

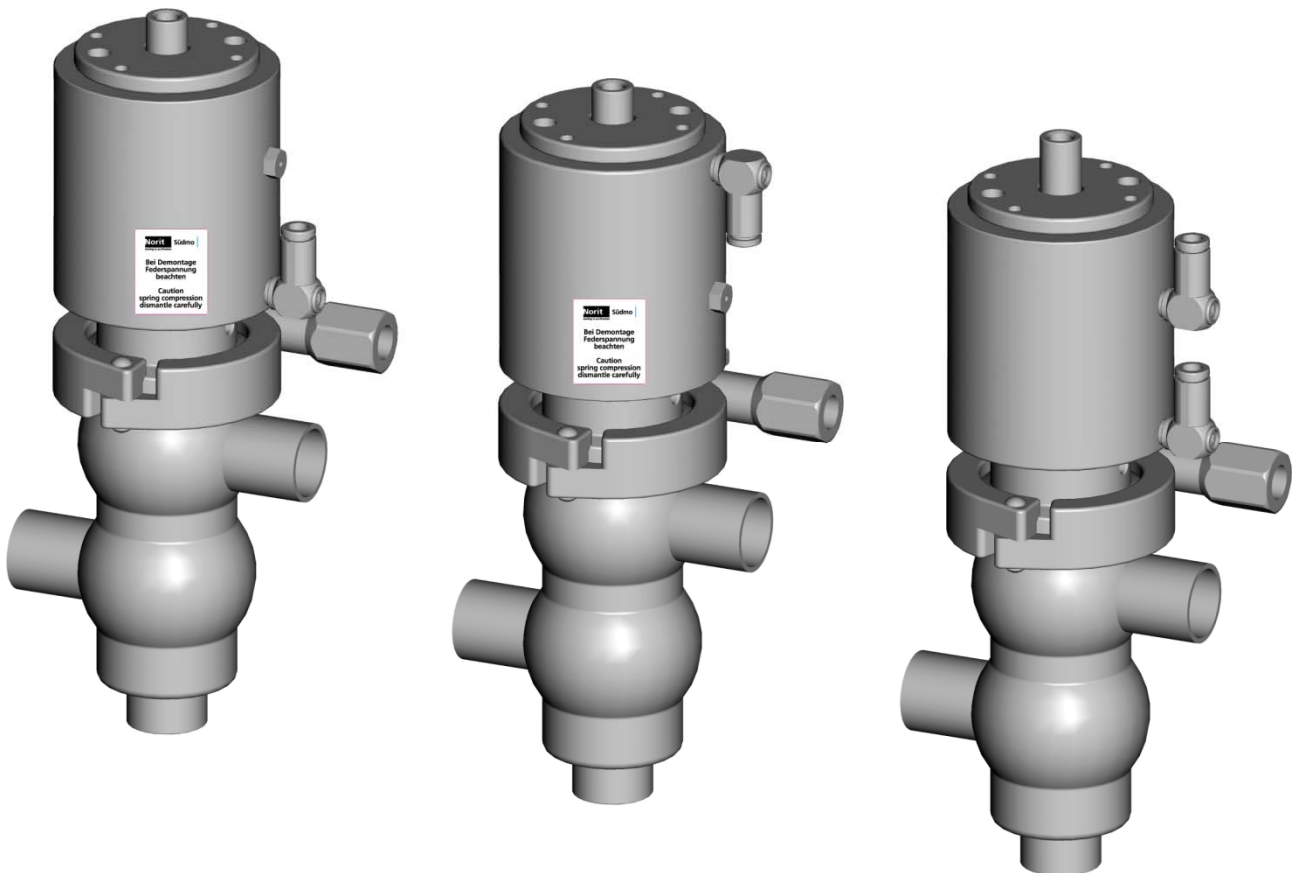
BAA A390P³.03 Select

SVP aseptic diaphragm change-over valve

DN 10 – 20, DN 1/2" – 3/4"

DN 10-ISO – 15-ISO

diaphragm – O-ring
pneum. operated



Änderung	Datum	Name	Änderung	Datum	Name	Änderung	Datum	Name	Änderung	Datum	Name

erst. am/von 13.11.2009 Graf
gepr. am/von 13.11.2009 Feldmeier



1. Contents

1. Contents	2
2. Safety instructions	4
2.1. General	4
2.2. Maintenance	4
2.3. Modification of the SVP aseptic diaphragm change-over valve	5
2.4. SVP aseptic diaphragm change-over valves with feedback	5
2.5. Storage	5
2.6. Operation	6
2.7. Spare parts	6
3. Technical data	7
3.1. Dimensions	7
3.1.1. Pneum. SVP aseptic diaphragm change-over valves	7
3.2. Valve use	8
3.3. Materials	9
3.4. CIP-Cleaning	9
3.5. Surfaces	10
3.6. Pneum. actuator	10
3.6.1. Function air opened – spring closed	10
3.6.2. Function spring opened – air closed	10
3.6.3. Function air opened – air closed	10
3.7. Control systems	11
3.8. Electrical and pneumatic connections	11
3.9. Control air	12
4. Valve function	13
4.1. SVP aseptic diaphragm change-over valve air opened – spring closed	13
4.2. SVP aseptic diaphragm change-over valve spring opened – air closed	13
4.3. SVP aseptic diaphragm change-over valve air opened – air closed	14
5. Valve connection piping	15
5.1. Installation position	15
5.2. Ventilanschlüsse	15
5.3. Installation instructions	15
6. Installation instructions	15
6.1. General remarks	15
6.2. Delivery condition	16
6.3. Installation instructions	16
6.3.1. Installation space	16
6.3.2. Installation	16
6.4. Welding instructions	16
6.4.1. Area of application	16
6.4.2. Welding technique	16
6.4.3. Type of welding	16
6.5. Weld preparation	16
6.6. Welding	16
6.7. Weld filler materials	16

6.8.	Weld finishing	16
6.8.1.	Interior	16
6.8.2.	Exterior	17
6.9.	Cleaning	17
6.10.	Assembly	17
7.	Dismantling – Assembly	17
7.1.	Before disassembly	17
7.2.	SVP aseptic diaphragm change-over valves with feedback	18
7.3.	Spare parts	18
7.4.	Mounting tools	18
7.5.	Replacement of product-contacted seals	19
7.5.1.	Pneum. SVP aseptic diaphragm change-over valve air to open - spring to close - diaphragm – O-ring	19
7.5.2.	Pneum. SVP aseptic diaphragm change-over valve spring to open - air to close - diaphragm – O-ring	21
7.5.3.	Pneum. SVP aseptic diaphragm change-over valve air to open - air to close - diaphragm – O-ring	23
7.6.	Assembly O-ring	25
7.6.1.	Removal	25
7.6.2.	Installation	25
7.7.	Pneum. actuator	26
7.7.1.	Function air to open - spring to close	26
7.7.2.	Function spring to open - air to close	27
7.7.3.	Function spring to open - air to close	28
7.8.	Assembly process control head IntelliTop® type 8680	29
8.	Start-up	30
8.1.	Functional test	30
8.1.1.	Pneumatic version	30
8.2.	Leak test	30
9.	Maintenance	30
9.1.	Before maintenance	30
9.2.	Inspection	30
9.3.	Preventive maintenance	30
10.	Disorder - trouble shooting	31
11.	Disposal	32
11.1.	Before disposal	32
11.2.	Parts of SVP aseptic diaphragm change-over valve	32
11.3.	SVP aseptic diaphragm change-over valve disposal	32
12.	List of spare parts	33
12.1.	SVP aseptic diaphragm change-over valve	33
12.2.	Pneum. actuator	34
12.2.1.	Function air to open – spring to close, spring to open - air to close	34
12.2.2.	Function air to open – air to close	34
13.	EC Manufacturer's Declaration	35
14.	CE designation	35
15.	Service address	36

2. Safety instructions



Danger

This symbol indicates a direct and immediate danger to the life and health of persons!

Failure to observe these warnings may result in serious damage to health, up to and including life-threatening injuries which may or may not be fatal.



Caution

This symbol indicates a potentially hazardous situation!

Failure to observe these warnings may result in less serious injuries, or damage to material property.



This sign draws your attention to important information about the proper use of the SVP aseptic diaphragm change-over valve. It is essential for this information to be observed.

Failure to observe these instructions may cause malfunctions in the valve or in its vicinity.

2.1. General

- ⇒ SVP aseptic diaphragm change-over valves from Südmo Components GmbH are manufactured in accordance with state-of-the-art standards and the recognized safety rules. However, these SVP aseptic diaphragm change-over valve may constitute a hazard if used by operating personnel improperly or for a purpose other than the intended one. This may result in a risk to life and limb of the user or of third parties, or cause damage to the SVP aseptic diaphragm change-over valve and other material property.
- ⇒ Each person concerned with installation, commissioning, operation and maintenance of this SVP aseptic diaphragm change-over valve must have read and understood the complete operating instructions, and in particular all safety instructions.
- ⇒ In addition to these operating instructions, the following are of course also valid:
 - pertinent accident prevention regulations
 - generally recognized safety rules
 - national regulations of the country of use
 - in-house work and safety regulations.

2.2. Maintenance

- ⇒ Our SVP aseptic diaphragm change-over valves should be maintained and commissioned only by qualified personnel.
Qualified personnel in the sense of the operating instruction are persons which are familiar with assembly, commissioning and operation of this product and have corresponding qualifications
 - Training or instruction according to the current standards of the security techniques concerning corresponding care and use of the security devices
 - First Aid training
 - Plants with explosion protection:
 - Training, instruction or authorization to effect works on explosive plants (pay attention to ATEX requirements).
- ⇒ Before starting maintenance please make sure that:
 - discharge of the pipeline
 - please effect only when there is no pressure and no product in the pipeline
 - to be informed about possible dangers which can occur due to the product and to take the corresponding measures (security glove, protecting glasses)
 - cool down the components if required.
 - exclude commissioning of the plant by a third party.
 - counteract against cushion pressure which can occur in isolated pipelines.
 - do assembly in accordance with assembly instructions.

- if the closing springs are not preloaded when removing the actuator, there might be danger of injury when the clamping joint is loosened because the drive releases spring tension (see label – sketch A)
- switch off the power supply.
- take the SVP aseptic diaphragm change-over valve out of the pipeline section if possible.



Sketch A

- ⇒ Any method of working that impairs the safety and function of the SVP aseptic diaphragm change-over valve must be avoided.

2.3. Modification of the SVP aseptic diaphragm change-over valve

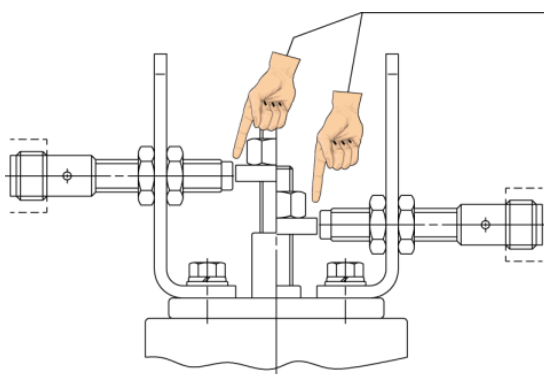
- ⇒ Der Bediener ist verpflichtet, das SVP-Aseptik-Manschettenumstellventil bestimmungsgemäß, sicherheits- und gefahrenbewusst zu betreiben. Eintretende Veränderungen am SVP-Aseptik-Manschettenumstellventil, welche die Funktion und die Sicherheit beeinträchtigen, sind sofort zu melden. Der Anwender ist verpflichtet, das SVP-Aseptik-Manschettenumstellventil nur im einwandfreiem Zustand zu betreiben.



Danger

Modification of the SVP aseptic diaphragm change-over valve is strictly prohibited

2.4. SVP aseptic diaphragm change-over valves with feedback



Danger

Don't put fingers into check-back signal.

⇒ **Accident risk.**

Fingers can be crushed or cut off.

2.5. Storage

- ⇒ Store the valve in a dry place and protect it against external conditions.
- ⇒ Prior to any handling (dismantling of housings / actuators) store valves at least for 24 h in a dry place at a temperature of $\geq 5^\circ \text{C}$.

Operating instructions

SVP aseptic diaphragm change-over valve
pneum. operated
diaphragm – O-ring
DN 10 – 20, DN 1/2" – 3/4", DN 10-ISO – 15-ISO

2.6. Operation



- ⇒ *Never touch the valve or piping system when hot products are in processing or during sterilization.*
- ⇒ *Observe strictly the technical data.*
- ⇒ *We cannot be held liable for an incorrect use of the valve*

2.7. Spare parts



- Please use only original Norit Südmo spare parts*
- ⇒ *Norit Südmo spare parts see list of spare parts*
- ⇒ *exclusion of liability by using other spare parts*

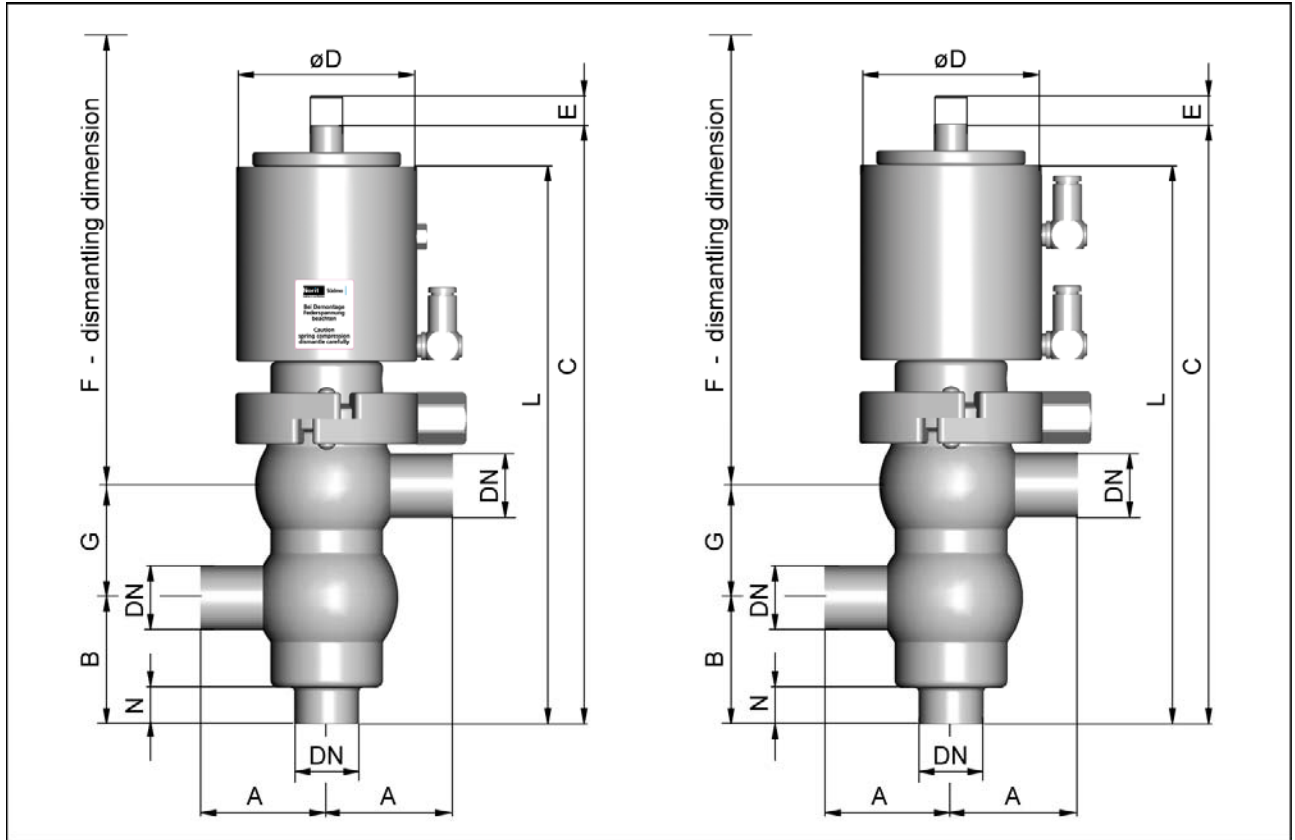
Operating instructions

SVP aseptic diaphragm change-over valve
pneum. operated
diaphragm – O-ring
DN 10 – 20, DN 1/2" – 3/4", DN 10-ISO – 15-ISO

3. Technical data

3.1. Dimensions

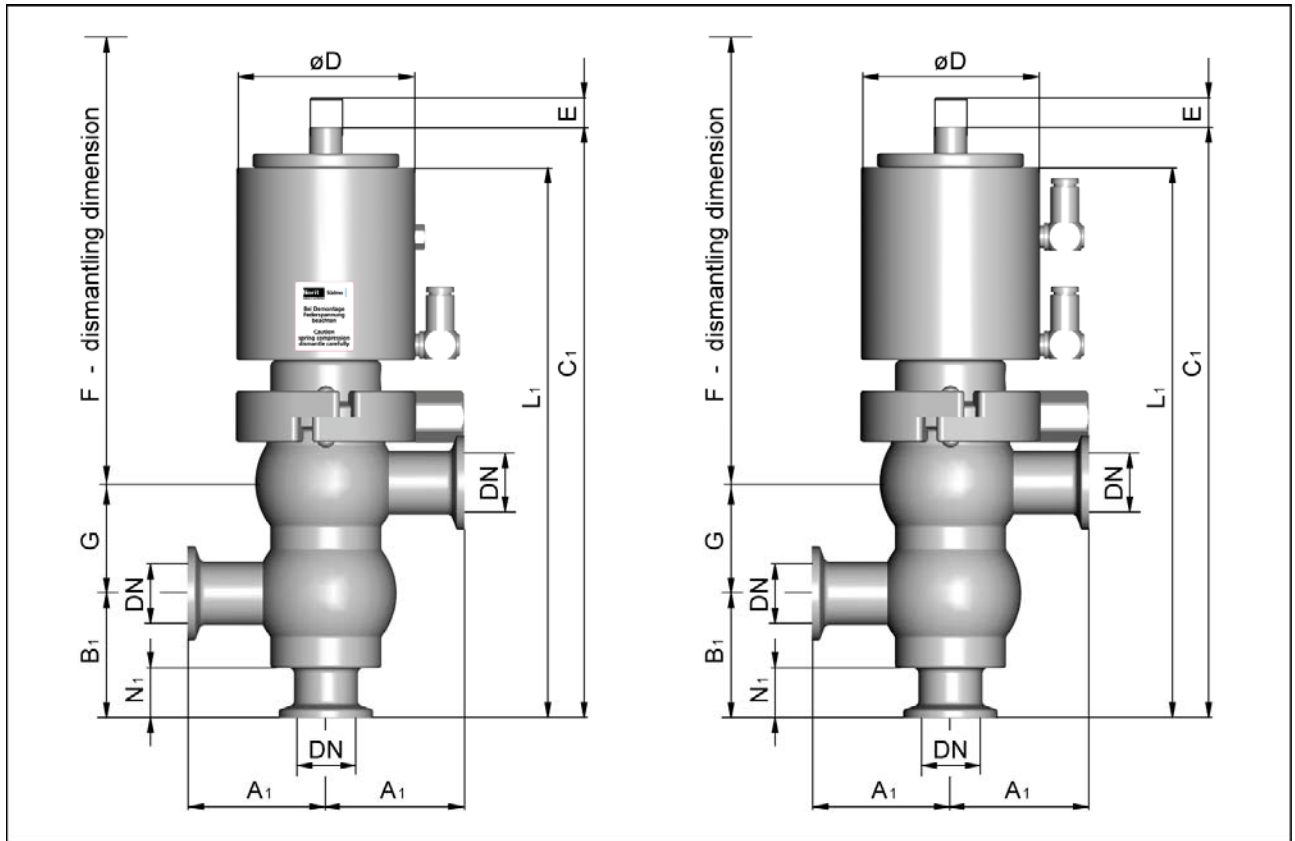
3.1.1. Pneum. SVP aseptic diaphragm change-over valves



DN	tube	A	B	C	øD	E	F	G	L	N
Metric										
10	ø13 x 1,5	45	45	219,5	64,5	10	246,5	40	199	13
15	ø19 x 1,5	45	45	219,5	64,5	10	246,5	40	199	13
20	ø23 x 1,5	45	45	219,5	64,5	10	246,5	40	199	13
O.D. tube										
1/2"	ø12,7 x 1,65	45	45	219,5	64,5	10	246,5	40	199	13
3/4"	ø19,05 x 1,65	45	45	219,5	64,5	10	246,5	40	199	13
ISO										
10-ISO	ø17 x 1,6	45	45	219,5	64,5	10	246,5	40	199	13
15-ISO	ø 21,3 x 1,6	45	45	219,5	64,5	10	246,5	40	199	13

Operating instructions

SVP aseptic diaphragm change-over valve
pneum. operated
diaphragm – O-ring
DN 10 – 20, DN 1/2" – 3/4", DN 10-ISO – 15-ISO



DN	tube	A ₁	B ₁	C ₁	øD	E	F	G	L ₁	N ₁
Metric										
10	ø13 x 1,5	45	45	219,5	64,5	10	246,5	40	199	13
15	ø19 x 1,5	45	45	219,5	64,5	10	246,5	40	199	13
20	ø23 x 1,5	45	45	219,5	64,5	10	246,5	40	199	13
O.D. tube										
1/2"	ø12,7 x 1,65	45	45	219,5	64,5	10	246,5	40	199	13
3/4"	ø19,05 x 1,65	45	45	219,5	64,5	10	246,5	40	199	13
ISO										
10-ISO	ø17 x 1,6	45	45	219,5	64,5	10	246,5	40	199	13
15-ISO	ø 21,3 x 1,6	45	45	219,5	64,5	10	246,5	40	199	13

3.2. Valve use

Application: change-over valve
For use in: aseptic processes
Shut-off tightness:

sealing	DN	Shut-off tightness	Function actuator
diaphragm – O-ring	10 – 20 1/2" – 3/4" 10-ISO – 15-ISO	6 bar max.	air opened – spring closed spring opened – air closed air opened – air closed

3.3. Materials

Seal materials

⇒ P³ (diaphragm)

Steam sterilisation: to +160° C



The application parameters and resistance depend on the applied seal quality in the valve disc.

⇒ EPDM

Temperature for continuous application in air		-40° C to +130° C
Resistant to	Hot water	to 100° C
	Steam	to 130° C for continuous application, to 150° C for short time
	Wort:	to 100° C
	Sodium hydroxide	to 100° C and concentration to 5 %
	Nitric acid	to 60° C and concentration to 3 %
	Peracetic acid	to 80° C and concentration to 0,7 %
	Raspberry flavor	room temperature
	Cherry flavor	room temperature

⇒ VMQ

Temperature for continuous application in air		-50° C to +200° C
Resistant to	Hot water	to 100° C
	Sodium hydroxide	to 60° C and concentration to 2,5 %
	Nitric acid	to 60° C and concentration to 1,2 %
	Peracetic acid	to 80° C and concentration to 0,7 %

⇒ HNBR

Temperature for continuous application in air		-25° C to +130° C
Resistant to	Hot water	to 100° C
	Steam	to 130° C for continuous application, to 150° C for short time
	Sodium hydroxide	to 100° C and concentration to 5 %
	Nitric acid	to 60° C and concentration to 1,5 %

⇒ FPM

Temperature for continuous application in air		-20° C to +200° C
Resistant to	Hot water	to 80° C
	Sodium hydroxide	to 60° C and concentration to 2,5 %
	Peracetic acid	room temperature and concentration to 0,7 %
	Orange flavor	room temperature
	Mandarin flavor	room temperature



The application parameters depend on

- ⇒ application duration per day
- ⇒ switching intervals
- ⇒ kind of product, temperature etc...
- ⇒ type of cleaning (CIP / SIP)

Stainless steel

In contact with product	1.4404
Not in contact with product	1.4301

3.4. CIP-Cleaning



- ⇒ Valve inner chambers must be cleaned regularly
- ⇒ Observe the safety information sheets issued by the detergent manufacturers !
- ⇒ Only use detergents which are non-abrasive and non-aggressive towards seals and stainless steel.

3.5. Surfaces

Surfaces in contact with product

$R_a \leq 0,8 \mu\text{m}$

Optional:

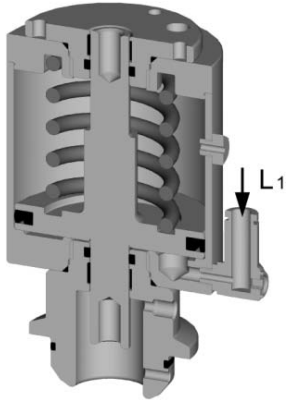
E-polished

Surfaces not in contact with product:

bright-turned,

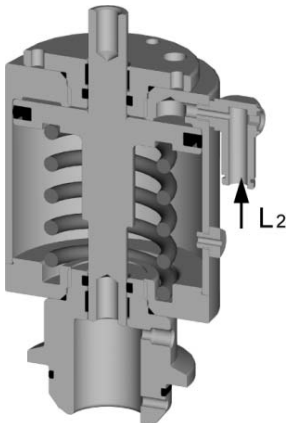
$R_a \leq 1,6 \mu\text{m}$

3.6. Pneum. actuator



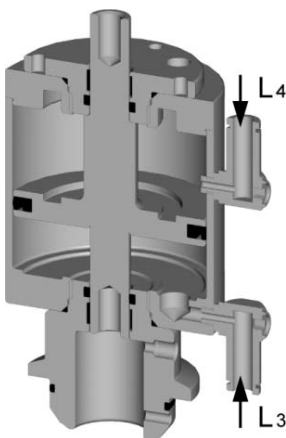
3.6.1. Function air opened – spring closed

- ⇒ Position "closed"
 - control air pressure 0 bar on connection L₁.
 - safety position
- ⇒ Position "open"
 - control air pressure 6 bar on connection L₁.



3.6.2. Function spring opened – air closed

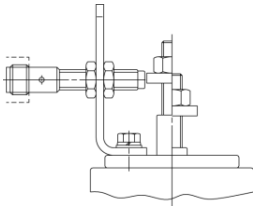
- ⇒ Position "open"
 - control air pressure 0 bar on connection L₂.
 - safety position
- ⇒ Position "closed"
 - control air pressure 6 bar on connection L₂.



3.6.3. Function air opened – air closed

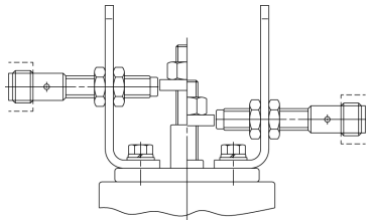
- ⇒ Position "closed"
 - control air pressure 0 bar on connection L₃.
 - control air pressure 6 bar on connection L₄.
 - safety position
- ⇒ Position "open"
 - control air pressure 6 bar on connection L₃.
 - control air pressure 0 bar on connection L₄.

3.7. Control systems



Single feedback

- ⇒ signal: open or closed valve position
- ⇒ inductive feedback - thread M 12 according to customer order
- ⇒ feedback data - refer to the data sheet of the manufacturer of the feedback
- ⇒ mounting set for check-back signal - order number



Double feedback

- ⇒ signal: open and closed valve position
- ⇒ inductive feedback - thread M 12 according to customer order
- ⇒ feedback data - refer to the data sheet of the manufacturer of the feedback
- ⇒ mounting set for check-back signal - order number



Process control head IntelliTop® type 8680

<u>Technical data</u>	refer to BA 8680
<u>Pneum. connections</u>	refer to BA 8680
<u>Electrical connections</u>	refer to BA 8680
<u>Maintenance</u>	refer to BA 8680

3.8. Electrical and pneumatic connections

Electrical connections

Connect up the electrical and pneumatic systems after installing the valve.



Only qualified personnel may do electrical installation

- ⇒ Observe VDE, IEE, IEC power utility and other locally applicable regulations.
- ⇒ Before connecting it up, check to see whether operating voltage and current match specifications.

Pneumatic connections

- ⇒ Angular screw-in-union G 1/8, air hose PE ø 6/4
- ⇒ USA:
Angular screw-in-union G 1/8, air hose PE 1/4" (ø6,35)

Air hose

Use always the hose quality according to Norit Südmo order no. 0490227 (6/4 hose) and 0735563 (8/6 hose) or equivalent:

- ⇒ Air hose black
- ⇒ Material: Polyamid 12
Linear coefficient of expansion: 15×10^{-5}
Version according to DIN73378 soft
- ⇒ Max. operating pressure: AD 6/ ID 4 = 27 bar
AD 8/ ID 6 = 19 bar
all pressure indications at 20°C, higher temperatures have a negativ effect on the max. operating pressure

Operating instructions

SVP aseptic diaphragm change-over valve
pneum. operated
diaphragm – O-ring
DN 10 – 20, DN 1/2" – 3/4", DN 10-ISO – 15-ISO



- ⇒ Use only calibrated hose lines with an outside diameter of 6mm or 1/4" or 8 mm or 5/16" (Tolerance +0,05/-0,1).
- ⇒ Cut the hose line only with a special hose cutter otherwise the hoses can be damaged.
- ⇒ During inappropriate cutting, the hose can leak at the cutting point which can cause a pressure loss.
- ⇒ The length of the hose must be calculated in a way that the hose cannot buckle. If the hose is once buckled it is permanently damaged. This can cause a pressure loss or an interruption of the air supply. Please see manufacturer's instruction regarding the minimum bending radius of the hose.
- ⇒ Insert the air hose tangentially into the connector and fix it. Avoid inclined hoist on the connector as the air hose may buckle and leakages can arise. This can cause a pressure loss or an interruption of the air supply.

3.9. Control air

Control air pressure

SVP actuator	DN 10 – 20, DN 1/2" – 3/4" DN 10-ISO – 15-ISO	min. 6 bar – max. 8 bar min. 6 bar – max. 8 bar min. 6 bar – max. 8 bar
Process control head IntelliTop® type 8680	refer to BA 8680	



Only use clean and dry compressed air !

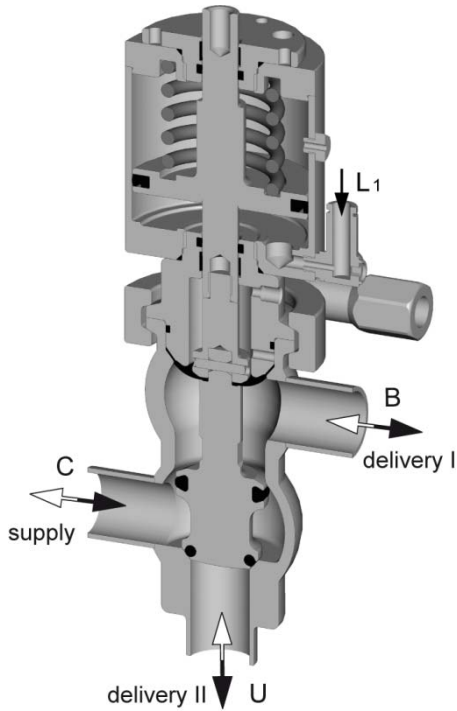
Control air quality

acc. to DIN/ISO 8573.1

<u>Solid content</u>	Particle size	max. 5 µm
	Particle density	max. 5 mg/m³ (quality grade 3)
<u>Water content</u>	quality grade 3	
	Dew point -20° C	
	or at least 10° C at lowest ambient temperatures	
<u>Oil content</u>	quality grade 3, preferable oil free,	max. 25 mg oil 1 m³ air

4. Valve function

4.1. SVP aseptic diaphragm change-over valve air opened – spring closed

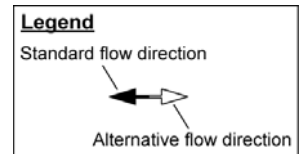


Product path C ↔ B opened

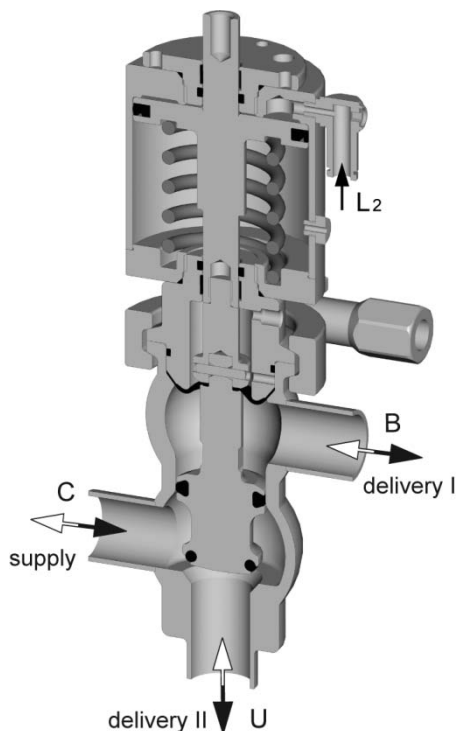
- ⇒ Connection U with elastic force closed
- ⇒ Control air pressure 0 bar on connection L₁
- ⇒ Safety position
- ⇒ Locking pressure against product pressure 6 bar

Product path C ↔ U opened

- ⇒ Connection B closed
- ⇒ Control air pressure 6 bar on air connection L₁
- ⇒ Locking pressure against product pressure 6 bar



4.2. SVP aseptic diaphragm change-over valve spring opened – air closed

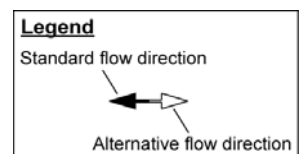


Product path C ↔ B opened

- ⇒ Connection U closed
- ⇒ Control air pressure 6 bar on air connection L₂
- ⇒ Locking pressure against product pressure 6 bar

Product path C ↔ U opened

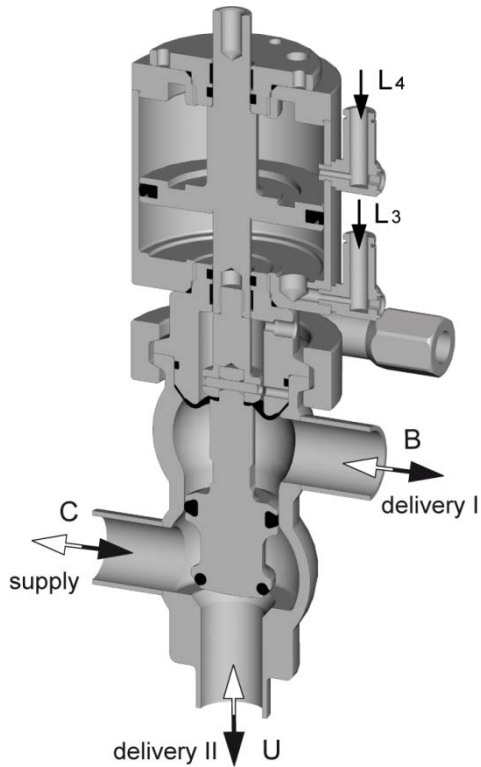
- ⇒ Connection B with elastic force closed
- ⇒ Control air pressure 0 bar on connection L₂
- ⇒ Safety position
- ⇒ Locking pressure against product pressure 6 bar



Operating instructions

SVP aseptic diaphragm change-over valve
pneum. operated
diaphragm – O-ring
DN 10 – 20, DN 1/2" – 3/4", DN 10-ISO – 15-ISO

4.3. SVP aseptic diaphragm change-over valve air opened – air closed

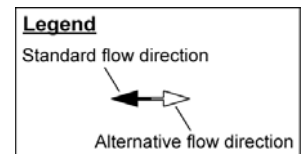


Product path C ↔ B opened

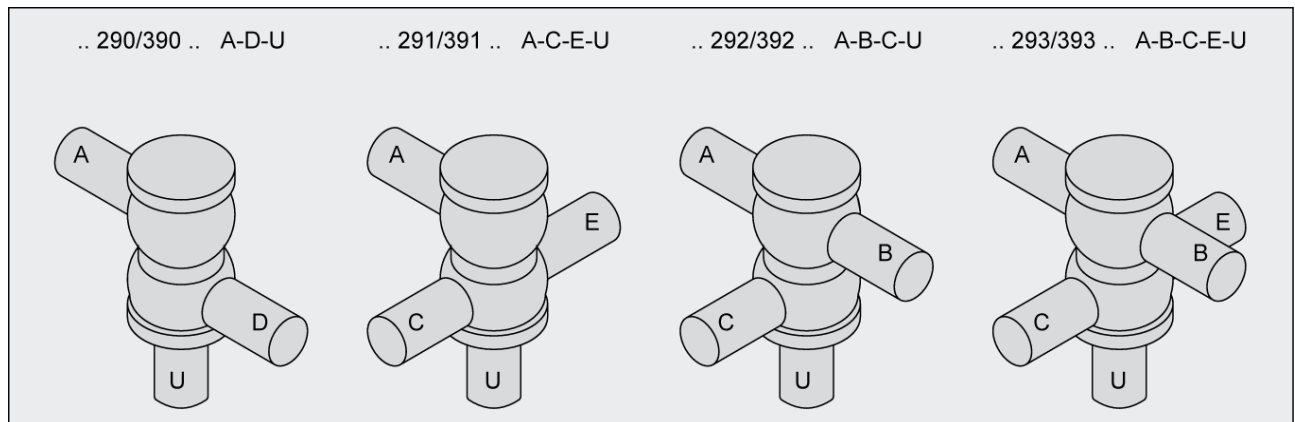
- ⇒ Connection U closed
- ⇒ Control air pressure 0 bar on connection L₃
- ⇒ Control air pressure 6 bar on connection L₄
- ⇒ Safety position
- ⇒ Locking pressure against product pressure 6 bar

Product path C ↔ U opened

- ⇒ Connection B closed
- ⇒ Control air pressure 6 bar on connection L₃
- ⇒ Control air pressure 0 bar on connection L₄
- ⇒ Valve open



5. Valve connection piping



5.1. Installation position

Vertical, horizontal
Ensuring that product can drain from valve and piping.

5.2. Ventilanschlüsse

Connection A, B, C, E and U:

- welding end
- union connection
- clamp connection
- small flange connection

Welding instructions see page 15.

5.3. Installation instructions

Dismantle valve in accordance with page 17.



- ⇒ **Remove seals before welding.**
- ⇒ **Valve housing must be free from stress and distortions when welded.**
- ⇒ **Welding works have to be effected only by approved qualified personnel (DIN 287-1 W11).**
- ⇒ **Do not allow any foreign bodies to enter the piping.**

6. Installation instructions

6.1. General remarks

We strongly recommend that the fittings should be installed by specially trained, qualified personnel.



Welding works have to be effected only by approved qualified personnel (DIN 287-1 W11)

We cannot be held liable for any loss damage or injury resulting from incorrect installation.

6.2. Delivery condition

- ⇒ Factory-tested and adjusted.
- ⇒ Ready for installation or for welding into the piping

6.3. Installation instructions

6.3.1. Installation space

Determine and define the connection axes before starting installation work. Observe the installation dimensions specified in the dimensional drawings.

Ensure that there is sufficient space available for both operation and maintenance, which may include removal.

6.3.2. Installation

Make sure that the fittings and piping are not subjected to tensile or compressive stresses.

6.4. Welding instructions

6.4.1. Area of application

Welding of fittings into pipes according to DIN 11850 Reihe 1, 2; OD-Tube; DIN EN ISO 1127

6.4.2. Welding technique

TIG (tungsten inert-gas welding)

6.4.3. Type of welding

- ⇒ Preparation of the welding seam according to DIN 2559 (groove shape I / for I-groove)
- ⇒ Welding seams corresponding to DIN EN ISO 5817 → evaluation group B (high)

6.5. Weld preparation

Saw off the pipe ends evenly and at right angles, and debur them (pipe saw M882). Align the welding ends of the valve body and piping radially and axially, ensuring they are fitted flush together (centering device).



There must be no gap at the flush-fitted welding ends as the corrosion resistance of the welded joint would be impaired by the escaping forming gas.

6.6. Welding

Connect the forming gas. Tack at 3 or 4 points. Type of welding: TIG-manual or orbital (automatic welding).

6.7. Weld filler materials

Material allocation

Material of parts to be welded	Suitable weld filler materials		
	1.4430	1.4440	1.4519
1.4404	X		
1.4435	X	X	X
1.4571	X	X	

6.8. Weld finishing

6.8.1. Interior

Weld finishing not required. Improvement of surface finish by grinding (at accessible points).

6.8.2. Exterior

Weld finishing methods

- ⇒ pickling - dispose pickling paste correctly
- ⇒ brushing
- ⇒ grinding
- ⇒ polishing

6.9. Cleaning

Clean thoroughly before assembly.

6.10. Assembly

Assemble the fittings in accordance with the assembly instructions.

7. Dismantling – Assembly

7.1. Before disassembly

Do assembly in accordance with assembly instructions.

Please always take the following steps before loosening the valve connections and clamp connection on the valve housing:



- ⇒ *Ensure that there is no work being done in that area when doing service and maintenance work.*
- ⇒ *evacuate all pipeline elements leading to the SVP aseptic diaphragm change-over valve and clean or rinse if necessary.*
- ⇒ *Shut off the control air if not required for disassembly.*
- ⇒ *Preload closing springs with auxiliary assembly air when removing the actuator of spring-closed valves.*
- ⇒ *if the closing springs are not preloaded when removing the actuator, there might be danger of injury when the clamping joint is loosened because the drive releases spring tension*
- ⇒ *switch off the power supply.*
- ⇒ *take the SVP aseptic diaphragm change-over valve out of the pipeline section if possible.*

Before assembly, clean and grease the sliding surfaces and lubricate the sealing elements.

Seal materials	Grease type
EPDM	PARALIQ GTE 703
VMQ	BARRIERTA L 55/3
HNBR	PARALIQ GTE 703
FPM	PARALIQ GTE 703
P ³	PARALIQ GTE 703
NBR	RENOLIT SI 410 M

Operating instructions

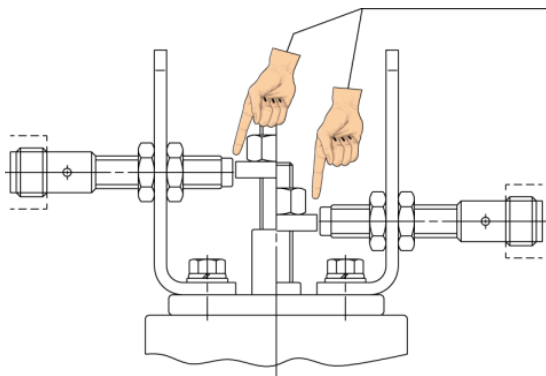
SVP aseptic diaphragm change-over valve
pneum. operated
diaphragm – O-ring
DN 10 – 20, DN 1/2" – 3/4", DN 10-ISO – 15-ISO



Caution

- ⇒ if a different grease is used
→ it may attack seals.
- ⇒ please do not use mineral or animal greases.
- ⇒ Don't use grease based on petroleum.

7.2. SVP aseptic diaphragm change-over valves with feedback



Danger

- Don't put fingers into check-back signal.
- ⇒ **Accident risk.**
- Fingers can be crushed or cut off.





7.3. Spare parts



Caution

- Please use only original Norit Südmo spare parts
- ⇒ Norit Südmo spare parts see list of spare parts
- ⇒ exclusion of liability by using other spare parts

7.4. Mounting tools

Tool	for	Order no.	Use
 Piercer ø3	DN 10 – 20 DN 1/2" – 3/4" DN 10-ISO – 15-ISO	2159236	Pneum. SVP aseptic diaphragm change-over valve
 Piercer ø5	DN 10 – 20 DN 1/2" – 3/4" DN 10-ISO – 15-ISO	2159237	Pneum. SVP aseptic diaphragm change-over valve
 forked open jaw wrench SW 17 – 19	DN 10 – 20 DN 1/2" – 3/4" DN 10-ISO – 15-ISO	0098558	Pneum. SVP aseptic diaphragm change-over valve
 calliper face spanner	DN 10 – 20 DN 1/2" – 3/4" DN 10-ISO – 15-ISO	2117744	Pneum. SVP aseptic diaphragm change-over valve

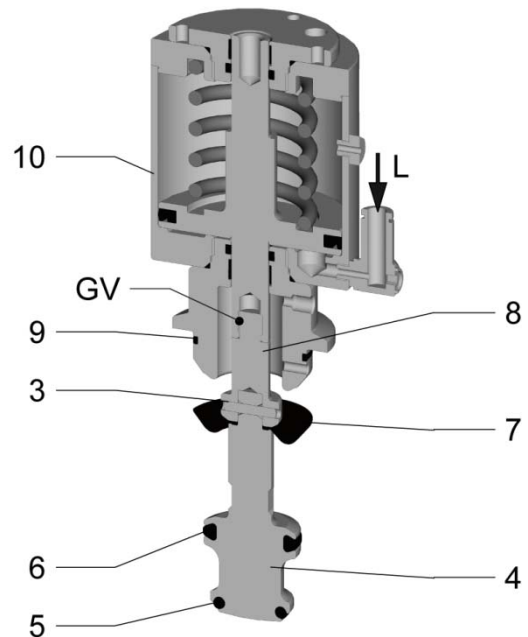
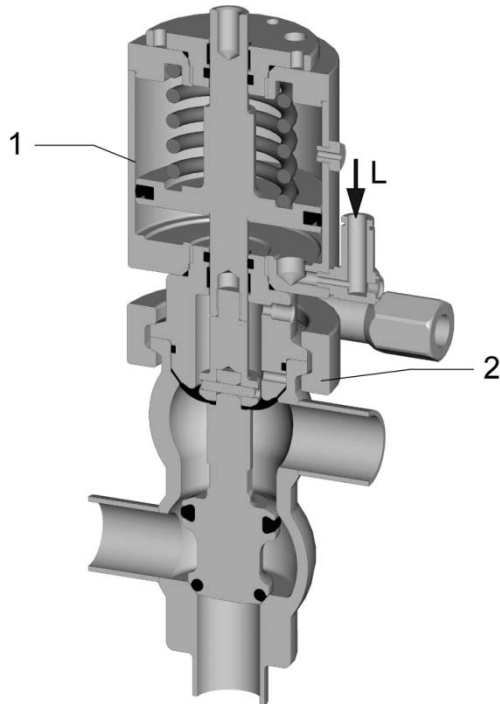
7.5. Replacement of product-contacted seals

7.5.1. Pneum. SVP aseptic diaphragm change-over valve air to open - spring to close - diaphragm – O-ring



Caution

Avoid damages to metallic valve disc surfaces and valve disc seal.



Dismantling valve

- I.1. Disconnect electric und pneumatical connections.
- I.2. Preload actuator spring.



Danger

⇒ **Control air min. 5 bar (auxiliary assembly air) on connection L.**

- I.3. Remove clamp (2).
- I.4. Preload actuator spring.



Danger

⇒ **Control air min. 5 bar (auxiliary assembly air) on connection L.**
 ⇒ **The upper part lifts out of the housing**
 ⇒ **Disconnect compressed air line.**

- I.5. Remove valve upper part (1).
- I.6. Dismantle spindle (8) with valve disc (4) and diaphragm (7).
- I.7. Fix spindle (8) with valve disk (4) and diaphragm (7) in vice and push out cylindric pin (3) with piercer ø3..




Caution

Avoid damage of spindle (8), diaphragm (7) and valve disk.

- I.8. Demount valve disk (4) and diaphragm (7) from spindle (8).
- I.9. Remove O-Rings (5, 6).
- I.10. Remove O-Ring (9).

Seal replacement


- I.11. Replace seals.



Please use only original Norit Südmo spare parts
 ⇒ **Norit Südmo spare parts see list of spare parts**
 ⇒ **Exclusion of liability by using other spare parts.**

- I.12. Grease seal elements before installation.


Seals materials	Grease type
EPDM	PARALIQ GTE 703
VMQ	BARRIERTA L 55/3
HNBR	PARALIQ GTE 703
FPM	PARALIQ GTE 703
P ³	PARALIQ GTE 703
NBR	RENOLIT SI 410 M



⇒ **If a different grease is used**
 → **it may attack seals.**
 ⇒ **Please do not use mineral or animal greases**
 ⇒ **Don't use grease based on petroleum.**


Valve assembly

- I.13. Clean and grease shafts and sliding surfaces before assembly.
- I.14. Assemble O-ring (9).
- I.15. Mount diaphragm (7) onto spindle (8).




The inside of the bellows must be greased according to grease plan before assembly.

- I.16. Fix spindle (8) with valve disk (4) and diaphragm (7) in vice and mount cylindric pin (3) with piercer ø3.



Avoid damage of spindle (8), diaphragm (7) and valve disk (4).

- I.17. Remove spindle (8) with valve disk (4) and diaphragm (7) from vice.
- I.18. Mount O-rings (5, 6) into valve disc (4). (see chapter 7.6. page 25).
- I.19. Assemble spindle (8) with valve disc (4) and diaphragm (7) onto piston rod of the drive (10).



Secure threaded connection GV with adhesive (order no. 0630210).

- I.20. Preload actuator spring.



⇒ **Control air min. 5 bar (auxiliary assembly air) on connection L.**

- I.21. Insert valve upper part (1) into valve housing and assemble clamp (2).

I.22. Unload actuator spring.



Danger

⇒ **Control air 0 bar (auxiliary assembly air) on connection L.**

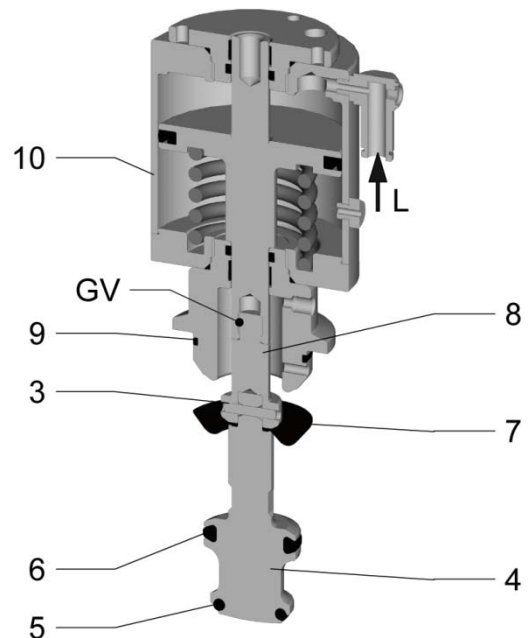
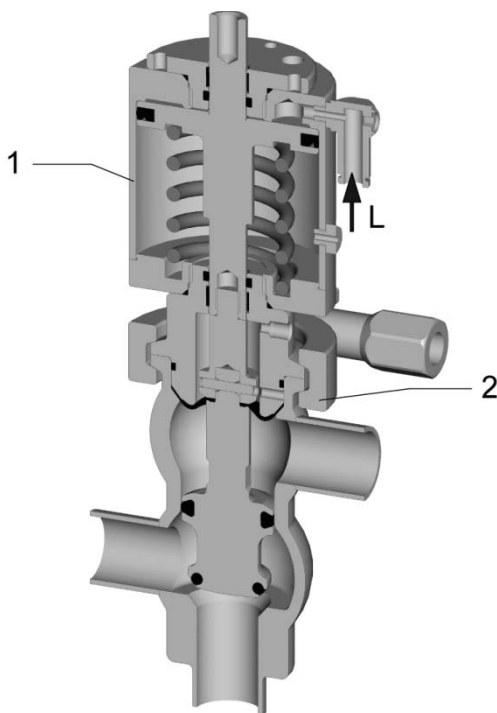
I.23. Assemble electrical and pneumatical connections.

7.5.2. Pneum. SVP aseptic diaphragm change-over valve spring to open - air to close - diaphragm – O-ring



Caution

Avoid damages to metallic valve disc surfaces and valve disc seal.



Dismantling valve

- II.1. Disconnect electric und pneumatical connections.
- II.2. Remove clamp (2).
- II.3. Remove valve upper part (1).
- II.4. Preload actuator spring.



Danger

⇒ **Control air min. 5 bar (auxiliary assembly air) on connection L.**

- II.5. Dismantle spindle (8) with valve disc (4) and diaphragm (7).
- II.6. Unload actuator spring.



Danger

- ⇒ **Control air min. 5 bar (auxiliary assembly air) on connection L.**
- ⇒ **The upper part lifts out of the housing**
- ⇒ **Disconnect compressed air line.**

- II.7. Fix spindle (8) with valve disk (4) and diaphragm (7) in vice and push out cylindric pin (3) with piercer ø3..



Avoid damage of spindle (8), diaphragm (7) and valve disk.

- II.8. Demount valve disk (4) and diaphragm (7) from spindle (8).
II.9. Remove O-rings (5, 6).
II.10. Remove O-ring (9).

Seal replacement

- II.11. Replace seals.



Please use only original Norit Südmo spare parts

⇒ **Norit Südmo spare parts see list of spare parts**

⇒ **Exclusion of liability by using other spare parts.**

- II.12. Grease seal elements before installation.

Seals materials	Grease type
EPDM	PARALIQ GTE 703
VMQ	BARRIERTA L 55/3
HNBR	PARALIQ GTE 703
FPM	PARALIQ GTE 703
P ³	PARALIQ GTE 703
NBR	RENOLIT SI 410 M



⇒ **If a different grease is used**
→ **it may attack seals.**

⇒ **Please do not use mineral or animal greases**

⇒ **Don't use grease based on petroleum.**

Valve assembly

- II.13. Clean and grease shafts and sliding surfaces before assembly.
II.14. Assemble O-ring (9).
II.15. Mount diaphragm (7) onto spindle (8).



The inside of the bellows must be greased according to grease plan before assembly.

- II.16. Fix spindle (8) with valve disk (4) and diaphragm (7) in vice and mount cylindric pin (3) with piercer ø3.



Avoid damage of spindle (8), diaphragm (7) and valve disk (4).

- II.17. Remove spindle (8) with valve disk (4) and diaphragm (7) from vice.
II.18. Mount O-rings (5, 6) into valve disc (4). (see chapter 7.6. page 25).
II.19. Preload actuator spring.



⇒ **Control air min. 5 bar (auxiliary assembly air) on connection L.**

- II.20. Assemble spindle (8) with valve disc (4) and diaphragm (7) onto piston rod of the drive (10)..



Caution

Secure threaded connection GV with adhesive (order no. 0630210).

- II.21. Unload actuator spring.



Danger

⇒ Control air min. 0 bar (auxiliary assembly air) on connection L.

- II.22. Insert valve upper part (1) into valve housing and assemble clamp (2).

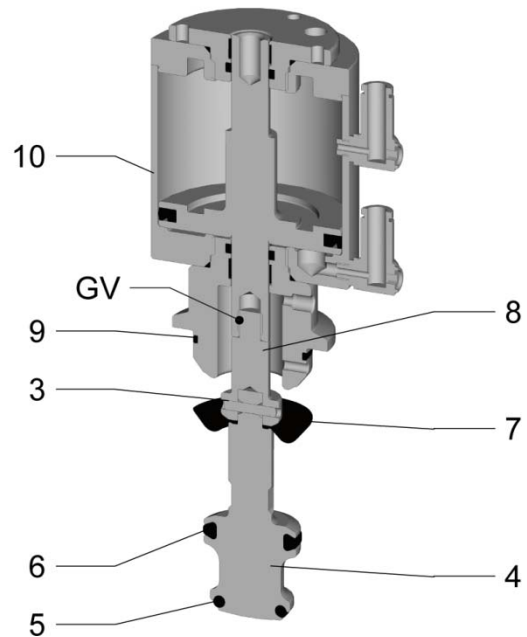
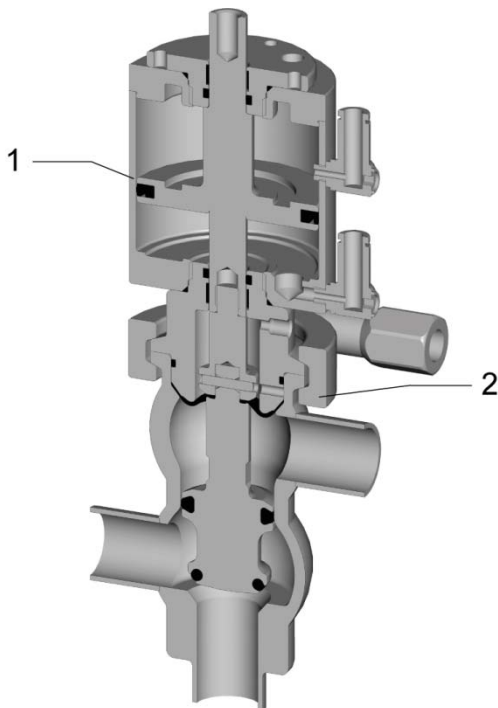
- II.23. Assemble electrical and pneumatical connections.

7.5.3. Pneum. SVP aseptic diaphragm change-over valve air to open - air to close - diaphragm – O-ring



Caution

Avoid damages to metallic valve disc surfaces and valve disc seal.



Dismantling valve

- III.1. Disconnect electric und pneumatical connections.
 III.2. Remove clamp (2).
 III.3. Remove valve upper part (1).
 III.4. Dismantle spindle (8) with valve disc (4) and diaphragm (4).
 III.5. Fix spindle (8) with valve disk (4) and diaphragm (7) in vice and push out cylindric pin (3) with piercer $\varnothing 3$.



Caution

Avoid damage of spindle (8), diaphragm (7) and valve disk.

- III.6. Demount valve disk (4) and diaphragm (7) from spindle (8).

- III.7. Remove O-rings (5, 6).
- III.8. Remove O-ring (9).

Seal replacement

- III.9. Replace seals.



Please use only original Norit Südmo spare parts


⇒ Norit Südmo spare parts see list of spare parts

⇒ Exclusion of liability by using other spare parts.

Caution

- III.10. Grease seal elements before installation.

Seals materials	Grease type
EPDM	PARALIQ GTE 703
VMQ	BARRIERTA L 55/3
HNBR	PARALIQ GTE 703
FPM	PARALIQ GTE 703
P ³	PARALIQ GTE 703
NBR	RENOLIT SI 410 M



⇒ If a different grease is used
→ it may attack seals.


⇒ Please do not use mineral or animal greases

⇒ Don't use grease based on petroleum.

Caution

Valve assembly


- III.11. Clean and grease shafts and sliding surfaces before assembly.
- III.12. Assemble O-ring (9).
- III.13. Mount diaphragm (10) onto spindle (7).



The inside of the bellows must be greased according to grease plan before assembly.

Danger


- III.14. Fix spindle (8) with valve disk (4) and diaphragm (7) in vice and mount cylindric pin (3) with piercer ø3.



Avoid damage of spindle (8), diaphragm (7) and valve disk (4).

Caution

- III.15. Remove spindle (8) with valve disk (4) and diaphragm (7) from vice.
- III.16. Mount O-rings (5, 6) into valve disc (4). (see chapter 7.6. page 25).
- III.17. Assemble spindle (8) with valve disc (4) and diaphragm (7) onto piston rod of the drive (10) montieren.



Secure threaded connection GV with adhesive (order no. 0630210).

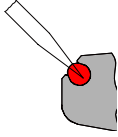
Vorsicht

- III.18. Insert valve upper part (1) into valve housing and assemble clamp (2).
- III.19. Assemble electrical and pneumatical connections.

7.6. Assembly O-ring

7.6.1. Removal

- ⇒ O-Ring is installed in positive contact under pretension.
- ⇒ It must be removed as shown in drawing.



Caution

Don't damage sealing groove (edges of groove).

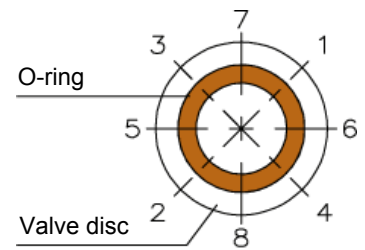
7.6.2. Installation

- ⇒ Press O-ring in sequence 1 – 2, 3 – 4 etc. into groove.
- ⇒ Roll O-ring section by section 1 – 6, 5 – 2 etc into groove.
- ⇒ Use round object of plastic or wood for installation.



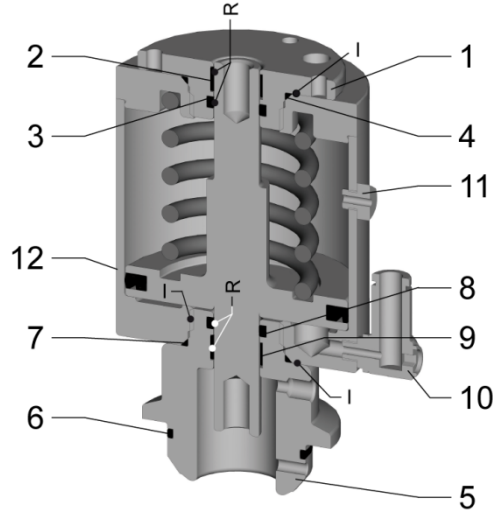
Caution

Avoid drilling and damaging the O-ring by assembly.



7.7. Pneum. actuator

7.7.1. Function air to open - spring to close



Drive disassembly

- IV.1. Remove threaded plug (11).
- IV.2. Disconnect air connection (10).
- IV.3. Disassemble centring screw (1) and take out slide bearing (2) and O-rings (3, 4).

Mounting tool

- calliper face spanner

- IV.4. Disassemble closing head holder (5) and remove slide bearing (9) and O-rings (6, 7, 8).

Mounting tool

- Piercer ø5

Seal replacement

- IV.5. Replace seals and slide bearings.



Caution

Please use only original Norit Südmo spare parts

⇒ Norit Südmo spare parts see list of spare parts

⇒ Exclusion of liability by using other spare parts.

- IV.6. Clean and grease shafts and sliding surfaces before assembly.

Grease plan

R = RENOLIT SI 410 M - apply with brush on the circumference

I = IFB PW 119 - apply thinly with brush on circumference

Drive assembly

- IV.7. Assemble slide bearings (9) and O-rings (6, 7, 8) into closing head holder (5).
- IV.8. Screw closing head holder (5) to drive cylinder (12).

Mounting tool

- Piercer ø5

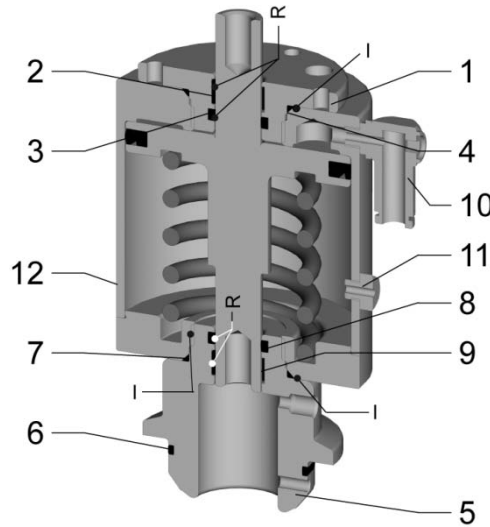
- IV.9. Assemble slide bearing (2) and O-rings (3, 4) into centring screw (1).
- IV.10. Screw centring screw (1) to drive cylinder (12).

Mounting tool

- calliper face spanner

- IV.11. Assemble threaded plug (11).
- IV.12. Connect air connection (10).

7.7.2. Function spring to open - air to close



Drive disassembly

- V.1. Remove threaded plug (11).
- V.2. Disconnect air connection (10).
- V.3. Disassemble centring screw (1) and take out slide bearing (2) and O-rings (3, 4).

Mounting tool

- calliper face spanner

- V.4. Disassemble closing head holder (5) and remove slide bearing (9) and O-rings (6, 7, 8).

Mounting tool

- Piercer $\varnothing 5$

Seal replacement

- V.5. Replace seals and slide bearings.



Please use only original Norit Südmo spare parts

⇒ Norit Südmo spare parts see list of spare parts

⇒ Exclusion of liability by using other spare parts.

- V.6. Clean and grease shafts and sliding surfaces before assembly.

Grease plan

R = RENOLIT SI 410 M - apply with brush on the circumference

I = IFB PW 119 - apply thinly with brush on circumference

Drive assembly

- V.7. Assemble slide bearings (9) and O-rings (6, 7, 8) into closing head holder (5).
- V.8. Screw closing head holder (5) to drive cylinder (12).

Mounting tool

- Piercer $\varnothing 5$

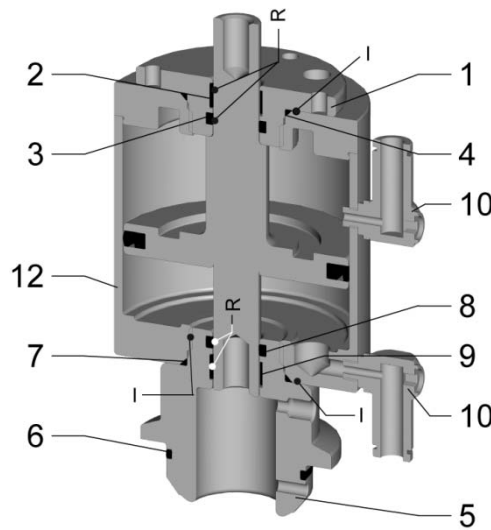
- V.9. Assemble slide bearing (2) and O-rings (3, 4) into centring screw (1).
- V.10. Screw centring screw (1) to drive cylinder (12).

Mounting tool

- calliper face spanner

- V.11. Assemble threaded plug (11).
- V.12. Connect air connection (10).

7.7.3. Function air to open - air to close



Drive disassembly

- VI.1. Disconnect air connections (10).
- VI.2. Disassemble centring screw (1) and take out slide bearing (2) and O-rings (3, 4).

Mounting tool

- calliper face spanner

- VI.3. Disassemble closing head holder (5) and remove slide bearing (9) and O-rings (6, 7, 8).

Mounting tool

- Piercer $\varnothing 5$

Seal replacement

- VI.4. Replace seals and slide bearings.



Please use only original Norit Südmo spare parts

⇒ Norit Südmo spare parts see list of spare parts

⇒ Exclusion of liability by using other spare parts.

- VI.5. Clean and grease shafts and sliding surfaces before assembly.

Grease plan

- R = RENOLIT SI 410 M - apply with brush on the circumference
- I = IFB PW 119 - apply thinly with brush on circumference

Drive assembly

- VI.6. Assemble slide bearings (9) and O-rings (6, 7, 8) into closing head holder (5).
- VI.7. Screw closing head holder (5) to drive cylinder (12).

Mounting tool

- Piercer $\varnothing 5$

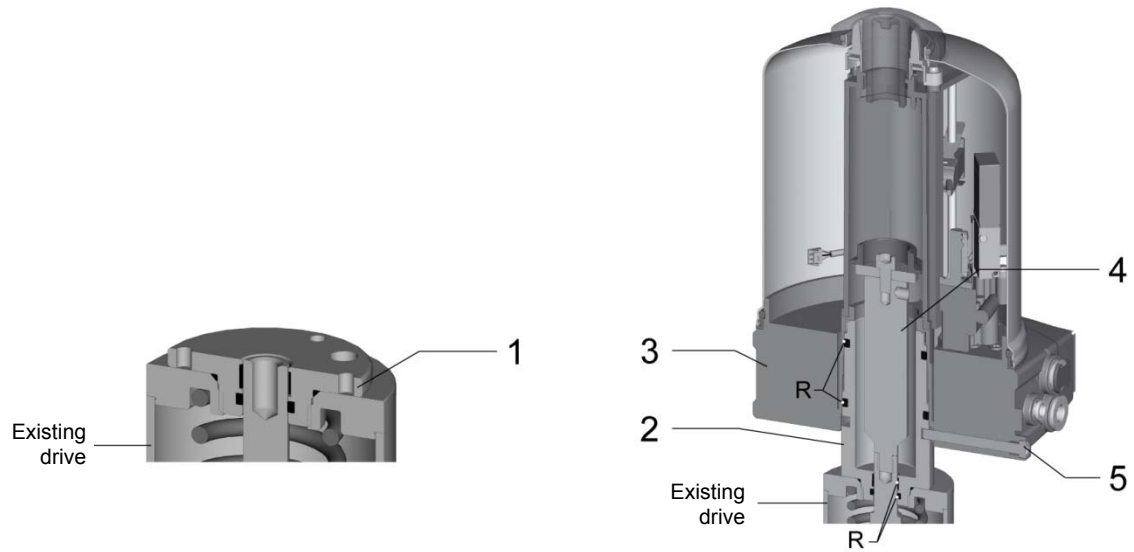
- VI.8. Assemble slide bearing (2) and O-rings (3, 4) into centring screw (1).
- VI.9. Screw centring screw (1) to drive cylinder (12).

Mounting tool

- calliper face spanner

- VI.10. Connect air connections (10).

7.8. Assembly process control head IntelliTop® type 8680



- VII.1. Disassemble centring screw (1).
- VII.2. Assemble adapter (2). Clean and grease shafts and sliding surfaces before assembly.
Grease plan
R = RENOLIT SI 410 M - apply with brush on the circumference
- VII.3. Assemble contact head (4).
- VII.4. Fit process control head (3) onto adapter (2).
- VII.5. Assemble cylinder screw (5).

8. Start-up



- ⇒ **Ensure that no foreign objects are present in the piping system.**
- ⇒ **Avoid temperature shock!
Component should be heated up carefully till operating temperature is achieved.**

8.1. Functional test

8.1.1. Pneumatic version

Multiple switching of the valve by means of actuation with compressed air.
System must be cleaned before the first product run.

8.2. Leak test

Check visually that all seals are free from leaks.
Defective seals must be replaced.

9. Maintenance

9.1. Before maintenance



- ⇒ **Depressurize piping system, drain all liquid and shut off control air supply.**
- ⇒ **Preload closing springs with auxiliary assembly air when removing the actuator of spring-closed valves.**
- ⇒ **if the closing springs are not preloaded when removing the actuator, there might be danger of injury when the clamping joint is loosened because the drive releases spring tension.**
- ⇒ **Pay due regard to the electric supply voltage; switch off the power supply if necessary.**
- ⇒ **Maintenance work must be carried out by qualified and trained personnel onl.**

9.2. Inspection

Norit Südmo-Ventile brauchen nicht gesondert gewartet werden. Zwischen den Instandsetzungsintervallen sollte jedoch durch visuelle, periodische Prüfung die Dichtigkeit und Funktion überwacht werden

9.3. Preventive maintenance

Practice-oriented maintenance intervals can only be determined by the respective user/operator as they are dependent on the following application parameters:

- ⇒ Operating frequency
- ⇒ Switching intervals
- ⇒ Type of product
- ⇒ Type of cleaning (CIP / SIP)

We can recommend the following data as guide values:

- ⇒ for liquids with solid particles and temperatures of 80 °C to 100 °C approx. every 3 – 6 months
- ⇒ for liquids with solid particles and temperatures of 60 °C approx. every 12 months
- ⇒ for liquids without solid particles and with temperatures of max. 60 °C approx. every 24 months.

In cleaning systems, intervals of 12 months are recommended.

The intervals stated above are, of course, based on the assumption that the seal materials are sufficiently chemical-resistant.

10. Disorder - trouble shooting



Danger

- ⇒ **Never touch the valve or piping system when hot products are in processing or during sterilization.**
- ⇒ **Observe strictly the technical data.**
- ⇒ **We cannot be held liable for an incorrect use of the valve.**



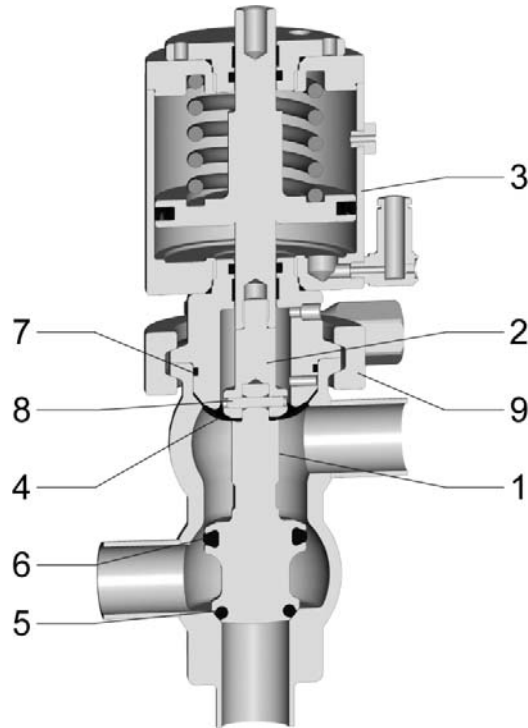
Caution

- ⇒ **In the event of disorders immediately deactivate the valve and secure it against inadvertent reactivation.**
- ⇒ **Defects may only be rectified by qualified personnel observing the safety instructions.**

Disorder	Cause	Trouble shooting
Valve does not work	⇒ Error in the control system	⇒ Check the plant configuration
	⇒ no compressed air	⇒ check the air supply
	⇒ air pressure too low	⇒ Check the air hoses for free passage and leaks
	⇒ Error in the electric system	⇒ Check actuation / process control head and routing of electric lines
Discharge of air from the actuator	⇒ Solenoid valve damaged	⇒ Replace the solenoid valve
	⇒ faulty gaskets at the spindle	⇒ change gaskets
Valve does not close	⇒ faulty gasket in the actuator	⇒ change actuator cylinder
	⇒ Dirt / foreign materials in the seal area	⇒ Clean valve housing and seal area closing sleeve and valve disc
Valve closes too slow	⇒ Actuator seals dry (friction losses)	⇒ Grease the seals - Note grease plan
Leakage on the support or stem extension	⇒ defective gaskets	⇒ change gaskets
Valve closes jerkily	⇒ Seals dry (friction losses)	⇒ Grease the seals - Note grease plan
		⇒ Replace seals

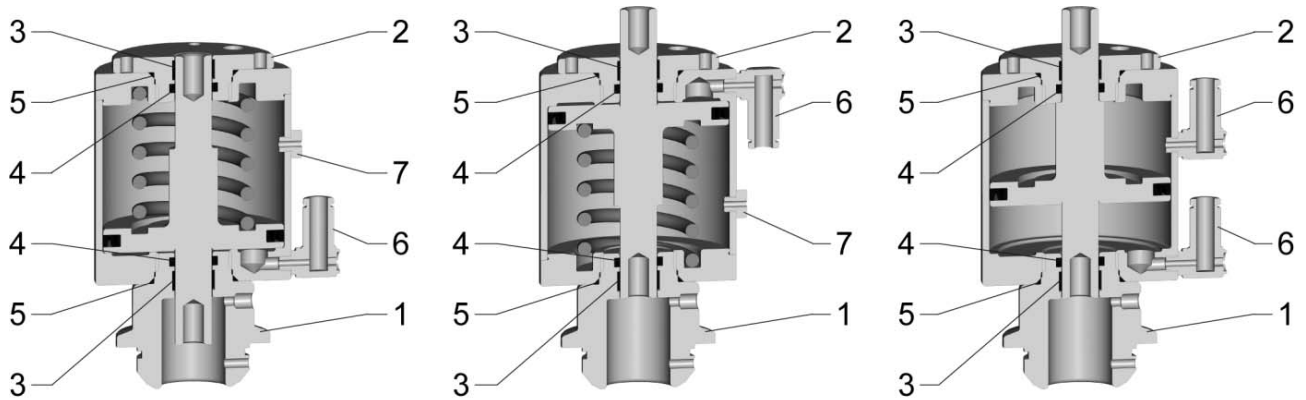
12. List of spare parts

12.1. SVP aseptic diahragm change-over valve



Pos.	Pcs.	Denomination	Material	Order no.
1	1	Valve disc	1.4404	2144095
2	1	Spindle	1.4301	2144096
3	1	Pneum. actuator		
		air to open - spring to close		2158440
		spring to open - air to close		2144106
		air to open - air to close		2144107
4	1	Diaphragm	P ³	2144053
5	1	O-ring *	EPDM	2159460
			VMQ	
			FPM	
			HNBR	
6	1	O-ring *	EPDM	2159887
			VMQ	
			FPM	
			HNBR	
7	1	O-ring *	EPDM	2109413
8	1	Cylinder pin	1.4571	2159888
9	1	Clamp	1.4301	0034421
	1	Compl. Set of gaskets consist. of: *	EPDM	2144245
			VMQ	
			FPM	
			HNBR	

12.2. Pneum. actuator



12.2.1. Function air to open – spring to close, spring to open - air to close

Pos.	Pcs.	Denomination	Material	Order no.
	1	Pneum. actuator		
		air to open – spring to close		2158440
		spring to open - air to close		2144106
1	1	Support	1.4301	2158441
2	1	Fixing screw	1.4305	2158437
3	2	Slide bearing *	PEEK	2143887
4	2	O-ring *	NBR	0116962
5	2	O-ring *	NBR	0116699
6	1	Angular screw-in-union		2116512
7	1	Threaded plug		2100250
	1	Compl. set of gaskets consist. of: *		2144105

12.2.2. Function air to open – air to close

Pos.	Pcs.	Denomination	Material	Order no.
	1	Pneum. actuator		2144107
1	1	Support	1.4301	2158441
2	1	Fixing screw	1.4305	2158437
3	2	Slide bearing *	PEEK	2143887
4	2	O-ring *	NBR	0116962
5	2	O-ring *	NBR	0116699
6	2	Angular screw-in-union		2116512
	1	Compl. set of gaskets consist. of: *		2144105

13. EC Manufacturer's Declaration

for machines/systems according to EC directive 98/37/EC, Appendix II B

The manufacturer,

Südmo Components GmbH
Industriestraße 7
D-73469 Riesbürg-Pflaumloch

hereby declares that the machine/system described below

SVP aseptic diaphragm change-over valve

Type: A390P³ Select

Catalogue no.: A390P³ Select – A393P³ Select


complies with the basic requirements of the **Machinery Directive (98/37/EC)**. The machine / system component furthermore complies with all regulations of the **Electrical equipment (2006/95/EC)** and **Electromagnetic compatibility (2004/108/EC)** directives.

Applied harmonized standards

- ⇒ DIN EN 12100-1 Safety of machinery – Basic terms, general principles for design - Part 1: Basic terminology, methods
- ⇒ DIN EN 12100-2 Safety of machinery – Basic terms, general principles for design, part 2: Technical principles and specifications
- ⇒ DIN EN 60204-1 Safety of machinery - Electrical equipment of machines - Part 1: General requirements

Do not put the machine / system component into operation unless it has been verified that the machine/system the machine/system component is to be built into complies with the regulations of the machinery directive (98/37/EC).

TD authorized person



Technical director: Werner Deger,
Südmo Components GmbH
Industriestraße 7, D-73469 Riesbürg

Riesbürg, 13.11.2009



Managing Director
Oliver Rupp

14. CE designation

- ⇒ The nominal diameters DN 25 and smaller are defined according to the definition in the pressure equipment directive 97/23/EC“ according to Article 3 Paragraph 3 good engineering practice and **must not be marked** with the CE mark.

15. Service address

Südmö Components GmbH

*Industriestraße 7
D-73469 Riesbürg - Germany*

T +49 9081 803-0

F +49 9081 803-158

E info@suedmo.de

I www.suedmo.de

© 2009 Südmö Components GmbH

Subject to technical modifications

Copy of the original operating instructions