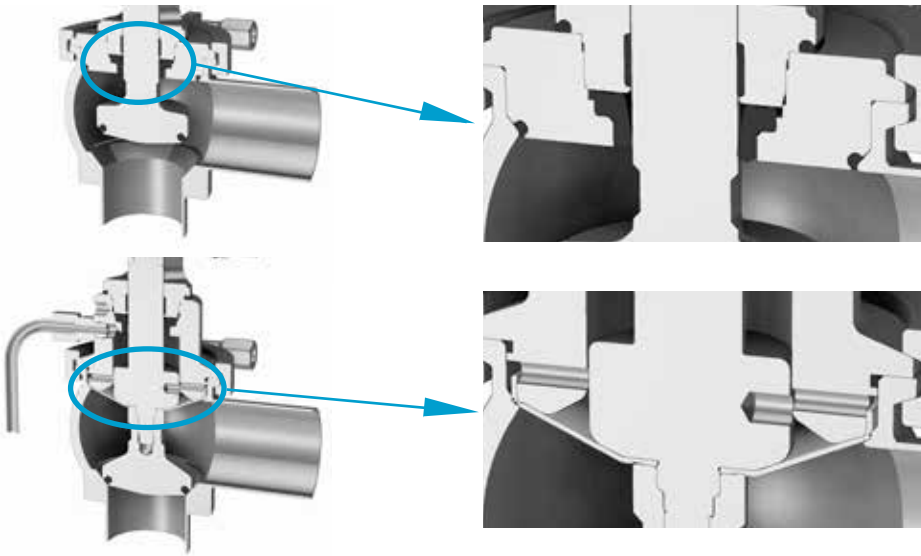


**Change-over**  
Distributor

**EXAMPLE**



## INNOVATIVE SEALING SOLUTION - STEM AREA



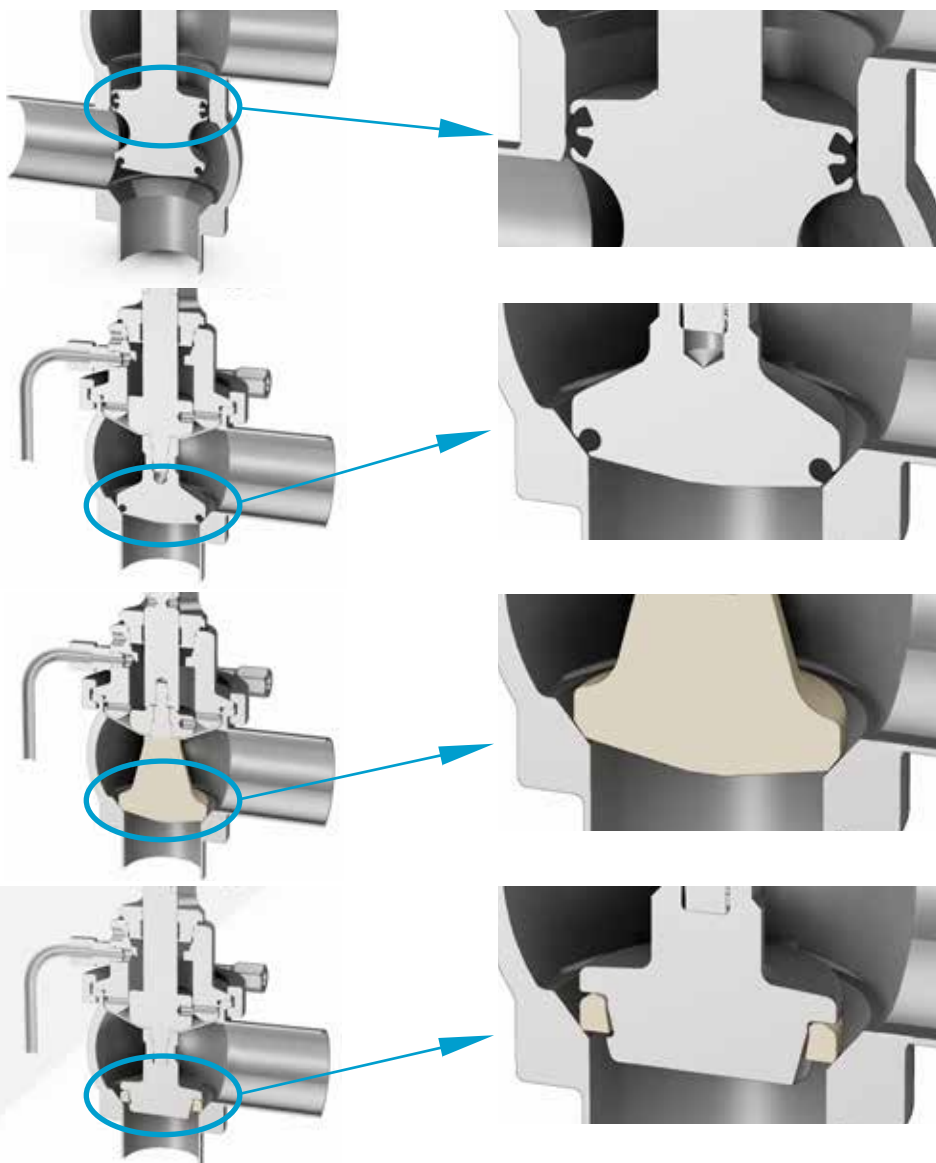
### Profile seal (hygienic design)

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

### P<sup>3</sup> diaphragm (aseptic design)

- No elevator effect
- Easy to maintain
- P<sup>3</sup> 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 P<sup>3</sup> sleeve
- Easy to maintain

### PEEK ring as axial seals

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

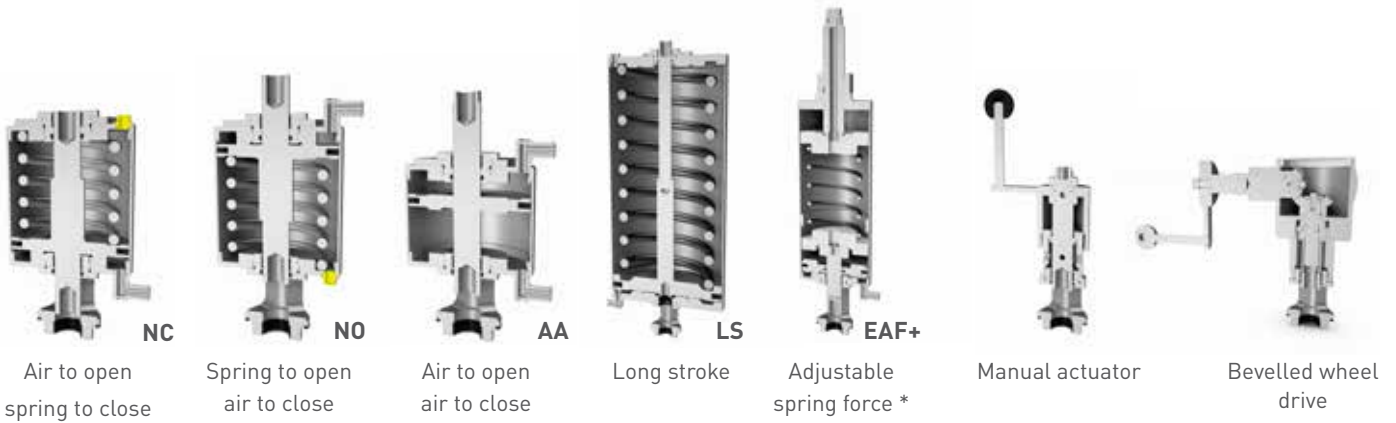
\*Radial seal complete

\*\*Polyether ether ketone

## ACTIVATION

### PNEUMATIC ACTUATORS

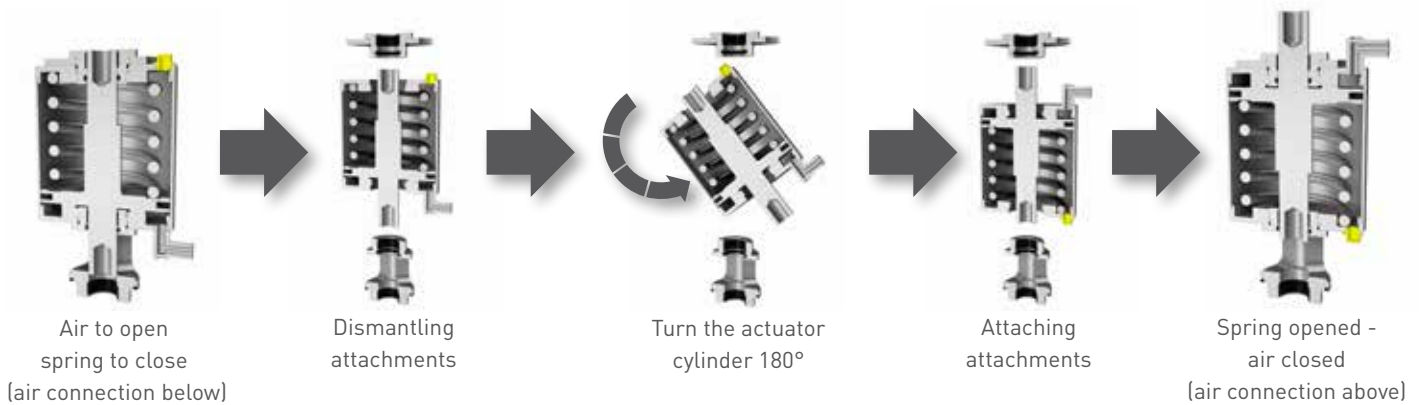
### MANUAL ACTUATORS



\* 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

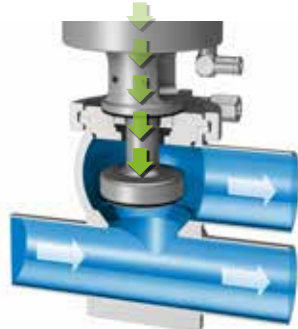
- Implementation of a third position
- Adjustable intermediate position

**FLOW DIRECTIONS**

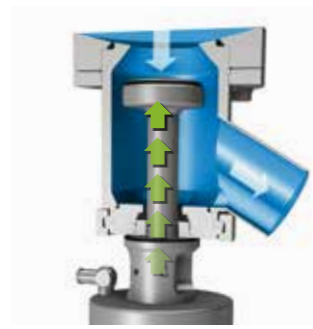
**FLOW DIRECTION DURING THE SWITCHING PROCEDURE FOR VARIOUS HOUSING TYPES**



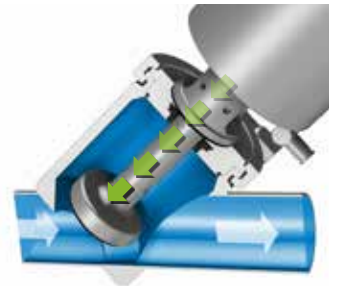
Right-Angle Valve



Sampling Valve



Bottom Seat Valve



Angular Seat Valve



Change-Over Valve - Mixer



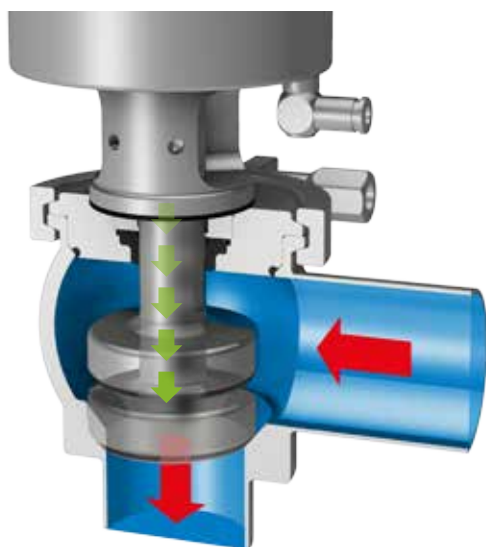
Change-Over Valve - Distributor



**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!**



**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: P<sup>3</sup>/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

### P<sup>3</sup> 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 P<sup>3</sup> sleeve)



**Hot water**  
95 °C (203 °F) continuous

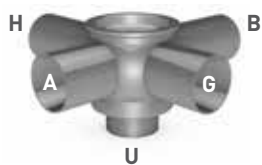
**Steam**  
150° C (300° F) continuous  
150 °C (300° F) brief sterilization (15-20 minutes)

**Cold water**  
1 to 2 °C (33.8 – 35.6°F) continuous

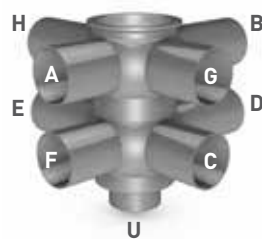
Further information regarding media and CIP tolerance can be found in the Südmo sealing guide.



## 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
- P<sup>3</sup> diaphragm



**PENTAIR SÜDMO GMBH**

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