

BAA S400FDV Select

Version 1.01

Flow diversion valve

DN 1" – 4"

Profile gasket – PEEK-gasket



Revision	Date	Name	Revision	Date	Name	Revision	Date	Name	Revision	Date	Name

created on/by 13.04.2010 Graf
 reviewed on/by 13.04.2010 Lang U.

1. Contents

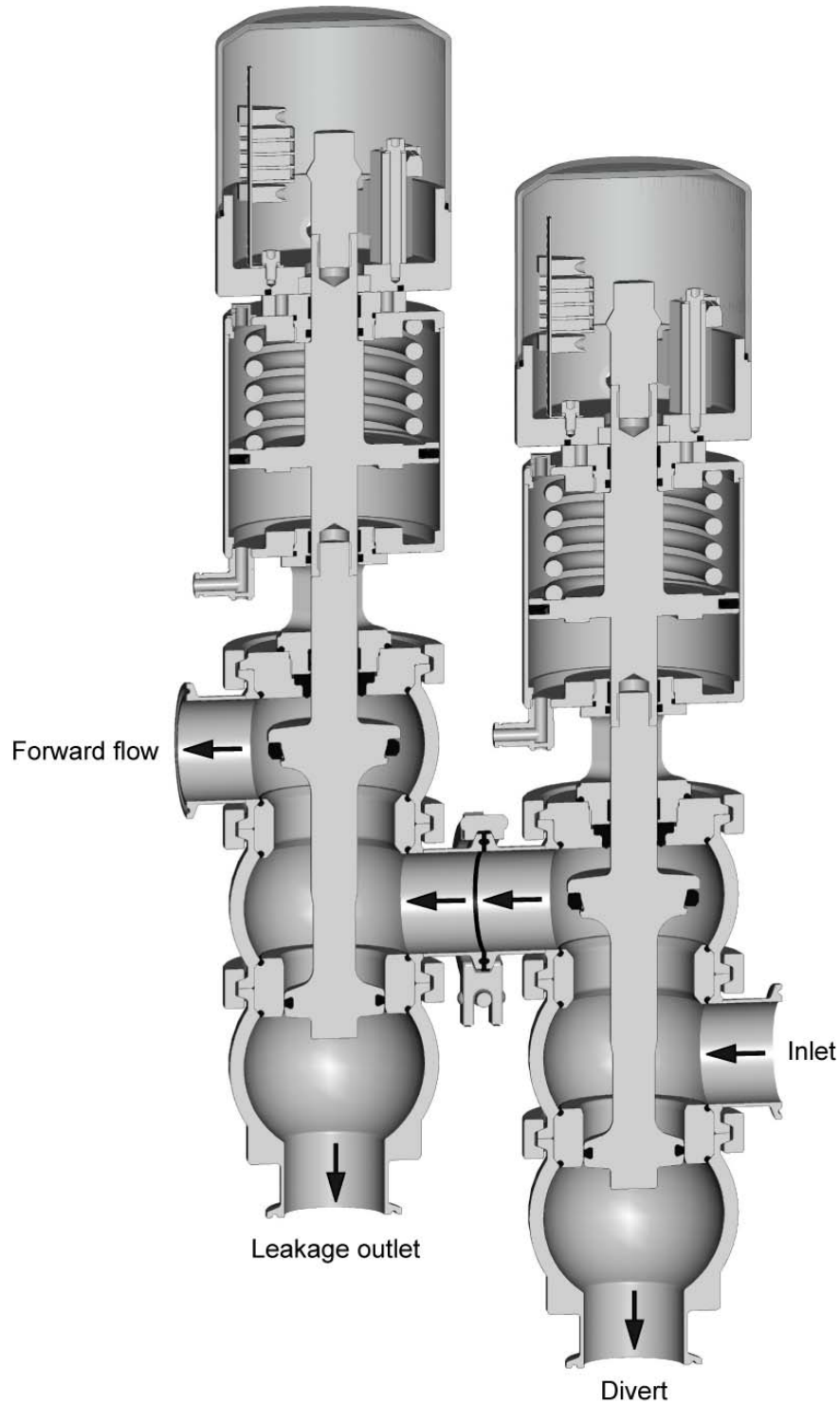
1. Contents	2
2. Flow diversion device	4
3. Safety instructions	5
3.1. General	5
3.2. Maintenance	5
3.3. Modification of the SVP change-over valve	6
3.4. Storage	6
3.5. Operation	6
3.6. Spare parts	6
3.7. Risk assessment	6
4. Dimensions	7
5. Technical datas	8
5.1. Valve use	8
5.2. Materials	9
5.2.1. Seal materials	9
5.2.2. Stainless steel	9
5.3. CIP cleaning	9
5.4. Surfaces	10
5.5. Valve connection piping	10
5.5.1. Installation position	10
5.5.2. Valve connections	10
5.5.3. Installation instructions	10
5.6. Pneum. actuator	10
5.6.1. Function air opened – spring closed	10
5.7. Feedback protection cover	11
5.7.1. Application	11
5.7.2. Feedback	11
5.7.3. Material data	11
5.8. Electrical and pneumatic connections	11
5.8.1. Electrical connections	11
5.8.2. Pneumatic connections	11
5.8.3. Air hose	11
5.9. Control air	12
5.9.1. Control air pressure	12
5.9.2. Control air quality	12
6. Valve function	13
7. Installation instructions	14
7.1. General remarks	14
7.2. Delivery condition	14
7.3. Installation instructions	14
7.3.1. Installation space	14
7.3.2. Installation	14
7.4. Welding instructions	14
7.4.1. Area of application	14
7.4.2. Welding technique	14
7.4.3. Type of welding	14
7.5. Weld preparation	14
7.6. Welding	14



7.7.	Weld filler materials	15
7.8.	Weld finishing	15
7.8.1.	Interior	15
7.8.2.	Exterior	15
7.9.	Cleaning	15
7.10.	Assembly	15
8.	Dismantling – Assembly	16
8.1.	Before disassembly	16
8.2.	Spare parts	16
8.3.	Mounting tools	17
8.4.	Replacing product-touched seals	18
8.5.	Assembly O-ring	21
8.5.1.	Removal	21
8.5.2.	Installation	21
8.6.	Assembly - valve disc gasket	22
8.6.1.	Assembly	22
8.6.2.	Installation	22
8.7.	Pneum. actuator	23
8.7.1.	Function air opened – spring closed	23
8.8.	Pneum. actuator with booster	24
8.8.1.	Subsequent assembly of the booster	24
8.8.2.	Replacing the seals	25
8.9.	Feedback transducer cover	26
9.	Electrical Connection	27
10.	Micro-switch adjustment	27
11.	Start-up	27
11.1.	Functional test	27
11.2.	Leak test	28
12.	Maintenance	28
12.1.	Before maintenance	28
12.2.	Inspection	28
12.3.	Preventive maintenance	28
13.	Flow diversion valve and control top section	29
14.	Flow diversion device set up	30
15.	Dual stem device testing procedure	31
15.1.	General	31
15.2.	Device Assembly, Dual Stem Device	31
15.2.1.	Apparatus	31
15.2.2.	Method	31
15.2.3.	Procedures	31
15.2.4.	Corrective Action	31
15.3.	Alternative Valve Dismantling Procedure	32
15.3.1.	Corrective Action	32
16.	Disposal	33
16.1.	Before disposal	33
16.2.	Parts of SVP change-over valve	33
16.3.	SVP change-over valve disposal	33
17.	Disorder - trouble shooting	34
18.	Service adress	36

2. Flow diversion device

Operating pressure: max. 87 psi / 6 bar
Control pressure: 87 psi – 116 psi / 6 bar – 8 bar



3. Safety instructions



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.



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 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.

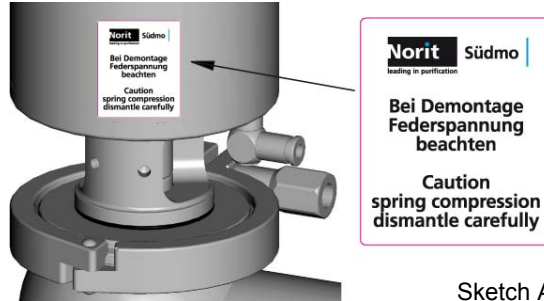
3.1. General

- ⇒ SVP 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 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 change-over valve and other material property..
- ⇒ Each person concerned with installation, commissioning, operation and maintenance of this SVP 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.

3.2. Maintenance

- ⇒ Our SVP 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 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.

3.3. Modification of the SVP change-over valve

- ⇒ The user is obligated to ensure that the SVP change-over valve is always operated in accordance with its designated use and only by safety-conscious persons who are fully aware of the risks involved in its operation. Changes to the SVP change-over valve which impair its functioning or safety must be reported immediately. The user is obligated to ensure that the SVP change-over valve is always operated in technically perfect condition.




Modification of the SVP change-over valve is strictly prohibited

Danger

3.4. 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 $\geq 5^\circ \text{C}$.


3.5. Operation



Danger

- ⇒ **Never touch the valve or piping system when hot products are in processing or during sterilization.**
- ⇒ **Always adhere to the operating parameters (see Technical Data – page 10).**
- ⇒ **We cannot be held liable for an incorrect use of the valve.**

3.6. Spare parts



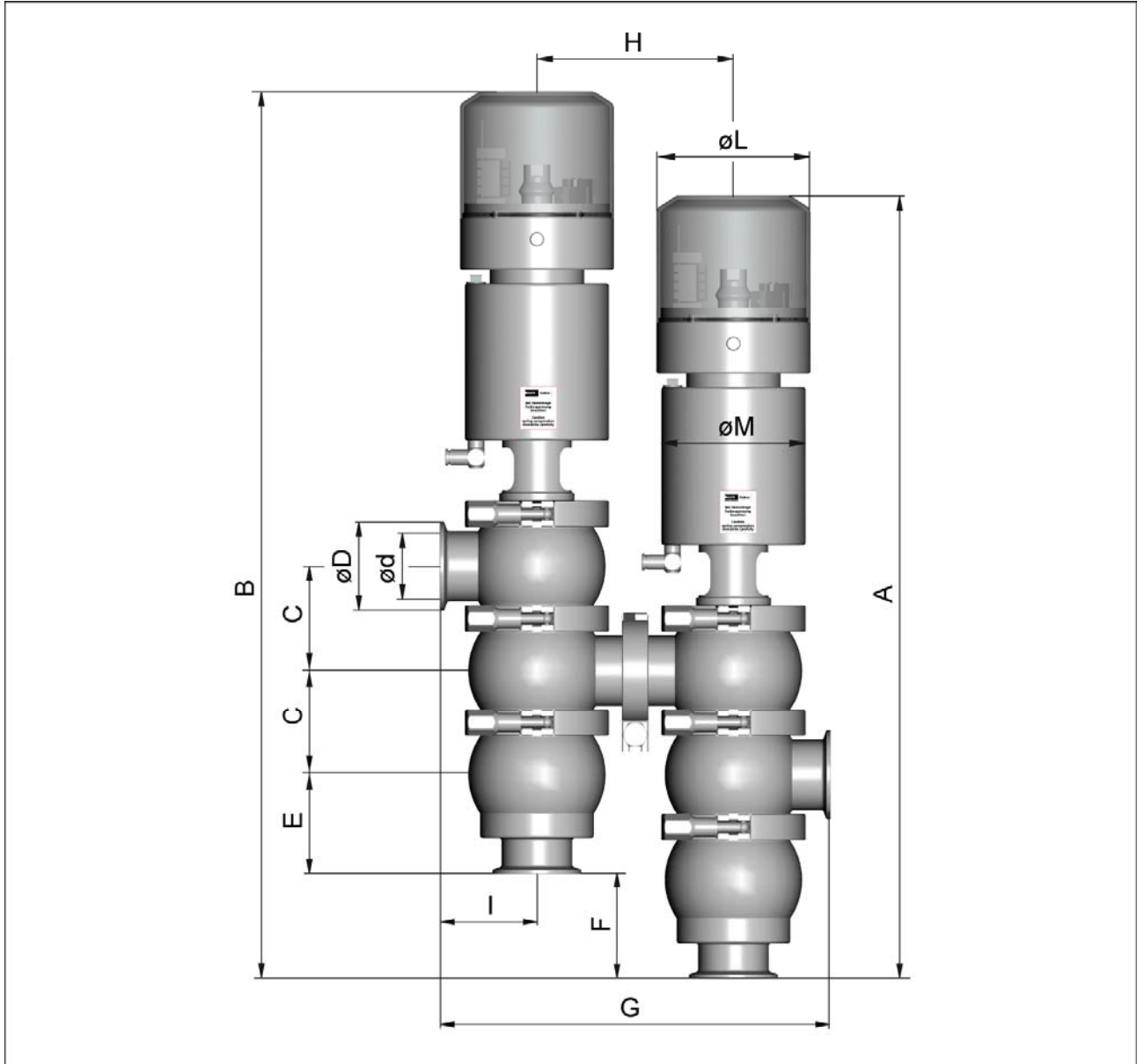
Caution

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

3.7. Risk assessment

- ⇒ All safety instructions in these operating instructions result from the risk assessment for the SVP change-over valves.

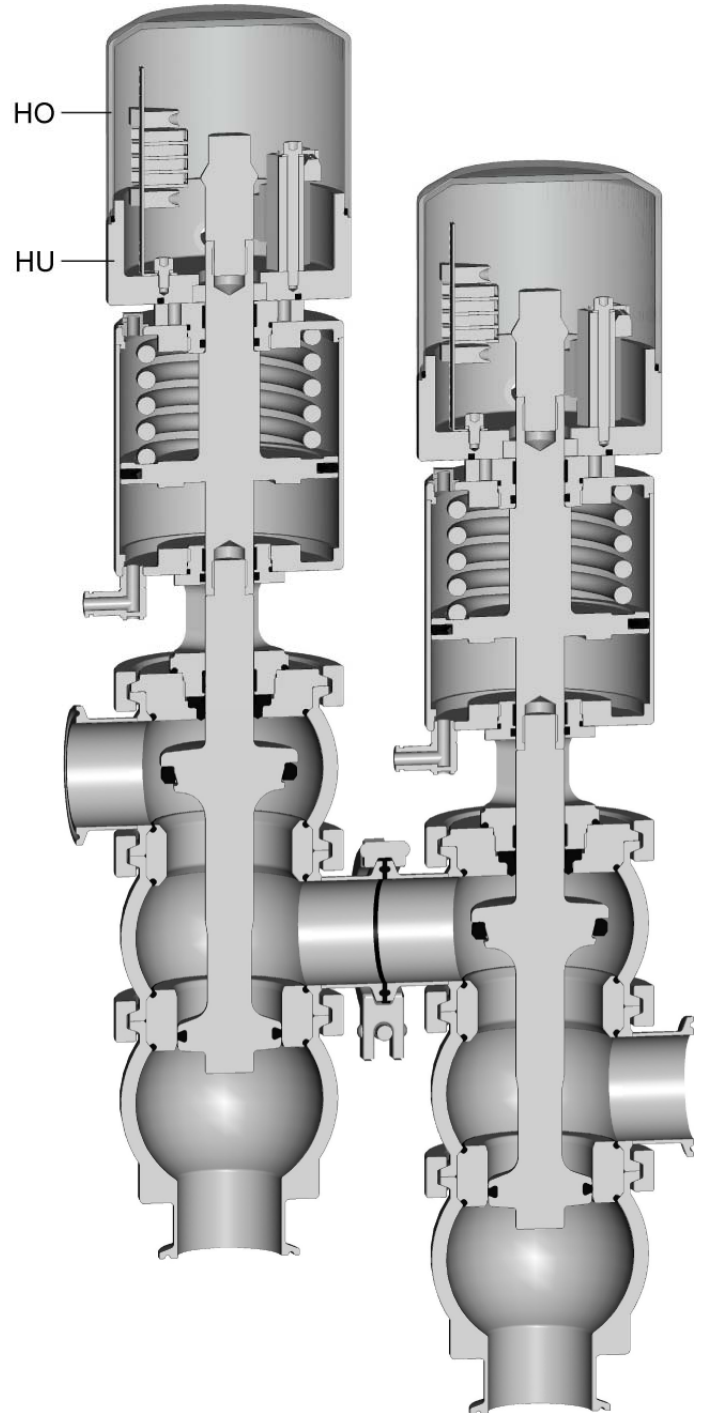
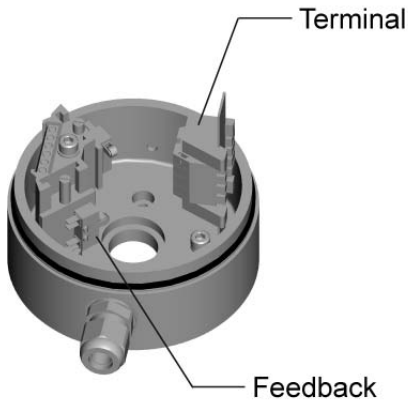
4. Dimensions



DN	A	B	C	øD	ød	E	F	G	H	I	øL	øM
1"	485	535	50,1	50,5	22,1	50	50,1	240	120	60	111	104
1 ½"	517,5	580,5	62,8	50,5	34,8	55	62,8	240	120	60	111	104
2"	560	635,25	75,5	64	47,5	65	75,5	280	140	70	111	129
2 ½"	640	728,2	88,2	77,5	60,2	70	88,2	320	160	80	111	154
3"	741	841,8	100,8	91	72,8	80	100,8	360	180	90	111	154
4"	957	1082,4	125,4	119	97,38	90	125,4	400	200	100	111	154

All dimensions in mm.

5. Technical datas



5.1. Valve use

Application: change-over valve
For use in: low-germ processes
Shut-off tightness: 6 bar max.

5.2. Materials

5.2.1. Seal materials

⇒ PEEK natur

Temperature for continuous application in air: -25° C to +250° C / -13° F to +482° F



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

⇒ EPDM

Temperature for continuous application in air		-5° C bis +130° C / 23° F bis +266° F
Resistant to	Hot water	to 100° C / 212° F
	Steam	to 130° C / 266° F, for continuous application, to 150° C / 302° F for short time
	Wort	to 100° C / 212° F
	Sodium hydroxide	to 100° C / 212° F and concentration to 5 %
	Nitric acid	to 60° C / 140° F and concentration to 3 %
	Peracetic acid	to 80° C / 176° F and concentration to 0,7 %
	Raspberry flavor	room temperature
	Cherry flavor	room temperature

⇒ HNBR

Temperature for continuous application in air		-5° C bis +130° C / 23° F bis +266° F
Resistant to	Hot water	to 100° C / 212° F
	Steam	to 130° C / 266° F for continuous application, to 150° C / 302° F for short time
	Sodium hydroxide	to 100° C / 212° F and concentration to 5 %
	Nitric acid	to 60° C / 140° F and concentration to 1,5 %

⇒ FPM

Temperature for continuous application in air		0° C bis +200° C / 32° F bis +392° F
Resistant to	Hot water	to 80° C / 176° F
	Sodium hydroxide	to 60° C / 140° F 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)

5.2.2. Stainless steel

In contact with product	1.4404
Not in contact with product	1.4301

5.3. CIP cleaning



- ⇒ Valve inner chambers must be cleaned regularly
- ⇒ When selecting the detergent, please observe the following:
 - Do not use abrasive detergents.
 - Use only detergents that do not corrode seals and stainless steel.
- ⇒ Do not exceed the concentrations and temperatures recommended by the detergent manufacturer.
- ⇒ Adequate and competent handling and disposal of detergents.
- ⇒ Observe the safety data sheets of the detergent manufacturers!
- ⇒ Non-observance of these instructions will exempt the manufacturer from any warranty and liability.

Cleaning example for EPDM process valves in the food industry:

Cleaning step	Description
Pre-rinse	Process water at ambient temperature
Main cleaning process I (caustic step)	Caustic in aqueous solution 3% at 80°C
Intermediate rinse	Process water at ambient temperature
Main cleaning process II (acid step)	Acid in aqueous solution 2% at 60°C
Final rinse	Water (drinking water quality) at ambient temperature

5.4. Surfaces

Surfaces in contact with product $R_a \leq 0,8 \mu\text{m} / R_a \leq 31,5 \mu\text{inch}$
Optional: E-polished
Surfaces not in contact with product bright-turned

5.5. Valve connection piping

5.5.1. Installation position

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

5.5.2. Valve connections

Connections clamp connection
⇒ separable pipe connection

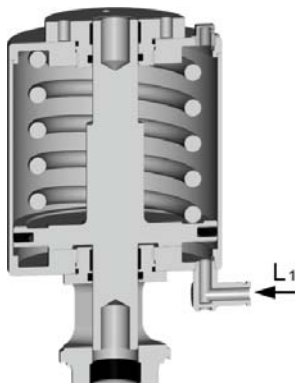
5.5.3. Installation instructions

Dismantle valve in accordance with page 16.



- ⇒ 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.

5.6. Pneum. actuator



5.6.1. 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.

5.7. Feedback protection cover



5.7.1. Application

Feedback protection cover for signal "OPEN" or "CLOSED".

5.7.2. Feedback

Upper micro-switch

Type Crouzet 83 133 0 with lever type 54E
See type sheet RM 1201

Lower micro-switch with smaller radius

Type Crouzet 83 133 0 with lever type 54E7,5
See type sheet RM 1201

5.7.3. Material data

Cover base (HU)	Tecaform AH ELS
Cover (HO)	Ultraform N2520 XL
Bracket for terminal strip	1.4301
O-Rings	EPDM
	NBR
Screws	A 2-70

5.8. Electrical and pneumatic connections

5.8.1. 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.

5.8.2. Pneumatic connections

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

5.8.3. Air hose

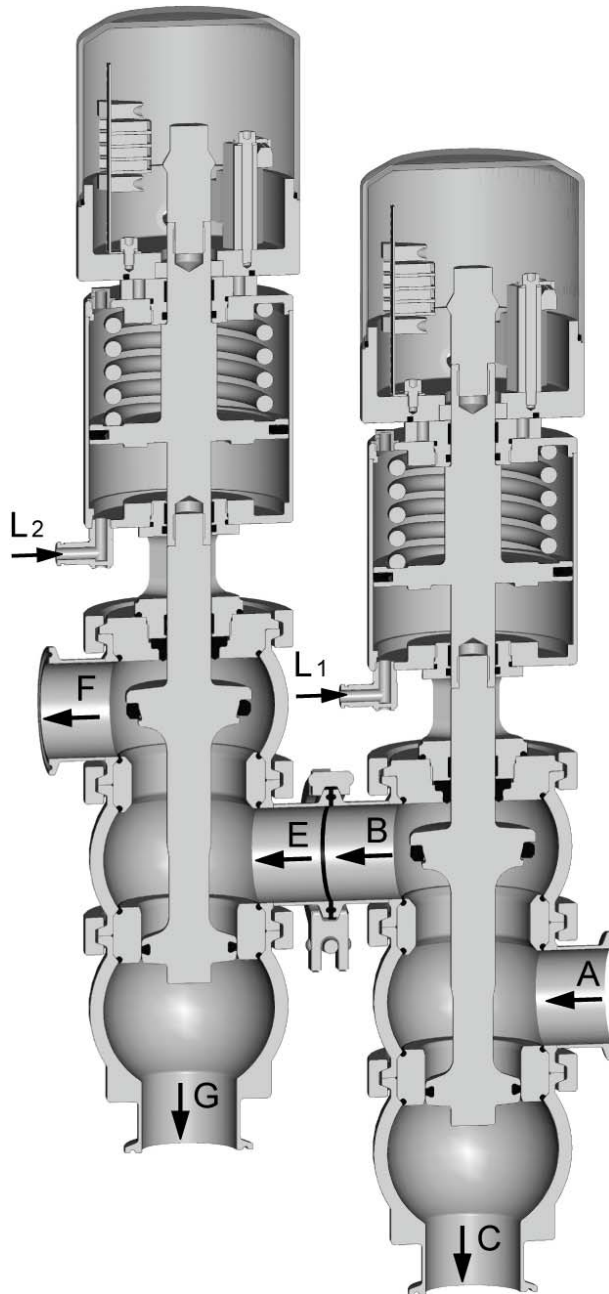
Use always the hose quality according to Norit Südmo order no. 0490227 (6/4 hose) and 0735563 (8/6 hose) or equivalent:

- ⇒ Air hose black
- ⇒ Material: Polyamid 12
Linear coefficient of expansion: 15x10⁻⁵
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



- ⇒ **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.**

6. Valve function



Product path A ⇒ C opened

Connection F

- ⇒ closed
- ⇒ control air pressure 0 bar/psi on air connections L1 and L2
- ⇒ safety position
- ⇒ locking pressure against product pressure 6 bar / 87 psi
- ⇒ Leakage outlet: B, E ⇒ G

Product path A ⇒ B ⇒ E ⇒ F opened

Connections C and G

- ⇒ closed
- ⇒ control air pressure 87 psi / 6 bar on air connections L1 and L2
- ⇒ locking pressure against product pressure 6 bar / 87 psi

7. Installation instructions

7.1. 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.

7.2. Delivery condition

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

7.3. Installation instructions

7.3.1. 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.

7.3.2. Installation

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

7.4. Welding instructions

7.4.1. Area of application

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

7.4.2. Welding technique

TIG (tungsten inert-gas welding)

7.4.3. 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)

7.5. 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.

7.6. Welding

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

7.7. 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	

7.8. Weld finishing

7.8.1. Interior

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

7.8.2. Exterior

Weld finishing methods

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

7.9. Cleaning

Clean thoroughly before assembly.

7.10. Assembly

Assemble the fittings in accordance with the assembly instructions.

8. Dismantling – Assembly

8.1. 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 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 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
HNBR	PARALIQ GTE 703
FPM	PARALIQ GTE 703
PEEK	No grease
NBR	RENOLIT SI 410 M






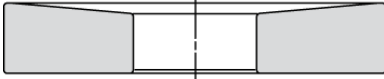
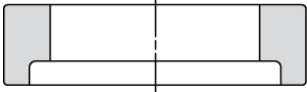
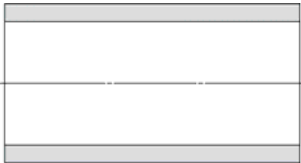
- ⇒ if a different grease is used
→ it may attack seals.
- ⇒ Use of grease with PEEK seal elements not necessary.
- ⇒ please do not use mineral or animal greases.
- ⇒ Don't use grease based on petroleum.

8.2. 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*

8.3. Mounting tools

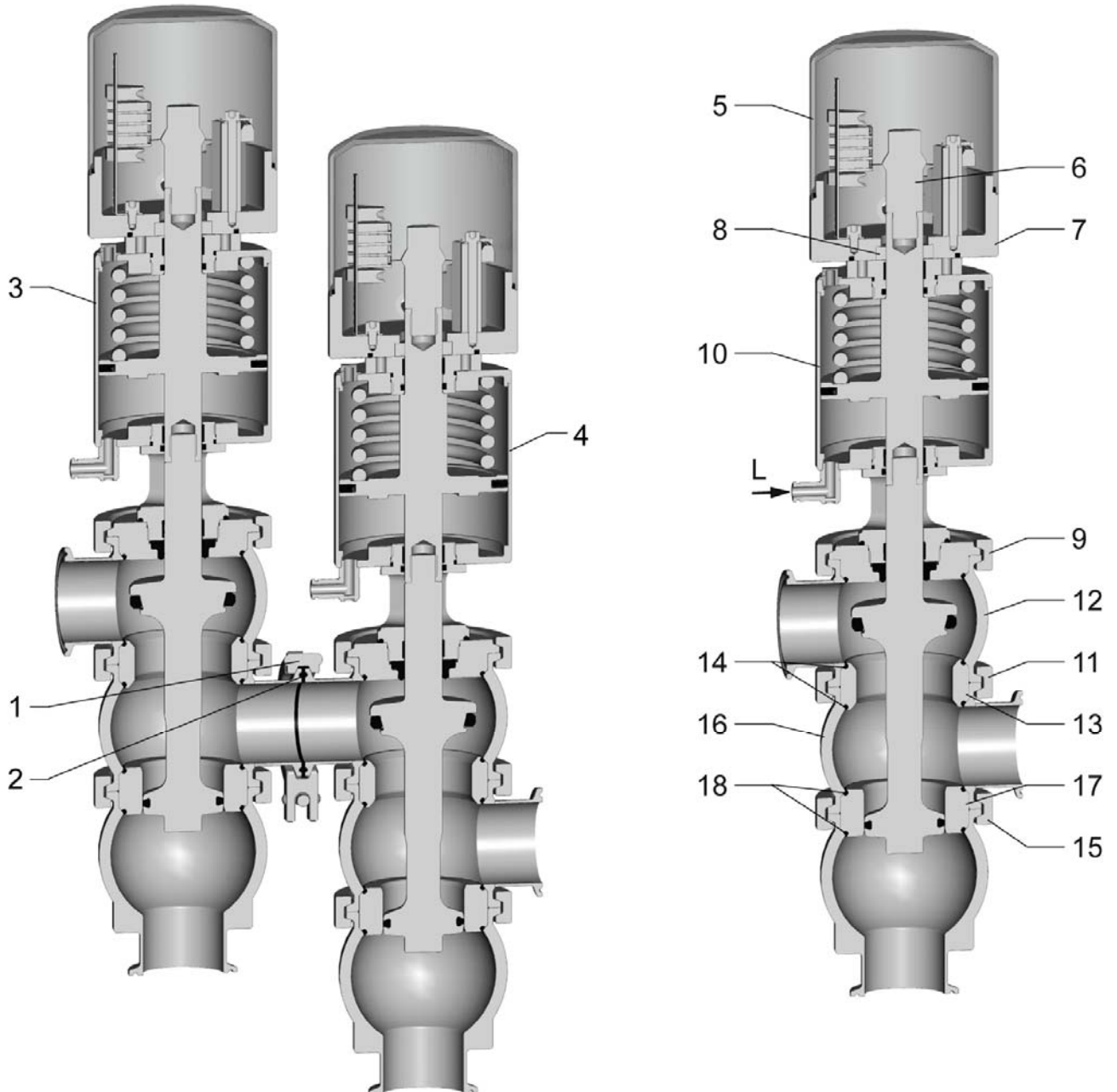
Tool	for	Order no.	Use
forked open jaw wrench SW 17 – 19 	DN 1" – DN 4"	0098558	Flow diversion valve
hock wrench with finger 45/50 	DN 1" – DN 4"	2153550	Flow diversion valve
Soldering iron 	DN 1" – DN 4"		Flow diversion valve
Holding fixture 	DN 1" – DN 4"	2154223	Flow diversion valve
Punch 	DN 1" DN 1 ½" DN 2" DN 2 ½" DN 3" DN 4"	2154226 2154050 2158727 2158728 2158729 2343565	Flow diversion valve
Sleeve 	DN 1" DN 1 ½" DN 2" DN 2 ½" DN 3" DN 4"	2158730 2158731 2158732 2158733 2158734 2158735	Flow diversion valve

8.4. Replacing product-touched seals




Caution

Please avoid damage to the metallic valve plate surfaces and valve plate seal.



Dismantling the valve


- I.1. Disconnect pneum. and electric supply lines
- I.2. Dismantle the pipeline clamps (1), remove the seals (2) and remove the change-over valves (3, 4) from the pipeline system along with the housing.
- I.3. Remove the upper bonnet part (5) of the feedback bonnet (7).
- I.4. Dismantle contact head (6)
- I.5. Dismantle the complete feedback bonnet (7).
- I.6. Remove centering disc (8).
- I.7. Preload actuator spring



⇒ **Control air pressure min. 5 bar / 72 PSI (auxiliary assembly air) on connection L.**

Danger

- I.8. Remove clamp (9).
- I.9. Unload actuator spring



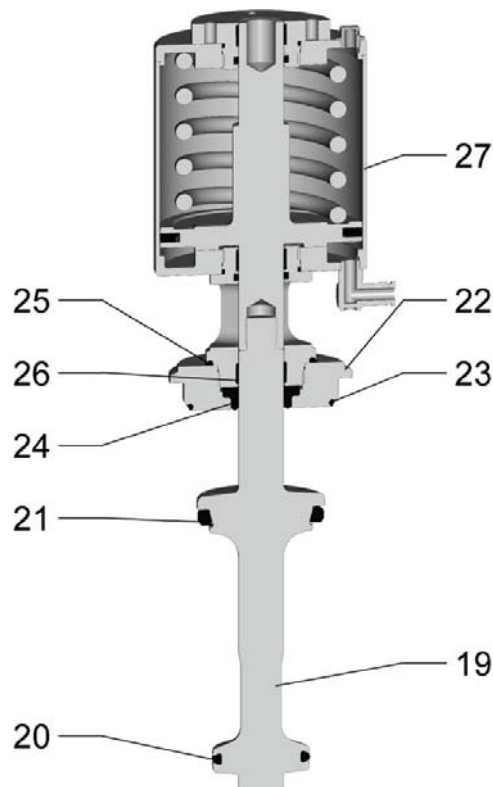
⇒ **Control air pressure 0 bar / PSI (auxiliary assembly air) on connection L.**

⇒ **The upper part rises out of the housing**

⇒ **Loosen the compressed air line**

Danger


- I.10. Remove valve upper part (10).
- I.11. Remove clamp (11) and upper part of housing (12).
- I.12. Remove seat insert (13) and dismantle O-rings (14).
- I.13. Remove clamp (15) and lower part of housing (16).
- I.14. Remove seat insert (17) and dismantle O-rings (18).



- I.15. Unscrew valve disc (19).
Mounting tool - Open-jawed spanner SW 17 – 19
- I.16. Remove O-ring (20) - see page 20.
- I.17. Remove valve disc seal (21) - see page 21.
- I.18. Unscrew support (22) and remove O-ring (23) and profile packing (24).
- I.19. Remove O-ring (25) - see page 20.
- I.20. Remove slide bearing (26).

Replacing seals

- I.21. 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.*

- I.22. Before assembly grease and lubricate the sealing elements.

Seal materials	Grease type
EPDM	PARALIQ GTE 703
HNBR	PARALIQ GTE 703
FPM	PARALIQ GTE 703
PEEK	No grease
NBR	RENOLIT SI 410 M



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


⇒ Don't use grease for PEEK sealing elements.

⇒ Please do not use mineral or animal greases

⇒ Don't use grease based on petroleum.

Assembly valve

- I.23. Before assembly, clean and grease shafts and sliding surfaces
- I.24. Mount slide bearings (26).
- I.25. Mount O-ring (25) - see page 20.
- I.26. Mount O-ring (23) and profile packing (24) into support (22) and screw complete support onto actuator (27).
- I.27. Mount valve disc seal (21) onto valve disc (19) - see page 21.
- I.28. Mount O-ring (20) onto valve disc (19) - see page 20.
- I.29. Mount complete valve disc (19).



Secure threaded connection with glue (order no. 0630210).

Mounting tools:

- open-jawed spanner SW 17 – 19.

- I.30. Mount O-rings (18) into seat insert (17) and insert seat insert (17) into housing (28).
- I.31. Mount O-rings (14) into seat insert (13) and insert seat insert (17) into lower part of housing (16).
- I.32. Set the upper part of the housing (12) onto the lower part of the housing (16) and mount the clamp (13).


I.33. Insert the upper part of the valve (10) into the entire valve housing.



Please avoid damage to the metallic valve plate surfaces and valve plate seal.

Caution

I.34. Preload actuator spring




⇒ **Control air pressure min. 5 bar / 72 PSI (auxiliary assembly air) on connection L.**

Danger

I.35. Mount clamp (9)

I.36. Unload actuator spring



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

⇒ **Loosen the compressed air line.**

Danger

I.37. Place centring disc (8) upon upper part of valve (10).

I.38. Mount complete feedback cover (7) onto upper part of valve (10).

I.39. Mount the contact head (6).

I.40. Mount the upper cover part (5) onto the feedback cover (7).

I.41. Mount seals (2)

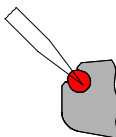
I.42. Install the change-over valves (3, 4) into the pipeline system together with the housing and mount the pipeline clamps (1)


I.43. Connect electric und pneumatic supply lines.

8.5. Assembly O-ring

8.5.1. Removal

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






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

Caution

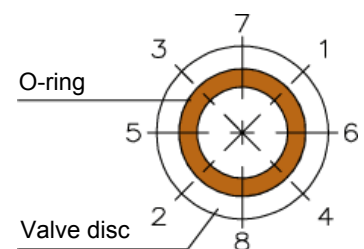
8.5.2. Installation

- ⇒ 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.



Avoid drilling and damging the O-ring by assembly.

Caution



8.6. Assembly - valve disc gasket

8.6.1. Assembly

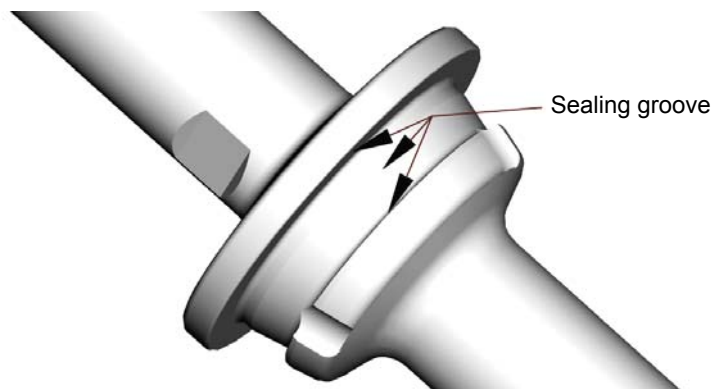
Cut the valve disc gasket with the soldering iron (soldering point temperature min. 380°C)



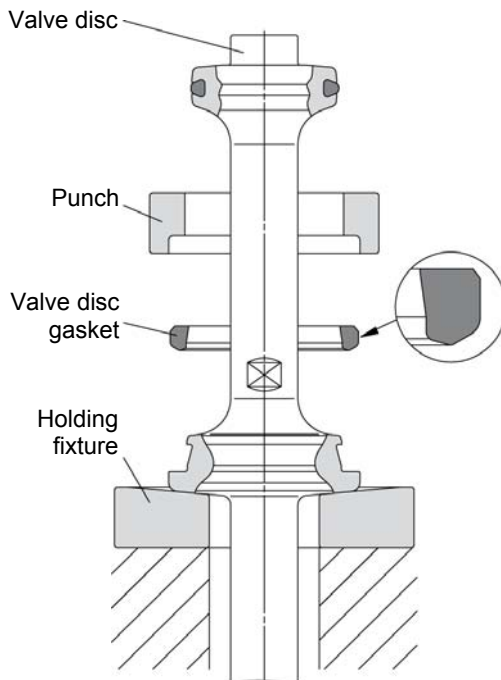
Caution

In order to avoid personal injuries and damages of the valve disc, please do not cut the valve disc gasket with a knife, a saw or something similar.

⇒ Do not damage the sealing groove



8.6.2. Installation



⇒ Tools and devices required:

- lifting devices, press, upright drilling: hydr., pneum. or mech.
- Punch - order no. acc. to page 16
- Holding fixture - order no. acc. to page 16
- Sleeve - order no. acc. to page 16

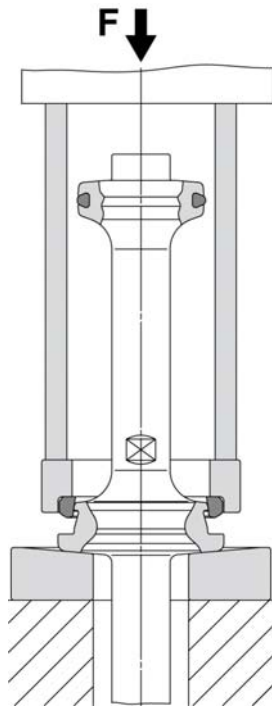
⇒ Positioning of the holding fixture and the valve disc in the direction of the lifting acc. to the assembly drawing

⇒ Insert valve disc gasket.



Pay attention to the installation position of the valve disc gasket !

⇒ Insert punch on the valve disc gasket



⇒ Attach press in a slow lifting on the punch and put it into the nut. As soon as the gasket is snapped into the nut, stop lifting immediately.



Do ***not*** press the gasket against the limit stop.

⇒ If there is a pressure against the limit stop the valve disc gasket can be damaged.

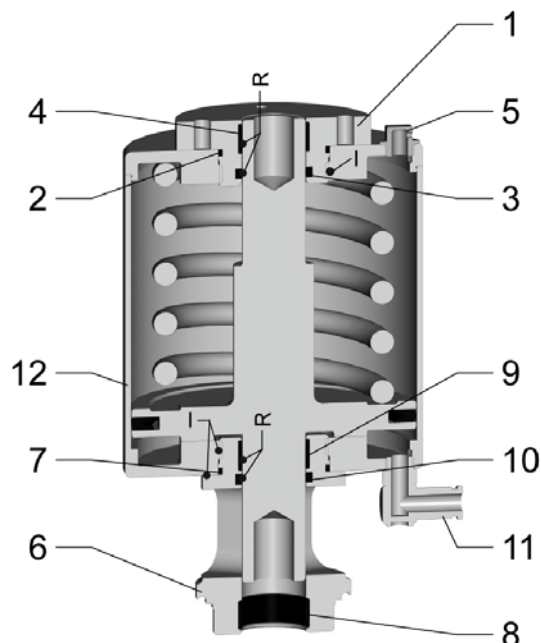


Caution

For the assembly of the valve disc gasket do **NOT** use a hammer.

8.7. Pneum. actuator

8.7.1. Function air opened – spring closed



Dismantling actuator

- II.1. Dismantle centering screw (1) and remove slide bearing (4) and O-rings (2, 3).
- II.2. Dismantle threading plug (5).
- II.3. Dismantle snaphead support (6) and remove slide bearings (8, 9) and O-rings (7, 10).

II.4. Remove air connection (11).

Replacing seals

II.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.**

II.6. Before assembly, clean and grease the sliding surfaces and lubricate the sealing elements.

Grease chart:

R = RENOLIT SI 410 M - apply to marked surfaces with a brush

I = IFB PW 119 - apply thinly to marked surfaces with a brush

Assembly actuator

II.7. Mount air connection (11).

II.8. Mount slide bearings (8, 9) and O-rings (7, 10) into snaphead support (6).

II.9. Screw snaphead support (6) onto actuator cylinder (12).

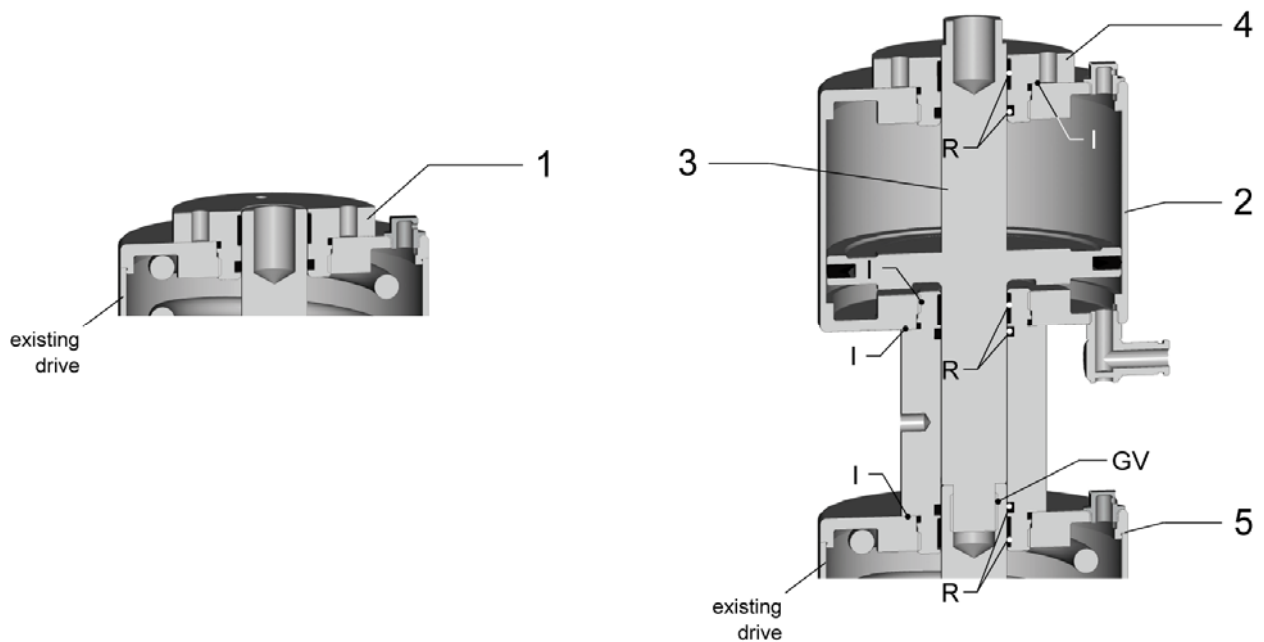
II.10. Mount threading plug (5).

II.11. Mount slide bearing (4) and O-rings (2, 3) into centering screw (1)

II.12. Screw centering screw (1) onto actuator cylinder (12)..

8.8. Pneum. actuator with booster

8.8.1. Subsequent assembly of the booster



III.1. Dismantle centering screw (1).

III.2. Mount booster (2) onto actuator (5).

III.3. Screw the piston rod (3) on the drive spindle.



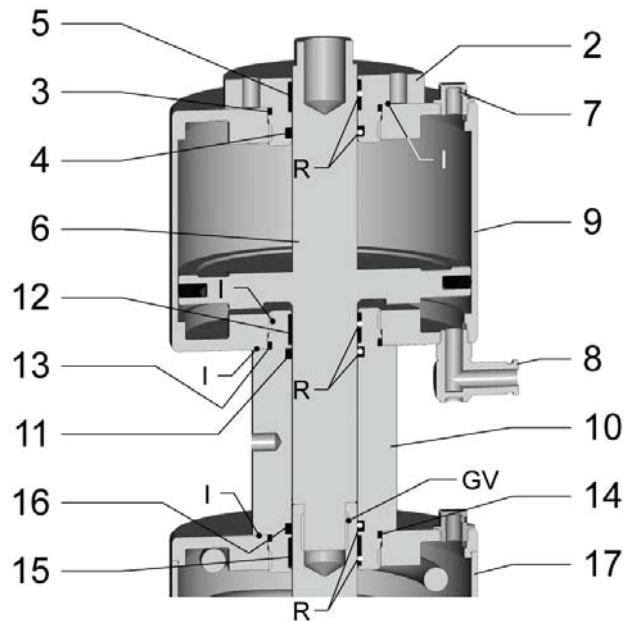
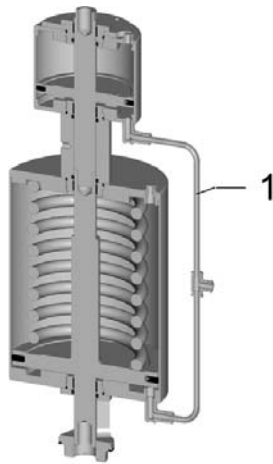
Secure threaded connection with glue (order no. 0630210).

Mounting tools:

- open-jawed spanner SW 17 – 19.

III.4. Dismantle centering screw (4).

8.8.2. Replacing the seals



Dismantling the booster

- IV.1. Disconnect air connection (1).
- IV.2. Unscrew centering screw (2) and remove slide bearing (5) and O-rings (3, 4).
- IV.3. Unscrew piston rod (6) from drive spindle.
- IV.4. Dismantle threaded plug (7).
- IV.5. Disconnect air connection (8).
- IV.6. Unscrew booster (9) from drive (17).
- IV.7. Dismantle adapter (10) and remove slide bearings (12, 15) and O-rings (11, 13, 14, 16).

Replacing the seals

- IV.8. 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.**

- IV.9. Before assembly, clean and grease the sliding surfaces and lubricate the sealing elements.

Grease chart

R = RENOLIT SI 410 M - apply to marked surfaces with a brush

I = IFB PW 119 - apply thinly to marked surfaces with a brush

Assembly booster

- IV.10. Mount slide bearings (12, 15) and O-rings (11, 13, 14, 16) into adapter (10).
- IV.11. Screw adapter (10) onto booster (9).
- IV.12. Screw booster (9) onto actuator (17).
- IV.13. Connect air connection (8).
- IV.14. Mount threaded plug (7).
- IV.15. Screw piston rod (6) onto drive spindle.

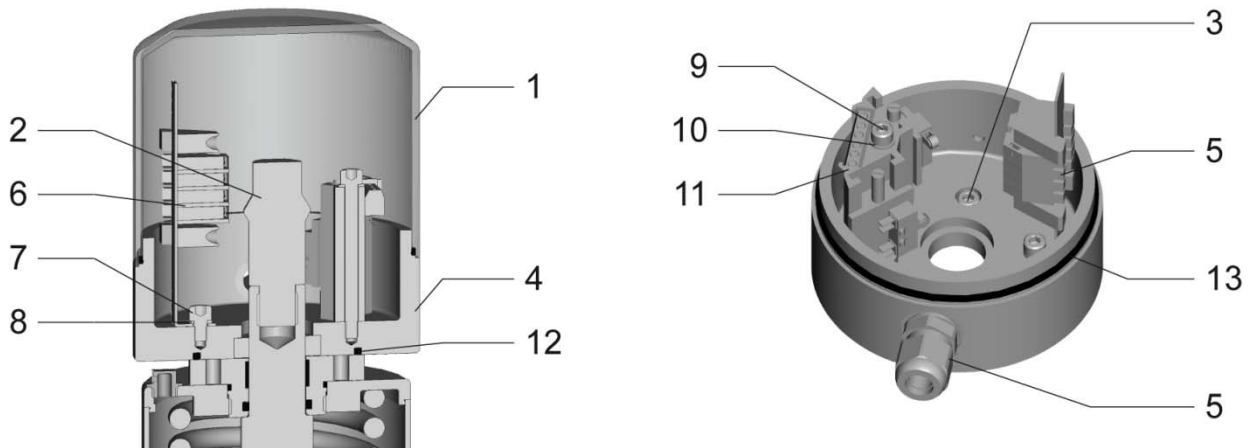


Caution

Secure threaded connection with glue (order no. 0630210).

- IV.15. Mount slide bearing (5) and O-rings (3, 4) with centering screw (2).
- IV.16. Dismantle centering screw (2).
- IV.17. Mount air connection (1).

8.9. Feedback transducer cover



Dismantling feedback transducer cover

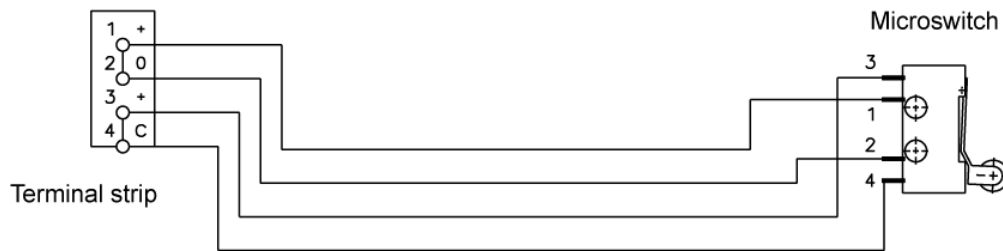
- V.1. Remove upper part of cover (1).
- V.2. Unscrew contact head (2).
- V.3. Unscrew cylinder head screw (3) and remove complete lower part of cover (4) from valve.
- V.4. Loosen the clamping force for the cable screws (5).
- V.5. Disconnect the electrical connections from the cable clamp (6).
- V.6. Remove the clamping strip (6) by unscrewing the cylinder screw (7) and remove the lock washer (8).
- V.7. Dismantle cheese head screw (9) with disc (10) and remove feedback transducer unit (11).
- V.8. Remove O-rings (12, 13) from lower part of cover (4).

Assembly feedback transducer cover

- V.9. Mount O-rings (12, 13) into lower part of cover (4).
- V.10. Mount feedback transducer unit (11) by means of cheese head screw (9) and disc (10) into lower part of cover (4).
- V.11. Screw terminal (6) with cheese head screw (7) and lock washer (8) into lower part of cover (4).

- V.12. Connect electric connections with cable clamp (6) (connection diagram see page 27).
- V.13. Tighten cable connection (5).
- V.14. Mount complete lower part of cover (4) with cheese head screws (3) onto valve.
- V.15. Screw contact head (2) onto drive spindle
- V.16. Assemble upper part of cover (1).

9. Electrical Connection



- ⇒ Flow diverted, continuity between terminals 3 & 4.
- ⇒ Forward flow, open between terminals 3 & 4 (Please note continuity of terminals 1 & 2 are opposite of 3 & 4)
- ⇒ The electrical installation must be carried out by trained, skilled personnel.
- ⇒ The VDE and local regulations and all necessary safety measures must be observed.
- ⇒ The supply voltage must correspond to the specification on the rating plate.
- ⇒ The terminal assignment must be as indicated on the circuit diagram.

10. Micro-switch adjustment

Inside the control top are two micro-switches. One switch has a smaller radius arm. This switch is to be located lowest inside the control top and is to indicate the valve is in the diverted position. In the diverted position, no air is applied to the valve. The second switch has a larger radius arm and may be used to indicate that the valve is in forward flow. This switch is to be set highest in the control top, i.e. when the valve has air applied to it. Vertical adjustment of the micro-switch is made by an adjustment screw easily located looking down at the control top. A clockwise turn raises the micro-switch, and a counter-clockwise turn lowers the micro-switch. The micro-switches indicate off of the valve stem by means of a contact head target mounted to the valve stem. The micro-switch is depressed when the raised portion of the target is in contact. The roller of the micro-switch is to be set at the center point of the contact head target.

11. Start-up



Caution

- ⇒ **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.

11.1. Functional test

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



Flow Diversion Valve set requires that the leak detect valve open to flush some seconds prior to the forward flow valve opening.

11.2. Leak test

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

12. Maintenance

12.1. 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 only.**

12.2. Inspection

Norit Südmö valves do not special maintenance. Between maintenance intervals, however, the seal tightness and correct operation should be verified by means of a periodic visual inspection

12.3. 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:

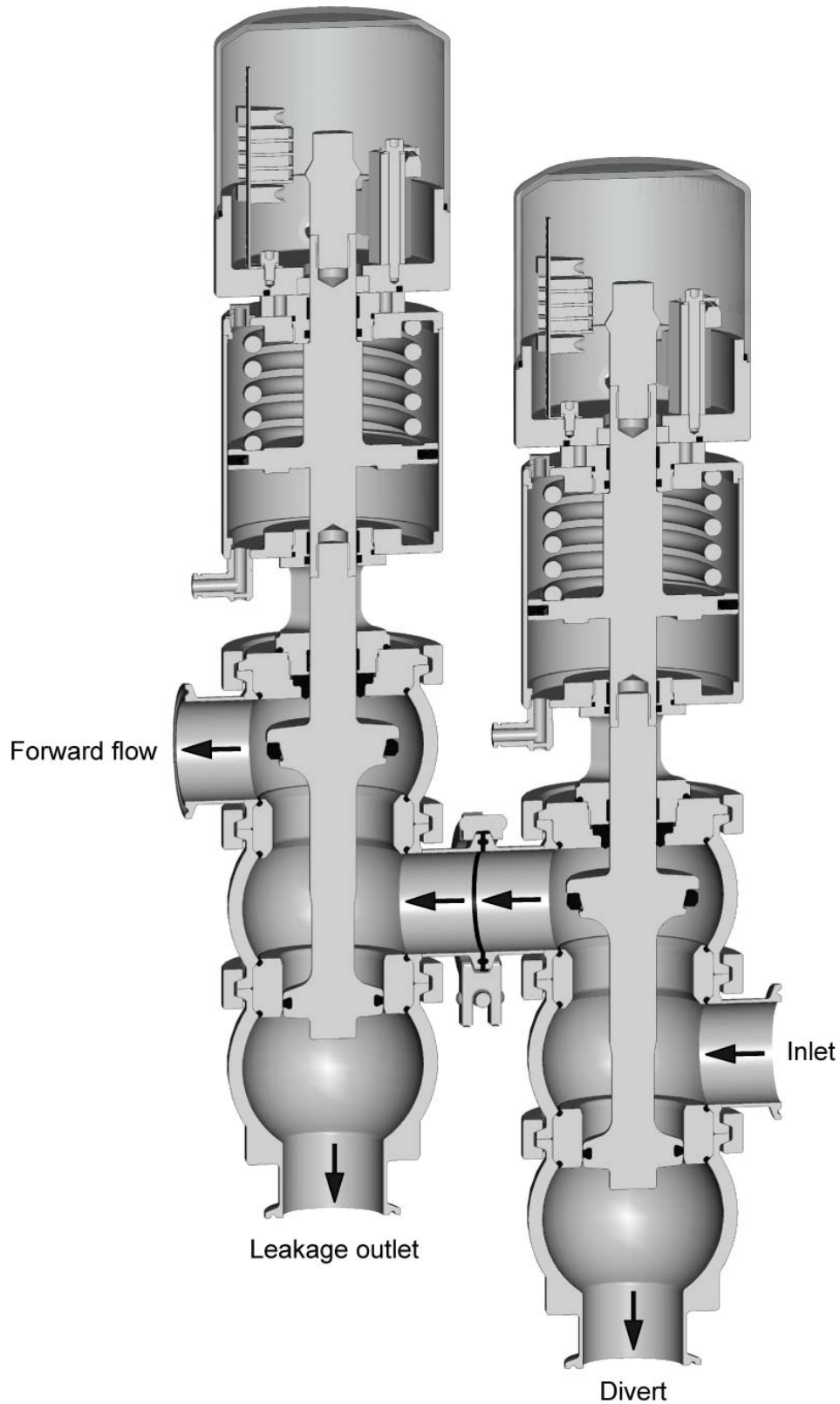
- ⇒ for liquids with solid particles and temperatures of 80 °C to 100 °C approx. every 3 – 6 months
- ⇒ for liquids with solid particles and temperatures of 60 °C approx. every 12 months
- ⇒ for liquids without solid particles and with temperatures of max. 60 °C approx. every 24 months.

In cleaning systems, intervals of 12 months are recommended.

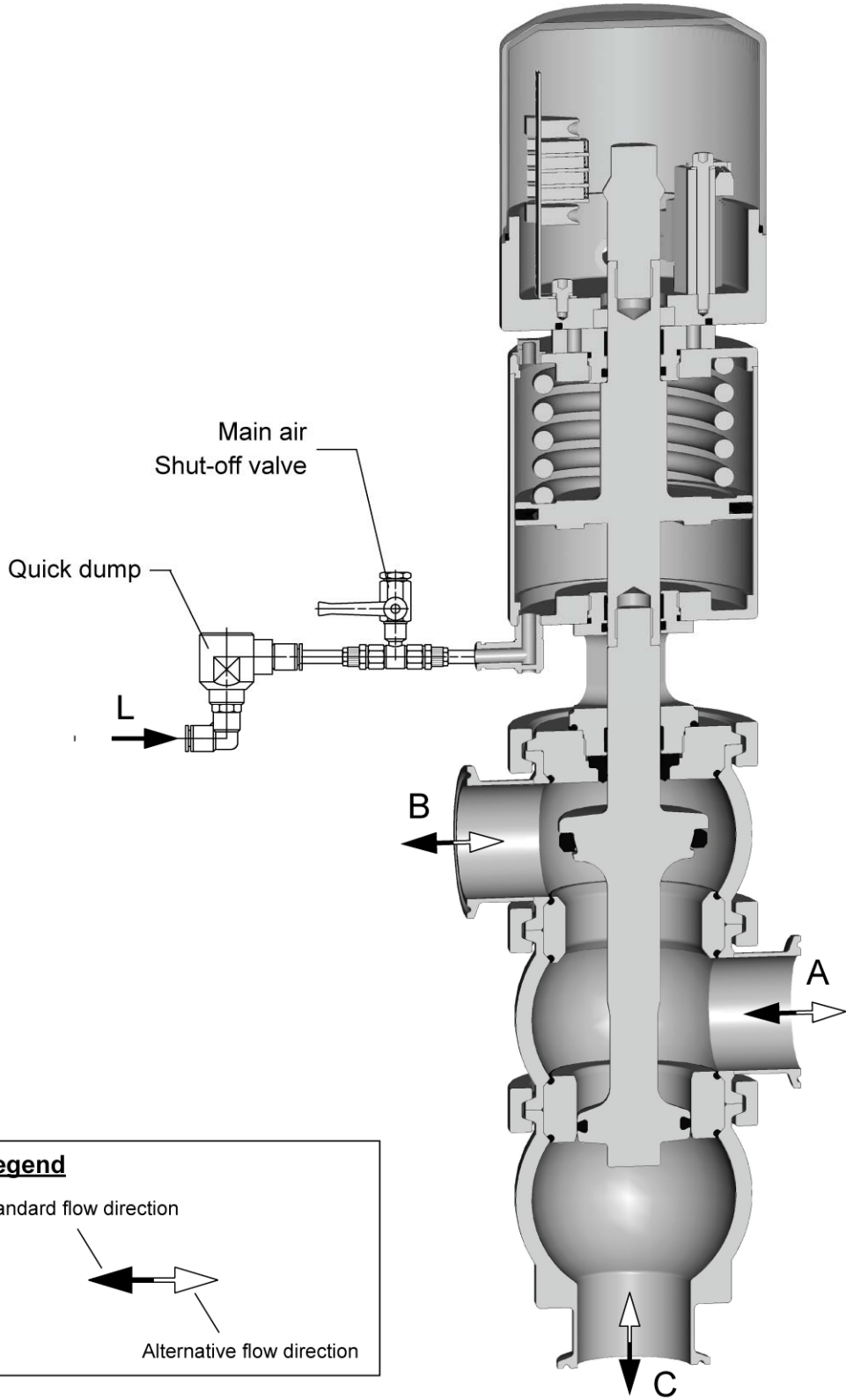
The intervals stated above are, of course, based on the assumption that the seal materials are sufficiently chemical-resistant.



13. Flow diversion valve and control top section



14. Flow diversion device set up



Legend
Standard flow direction
Alternative flow direction

Spacer part # - 2140779



15. Dual stem device testing procedure**15.1. General**

The following procedures have been developed by Südmo Components GmbH to comply with the current Pasteurized Milk Ordinance, 2003 Revision, for the Dual Stem Device Assembly.

15.2. Device Assembly, Dual Stem Device**15.2.1. Apparatus**

Spacer is 0.059 inches/ 1.5mm wide.

15.2.2. Method

Observe function of metering pump when flow-diversion device is improperly assembled.

15.2.3. Procedures

The spacer may be installed at any time, however it is easiest to loosen the target when valve is in the forward flow position.

- a. With the system temperature at sub-legal (divert), turn the Mode Switch to INSPECT.
- b. After the valves have assumed the forward flow position, close the air shut-off valve (see page 28) thereby trapping air in the valve and retaining the valve in forward flow position.
- c. Remove the micro switch target assembly (see picture I) from the top of the valve stem with a 17 mm spanner.
- d. Place the spacer on the threads of the target assembly and screw it back on the valve stem.
- e. Open the air valve allowing valve to operate normally.
- f. Turn the mode switch to PROCESS and turn on the metering pump. The metering pump or any other flow- promoting device should not start.
- g. Attach a new sealing wire to the air shut-off valve handle and record your results.
- h. Repeat the above steps for the leak detect valve.

15.2.4. Corrective Action

If metering pump fails to respond as indicated, an immediate check of the device assembly, micro-switch, and wiring is required to locate and correct the cause.

Picture below is for reference purposes only. The spacer is 1.5mm wide and the target face is 1mm wide.



15.3. Alternative Valve Dismantling Procedure

(See dismantling - assembly, page 16)



⇒ **It must be ensured that no foreign objects or product are present in the piping system.**

- a. With the system temperature at sub-legal (divert), turn the Mode Switch to INSPECT.
- b. After the valves have assumed the forward flow position, close the air shut-off valve thereby trapping air in the valve and retaining the valve in forward flow position.
- c. Turn the mode switch to PROCESS and turn on the metering pump. The metering pump should not start.
- d. Remove the uppermost body clamp. Remove the complete insert (actuator, control top, and stem) from the housing to expose the wrench flats on stem of valve. Depending on the valve size, the wrench flats may be on various locations of the stem.
- e. With the valve still in the forward flow position, loosen the stem from the actuator approximately 0.06 inches / 1.5 mm.
- f. Assemble the insert back into the housing.
- g. Slowly open the air shut-off valve allowing the valve to assume the DIVERT position
- h. Turn on the metering pump switch. The metering pump should not start.
- i. Turn the Mode Switch back to INSPECT and allow the valve to assume the forward flow position
- j. Again remove the insert, retighten the stem to the actuator, and reassemble the insert back into the housing



At this time you may want to completely disassemble the valve and inspect for construction, gaskets, O-rings, etc.

- k. Turn the Mode Switch from INSPECT to PROCESS and allow the valve to assume the divert flow position.
- l. Repeat the above steps for the leak detect valve.
- m. Attach a new sealing wire to the air shut-off valve handle and record your results (see page 26).

15.3.1. Corrective Action

If metering pump fails to respond as indicated, an immediate check of the device assembly, micro-switch, and wiring is required to locate and correct the cause.

16. Disposal

16.1. Before disposal

Do dismantling in accordance with assembly instructions (page 16 – 27).
Please always take the following steps before disposal the SVP change-over valve:



- ⇒ ensure that there is no work being done in that area.
- ⇒ evacuate all pipeline elements leading to the SVP 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.

16.2. Parts of SVP change-over valve

For the manufacture of a SVP change-over valve the following materials are used:


- ⇒ metal parts AISI 316L, AISI 304(L)
- ⇒ all gaskets elastomer, PEEK and PTFE
- ⇒ all guidings plastic

16.3. SVP change-over valve disposal

How to prepare the shutdown of a SVP change-over valve:

- ⇒ Find out how to dispose the component part respectively the complete SVP change-over valve.
→ If necessary, ask your environmental representative.
- ⇒ Dismount the SVP change-over valve from the connected pipe system.
- ⇒ Dismount the SVP change-over valve as described in „Dismantling – Assembly“ (page 16 – 27).
- ⇒ Remove all gaskets from the valve parts of the SVP change-over valve.
- ⇒ Dispose all parts of the SVP change-over valve in accordance the health and environmental regulations..

17. Disorder - trouble shooting


Danger

- ⇒ *Never touch the valve or piping system when hot products are in processing or during sterilization.*
- ⇒ *Always adhere to the operating parameters (see Technical Data – page 10).*
- ⇒ *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



18. Service adress



Südmo North America Inc

1330 Anvil Drive
Rockford, IL 61115
Phone 815/6 39 03 22
Fax 815/6 39 11 35
Homepage: www.sudmona.com



Südmo

Südmo Components GmbH

Industriestraße 7
D-73469 Riesbürg - Germany
T +49 9081 803-01
F +49 9081 803-158
E info@suedmo.de
I www.suedmo.de

© 2010 Südmo Components GmbH

We reserved the right for technical modification

