

APV DELTA SDMS4

DOUBLE SEAL VALVE WITH DIAPHRAGM AND "FAN SUPPORT"

FORM NO.: H329486 REVISION: UK-0

READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS PRODUCT.



EU Declaration of Conformity for Valves and Valve Manifolds

SPX Flow Technology Germany GmbH
Gottlieb-Daimler-Str. 13, D-59439 Holzwickede
herewith declares that the

**APV double seal and double seat valves of the series
SD4, SDT4, SDU4, SDMS4, SDMSU4, SDTMS4, SWcip4, DSV,
DA4, D4 SL, D4, DA3, DA3SLD, DE3, DEU3, DET3, DKR2, DKRT2, DKRH2**
in the nominal diameters DN 25 - 150, ISO 1" – 6" and 1 Sh5 - 6 Sh5

APV butterfly valves of the series SV1 and SVS1F, SVL and SVSL
in the nominal diameters DN 25 - 100, DN 125 - 250 and ISO 1" – 4"

APV ball valves of the series KHI, KHV
in the nominal diameters DN 15 - 100

**APV single seat, diaphragm and spring loaded valves of the series
S2, SW4, SWhp4, SW4DPF, SWmini4, SWT4, SWS4, MF4, MS4, MSP4, AP/T1, CPV,
RG4, RG4DPF, RGMS4, RGE4, RGE4DPF, RGEMS4, PR2, PRD2, SI2, UF/R3, VRA/H**
in the nominal diameters DN 10 - 150, ISO 1/2" – 4" and 1 Sh5 - 6 Sh5

and the valve manifolds installed thereof

meet the requirements of the Directives 2006/42/EC (superseding 89/392/EEC
and 98/37/EC) and ProdSG (superseding GPSG - 9.GPSGV).

For official inspections, SPX FLOW presents
a technical documentation according to Appendix VII of the Machinery Directive,
this documentation consisting of documents of the development and construction,
description of measures taken to meet the conformity and to correspond with
the basic requirements on safety and health, incl. an analysis of the risks,
as well as an operating manual with safety instructions.

The conformity of the valves and valve manifolds is guaranteed.

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	Double Seal Valve SDMS4	RN 01.054.70
	Leakage Valve	RN 01.054.67-1
	Actuator	RN 01.054.86

1. General Terms

This instruction manual has to be read carefully and observed by the competent operating and maintenance personnel.

We have to point out that we will not accept any liability for damage or malfunctions resulting from the non-compliance with this instruction manual.

Descriptions and data given herein are subject to technical changes.

2. Safety Instructions

The valve must be assembled, operated, dismantled, maintained and serviced only by competent, trained personnel. Please contact your local SPX FLOW site if necessary.

DANGER!

- The technical safety symbol draws your attention to important directions for operating safety. You will find it wherever the activities described are bearing health hazards or risks for persons or material assets.



- **Do not reach into the open valve or yoke!**
Risk of injury by suddenly operating valve. In dismantled state there is the risk of bruising at movable parts of the valve.



- **Attention!**
Valve design NC (normally closed): Before releasing the housing screws, relieve the valve insert by controlling the actuator.



- During valve operation, operating leakage escapes from the leakage valve to the bottom.
- Before any maintenance work, the line and cleaning system must be depressurized and discharged if possible.
- If the diaphragm is damaged, fluids will leak from the leakage bore in the yoke area.
- Electric and pneumatic connections must be separated.
- Observe service instructions to ensure safe maintenance of the valve.
- Schedule regular valve maintenance including the replacement of all seals in order to prevent leakages of any type.

2. Safety Instructions

DANGER!

Welded actuators are preloaded by spring force.



**Opening of the actuators is strictly forbidden.
Danger to life!**

Actuators which are no longer used and / or defective must be disposed in professional manner.

Defective actuators must be returned to your SPX FLOW company for their professional disposal and free of charge for you.

Contact your local SPX FLOW partner.

3. Intended Use

The intended use as field of application of the double seal valve with diaphragm is the shut-off of pipeline sections.

Unauthorized, structural changes at the valve will affect safety and the intended functionality of the valves and are *not* permissible.

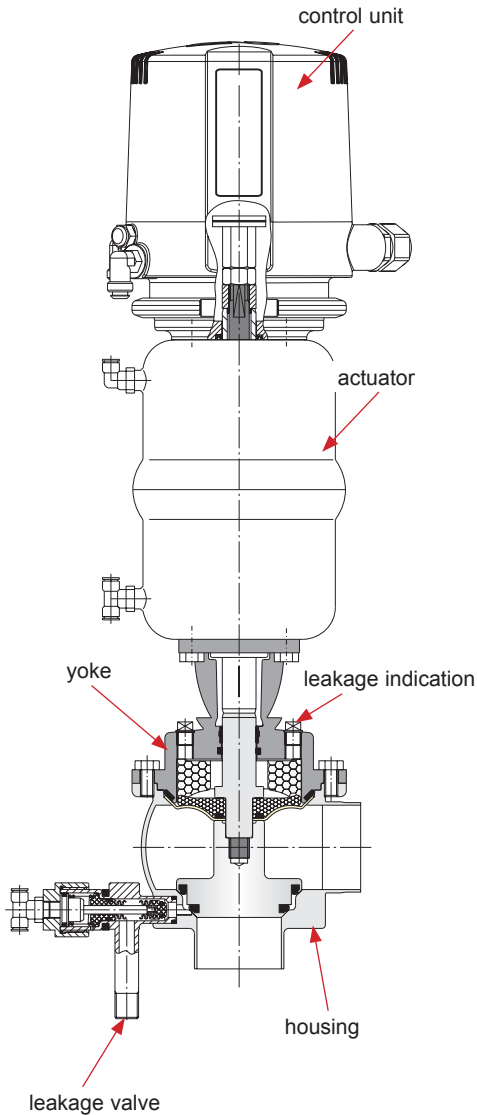
Approvals and External Evaluations:

3-A Sanitary Standards, Inc.

ATEX (Directive 2014/34/EU)

4. Mode of Operation

DELTA SDMS4



4.1. General terms

Use of high-quality stainless steel and seal materials to the specified requirements, the double seal valve with diaphragm and “fan support” DELTA SDMS4 is applicable in the food and beverage industries as well as in the pharmaceutical and chemical sector.

Double seal valves with diaphragm offer optimum protection of the product in hygienic and aseptic applications. Product safety is achieved by the hermetic separation of the product chamber to the outside (atmosphere) by means of a flexible diaphragm with “fan support”.

- Leakage at the diaphragm is shown via a leakage indicator in the yoke area.

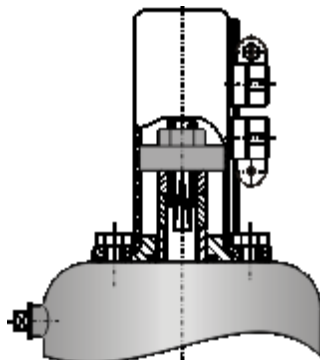
The field of application of the DELTA SDMS4 comprises the safe shut-off and separation of line sections being separated from one another by two seat seals. A leakage chamber is arranged between the seals, the leakage chamber being forcibly closed by the two leakage valves or opened to the atmosphere.

- Leakage at the seat seals is discharged via the leakage valves to the atmosphere and indicated.
- Operation by pneumatic actuator with air connection. The actuator is generally mounted normally closed (NC).
- The inner parts of the actuator are maintenance-free.
- To avoid pressure hammers, the valve should be closed against the flow direction of the fluid.
- As standard design a control unit DELTA CU41N with NOT element is installed on top of the actuator for the pneumatic control of the valve. The NOT element fulfills the task to increase the closing forces of the closed valve.
- The luminous diodes in the control unit indicate the position of the valve shaft.
- Observe service instructions to ensure safe maintenance of the valve.

5. Auxiliary Equipment

5.1. Valve position indication (fig. 5.1.)

fig. 5.1.



A proximity switch holder for the valve position feedback can be installed direct on the actuator.

Proximity switches to signal the limit position of the valve seat can be installed at the proximity switch holder (PSH) if required.

We recommend to use APV standard proximity switches.

Operating distance : 5 mm / diameter : 11 mm.

Operating voltage: 10 - 30 VDC

Output: operating current pnp positive switching

Connection: moulded cable 5 m length

Protective class: IP 67

ref. No.: 08 - 60 - 011/93; ID-No.: H16223

If the customer decides to use a different valve position indicator, we cannot take over any liability for a faultless function.

5.2. Control Unit (fig. 5.2.)

For the start-up as well as assembly and disassembly of the different designs, the corresponding instruction manual must be observed.

The following different designs are available:

fig. 5.2.



Direct Connect ref.-No.; ID-No.:	CU41N-S-Direct Connect 08-45-103/93; H320463
Profibus ref.-No.; ID-No.:	CU31N Profibus 08 - 45 - 002/93; H315496
DeviceNet ref.-No.; ID-No.:	CU31N DeviceNet 16 - 31 - 241/93; H209423
AS-interface extended ref.-No.; ID-No.:	CU41N - S - AS-i extended 08 - 45 - 113/93; H320470

- For the installation of the control unit on the SDMS4 valve an adapter is required.

Designation: ref.-No.; ID-No.:	CU3 adapter SD4/SDM4 08-48-415/93; H209430
Designation: ref.-No.; ID-No.:	CU4-S adapter DN25 - 100 / 1" - 4" 08 - 46 - 600/93; H320474

5. Auxiliary Equipment

5.3. Connections:

Beside the housings with weld ends, the following connections are available:

- threaded connection acc. to DIN 11851
- threaded connection IDF / ISS acc. to ISO 2853
- threaded connection RJT acc. to BS 4825-5
- threaded connection SMS
- threaded connection acc. to DS 722
- flange connection FGN1 DIN
- flange connection FGN1 Inch
- clamp connection acc. to DIN 32676
- clamp connection acc. to ISO 2852

6. Cleaning

6.1. Cleaning recommendation

For the cleaning of SDMS4 valves distinction is made between two areas.

- **Flow areas**

The passages of the valve are cleaned by the cleaning liquid during cleaning of the connected pipelines.

- **Leakage chamber**

Cleaning of the leakage chamber is undertaken via the leakage valves. The cleaning liquid is supplied via one leakage valve and discharged to the atmosphere via the second leakage valve.

The restraint passage of the cleaning liquid provides for perfect cleaning of the whole leakage chamber.

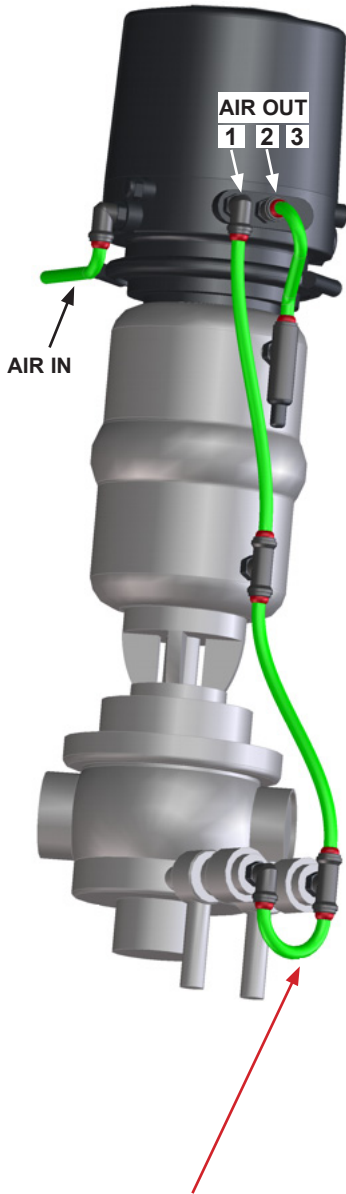
Depending on the degree and constituents of soiling, the cleaning liquids, times and processes must be scheduled for the individual application.

The compatibility of the individually selected cleaning processes and liquids with the respectively used seals must be verified.

Under normal conditions, 15 valves DN 25/1" - 100/4" can be cleaned via one spray distribution line DN 25.

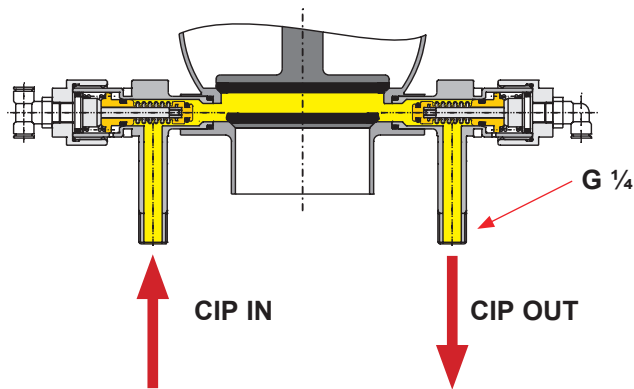
6. Cleaning

cleaning step	CIP spraying cycle
pre-flushing	2 x 10 sec.
caustic flushing 80° C	3 x 10 sec.
intermediate flushing	2 x 10 sec.
acid flushing	3 x 10 sec.
subsequent flushing	2 x 10 sec.
	(with resp. break of 10 sec.)



- The cleaning cycles refer to a cleaning pressure of $p = 2-5$ bar.
- The spraying cycles indicated for the individual cleaning steps are reference values, only. In specific applications, these times must be adapted considering the product, pressure ratio and degree of soiling.
- The flushing quantity per CIP spraying cycle is about 1.2 litre / 10 sec. at a cleaning pressure of min. 2 bar - max. 5 bar.

cleaning of the leakage chamber via leakage valves



Piping of the leakage valves:

Designation of terminals at the control unit CU41N

AIR IN : air supply with integrated particle filter

- AIR OUT:**
- 1** control air connection for main actuator
 - 2** control air connection for spring-side support of actuator with compressed air via NOT element

7. Installation

7.1. General terms

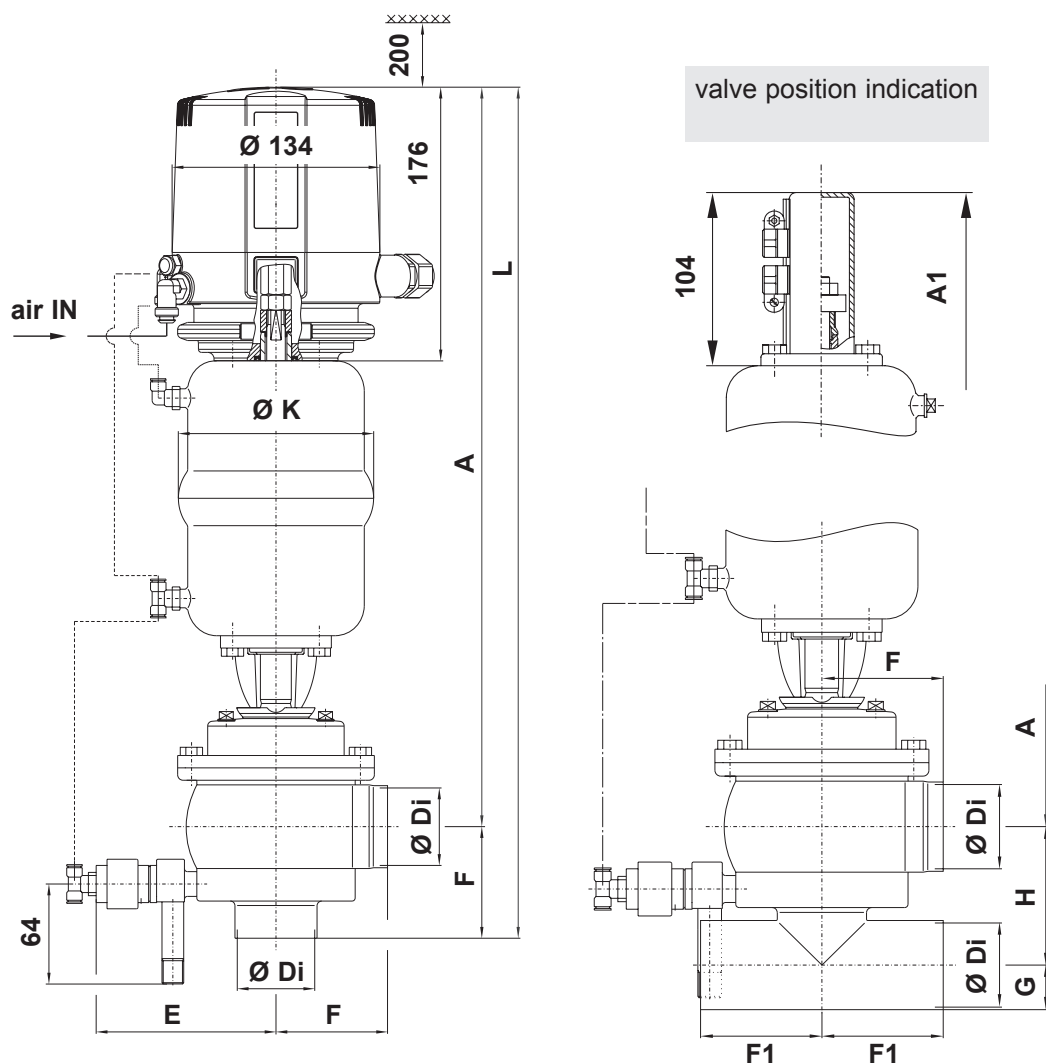
Installation has to be done in such a way that fluids can drain off the valve housing and is preferably to be realized in vertical position.

Attention: Observe welding instructions.

7.2. Welding Instructions

- Before welding of the valve, the valve insert and the leakage valves must be dismantled from the housing. Careful handling to avoid damage to the parts is necessary.
- Welding should only be carried out by certified welders (DIN EN ISO 9606-1) (Seam quality DIN EN ISO 5817).
- Welding of the valve housings must be undertaken in such a way that the valve body is not deformed.
- The preparation of the weld seam up to 3 mm thickness must be carried out as a square butt joint without air. (Consider shrinkage!) TIG orbital welding is best!
- After welding of the valve housings or of the mating flanges and after work at the pipelines, the corresponding parts of the installation or pipelines must be cleaned from welding residues and soiling. If these cleaning instructions are not observed, welding residues and dirt particles can settle in the valve and cause damage.
- Any damage resulting from the non-observance of these welding instructions is not subject to our guarantee.
- For aseptic applications observe Welding Directives according to AWS/ANSI and EHEDG.

8. Dimensions / Weights



housing variants

SDM 41



SDM 42



SDEM 43



SDEM 44



Dimensions in mm											Weight in kg
DN	A	A1	Ø Di	E	F	F1	G	H	Ø K	L	
25	460,3	356,3	26	110	68	50	14,5	60	126	528,3	4,2
40	466,3	362,3	38	115	67	67	20,5	72	126	533,3	7,1
50	476,5	372,5	50	117	72	72	26,5	84	126	548,5	7,1
65	532,6	428,6	66	127	85	85	35,0	100	189	617,6	7,9
80	547,6	443,6	81	140	98	98	42,5	115	189	645,6	14,2
100	556,5	452,5	100	140	111	111	52,0	134,6	189	667,6	15,2
Inch											
1"	458,3	354,3	22,6	110	68	50	12,7	55,8	126	526,3	4,2
1,5"	465,3	361,3	34,9	115	67	67	19,0	68,9	126	532,3	7,1
2"	475,0	371,0	47,6	117	72	72	23,8	81,6	126	547,0	7,1
2,5"	528,6	424,6	60,3	127	85	85	31,7	94,3	189	613,6	7,9
3"	535,4	431,4	72,9	123	90	90	38,0	107,0	189	625,4	14,5
4"	554,6	450,6	97,6	140	111	111	50,8	131,9	189	665,6	15,2

9. Technical Data

9.1. General terms

- Product-wetted parts: 1.4404 (DIN EN 10088)
- Other parts: 1.4301 (DIN EN 10088)
- Seals: standard: EPDM
Option: HNBR, VMQ, FPM
- Diaphragm: TFM/EPDM

- Actuator: 1.4301 (DIN EN 10088)
- Max. line pressure: 10 bar
with control unit CU41N (NOT element)

- max. operating temperature: 135°C EPDM, HNBR
*FPM, *VMQ

- short-term load: 140°C EPDM, HNBR
*FPM, *VMQ
*(no steam)

- air connection (for hose): 6 x 1mm
- max. pneumatic air pressure: 8 bar
- min. pneumatic air pressure: 6 bar
- leakage indication in yoke area: G1/8"

Use dry and clean air, only!

9.2. Specification of compressed air quality

- compressed air quality: Quality class acc. to
DIN/ISO 8573-1

- content of solid particles: Quality Class 3
max. size of solid particles per m³
10000 of 0.5 µm < d < 1.0 µm
500 of 1.0 µm < d < 5.0 µm

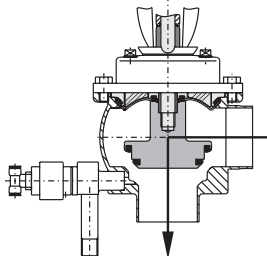
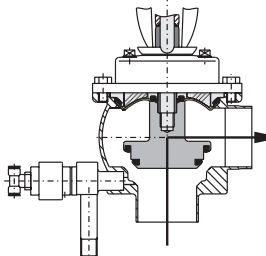
- content of water: Quality Class 3
max. dew point temperature -20 °C
For installations at lower
temperatures or at higher
altitudes, additional measures
must be considered to reduce
the pressure dew point
accordingly.

- content of oil: Quality Class 1
max. 0.01 mg/m³

The oil applied must be compatible with Polyurethane elastomer materials.

9. Technical Data

9.3. Kvs values in m³/h

		
DN, Inch		
25, 1"	22	22
40, 1.5"	42	38
50, 2"	73	70
65, 2.5"	120	112
3"	135	135
80	170	160
100, 4"	325	276

9.4. Closing times for single seat valve DELTA SDMS4

The opening and closing times of the valves equipped with a control unit can be determined by adjusting the throttle screw at the solenoid valve.

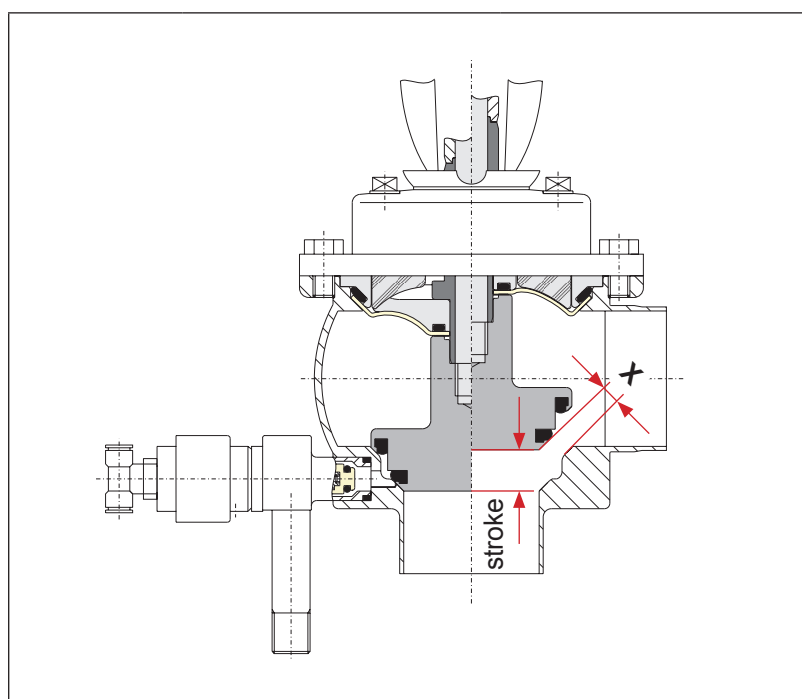
Closing times in sec. at 6 bar control pressure			
		hose length in meter	
DN	Inch	1 m	10 m
25	1"	1	2
40	1.5"	3	4
50	2"	3	4
65	2.5"	5	6
80	3"	5	6
100	4"	5	6

9. Technical Data

9.5. Pneumatic air consumption at 6 bar control pressure

Actuator	NL per stroke
Ø 110 mm	2.1
Ø 165 mm	4.5

9.6. Valve stroke / Opening cross section (X)



DN, Inch	Stroke	X
25, 1"	13	10
40, 1,5"	13	10
50, 2"	16	13
65, 2,5"	23	20
3"	23	20
80	28	25
100, 4"	28	25

10. Maintenance

The maintenance intervals depend on the corresponding application and are to be determined by the user himself carrying out temporary checks.

The valve must not be cleaned with products containing abrasive or polishing material. Especially the valve shaft must not, under any circumstances, be cleaned with such agents. Damage of the valve shaft can lead to leakages.

Replacement of seals according to Service Instructions. Customer stock keeping of spare seals is recommended. For valve service we supply complete seal kits including seal grease (see spare parts lists)..



Required tools:

1x wrench SW13

1x wrench SW17

1x wrench SW19

1 x wrench SW30

1x hexagon socket wrench 6 mm

cleaning rag as well as a low solution of a suitable cleaning liquid (observe safety data sheet of cleaning liquid producer).

Installation of seat seal see pages 19-20

- Provide all seals with a thin layer of grease before their installation!
- Provide the diaphragm at the product-averted side with a thin layer of grease.

Recommendation:

APV assembly grease for EPDM, FPM, HNBR and NBR

(750 g/ tin - ref.-No. 000 70-01-019/93; H147382)

(60 g/ tube - ref.-No. 000 70-01-018/93; H147381)

Attention! Less suited grease types can influence function and lifetime.

Recommendation: screw locker

Type: Loctite 243 semi-solid

(50ml - ref.-No.00070-01-111/93; H206336)

10. Maintenance

10.1. Assembly tool for seat seal

- ! By means of the assembly tool, the upper seat seal (pos. 16) can be installed, only (see chapter 14.1).

To simplify the installation of the seat seal, the following assembly tool is available.

assembly tool SDM4			
DN	Inch	reference number	ID No.
25	1"	000 51-13-226/17	H314439
40	1,5"	000 51-13-227/17	H314440
50	2"	000 51-13-228/17	H314441
65	2,5"	000 51-13-229/17	H311447
	3"	000 51-13-230/17	H314442
80, 100	4"	000 51-13-225/17	H314443

11. Service Instructions

11.1. Dismantling from the line system DELTA SDMS4

The reference numbers refer to the spare parts drawings
SDMS4 : DIN-design and Inch-design RN 01.054.70

1. Shut off the line pressure and discharge lines if possible
2. **NC version: Control actuator with air.**



Do not touch movable parts!
Risk of injury.

3. Remove hex. screws (9) and lift the complete valve insert with actuator out of the housing.

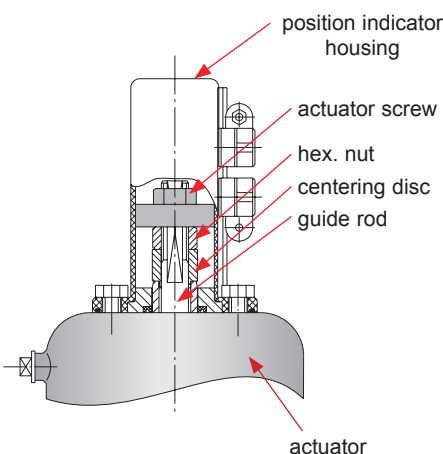
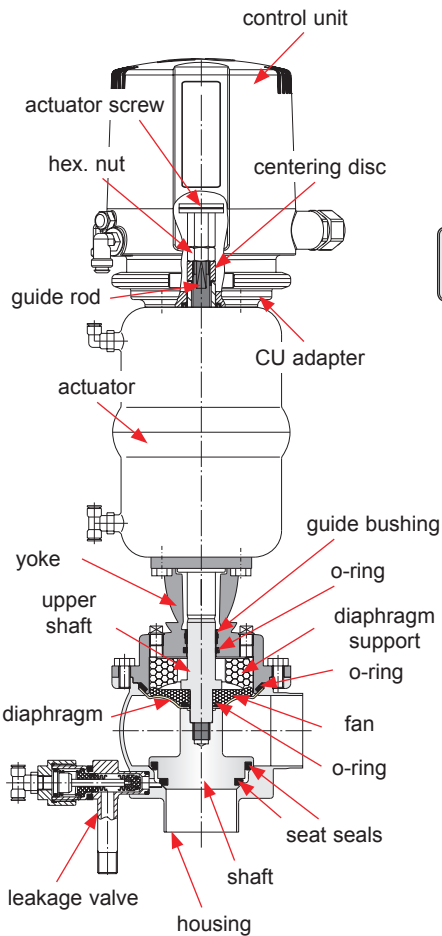
4. **NC version: Shut off compressed air and remove compressed air connection.**

5. **Design with Control Unit:** Remove the Control Unit.

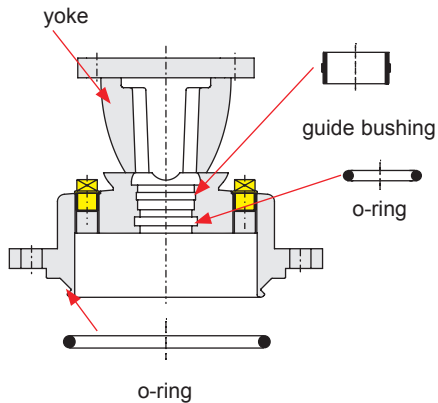
- **Design with valve position indicator (PSH):** Remove the proximity switches. Detach the indicator housing (proximity switch holder; PSH) from the actuator.

11.2. Dismantling of wear parts (product-wetted parts)

1. Design with control unit and valve position indication: At first, unscrew the actuator screw. Release the hex. nut (26) while holding up the centering washer (25). Remove the centering washer.
2. Extract the shaft with guide rod (2), diaphragm (13), fan (14), upper shaft (4) and diaphragm support (3) from the actuator (23). Remove the seat seals (16, 17) and o-ring (15).
3. Remove the yoke (7) from the actuator (23).
 - Actuator can be maintained. (see 13. Service Instructions - Actuator).
4. Detach o-rings (5, 12) and guide bush (6) from the yoke (7).
5. Clean the valve housing, yoke, actuator and shaft with a low solution of a cleaning agent. Never use cleaning agents containing abrasive or polishing material.

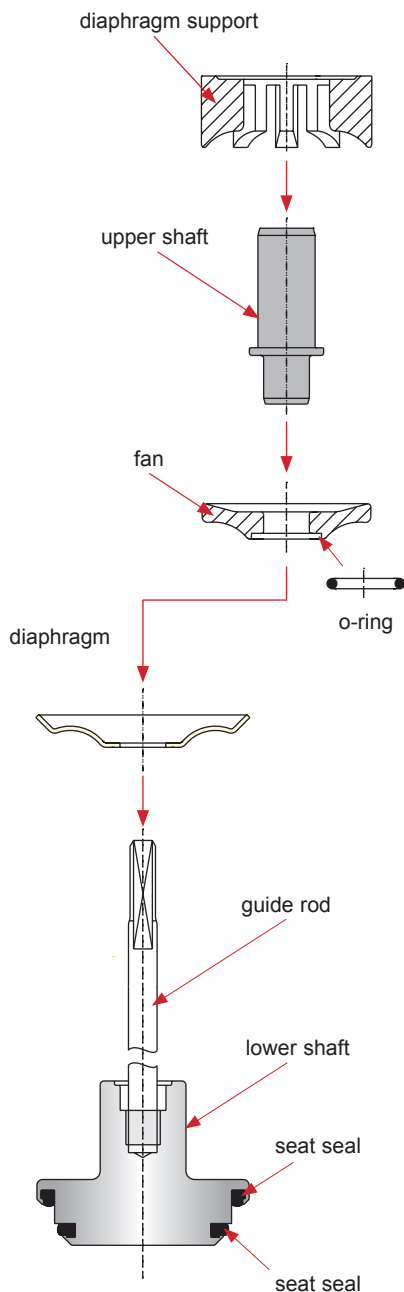


11. Service Instructions



All seals must be provided with a thin layer of grease before their installation.

1. Insert the guide bush (6) and o-ring (5) in the yoke (7). Insert the o-ring (12) in the groove of the yoke. Fasten the yoke (7) at the actuator (23).
2. Install the seat seals (16, 17) in the lower valve shaft (2). (see Installation of seat seal ch. 14.)
3. Place the pre-assembled lower shaft with guide rod, diaphragm, fan with o-ring, upper shaft and diaphragm support through the yoke (7) and actuator (23).



- The upper shaft must be guided through the guide bush into the yoke in smooth-running manner. In case of mechanical stiffness, check the right fit of the guide bush.
- Toothing of fan and diaphragm support must interlock.

4. **Design with control unit and valve position indication,** Place the centering washer (25). Apply a drop of a screw locker, e.g. type Loctite, semi-solid, on the thread of the guide rod. Screw on the hex. nut (26) and fasten it with a **tightening torque of $M_d = 40 \text{ Nm}$** . Hold up the centering washer during this process.

- ! **Control Unit:** Fasten the plastic actuator screw.
- ! **Valve position indicator:** Fasten the metallic actuator screw.

11. Service Instructions

11.4. Installation of DELTA SDMS4 valve

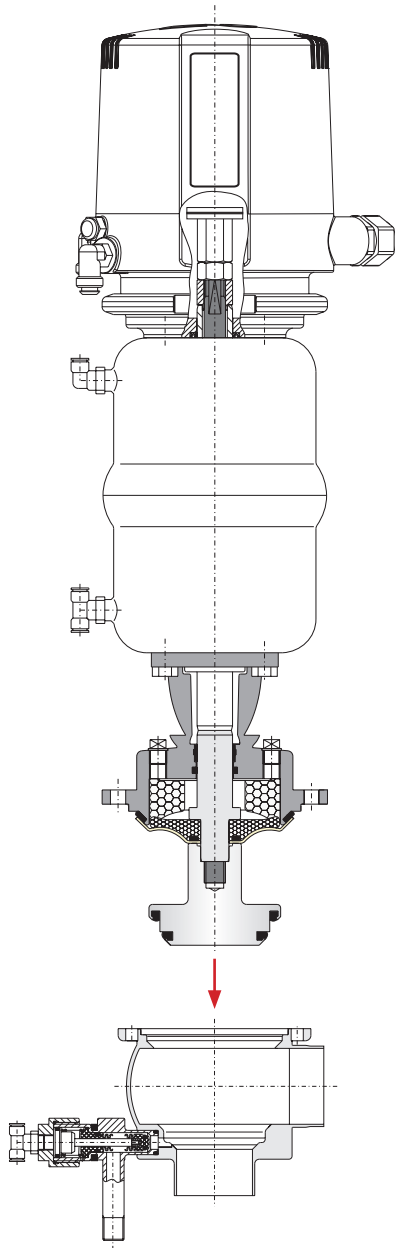
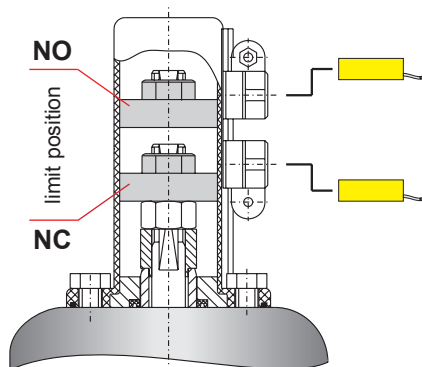


fig. 11.4.5.



1. Design with control unit:

Fasten the adapter on the actuator.

Place the control unit (27) on the adapter (24) and fasten it.

Design with valve position indication:

Fasten the housing of the valve position indicator (28).

2. Valve in NC (normally closed) design

Observe the following during the assembly of the valve insert:

- Control the actuator (version: NC) with pneumatic air min. 6 bar. Carefully place the valve insert into the valve housing. The diaphragm (13) must not be damaged during the installation in the valve housing. Tighten the hex. screws (9) crosswise in the housing flange.



Do not reach for movable parts!

Risk of injury.

! Version NC: Shut off air supply.

3. Check the basic adjustment of the valve position indication.

- By turning the positioning screw in the control unit, the shift points can be adjusted.

4. Design with valve position indicator:

Push in the proximity switches and fasten them.

- Readjust the proximity switches if necessary.

5. Adjustment of proximity switches: (fig. 11.4.5.)

- Drive the actuator into a limit position.
- Drive the corresponding proximity switch into the corresponding position. For this purpose release the positioning screw and move the holder until the corresponding signal is indicated. Then, continue to slide the holder by 2 to 3 mm in order to secure the indication. Fasten the positioning screw.
- Position the actuator in the other limit position and carry out the positioning of the second proximity switch.

- Upper valve position indication:

valve **NO** "normally open" (air-to-lower, spring-to-raise)

- Lower valve position indication:

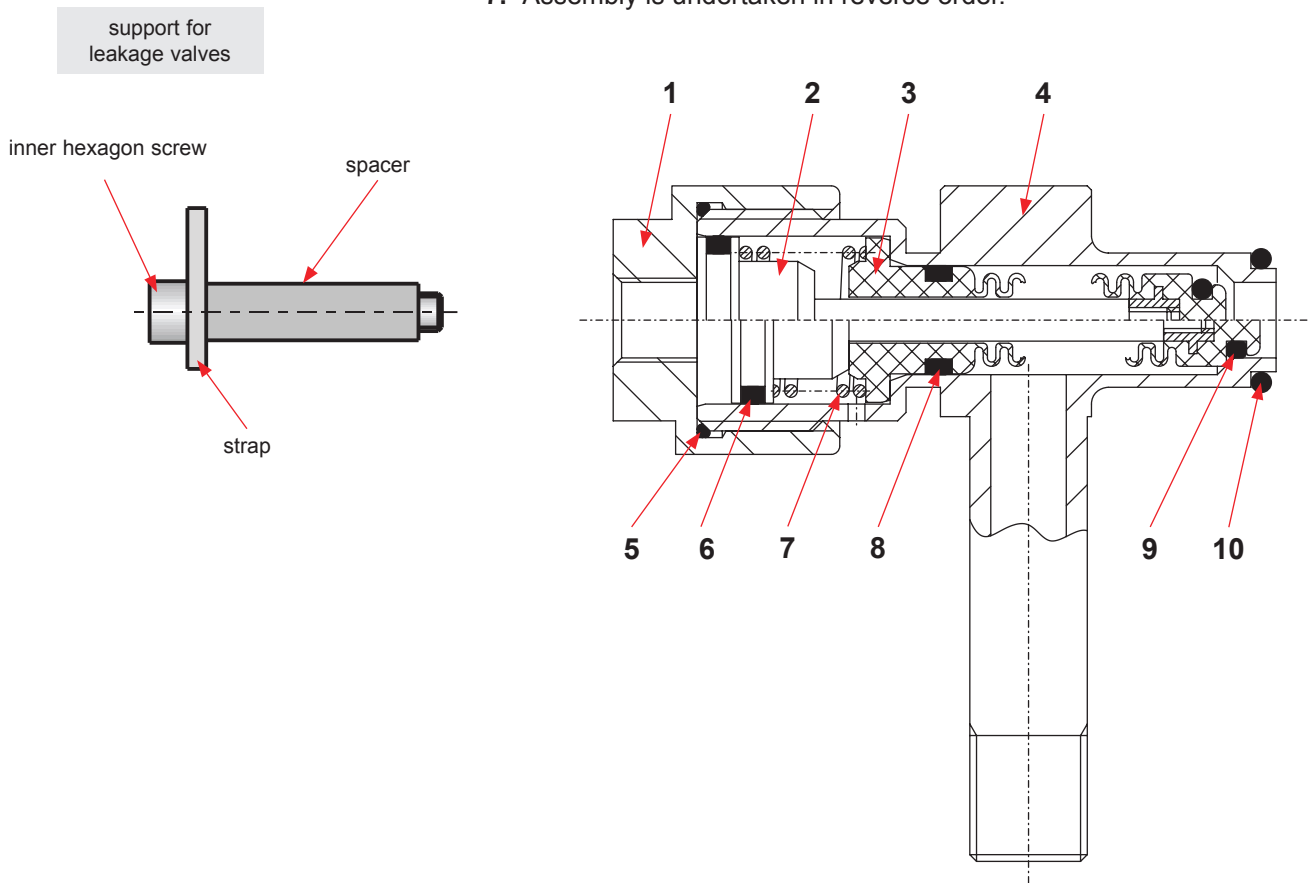
valve **NC** "normally closed" (air-to-raise, spring-to-lower)

12. Service Instructions - Leakage Valves

12.1. Maintenance of leakage valves

The item numbers refer to the corresponding spare parts list leakage valves SDMS4 RN: **01.054.67-1**

1. Disconnect the pneumatic air hoses at the two leakage valves.
2. Shut off and discharge the CIP supply line.
3. Remove the CIP supply and discharge lines from the leakage valves.
4. Release the hexagon socket screw and remove the strap. Pull the leakage valves out of the housing flange.
5. Pull out the cap (1), piston (2) and spring (7).
6. Dismantle all seals (5, 6, 8, 9, 10).
7. Assembly is undertaken in reverse order.



13. Service Instructions - Actuator

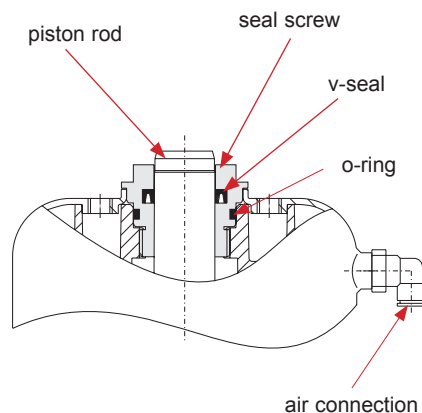
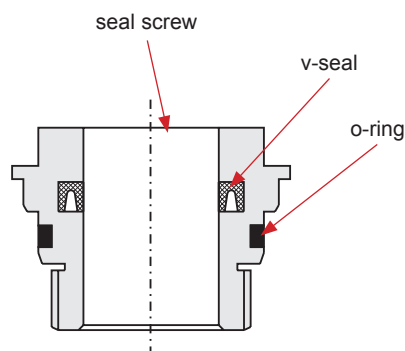


fig. 13.3.



13.1. Maintenance of Actuator

See spare parts drawing and spare parts list

Actuator: RN 01.054.86

1. Remove the air hoses from the actuator.
 2. Remove the inner hexagon screws from the adapter of the control unit.
- Remove the adapter.

13.2. Dismantling of seals

1. Unscrew the two seal screws with a wrench SW 30 while holding up the actuator with a strap wrench.
2. Remove o-rings and v-seals.

13.3. Installation of seals and assembly of actuator

1. Install the slightly greased o-rings and v-seals in the seal screws (**fig. 13.3**).
See to the right direction of installation of the v-seal.
2. Slide the seal screws over the piston rod at both sides of the actuator and tighten them.
3. Fasten the adapter of the control unit and the yoke on the actuator.

Attention: Observe the position of the adapter.

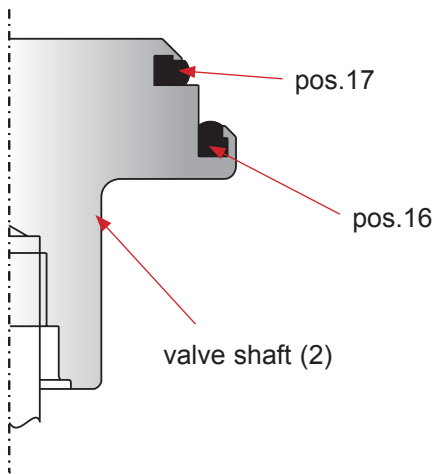
Attention: Consider the required valve design NC or NO during the installation of the adapter and the yoke.

NC (FS) = normally closed

NO (FH) = normally open

4. Fasten the air hoses.

14. Installation of Seat Seal



By means of the assembly tool only the seat seal (16) can be installed.

This seat seal must be mounted in the valve shaft, at first.

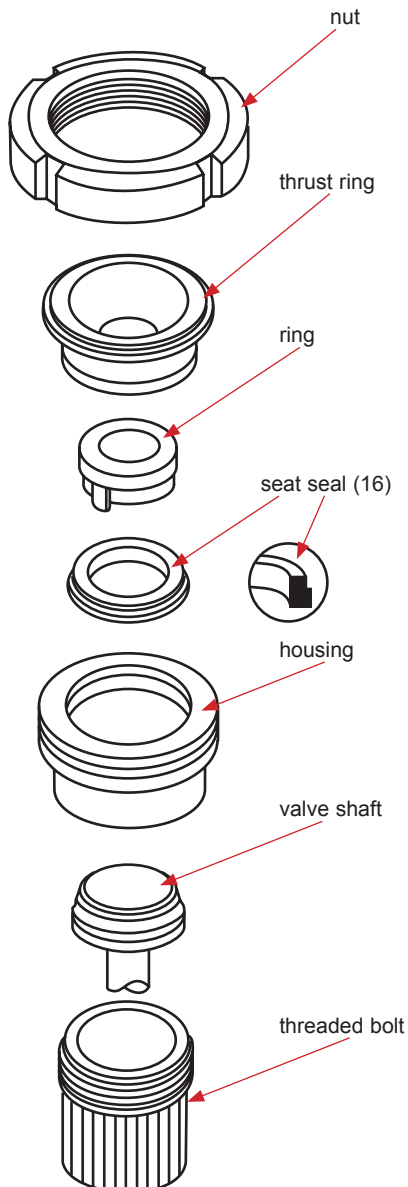
Afterwards the seat seal (17) must be inserted manually into the groove, see chapter 14.2.

See to an even fit of the seal.

14.1. Installation of seat seal in valve shaft

The assembly tool consists of:

- nut
- thrust ring
- ring with vent nose
- housing
- threaded bolt



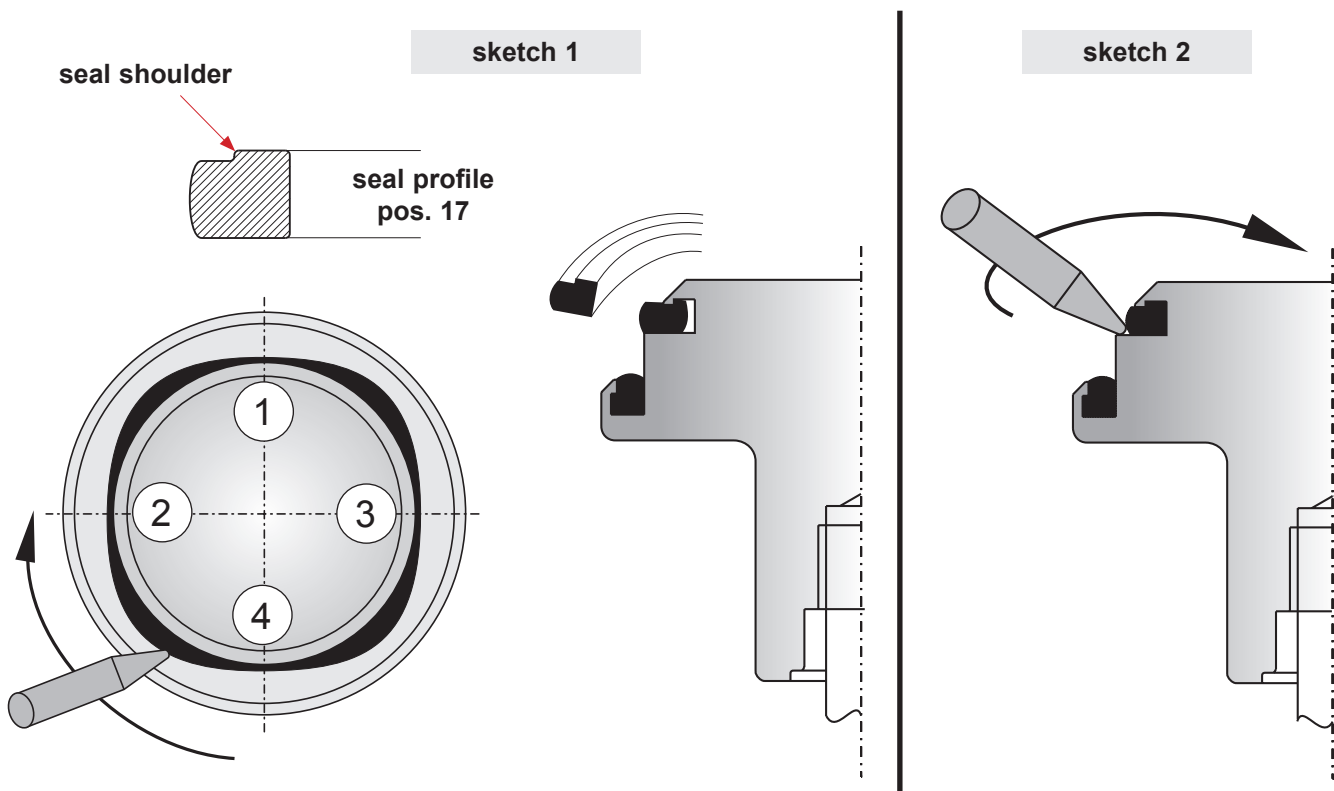
1. Insert valve shaft into the housing in such a manner that the seal groove is in the valve housing.
2. Mount the shaft in the housing by means of the threaded bolts. Clamp the housing in the vise.
3. Slightly grease the seat seal with APV food-grade grease. The receiving groove for the seat seal must not be greased. Place the seal on the ring with the vent nose until it stops.
4. Insert the ring with the installed seat seal into the housing and press it down until it stops.
5. Introduce the thrust ring into the housing. Screw on the nut and tighten it by a hook spanner until it stops.
6. Release the nut. Pull the ring and thrust ring out of the housing.
7. Take the housing out of the vise, remove the threaded bolts. Take the valve shaft out of the housing.

Check the even fit of the seat seal.

14. Installation of Seat Seal

14.2. Manual installation of seat seal (pos. 17)

1. Provide the seat seal with a thin layer of grease before its installation. The receiving groove for the seat seal must not be greased.
2. Clamp the valve shaft into a vise. The valve shaft must not be damaged during this process. Use protective rags.
3. Press the slightly greased seal at four spots, the wide side to the front into the groove (**see sketch 1**).
4. Press the seal at four opposite spots **1-2, 3-4** into the groove by means of an assembly tool (screwdriver with round edges can also be used) (**see sketch 1**).
5. Press the seal into the groove step by step. Proceed alternately, always working at two opposite spots at the same time. See to an even fit of the seat seal.
6. Afterwards insert the assembly tool between the seal shoulder and the groove wall. Work around the complete groove circumferences. The bottom of the groove is vented and the seal shoulder will lock in place (**see sketch 2**).



15. Trouble Shooting

Failure	Remedy
Valve closed and pressure in upper housing	
Valve is untight, leakage via the leakage valves	Replace seat seals (16, 17). Check line pressure (max. 10 bar)
Leakage from the leakage bore in the area of the valve yoke	Check tightening torque of safety nut. Replace diaphragm (13) and o-rings (15).
Leakage between housing and yoke flange	Replace diaphragm (13) and o-ring (12).
Leakage at leakage valve	Replace o-rings (10). (see RN 01.054.67-1) Check cleaning supply line.
Actuator	
Air escapes from the actuator rod.	Replace the v-seal (2) and o-ring (3) in the seal screw (1). (see RN 01.054.86)
Actuator does not work (air escapes permanently from the venting plug).	Replace complete actuator.
Valve position indication	
Feedback is missing.	Carry out fine adjustment.

If damaged seals are replaced, generally all seals should be renewed.
For valve service actions, we supply complete seal kits (**see spare parts lists**).

16. Spare Parts Lists

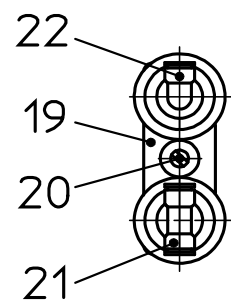
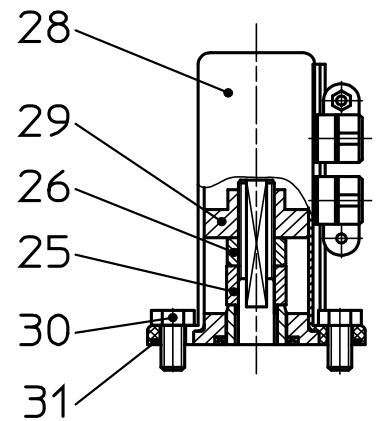
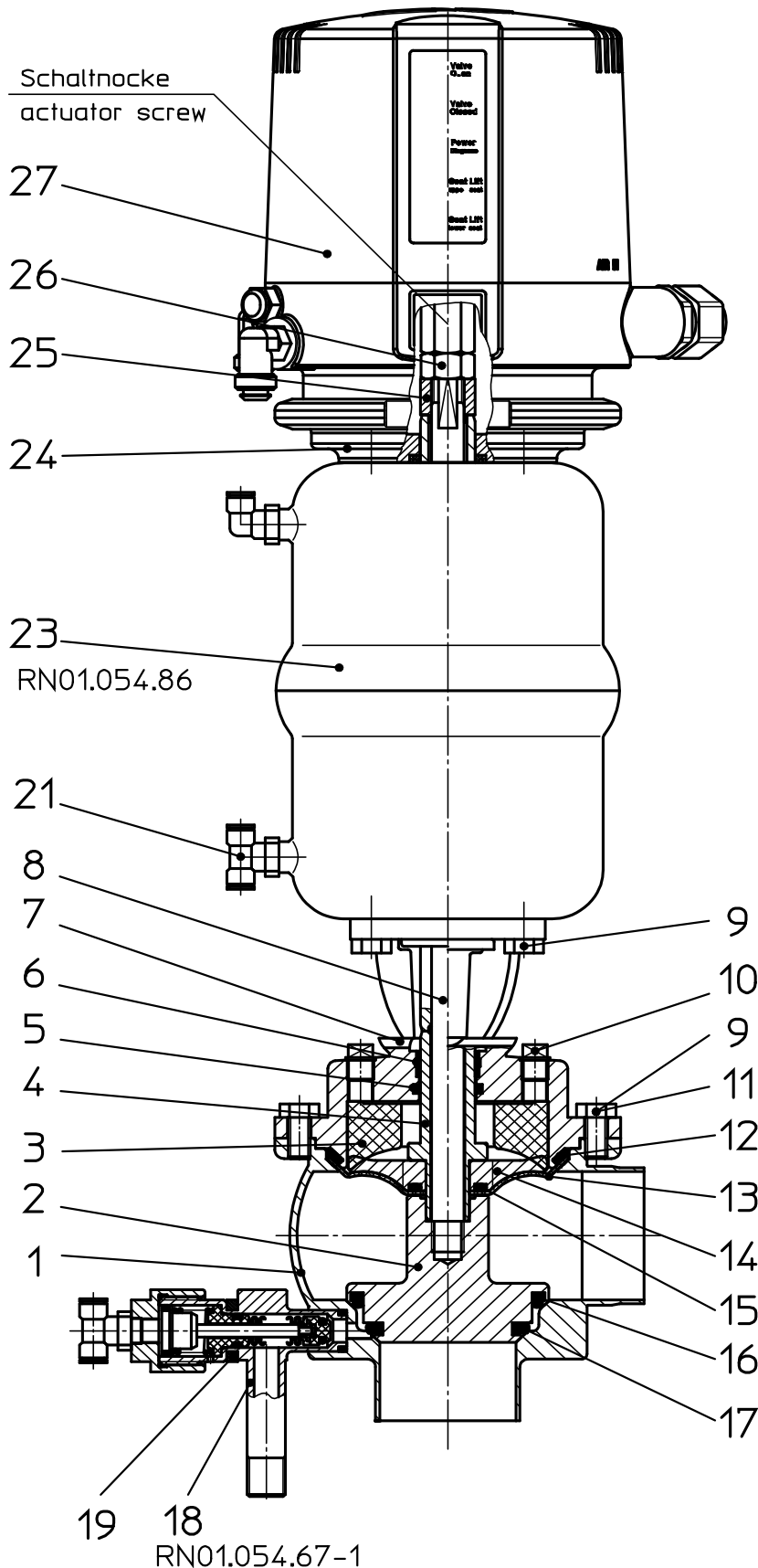
The reference numbers of the spare parts for the different valve designs and sizes are included in the attached spare parts drawings with corresponding lists.

Please indicate the following data to place an order for spare parts:

- number of required parts
- reference number
- designation.

subject to change without notice

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Datum:	05.08.11	13.12.11	30.03.12	16.04.12						
Name:	Trytko	Trytko	Trytko	Trytko						
Geprüft:	Schulz	Schulz	Schulz	Schulz						

Ersatzteilliste: spare parts list
Ventil SDMS4, SDEMS4 FS-CU4 und VSM
Valve SDMS4, SDEMS4 FS-CU4 and PSH
DN 25-100 1-4 zoll



APV
 SPX FLOW
 Germany
 Blatt 1 von 9
RN 01.054.70

Ersatzteilliste: spare parts list

Ventil SDMS4, SDEMS4 FS-CU4 und VSM
Valve SDMS4, SDEMS4 FS-CU4 and PSH
DN 25-100 1-4 Zoll

Datum:		05.08.11	13.12.11	30.03.12	16.04.12
Name:	Trytko	Trytko	Trytko	Trytko	Trytko
Geprüft:	Schulz	Schulz	Schulz	Schulz	Schulz
Datum:		18.07.13			
Name:	Trytko				
Geprüft:	Schulz				
Blatt 2 von 9					
RN 01.054.70					

pos. item	Menge quantity	Beschreibung description	Material	DN25	1"	DN40	1,5"	DN50	2"
	1	Gehäuse Housing SDM41 1+2S	1.4404	15-64-287/47 H311056	15-64-312/47 H208083	15-64-387/47 H174811	15-64-412/47 H175887	15-64-437/47 H174115	15-64-462/47 H175580
	1	Gehäuse Housing SDM42 1+2+3S	1.4404	15-65-287/47 H312043	15-65-312/47 H319361	15-65-387/47 H174812	15-65-412/47 H175888	15-65-437/47 H174813	15-65-462/47 H175753
1	1	Gehäuse Housing SDEM41 1+2S	1.4404	15-74-280/47	15-74-305/47	15-74-380/47	15-74-405/47	15-74-430/47	15-74-455/47 H328410
	1	Gehäuse Housing SDEM42 1+2+3S	1.4404	15-74-290/47	15-74-315/47 H321005	15-74-390/74	15-74-415/47	15-74-440/47	15-74-465/47
	1	Gehäuse Housing SDEM43 1+2+3S	1.4404	15-77-290/47	15-77-315/47	15-77-390/47	15-77-415/47 H320045	15-77-440/47	15-77-465/47 H200915
	1	Gehäuse Housing SDEM44 1+2+3+4S	1.4404	15-78-290/47 H311059	15-78-315/47 H319977	15-78-390/47 H200987	15-78-415/47 H179481	15-78-440/47 H179707	15-78-465/47 H175354
2	1	Schaft unten Lower valve shaft	1.4404	15-25-290/42 H311061	15-25-315/42 H208086	15-25-390/42 H174810	15-25-415/42 H175855	15-25-440/42 H174114	15-25-465/42 H175345
3	1	Membranunterstützung Fan support	Ryton R4-XT		08-48-511/93 H318533			08-48-512/93 H318534	
4	1	Schaft oben Upper valve shaft	1.4301		39-22-071/12 H318487			39-22-072/12 H318488	
5	1	O-Ring O-ring	EPDM FDA-konform		58-06-078/64 H121794				
6	1	Führungsbuchse Bushing	PTFE- 25% Kohle		08-01-178/23 H207154				
7	1	Laterne Yoke	1.4404		39-40-041/47 H318492			39-40-042/47 H318493	
8	1	Zugstange Guide rod	1.4305		39-23-129/12 H320621				
9		Skt. Schraube Hex. screw	1.4301		65-01-081/15 4xM8x16 H78772				
10	2	Entlüftungstopfen Venting plug	PHT/BLACK		08-60-005/94 H175308				
11		Skt. Schraube Hex. screw	1.4301		65-01-081/15 4xM8x16 H78772				



Ersatzteilliste: spare parts list

Ventil SDMS4, SDEMS4 FS-CU4 und VSM
Valve SDMS4, SDEMS4 FS-CU4 and PSH
DN 25-100 1-4 Zoll

pos. item	Menge quantity	Beschreibung description	Material	DN25	1"		1,5"		2"	
					WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.		
12	1	O-Ring O-ring	EPDM FDA-konform		58-06-269/64 60x4 H324910					
13	1	Membrane Diaphragm	TFM FDA-konform		58-23-051/23 H318544					
14	1	Stern Star	1.4301		08-48-521/12 H320249					
15	1	O-Ring O-ring	EPDM FDA-konform		58-06-067/64 18x3 H320261					
16	1	Tellerdichtung Seat seal	EPDM FDA-konform		58-33-443/93 H77491					
	1	Tellerdichtung Seat seal	FPM FDA-konform		58-33-443/73 H77490					
17	1	Tellerdichtung Seat seal	HNBR FDA-konform		58-33-443/33 H166085					
	1	Tellerdichtung Seat seal	VMQ FDA-konform		58-33-443/13 H77489					
18	2	Leckageventil Leakage valve	1.4404/EPDM		58-33-294/93 H77445					
	2	Leckageventil Leakage valve	1.4404/HNBR		58-33-294/73 H77444					
19	2	Leckageventil Leakage valve	1.4404/FPM		58-33-294/33 H172173					
	1	Lasche Bracket	1.4301		58-33-294/13 H77443					

Datum:	05.08.11	13.12.11	30.03.12	16.04.12
Name:	Trytko	Trytko	Trytko	Trytko
Geprüft:	Schulz	Schulz	Schulz	Schulz
Datum:				
Name:				
Geprüft:				

Blatt	3	von	9
RN 01.054.70			



Ersatzteilliste: spare parts list

Ventil SDMS4, SDEMS4 FS-CU4 und VSM
Valve SDMS4, SDEMS4 FS-CU4 and PSH
DN 25-100 1-4 Zoll

Datum:	05.08.11	13.12.11	30.03.12	16.04.12
Name:	Trytko	Trytko	Trytko	Trytko
Geprüft:	Schulz	Schulz	Schulz	Schulz
Datum:				
Name:				
Geprüft:				
Blatt 6 von 9				
RN 01.054.70				

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"
	1	Gehäuse Housing SDM41 1+2S	1.4404	15-64-487/47 H176151	15-64-512/47 H176152	15-64-562/47 H203824	15-64-537/47 H202230	15-64-637/47 H207662	15-64-662/47 H208659
	1	Gehäuse Housing SDM42 1+2+3S	1.4404	15-65-487/47 H178625	15-65-512/47 H177347	15-65-562/47 H203823	15-65-537/47 H202256	15-65-637/47 H207663	15-65-662/47
1	1	Gehäuse Housing SDEM41 1+2S	1.4404	15-74-480/47	15-74-505/47 H207790	15-74-555/47	15-74-530/47 H203497	15-74-630/47	15-74-655/47
	1	Gehäuse Housing SDEM42 1+2+3S	1.4404	15-74-490/47	15-74-515/47 H207828	15-74-565/74	15-74-540/47	15-74-640/47	15-74-665/47
	1	Gehäuse Housing SDEM43 1+2+3S	1.4404	15-77-490/47 H320821	15-77-515/47	15-77-565/47	15-77-540/47 H202238	15-77-640/47	15-77-665/47
	1	Gehäuse Housing SDEM44 1+2+3+4S	1.4404	15-78-490/47 H201253	15-78-515/47 H179191	15-78-565/47 H203840	15-78-540/47 H202239	15-78-640/47 H311668	15-78-665/47
2	1	Schaft unten Lower valve shaft	1.4404	15-25-490/42 H176126	15-25-515/42 H176125	15-25-565/42 H203829	15-25-540/42 H202227	15-25-640/42 H207661	15-25-665/42 H208657
3	1	Membranunterstützung Fan support	Ryton R4-XT	08-48-513/93 H318535	08-48-513/93 H318535	08-48-514/93 H318536		08-48-514/93 H318536	
4	1	Schaft oben Upper valve shaft	1.4301	39-22-073/12 H318489	39-22-073/12 H318489			39-22-074/12 H318490	
5	1	O-Ring O-ring	EPDM FDA-konform	58-06-078/64 H121794					
6	1	Führungsbuchse Bushing	PTFE- 25% Kohle	08-01-178/23 H207154	08-01-178/23 H207154				
7	1	Laterne Yoke	1.4404	39-40-043/47 H318494	39-40-043/47 H318494			39-40-044/47 H320578	
8	1	Zugstange Guide rod	1.4305	39-23-130/12 H320577	39-23-130/12 H320577				
9		Skt. Schraube Hex. screw	1.4301	65-01-083/15 4xM8x20 H78776	65-01-083/15 4xM8x20 H78776				
10	2	Entlüftungstopfen Venting plug	PHT/BLACK	08-60-005/94 H175308	08-60-005/94 H175308				
11		Skt. Schraube Hex. screw	1.4301	65-01-130/15 8xM10x16 H78806	65-01-130/15 8xM10x16 H78806				



Ersatzteilliste: spare parts list

Ventil SDMS4, SDEMS4 FS-CU4 und VSM
Valve SDMS4, SDEMS4 FS-CU4 and PSH
DN 25-100 1-4 Zoll

Datum:	05.08.11	13.12.11	30.03.12	16.04.12
Name:	Trytko	Trytko	Trytko	Trytko
Geprüft:	Schulz	Schulz	Schulz	Schulz
Datum:				
Name:				
Geprüft:				
Blatt 7 von 9				
RN 01.054.70				

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"
12	1	O-Ring	EPDM	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		O-ring	FDA-konform	58-06-488/64 95x4,5 H324912	58-06-488/64 95x4,5 H324912	58-06-581/64 120x4,5 H324913	58-06-581/64 120x4,5 H324913	58-06-581/64 120x4,5 H324913	58-06-581/64 120x4,5 H324913
13	1	Membrane	TFM	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Diaphragm	FDA-konform	58-23-053/23 H318542	58-23-053/23 H318542	58-23-054/23 H318541	58-23-054/23 H318541	58-23-054/23 H318541	58-23-054/23 H318541
14	1	Stern	1.4301	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Star	1.4301	08-48-523/12 H320316	08-48-523/12 H320316	08-48-524/12 H320332	08-48-524/12 H320332	08-48-524/12 H320332	08-48-524/12 H320332
15	1	O-Ring	EPDM	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		O-ring	FDA-konform	58-06-098/64 24x3,5 H320270	58-06-098/64 24x3,5 H320270	58-06-140/64 31,1x3,5 H320271	58-06-140/64 31,1x3,5 H320271	58-06-140/64 31,1x3,5 H320271	58-06-140/64 31,1x3,5 H320271
	1	Tellerdichtung	EPDM	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Seat seal	FDA-konform	58-33-543/93 H77546	58-33-543/93 H77546	58-33-643/93 H77586	58-33-643/93 H77586	58-33-643/93 H77586	58-33-643/93 H77586
16	1	Tellerdichtung	FPM	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Seat seal	FDA-konform	58-33-543/73 H77545	58-33-543/73 H77545	58-33-643/73 H77585	58-33-643/73 H77585	58-33-643/73 H77585	58-33-643/73 H77585
	1	Tellerdichtung	HNBR	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Seat seal	FDA-konform	58-33-543/33 H166681	58-33-543/33 H166681	58-33-643/33 H166682	58-33-643/33 H166682	58-33-643/33 H166682	58-33-643/33 H166682
	1	Tellerdichtung	VMQ	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Seat seal	FDA-konform	58-33-543/13 H77544	58-33-543/13 H77544	58-33-643/13 H77584	58-33-643/13 H77584	58-33-643/13 H77584	58-33-643/13 H77584
	1	Tellerdichtung	EPDM	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Seat seal	FDA-konform	58-33-494/93 H77518	58-33-494/93 H77518	58-33-569/93 H77564	58-33-569/93 H77564	58-33-569/93 H77564	58-33-569/93 H77564
	1	Tellerdichtung	FPM	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Seat seal	FDA-konform	58-33-494/73 H77517	58-33-494/73 H77517	58-33-569/73 H77563	58-33-569/73 H77563	58-33-569/73 H77563	58-33-569/73 H77563
17	1	Tellerdichtung	HNBR	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Seat seal	FDA-konform	58-33-494/33 H172178	58-33-494/33 H172178	58-33-569/33 H176688	58-33-569/33 H176688	58-33-569/33 H172180	58-33-569/33 H172180
	1	Tellerdichtung	VMQ	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Seat seal	FDA-konform	58-33-494/13 H77516	58-33-494/13 H77516	58-33-569/13 H77562	58-33-569/13 H77562	58-33-569/13 H77562	58-33-569/13 H77562
	2	Leckageventil	1.4404/EPDM	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Leakage valve	1.4404/EPDM	32-40-615/59 H207785	32-40-615/59 H207785	32-40-615/29 H314550	32-40-615/29 H314550	32-40-615/29 H314550	32-40-615/29 H314550
18	2	Leckageventil	1.4404/HNBR	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Leakage valve	1.4404/HNBR	32-40-615/69 H314551	32-40-615/69 H314551	32-40-615/69 H314551	32-40-615/69 H314551	32-40-615/69 H314551	32-40-615/69 H314551
	2	Leckageventil	1.4404/FPM	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Leakage valve	1.4404/FPM	08-17-002/12 H173071	08-17-002/12 H173071	08-17-002/12 H173071	08-17-002/12 H173071	08-17-002/12 H173071	08-17-002/12 H173071
19	1	Lasche	1.4301	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		Bracket	1.4301	08-17-002/12 H173071	08-17-002/12 H173071	08-17-002/12 H173071	08-17-002/12 H173071	08-17-002/12 H173071	08-17-002/12 H173071

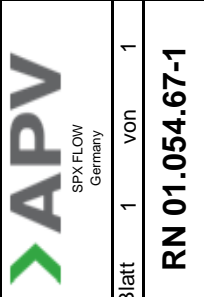


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Ersatzteilliste: spare parts list

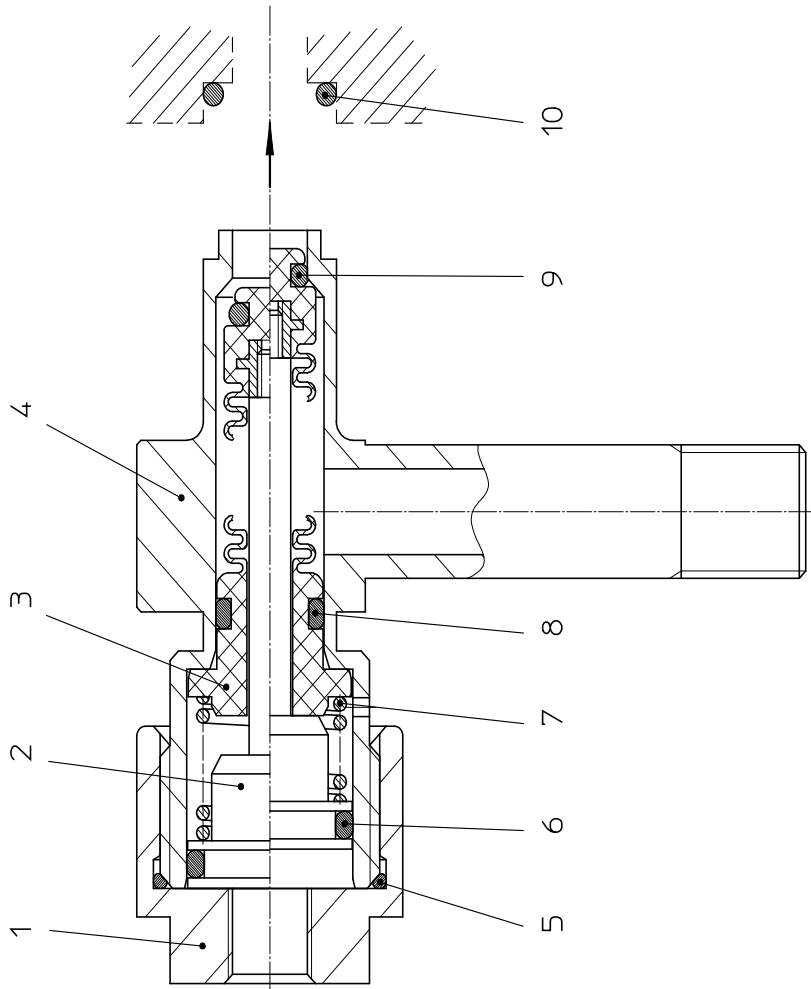
Leckageventil SDMF4
Leakage valve SDMF4

Datum: 07/11		07/11	
Name: Trytko		Trytko	
Geprüft: Schulz		Schulz	
Datum: 1 von 1		Blatt 1 von 1	
Name: RN 01.054.67-1		RN 01.054.67-1	
Geprüft:			



pos. item	Menge quantity	Beschreibung description	Material		WS-Nr.		pos. item	Menge quantity	Beschreibung description	Material		WS-Nr.	
			material	material	ref.-no.	ref.-no.				material	material	ref.-no.	ref.-no.
		Leckageventil kpl. mit EPDM	1.4404/EPDM		32-40-615/59		10	1	O-Ring 12 x 2,5	HNBR	58-06-045/33		
		Leakage valve cpl. with EPDM			H207785				O-ring 12 x 2,5	FDA-Konform	H314556		
		Leckageventil kpl. mit HNBR	1.4404/HNBR		32-40-615/29		1	1	O-Ring 12 x 2,5	EPDM	58-06-045/64		
		Leakage valve cpl. with HNBR			H314550				O-ring 12 x 2,5	FDA-Konform	H207795		
		Leckageventil kpl. mit FPM	1.4404/FPM		32-40-615/69		1	1	O-Ring 12 x 2,5	FPM	58-06-045/73		
		Leakage valve cpl. with FPM			H314551				O-ring 12 x 2,5	FDA-Konform	H314557		

1	1	Deckel Leckageventil	1.4301		21-20-002/17								
2	1	Cover for leakage valve			H172511								
		Kolben	1.4404		15-29-010/42								
		Piston			H207786								
3	1	Balgeinheit SDMF4 Leckageventil	TFM		42-06-010/92								
		Bellow unit SDMF4 leakage valve			H207783								
4	1	Gehäuse Leckageventil	1.4404		21-08-170/47								
		Housing leakage valve			H207784								
5	1	O-Ring 22,0 x 2,5	EPDM		58-06-091/64								
		O-ring 22,0 x 2,5	FDA-Konform		H314280								
6	1	O-Ring 15,3 x 2,4	EPDM		58-06-052/64								
		O-ring 15,3 x 2,4	FDA-Konform		H206007								
7	1	Feder leckageventil	1.4310		60-07-002/13								
		Spring leakage valve			H173068								
8	1	O-Ring 9 x 2,5	HNBR		58-06-035/33								
		O-ring 9 x 2,5	FDA-Konform		H314552								
		O-Ring 9 x 2,5	EPDM		58-06-035/64								
		O-ring 9 x 2,5	FDA-Konform		H207794								
		O-Ring 9 x 2,5	FPM		58-06-035/73								
		O-ring 9 x 2,5	FDA-Konform		H314553								
9	1	O-Ring 5 x 2,5	HNBR		58-06-008/33								
		O-ring 5 x 2,5	FDA-Konform		H314554								
		O-Ring 5 x 2,5	EPDM		58-06-008/64								
		O-ring 5 x 2,5	FDA-Konform		H76897								
		O-Ring 5 x 2,5	FPM		58-06-008/73								
		O-ring 5 x 2,5	FDA-Konform		H314555								



Ersatzteilliste: spare parts list

**Steuerkopf SW4
Actuator SW4**

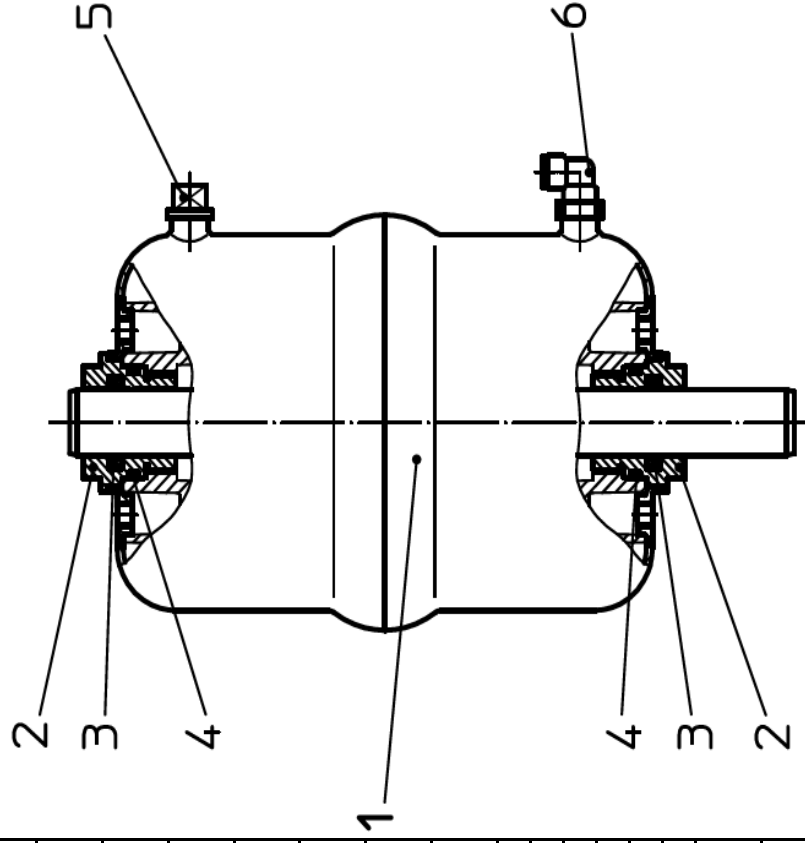
Datum:	11/08	12/09	27.01.15	10.7.17
Name:	Peters	Peters	Trytko	Keil
Geprüft:				



Datum:	Blatt	1	von	1
Name:				
Geprüft:				

RN 01.054.86

pos.	Menge quantity	Beschreibung description	Ø 74	Ø 110	Ø 165
1	1	Steuerkopf kpl. Feder/Luft - matt glänzend Actuator cpl. Spring/air satin finish	WS-Nr. ref.-no. 15-32-050/17 H171378	WS-Nr. ref.-no. 15-32-051/17 H171379	WS-Nr. ref.-no. 15-32-052/17 H171380
1	1	Steuerkopf kpl. Feder/Luft - 3A-blank Actuator cpl. Spring/air 3A bright	3A0 15-32-059/13 H208693	3A0 15-32-060/13 H173538	3A0 15-32-061/13 H173524
1	1	Steuerkopf kpl. Luft/Luft - matt glänzend Actuator cpl. air/air satin finish	15-32-085/17 H209592	15-32-086/17 H209203	15-32-087/17 H208733
1	1	Steuerkopf kpl. Luft/Luft - 3A-blank Actuator cpl. air/air 3A bright	3A0 15-32-057/13 H208690	3A0 15-32-065/13 H208772	3A0 15-32-066/13 H208773
2	2	Schraube Dichtung Seal screw	15-28-840/93 H170200		
3	2	V-Dichtung V-seal	58-32-010/83 H171060		
4	2	O-Ring O-ring	58-06-124/83 H171059		
5	1	Entlüftungstopfen G-1/8" Venting Plug G-1/8"	08-60-005/93 H16218		
6	1	W-Verschraubung G-1/8" 6Ømm schwenkbar W-Union G-1/8" / 6Ømm slewable	08-60-750/93 H208825		
6	1	W-Verschraubung G-1/8"1/4" OD 6Ømm sch. W-Union G-1/8" / 1/4" OD 6Ømm slewable	08-60-811/93 H312732		



APV DELTA SDMS4

DOUBLE SEAL VALVE
WITH DIAPHRAGM
AND "FAN SUPPORT"

SPXFLOW

SPX FLOW

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