

## APV DELTA MS4 DN25-100, 1"-4" \*

DIAPHRAGM VALVE WITH "DIAPHRAGM SUPPORT"

SAFETY AGAINST EXPLOSION -

FOR SPECIFIC ATEX-APPLICATIONS

\*ATEX EQUIPMENT CATEGORY 2G IIB TX



## APV DELTA MS4 DN25-80, 1"-3" \*\*

DIAPHRAGM VALVE WITH "DIAPHRAGM SUPPORT"

SAFETY AGAINST EXPLOSION -

FOR SPECIFIC ATEX-APPLICATIONS

\*\*ATEX EQUIPMENT CATEGORY -/2G IIB TX



FORM NO.: H334323 REVISION: UK-1-ATEX

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



Scan for MS4 Valve  
Maintenance Video







## 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 diaphragm valve of the series MS4 and variants ATEX design**  
in the nominal diameters DN 25 – 100, 1“ – 4“

meet the requirements of:

**Machinery Directive 2006/42/EC**  
**(superseding 89/392/EEC and 98/37/EC)**  
**Equipment and Product Safety Act GPSG - 9.GPSGV**  
**and**  
**Directive on the Protection against Explosion 2014/34/EU ATEX (superseding 94/9/EC)**  
**for Equipment Category 2G IIB TX**

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,  
an analysis of ignition hazards as well as an instruction manual manual with safety instructions.

The conformity of the valves is guaranteed.

An ATEX documentation is lodged at the notified body DEKRA EXAM GmbH  
in Bochum, Germany (No. 0158).

Authorised person for the documentation:  
Frank Baumbach

SPX Flow Technology Germany GmbH  
Gottlieb-Daimler-Str. 13, D-59439 Holzwickede, Germany

November 2017

*ppa. Baumbach*

Frank Baumbach  
Regional Engineering Manager, F&B Components





## 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 diaphragm valve of the series MS4 (and variants, but not MSP and MSO versions)  
ATEX design**

in the nominal diameters DN 25 – 80, 1" – 3"

meet the requirements of:

**Machinery Directive 2006/42/EC  
(superseding 89/392/EEC and 98/37/EC)  
Equipment and Product Safety Act GPSG - 9.GPSGV  
and**

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\* Equipment Category 2G IIB TX: DN 25 - 100, 1" - 4" (including MSO4 variants)

\*\* Equipment Category -/2G IIB TX: DN 25 - 80, 1" - 3" (excluding MSO4 variants)



## 1. General Terms

This instruction manual applies for the APV MS4 single seat and change-over valve in the nominal dimensions DN25-100, 1"-4" for use in specific ATEX applications (according to Directive 2014/34/EU).

The valve must only be assembled, disassembled and reassembled by persons who have been trained in APV valves or by SPX FLOW service team members. If necessary, contact your local SPX FLOW representative.

This instruction manual must be read and observed by the responsible operating and maintenance personnel.

We 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.

### 1.1. Symbols



This symbol draws your attention to important directions which have to be observed with regard to the operation in explosive areas.



This 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.

### 1.2. Responsibility for ATEX certification - scope of supply

SPX FLOW will be held responsible only for the valves supplied and selected according to the operating conditions indicated by the customer or end user and as stated in the order confirmation. If in doubt, contact your local SPX FLOW representative.

All other assembled equipment and devices must have a separate certification of at least the same or higher grade of protection as the valve, provided by the supplier(s) of that equipment and devices. The complete unit must be certified separately by the final assembling manufacturer and must have a separate name plate supplied by the unit manufacturer.

## 2. Safety Instructions



### **Danger!**

- 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): Control the actuator with air before releasing the housing screws.**



- If the diaphragm is damaged, leakage will emerge from the leakage bore in the yoke area.
- Schedule regular valve maintenance including the replacement of all seals and guide bushings in order to prevent leakage of any kind.



- Before any maintenance work, the line and cleaning system must be depressurized and discharged if possible.
- Electric and pneumatic connections must be separated.
- Observe service instructions to ensure safe maintenance of the valve.



### **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 company.

## 2. Safety Instructions

Installation, connection, start-up, maintenance and repair work must only be carried out by qualified personnel.

The following aspects must be observed:

- The instructions of this manual together with all relevant instructions for the components, equipment and installations installed.
- Warnings and installations fixed to the components.
- The specific regulations for and requirements to the system in which the valve is installed.
- The currently valid regional, national and international regulations.
- Any special requirement and national legislation relative to the use of flammable liquids or tools, e.g. the risk of ignition in case of spark formation, must be observed.



It must be ensured that the group, the category and the temperature class of the valve complies with the minimum requirements of the operating environment!



Inflammable gas mixtures or dust concentrations in connection with hot, operational and movable parts of the valve can lead to serious or fatal injury!



Before start of assembly the operator must make sure that an explosive atmosphere does not exist (detection/measurement of potential concentration of hazardous substances).



Conductive connection to the pipeline must be provided. The integration into the internal potential equalisation must be guaranteed!



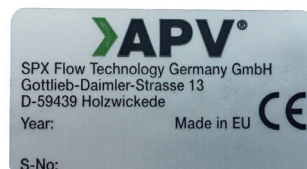
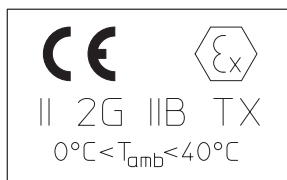
The APV CU2, CU3 and CU4 Control Units are not suited for use in ATEX environments!

If a control unit is used, it must comply with the ATEX Directive.

## 3. Identification of valves, Temperature classes, Responsibilities

### 3.1. Identification of valves for use in ATEX environment

#### 3.1.1. ATEX - identification for DN 25 - 100, 1" - 4" (all variants including MSO4 versions)



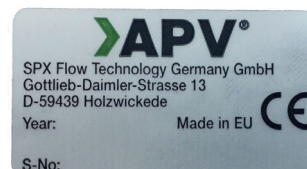
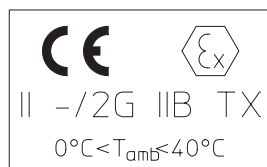
- Equipment group II
- Equipment category      outside 2G  
   inside 2G
- Explosion subcategory    IIB

Ambient temperature for the operation

$$0\text{ }^{\circ}\text{C} \leq T_{\text{amb}} \leq 40\text{ }^{\circ}\text{C}$$

- Temperature class TX (according to table 3.2)

#### 3.1.2 ATEX - identification for DN 25 - 80, 1" - 3" (excluding MSO4 versions)



- Equipment group II
- Equipment category      outside 2G  
   inside no equipment
- Explosion subcategory    IIB

Ambient temperature for the operation

$$0\text{ }^{\circ}\text{C} \leq T_{\text{amb}} \leq 40\text{ }^{\circ}\text{C}$$

- Temperature classes TX (according to table 3.2)

## 3. Identification of valves, Temperature classes, Responsibilities

### 3.2. Temperature classes and permissible temperatures

Media temperature	≤ 75 °C	≤ 95 °C	≤ 130 °C	up to 140 °C = Tmax.
Safety addition	+ 5 °C	+ 5 °C	+ 5 °C	+ 5 °C
Temperature class	T6	T5	T4	T3

Under standard operating conditions the highest surface temperature will be comparably as high as the temperature of the medium plus a safety addition for local temperature increases. The valve must be completely free to the environment in order to provide for sufficient heat release.

All data (temperature classes) refer to an ambient temperature of 0°C to 40°C. If the ambient temperature is above 40°C, the temperature difference must be adjusted. In all cases, contact your responsible SPX FLOW representative!

### 3.3. Responsibilities

It is within the operator`s responsibility to ensure that the specified product temperatures are not exceeded and that regular inspections and maintenance are carried out to provide for proper function of the valve.

## 4. Intended Use

The intended use as field of application of the diaphragm valve is the shut-off and change-over of line sections, especially in beverage and food production plants.

Its use is permissible only within the admissible pressure and temperature margins and under consideration of chemical and corrosive influences.

Any use exceeding the margins and specifications set forth, is considered to be not intended.

Any damage resulting therefrom is not within the responsibility of the manufacturer.

The user will bear the full risk.

### Attention!

Improper use of the valve leads to:

- damage
- leakage
- destruction.
- Failures in the production process are possible.



### Warning!

The valve is suitable for use in hazardous areas as identified on the valve according to Directive 2014/34/EU.



Arbitrary, constructive changes at the valve will influence safety as well as the intended functionality of the valve and are **not** permissible.

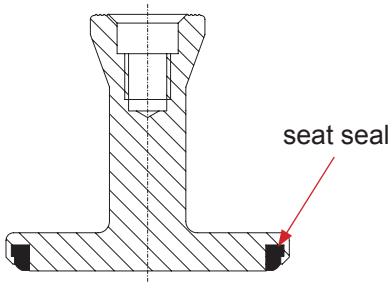
### Authorizations and External Approvals

To view the certifications for this and other innovative SPX FLOW products, visit

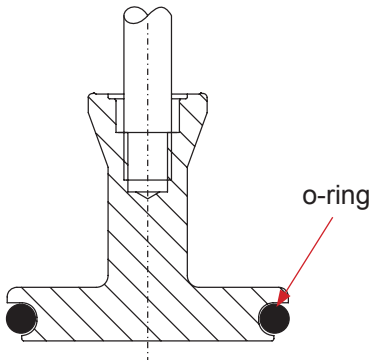
<https://www.spxflow.com/en/apv/about-us/certifications/>

## 5. Mode of Operation

Valve shafts for the different valve designs



standard valve shaft for single seat valve (MS4, MST4)



valve shaft o-ring design

### 5.1. General terms

The MS4 diaphragm valve range has been designed for use in the brewing and beverage industries, in the dairy and food industries as well as for chemical and pharmaceutical applications.

The field of application of the MS4 valve comprises the safe shut-off and diversion of pipeline sections.

Diaphragm valves offer optimum product protection in hygienic and aseptic applications. Product safety is provided by the hermetic separation of the product chamber to the exterior (atmosphere) by means of a diaphragm with diaphragm support.

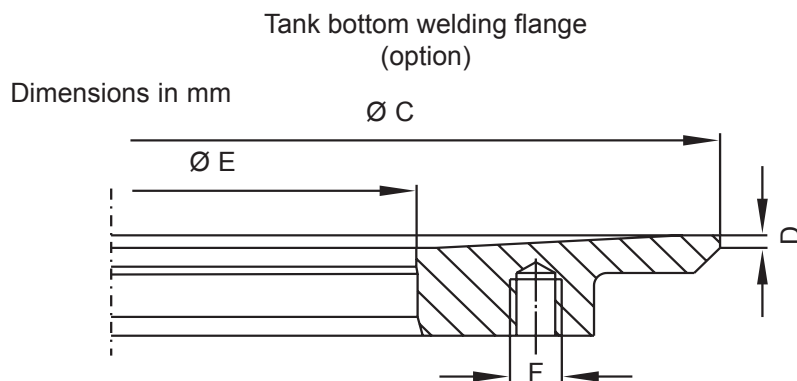
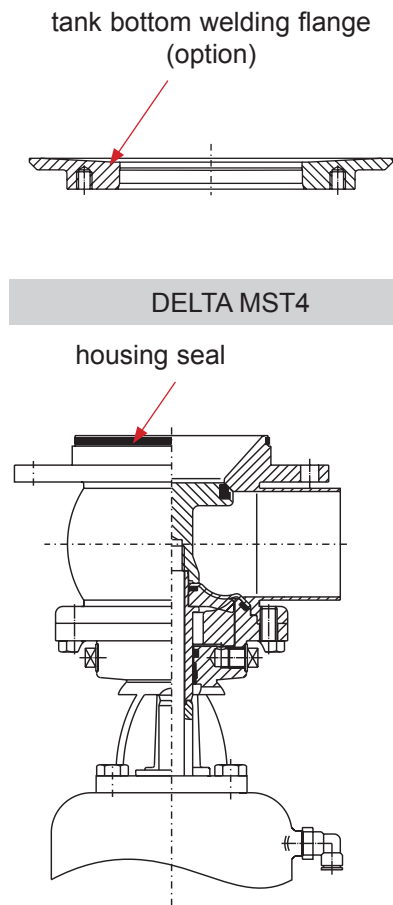
- **The standard MS4 valve series is equipped with a valve position indication.**
- Operation by pneumatic actuator with air connection, reset by spring force. The actuator is generally mounted in normally closed (**NC**) manner.
- Through different assembly of the actuator, the following designs are possible:  
**NC:** actuator normally closed (NC); air-to-raise, spring-to-lower  
**NO:** actuator normally open (NO); air-to-lower, spring-to-raise
- The inner parts of the actuator are maintenance-free.
- In order to prevent pressure hammers, the valve should be closed against the flow direction of the medium.
- Leakages at the diaphragm are indicated in the yoke area through a leakage drain.
- Different valve designs are available:  
 Single seat valves: MS4, MSE4  
 MSR4 (with regulating cone)  
 MSO4, MSEO4 (with o-ring seal)  
 Tank outlet valves: MST4  
 MSTO4 (with o-ring seal)  
 Change-over valves: MSES4  
 MSES04 (with o-ring seal)

## 6. Auxiliary Equipment

### 6.1. Tank bottom welding flange for MST4 valve range

The tank bottom welding flange does not form part of the scope of supply of a valve and can be ordered under the following reference / ID number:

DN	Inch	Ø C	D	Ø E	F	Reference number
25	1"	148	2	66	M8	31B 15-01-391/42 H157269
40	1,5"	168	2	78	M8	31B 15-01-441/42 H157270
50	2"	188	2	94	M8	31B 15-01-491/42 H157260
65	2,5", 3"	228	2	109	M10	31B 15-01-541/42 H156931
80	–	258	2	128	M10	31B 15-01-641/42 H157271
100	4"	288	2	159	M10	31B 15-01-691/42 H157272





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## 6. Auxiliary Equipment

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### 6.2. Connections:

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

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

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## 7. Cleaning

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### 7.1. Cleaning recommendation

- Flow areas

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

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.

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## 8. Installation

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### 8.1. General terms

- Installation must be undertaken in such a way that liquids can drain off and should preferably be carried out in vertical position.

The valve housing can be welded direct into the pipeline system (completely dismantable valve insert).

**Attention!** Observe Welding Instructions 8.2.



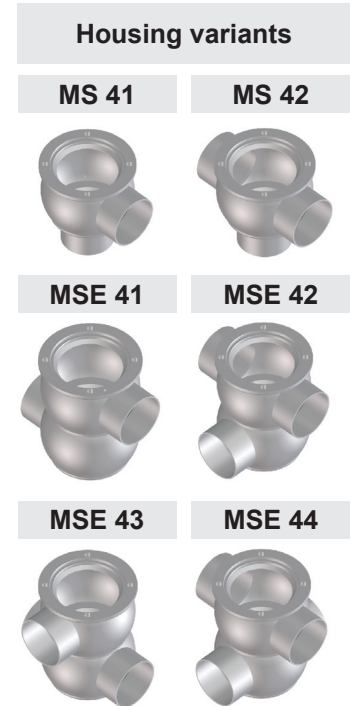
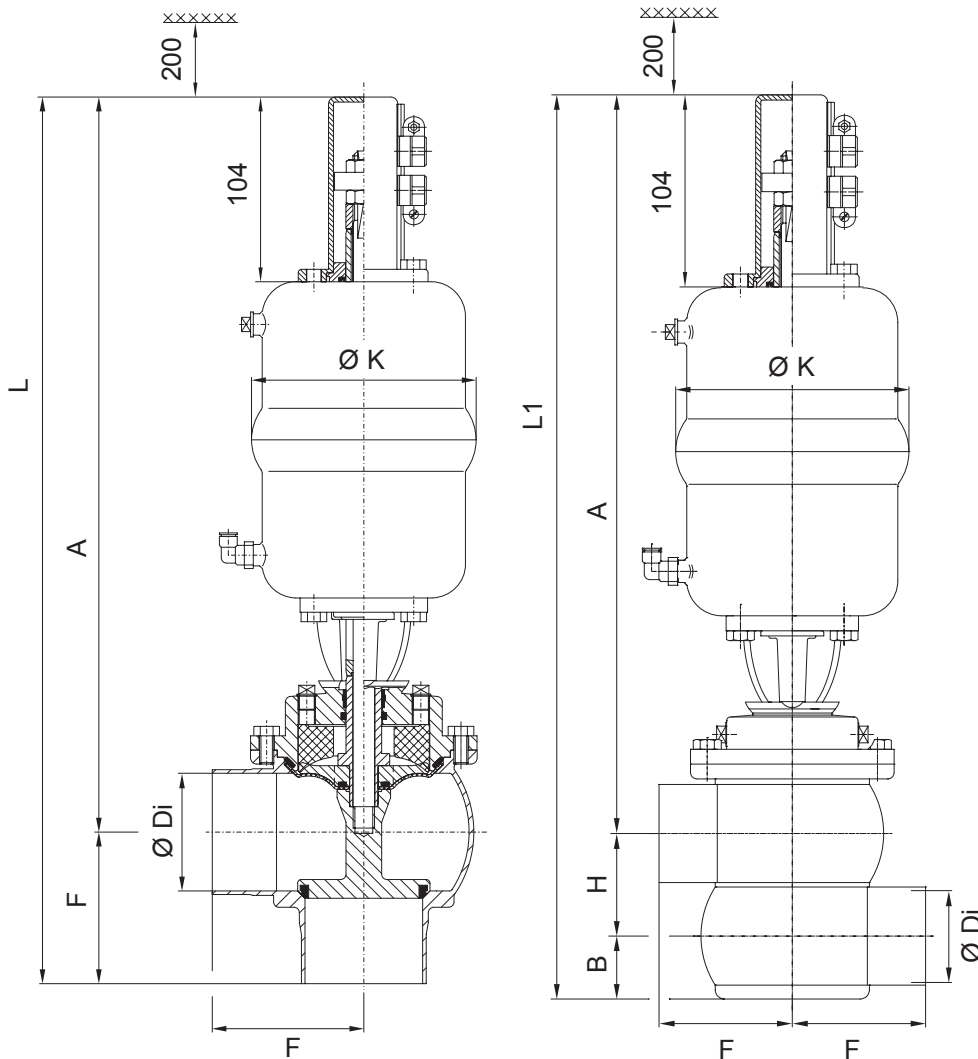
Conductive connection to the pipeline must be provided.  
The integration into the operational potential equalization must be guaranteed!

### 8.2. Welding Instructions

- Before welding of the valve, the valve insert must be dismantled from the housing. If it deals with a change-over valve, the lower housing seal must be dismantled as well. Careful handling to avoid damage to the parts is necessary.
- Welding should only be carried out by certified welders (DIN EN ISO9606-1). (seam quality DIN EN ISO 5817)
- The 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 in butt manner as a square butt joint without air. (Consider shrinkage!)
- TIG orbital welding is best.
- After welding of the valve housing or of the mating flanges and after work at the pipelines, the corresponding parts of the installation or pipeline 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.
- Welding directives for aseptic application areas of the AWS/ANSI regulations and EHEDG guidelines must be observed.

## 9. Dimensions / Weights

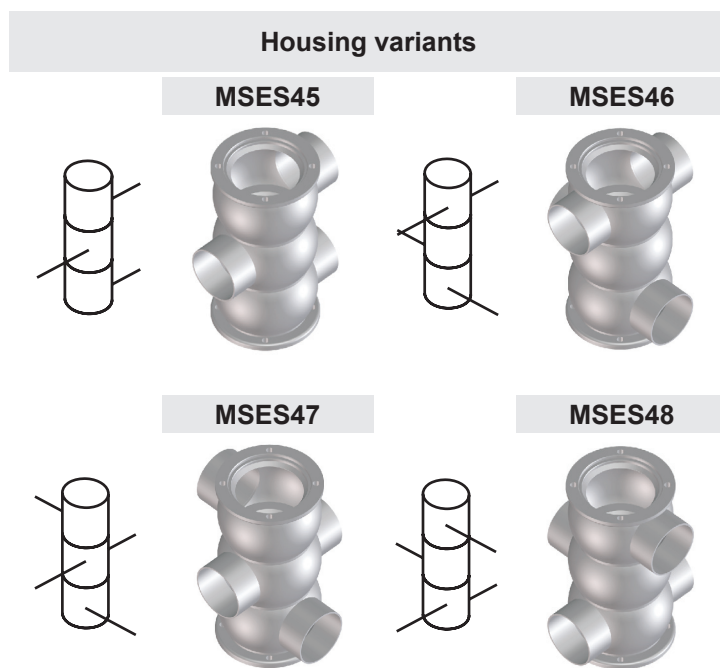
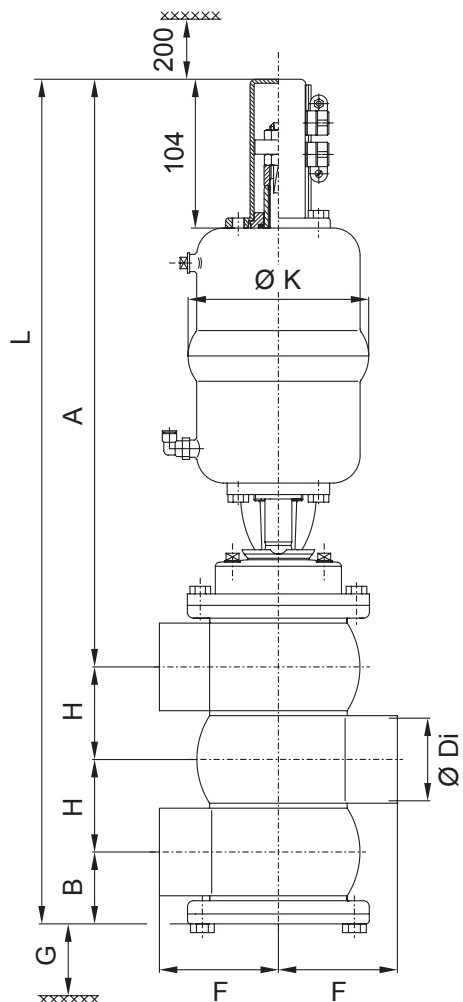
### 9.1. Diaphragm single seat valve



Dimensions in mm									Weight in kg
DN	A	B	Ø Di	F	H	Ø K	L	L1	
25	347	19	26	50	32	86	397	398	4,2
40	394,5	28	38	67	44	126	461,5	466,5	7,1
50	400,5	34	50	72	56	126	472,5	490,5	7,1
65	457	42	66	85	74	189	542	573	7,9
80	466	49,5	81	98	91	189	564	606,5	14,2
100	483	59	100	111	110	189	594	652	15,2
Inch									
1"	345	17,3	22,2	50	28,6	86	395	391	4,2
1,5"	393	26,5	34,9	67	41,1	126	460	460,6	7,1
2"	399	32,9	47,6	72	53,8	126	471	485,7	7,1
2,5"	454	39,1	60,3	85	68,3	189	539	561,4	7,9
3"	460	45,0	72,9	90	80,1	189	560	585	14,5
4"	482	57,8	97,6	111	107,6	189	593	647,4	15,2

## 9. Dimensions / Weights

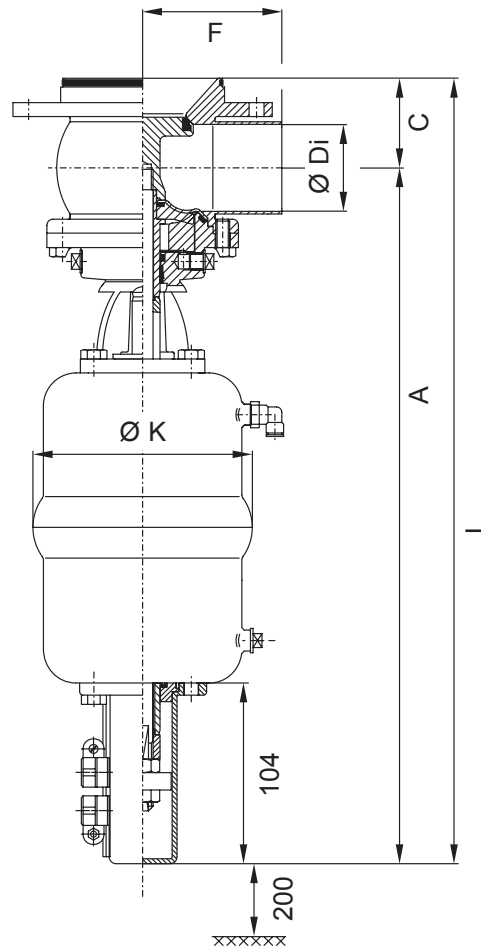
### 9.2. Diaphragm change-over valve



Dimensions in mm									Weight in kg
DN	A	B	Ø Di	F	H	Ø K	L	G	
25	347	29,5	26	50	32	86	440,5	290	8,0
40	394,5	37,5	38	67	44	126	520	300	11,8
50	400,5	45,5	50	72	56	126	558	310	12,8
65	457	52,0	66	85	74	189	657	330	14,5
80	466	59,5	81	98	91	189	707,5	380	21,8
100	483	69,0	100	111	110	189	771	400	27,7
Inch									
1"	345	28	22,2	50	28,6	86	430,2	290	8,0
1,5"	393	37	34,9	67	41,1	126	512,2	300	11,8
2"	399	43	47,6	72	53,8	126	549,6	310	12,8
2,5"	454	49	60,3	85	68,3	189	639,6	330	14,5
3"	460	55	72,9	100	80,1	189	675,2	380	21,8
4"	482	68	97,6	111	107,6	189	765,2	400	27,7

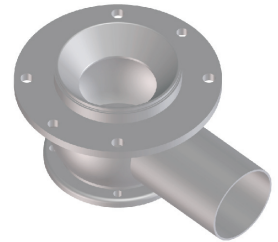
## 9. Dimensions / Weights

### 9.3. Tank outlet valve MST4

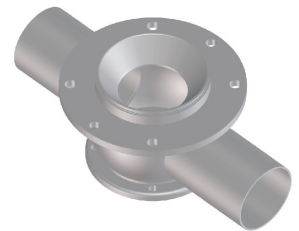


Housing variants

MST41



MST42



Dimensions in mm							Weight in kg
DN	A	C	Ø Di	F	Ø K	L	
25	385	38,0	26	100	86	457	8,0
40	438	43,5	38	120	126	510	11,8
50	452	51,5	50	120	126	524	12,8
65	519	62,0	66	150	189	591	14,5
80	536	69,5	81	150	189	608	21,8
100	566	83,0	100	150	189	638	27,7
Inch							
1"	382	36,3	22,2	100	86	454	8,0
1,5"	435	42,1	34,9	120	126	507	11,8
2"	450	50,4	47,6	120	126	522	12,8
2,5"	513	59	60,3	150	189	585	14,5
3"	525	65,1	72,9	150	189	597	21,8
4"	564	81,8	97,6	150	189	636	27,7

## 10. Technical Data

### 10.1. General data

- Product-wetted parts: 1.4404 (DIN EN 10088)
- Other parts: 1.4301 (DIN EN 10088)
- Seals: standard design: EPDM  
Option: HNBR, VMQ, FPM
- Diaphragm: PTFE (TFM-Compound)
- O-rings for MSO4 and MSES04: FEP - coated with  
FPM - core,  
PTFE 35% carbon
  
- Actuator: 1.4301 (DIN EN 10088)
- max. line pressure: 10 bar
  
- 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. control air pressure: 8 bar
- min. control air pressure: 6 bar
- Leakage indication in yoke area: G1/8"

Use dry and clean control air, only!

### 10.2. 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 m<sup>3</sup>  
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/m<sup>3</sup>

The oil applied must be compatible with Polyurethane elastomer materials.

## 10. Technical Data

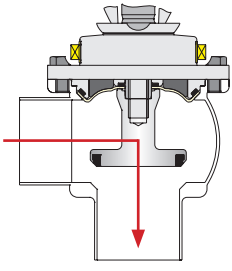
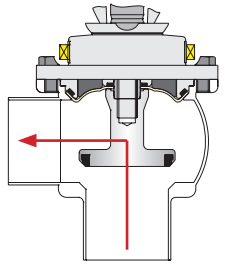
### 10.3. Closing times for single seat and change-over valve MS4

Closing times in sec. at 6 bar control pressure			
		Hose length in m	
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

### 10.4. Control air consumption at 6 bar control pressure

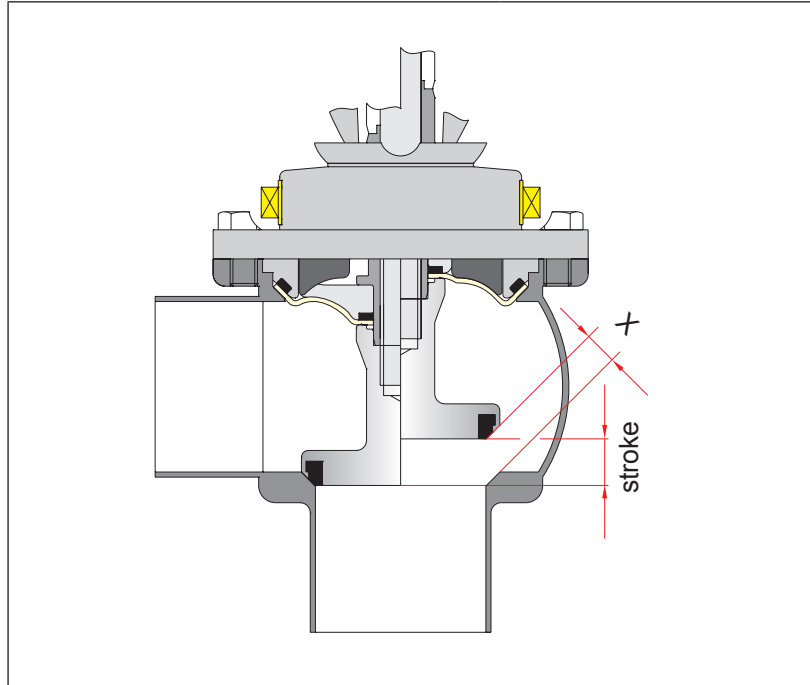
Actuator	per stroke NL
Ø 74 mm	1,0
Ø 110 mm	2,1
Ø 165 mm	4,5

### 10.5. MS4 kvs values in m<sup>3</sup>/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

## 10. Technical Data

### 10.6. Valve stroke / Opening cross section



DN, Inch	Stroke	X
25, 1"	8	5,5
40, 1,5"	13	10
50, 2"	13	10
65, 2,5"	16	13
3"	17	14
80	22,5	19,5
100, 4"	28	25



## 11. Maintenance

Scan for MS4 Valve  
Maintenance Video



### 11.1. General data

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

Before start of maintenance and assembly the operator must make sure that an explosive atmosphere does not exist (detection/ measurement of potential concentration of hazardous substances). Alternatively, use spark-resistant tools!

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
- 1x wrench SW30
- cleaning rag as well as a low solution of a suitable cleaning agent (observe safety data sheet of cleaning liquid manufacturer).
- All seals must be provided with a thin layer of grease before their installation.
- The product-averted side of the diaphragm must be provided 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 the function and lifetime.

**Recommendation:** Screw retention  
**Type:** Loctite 243 semi-solid  
(50ml - ref.-No. 00070-01-111/93; H206336)

## 11. Maintenance

### 11.2. Additionally required maintenance for applications in ATEX environment

#### MS4 Valve

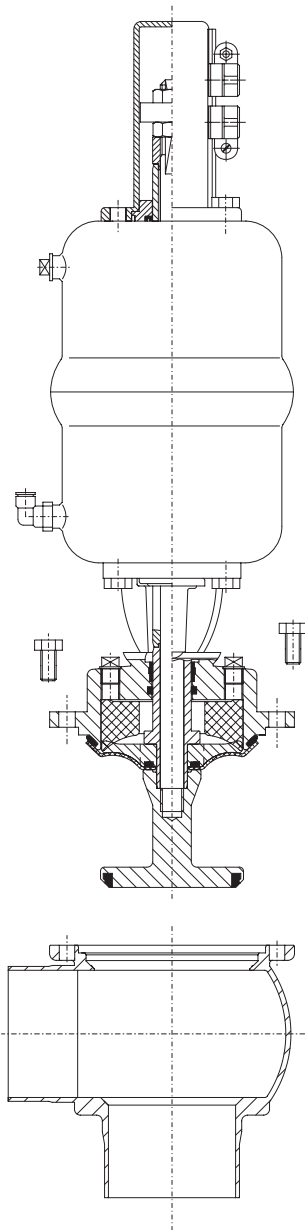
<b>Valve maintenance for actuator with spring</b>	<b>Note</b>
Functional test, visual inspection of actuator stroke and control of abnormal running noise of spring	1 x per year
Change of interval of actuator	In case of damage, incomplete actuator movement, considerable running noise of spring as well as after 250,000 cycles* as preventive measure, however, after 10 years at the latest
<b>Valve maintenance for actuator air/air</b>	<b>Note</b>
Functional test, visual inspection of actuator stroke	1 x per year
Change of interval of actuator	In case of damage, incomplete actuator movement, after 250,000 cycles* as preventive measure, however, after 10 years at the latest

\*complies with about 8 years in 1-shift-operation and 10-15 cycles per hour.

## 12. Service Instructions

### MS4 single seat valve (NC design)

The reference numbers refer to the spare parts drawings  
 MS4, MSE, MST4 DN / Inch: RN ATEX 064.9  
 MSO4, MSEO4, MST04 DN / Inch: RN ATEX 064.11



### 12.1. Dismantling from the line system

Before start of assembly the operator must make sure that an explosive atmosphere does not exist (detection/measurement of potential concentration of hazardous substances).  
 Alternatively, use spark-resistant tools!

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 the hex. screws (14) and lift the complete valve insert with actuator out of the housing.

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

4. Remove proximity switches. Lift the valve position indication housing (22) (proximity switch holder) off the actuator.

### 12.2. Dismantling of wear parts (product-wetted parts)

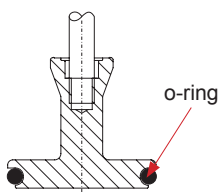
5. At first, unscrew the actuator screw (21). Release the hex. nut (20), while holding up the centering washer (19). Remove the centering washer.
6. Extract the shaft (3) with guide rod (8), diaphragm (5), fan (6), upper shaft (4) and diaphragm support (7) from the actuator (17). Remove the seat seal (2) and o-ring (16).

- **O-ring design:**

Dismantle the PTFE o-ring (2) from the valve shaft. Cut the o-ring through with tongs and remove it. The groove surface of the shaft must not be damaged.

7. Remove the yoke (9) from the actuator (17).  
 The actuator can be maintained. See 13. Service Instructions - Actuator.
8. Detach the o-rings (15, 13) and guide bush (11) from the yoke (9).
9. 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.

Valve shaft - o-ring design



## 12. Service Instructions

### 12.3. Installation of seals and assembly of valve

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

1. Insert the guide bush (11) and o-ring (13) into the yoke (9).  
Insert the o-ring (15) into the groove of the yoke.  
Fasten the yoke (9) at the actuator (17).

2. Install the seat seal (2) in the lower valve shaft (3).  
(see Service Instructions 14.)

- **O-ring design:**

At first, insert the PTFE o-ring (2) into the groove of the lower valve shaft (see chapter 18.).

3. Install the o-ring (16) in the fan (6).

Place diaphragm and fan on the upper shaft.

4. Wind the protective pipe over the thread of the guide rod.

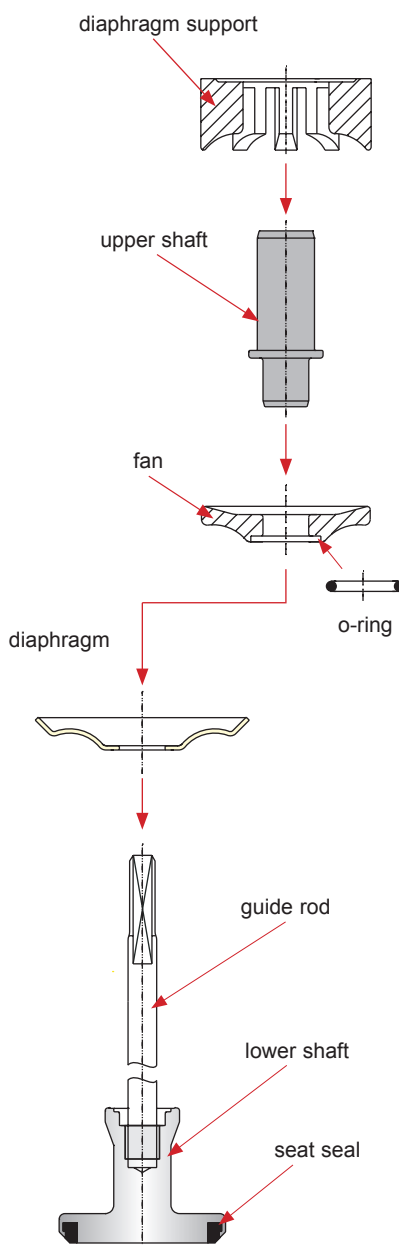
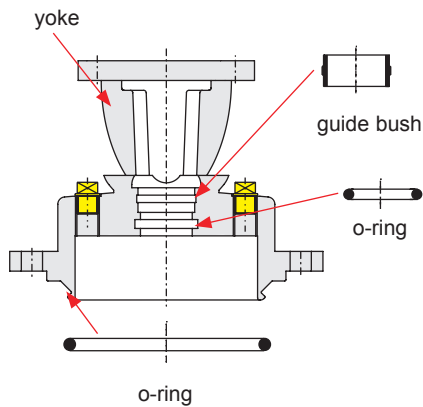
5. Pass the guide rod through the upper shaft with diaphragm and fan until it stops on the lower shaft. Insert the diaphragm support into the fan.

! **Toothing of fan and diaphragm support must interlock.**

6. Insert the pre-assembled lower shaft with guide rod, diaphragm, fan, upper shaft and diaphragm support through the yoke (9) and actuator (17).

- 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.

7. Place the centering washer (21). 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 (20) and fasten it with a tightening torque of  $M_d = 40 \text{ Nm}$ . Hold up the centering washer during this process.



## 12. Service Instructions

### 12.4. Installation of MS4 valve

1. Fasten the housing of the valve position indication (22).
2. **Version NC: During the assembly of the valve insert observe the following:**
  - Control the actuator (version: NC) with pneumatic air min. 6 bar.  
Carefully place the valve insert into the valve housing. The diaphragm (5) must not be damaged during the installation in the valve housing. Tighten the hex. screws (14) crosswise in the housing flange.



**Do not reach for movable parts!  
Risk of injury.**

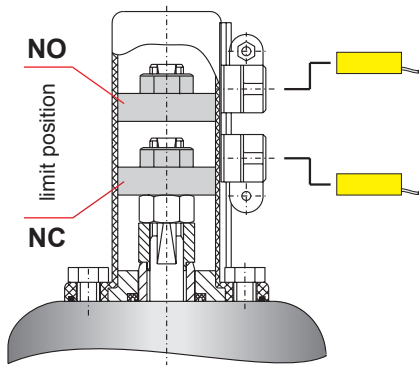
**! Version NC: Shut off air supply.**

3. Push in the proximity switches and fasten them.  
Readjust the proximity switches if necessary..

#### 4. Adjustment of proximity switches (fig. 12.4.)

- 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)

fig. 12.4.



## 13. Service Instructions - Actuator

### 13.1. Maintenance of Actuator

See spare parts drawing of actuator RN: 01.054.86

1. Remove the air hoses from the actuator.
2. Unscrew the two seal screws with a spanner SW 30.
3. Remove o-rings and v-seals.

### 13.2. Installation of seals and assembly of actuator

1. Install the slightly greased o-rings and v-seals in the seal screws (fig. 13.2).

**See to the correct installing direction of the v-seal.**

2. Push the seal screws over the piston at both sides of the actuator and tighten them.
3. Fasten the yoke on the actuator.

**Attention:**

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

**NC (FS) =** normally closed  
(air-to-raise, spring-to-lower)

**NO (FH) =** normally open  
(air-to-lower, spring-to-raise)

4. Fix the air hoses.

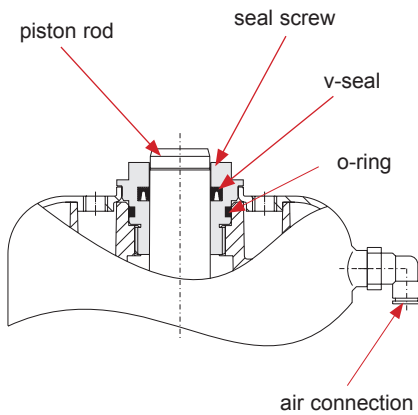
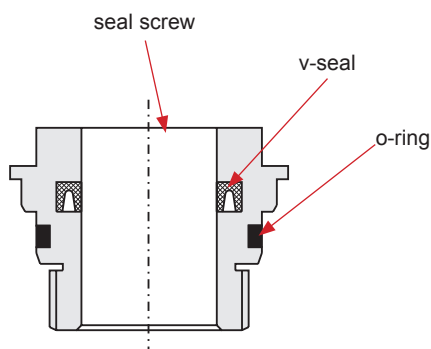


fig. 13.2.

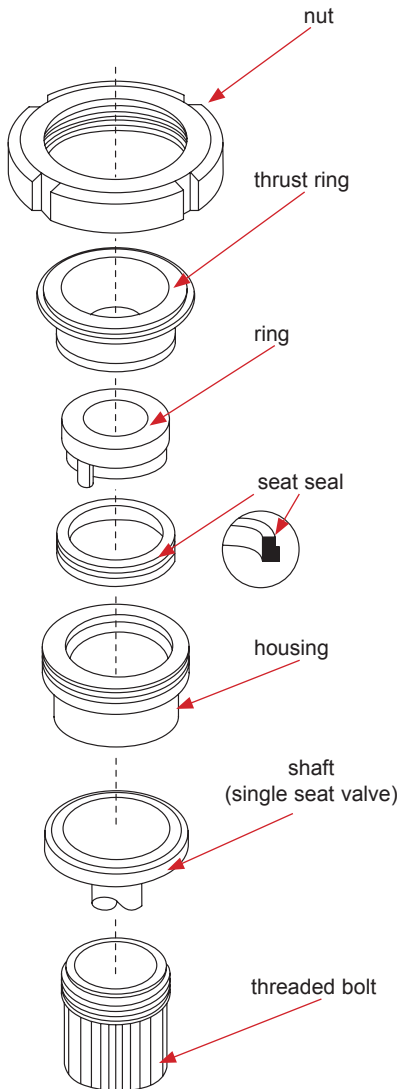


## 14. Assembly Tool for Seat Seal

By means of the assembly tool the seat seal of single seat valves DN25-100, 1"-4" can be installed. In case of change-over valves DN 40-100, 1,5"-4", the seat seal in the lower shaft can be installed, only.

The assembly tool consists of:

- nut
- thrust ring
- ring with venting plug
- housing
- threaded bolt



### 14.1. Installation of the seat seal in the valve shaft

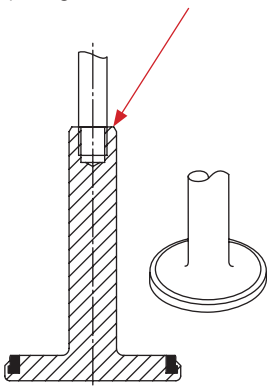
1. Insert the valve shaft into the housing in such a manner that the seal groove is in the valve housing.
2. Clamp the shaft in the housing by the threaded bolt. Clamp the housing in a vice.
3. Slightly grease the seat seal with APV assembly grease. Then pull the seal onto the ring until stop by means of the venting plug.
4. Introduce the ring with the seat seal into the housing and press it down until it stops.
5. Insert the thrust ring into the housing. Screw on the nut and tighten it until stop by means of a hook spanner.
6. Release the nut. Pull the ring and thrust ring out of the housing.
7. Take the housing out of the vice, unscrew the threaded bolts. Take the valve shaft out of the housing.

Check the correct fit of the seat seal.

### 14.2. Assembly tool for seat seal

In order to simplify the installation of the seat seal, the following assembly tools are available.

lower valve shaft  
(change-over valve DN 40-100, 1,5"-4")



M4 assembly tool			
DN	Inch	Reference number	ID-No.
25	1"	000 51-13-110/17	H179465
40	1,5"	000 51-13-111/17	H179466
50	2"	000 51-13-112/17	H179467
65	2,5"	000 51-13-113/17	H179469
	3"	000 51-13-121/17	H179470
80		000 51-13-114/17	H179471
100	4"	000 51-13-115/17	H179472

## 15. Service Instructions - MSES4 Change-over Valve

### MSES4 change-over valve (NC design)

Change-over Valve MSES 4

The item numbers refer to the spare parts drawings

MSES 4      DN / Inch:      RN ATEX 064.12

### 15.1. Dismantling from the line system

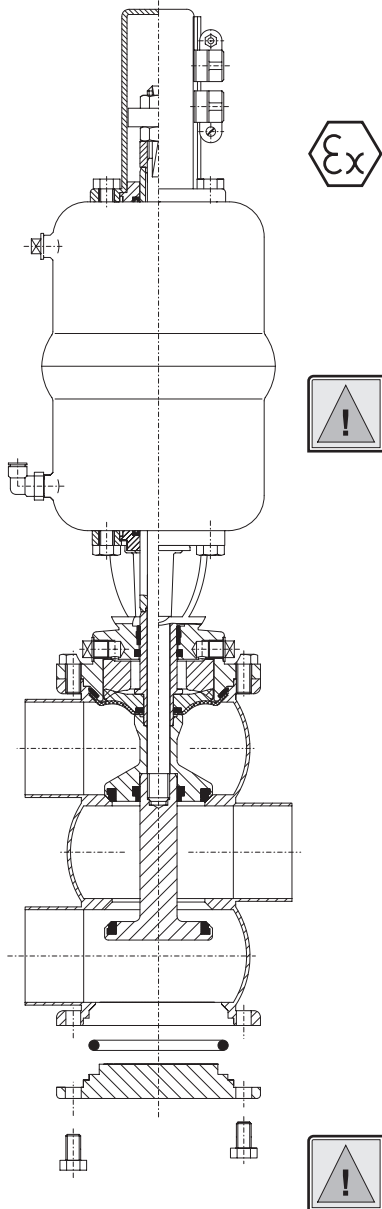
Before start of assembly the operator must make sure that an explosive atmosphere does not exist (detection/measurement of potential concentration of hazardous substances).  
Alternatively, use spark-resistant tools!

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

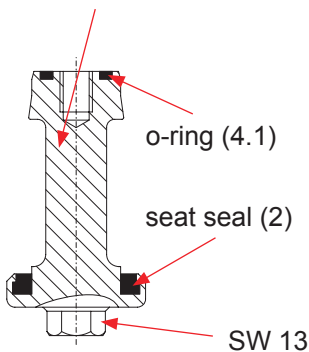
**Do not touch movable parts!**  
**Risk of injury.**

3. Remove the proximity switches. Lift the valve position indicator housing (28) (prox. switch holder) off the actuator.
4. Unscrew the actuator screw (27) and safety nut (26) while holding up the centering washer (25). Remove the centering washer.
5. Remove the hex. screws (22). Remove the housing cover (20), detach the o-ring (21).
6. Extract the lower valve shaft (3) with guide rod (11) to the bottom out of the housing. In case of stiffness, knock on the guide rod with a rubber mallet while manually holding the lower valve shaft. Remove the seat seal (2).
  - Only with the valves of the nominal dimensions DN 25 / 1" must the lower valve shaft (3) be unscrewed from the guide rod in the housing. (Use socket key SW 13.)
  - Remove seat seal (2) and o-ring (4.1).
7. NC (FS) design: Control with air.  
NO (FH) design: Shut off air.

**Do not touch movable parts!**  
**Risk of injury.**

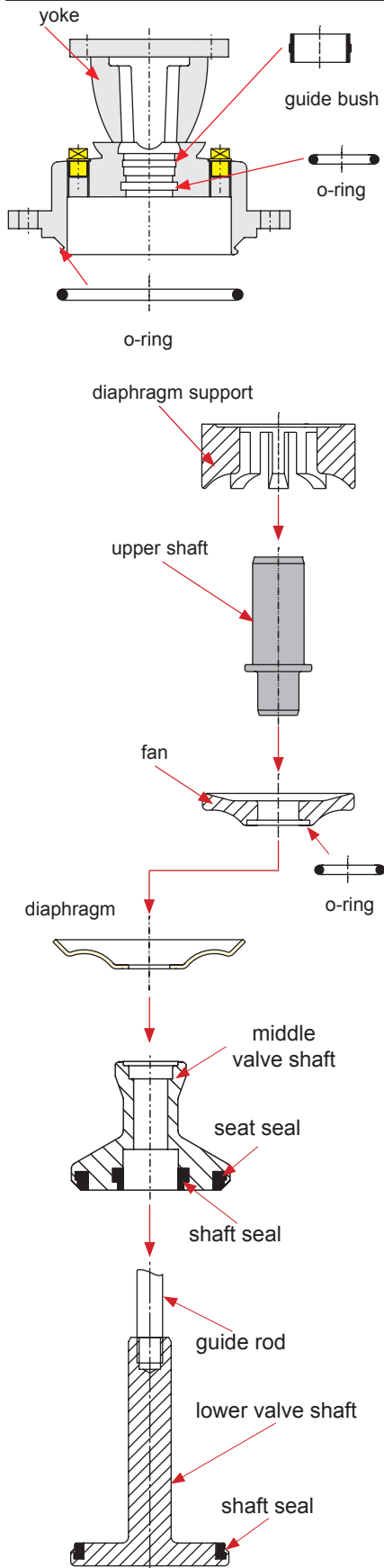


lower valve shaft, only DN25, 1"





## 15. Service Instructions - MSES4 Change-over Valve



8. Remove the housing screws (17).
9. Lift the actuator (23) with yoke (12) to the top and out of the housing.
10. Remove the middle valve shaft (6), diaphragm (8), fan (9), diaphragm support (10) and upper valve shaft (7).
11. Remove the o-ring (19) from the fan.
12. Remove the seat and shaft seal (4, 5) from the middle valve shaft.
13. Detach the yoke from the actuator.
14. Take the o-rings (18, 16) and guide bush (14) out of the yoke (12).

### 15.2. Installation of seals and assembly of valve

1. Insert the guide bush (14) and o-ring (16, 18) in the yoke (12).
2. Installation of lower seat seal (2) in the lower valve shaft (3) (see Assembly Tool, chapter 14.).
- **For nominal dimensions DN 25/1" only:**  
**Place the o-ring (4.1) into the groove of the lower valve shaft. Install the seat seal (2) manually in the groove.**
3. Place the seat and shaft seal (5, 4) in the middle valve shaft (6). The seat seal can be installed by means of the assembly tool (see Assembly Tool, page 28).
4. Insert the o-ring (19) into the fan (9)
5. Place the diaphragm and fan on the upper shaft.
6. Place the middle valve shaft with diaphragm (8), fan (9) and upper valve shaft (7) from the top into the housing and press the assembly together.
7. Put the diaphragm support into the fan.
- ! **Toothing of fan and diaphragm support must interlock.**
8. Place the yoke on the housing. Smoothly guide the upper valve shaft through the guide bush into the yoke. In case of stiffness, check the correct fit of the guide bush. Tighten the yoke screws crosswise.

## 15. Service Instructions - MSES4 Change-over Valve

### 15.2. Installation of seals and assembly of valve

#### 9. Design NC:

- Control the actuator with air. Fasten the actuator with the hex. screws (13) on the yoke.

#### 10. Shut off pneumatic air.

#### 11. Insert the lower valve shaft (3) with guide rod (11) from the bottom into the housing, push it up and keep hold of it.

Only with the valves of the nominal dimensions DN 25 / 1" must the threaded bore of the lower valve shaft be provided with a drop of a screw locker (Loctite) before screwing it together with the guide rod. Afterwards, push the guide rod (11) from the top through the components and screw it together with the lower shaft (3) in the housing. (tightening torque  $M_d = 30 \text{ Nm}$ )

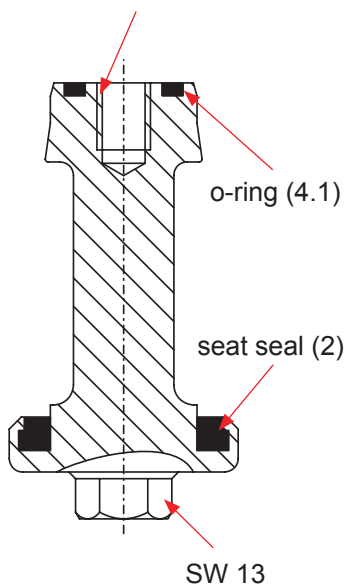
#### 12. Place the centering washer (25). Apply a drop of a screw locker (Loctite - semi-solid) on the thread of the guide rod. Screw on the safety nut (26) and tighten it with a tightening torque of $M_d = 40 \text{ Nm}$ . Hold up the centering washer during this process. Fasten the metal actuator screw (27) like the safety nut.

#### 13. Insert the o-ring (21) in the housing cover (20) and tighten the housing cover crosswise.

#### 14. Place the proximity switch holder and fasten it accordingly. Insert the proximity switches and fasten them. Readjust proximity switches if necessary.

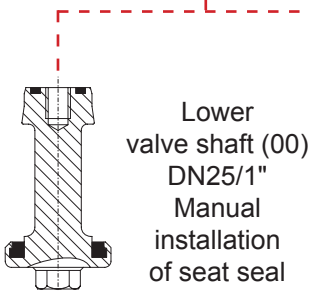
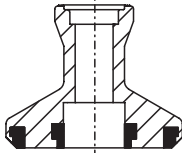
lower valve shaft  
only DN 25 / 1"

apply screw locker



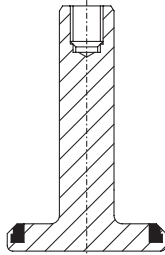
## 16. Installation of Seat Seal - Change-over Valve

Middle valve shaft (00)  
DN25-100 1"-4"  
Manual installation  
of seat seal



Lower  
valve shaft (00)  
DN25/1"  
Manual  
installation  
of seat seal

Lower  
valve shaft (00)  
DN40-100, 1,5"-4"  
Installation of  
seat seal by means of  
assembly tool  
see chapter 14.

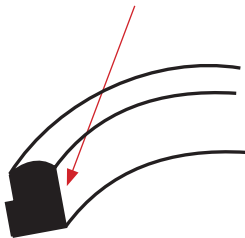


The assembly tool is used to install the seat seal - from valve nominal dimension 40, 1,5" - in the lower shaft.

The seat seal of the middle shaft (6) and the lower shaft (2) of the valve nominal dimension DN25, 1" must be installed manually.

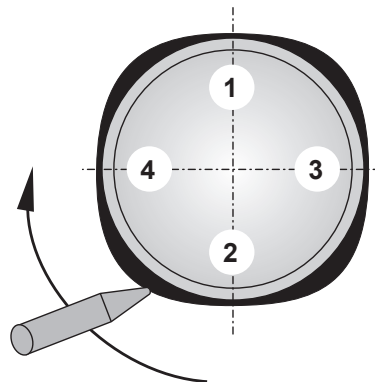
1. Provide the seat seal with a thin layer of grease before its installation.  
The groove for the seat seal must not be greased.
2. Clamp the valve shaft in a vice.  
The valve shaft must not be damaged.  
Use protective jaws.
3. Press the slightly greased seal at four spots **1-2, 3-4** with the wide side to the front into the groove (**see sketch 1**).
4. Press the slightly greased seal at four spots, the wide side to the front, into the groove. At the four loops sticking out, the seal must be guided into the groove with a blunt screwdriver, for example, and pressed in by means of strong thumb pressure. Alternately work at all four loops to get an even fit of the seal. Finally the seal is smoothed under strong pressure, e.g. by the handle of a screwdriver and vented by pricking the blade of a screwdriver between the groove edge and seal inner side down to the groove bottom (**see sketch 2**).

inner side of seal

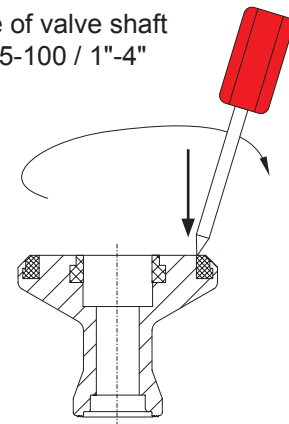


seal profile

sketch 1

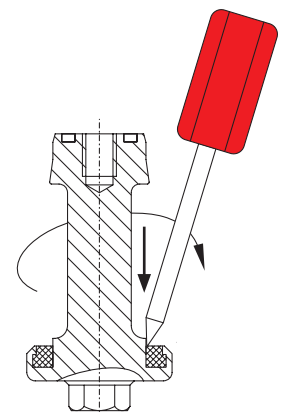


middle of valve shaft  
DN25-100 / 1"-4"



sketch 2

lower valve shaft  
DN25 / 1"



## 17. Service Instructions - MSES04 Change-over Valve

### MSES04 change-over valve (NC design)

Change-over Valve MSES0 4 (o-ring design)  
The item numbers refer to the spare parts drawings  
MSES0 4      DN / Inch:      RN ATEX 064.13

#### 17.1. Dismantling from the line system

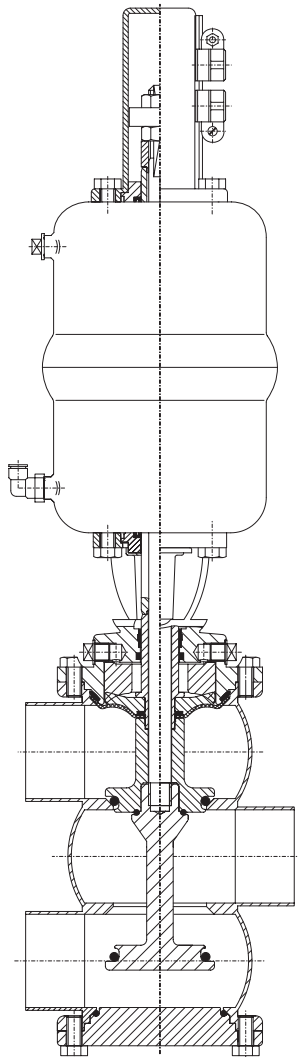
Before start of assembly the operator must make sure that an explosive atmosphere does not exist (detection/measurement of potential concentration of hazardous substances).  
Alternatively, use spark-resistant tools!

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

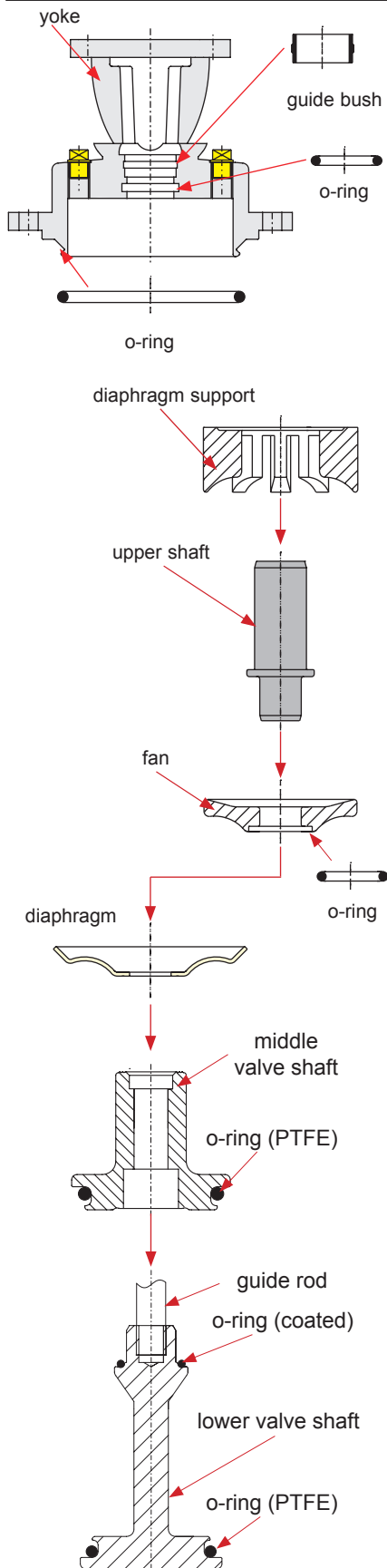
**Do not touch movable parts!**  
**Risk of injury.**

3. Remove the proximity switches. Lift the valve position indicator housing (28) (prox. switch holder) off the actuator.
4. Unscrew the actuator screw (27) and safety nut (26) while holding up the centering washer (25). Remove the centering washer.
5. Remove the hex. screws (22). Remove the housing cover (20), detach the o-ring (21).
6. Extract the lower valve shaft (3) with guide rod (11) to the bottom out of the housing. In case of stiffness, knock on the guide rod with a rubber mallet while manually holding the lower valve shaft. Remove the o-ring (4). Cut the PTFE o-ring (2) through with tongs and remove it. The groove surface of the shaft must not be damaged during this process.
7. NC (FS) design: Control with air.  
NO (FH) design: Shut off air.

**Do not touch movable parts!**  
**Risk of injury.**



## 17. Service Instructions - MSES04 Change-over Valve



8. Remove the housing screws (17).
9. Lift the actuator (23) with yoke (12) to the top and out of the housing.
10. Remove the middle valve shaft (6), diaphragm (8), fan (9), diaphragm support (10) and upper valve shaft (7).
11. Remove the o-ring (19) from the fan.
12. Remove the PTFE o-ring (5) from the middle valve shaft. Cut the o-ring through with tongs and remove it. The groove surface of the shaft must not be damaged during this process.
13. Detach the yoke from the actuator.
14. Take the o-rings (18, 16) and guide bush (14) out of the yoke (12).

### 17.2. Installation of seals and assembly of valve

1. Insert the guide bush (14) and o-ring (16, 18) in the yoke (12).
  2. At first, insert the PTFE o-ring (00) into the groove of the lower valve shaft (see chapter 18). Afterward insert the coated o-ring (0).
  3. Insert the PTFE o-ring (2) in the middle valve shaft (6) (see chapter 18.).
  4. Insert the o-ring (19) into the fan (9).
  5. Place the diaphragm and fan on the upper shaft.
  6. Place the middle valve shaft with diaphragm (8), fan (9) and upper valve shaft (7) from the top into the housing and press the assembly together.
  7. Put the diaphragm support into the fan.
- ! Toothing of fan and diaphragm support must interlock.**
8. Place the yoke on the housing. Smoothly guide the upper valve shaft through the guide bush into the yoke. In case of stiffness, check the correct fit of the guide bush. Tighten the yoke screws crosswise.

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## 17. Service Instructions - MSES04 Change-over Valve

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### 17.2. Installation of seals and assembly of valve

#### 9. Design NC:

- Control the actuator with air. Fasten the actuator with the hex. screws (13) on the yoke.

#### 10. Shut off pneumatic air.

#### 11. Insert the lower valve shaft (3) with guide rod (11) from the bottom into the housing, push it up and keep hold of it.

#### 12. Place the centering washer (25). Apply a drop of a screw locker (Loctite - semi-solid) on the thread of the guide rod. Screw on the safety nut (26) and tighten it with a tightening torque of $M_d = 40 \text{ Nm}$ . Hold up the centering washer during this process. Fasten the metal actuator screw (27) like the safety nut.

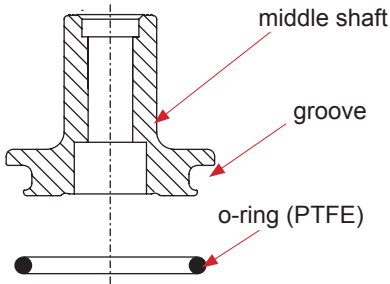
#### 13. Insert the o-ring (21) in the housing cover (20) and tighten the housing cover crosswise.

#### 14. Place the proximity switch holder and fasten it accordingly. Insert the proximity switches and fasten them. Readjust proximity switches if necessary.

## 18. Service Instructions - o-ring

Defective or damaged o-rings must be cut through with tongs and removed.

**Attention:** The groove surface of the shaft must not be damaged during this process.



### 18.1. Installation of PTFE o-rings

Never install the o-rings by force by means of a metal tool!

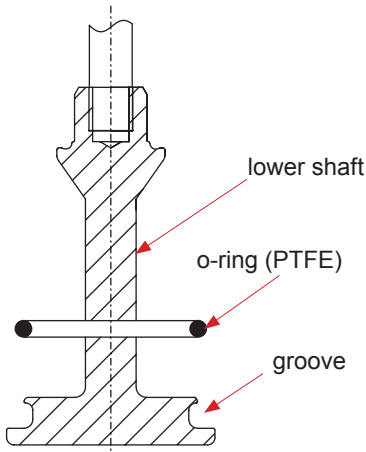
The o-ring must be heated to about 130 - 150°C in order to install it.

Through warming of the o-ring, it becomes flexible and its diameter increases so that it can be pressed into the groove without a tool.

**Attention:** Wear protective gloves.

Warming possibilities:

1. in an electric oven
2. in a microwave oven, for about 20-30 sec. at about 600W
3. on a steel plate which is heated by a gas burner from the bottom. The o-ring must not overheat and must be turned during the heating process.



## 19. Trouble Shooting

<i>Failure</i>	<i>Remedy</i>
<b>Single seat diaphragm valve</b>	
<b>Valve closed and pressure in upper housing</b>	
Valve is untight.	Replace seat seal (2). Check line pressure (max. 10 bar).
Leakage at the leakage bore in the area of the valve yoke	Check tightening torque of safety nut. Replace diaphragm (5) and o-ring (16).
Leakage between lower housing and yoke flange	Replace diaphragm (5) and o-ring (15).
Leakage between lower housing and housing cover (MSE4 + MSES4)	Replace o-ring (21).
<b>Actuator</b>	
Air escapes at the actuator rod.	Replace v-seal (3) and o-ring (4) in the seal screw (2). (see RN 01.054.86)
Actuator does not work (air escapes permanently from the venting plug).	Replace the complete actuator.
<b>Valve position indication</b>	
No feedback	Carry out fine adjustment.



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



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## 20. Spare Parts Lists

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(see attachment)

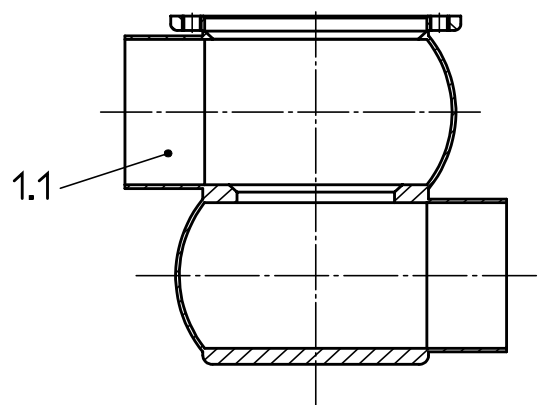
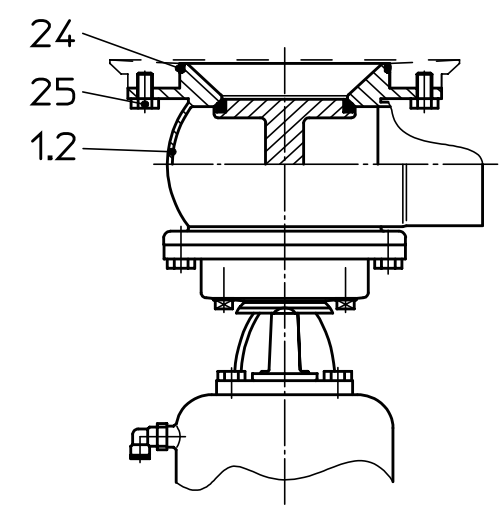
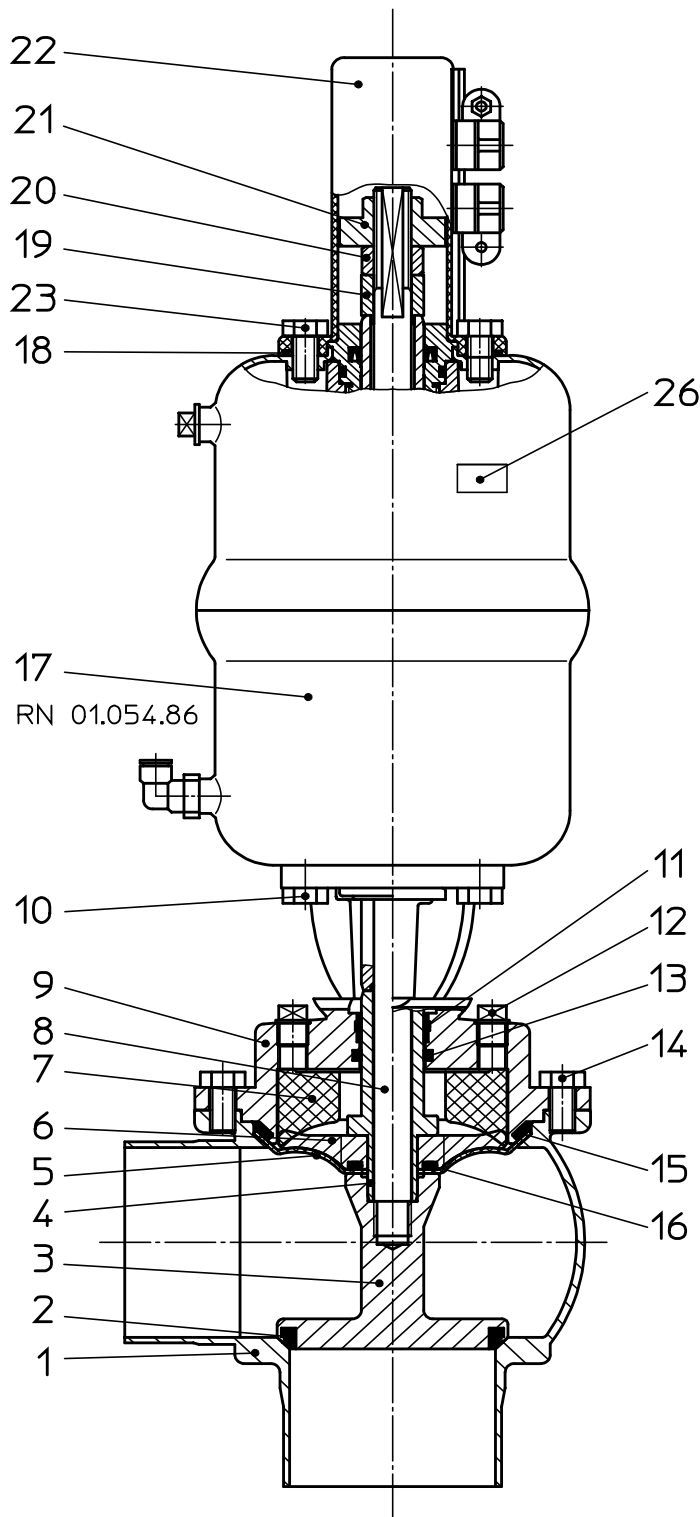
The reference numbers of the spare parts for the different valve designs and sizes are included in the attached spare parts drawings with corresponding lists.

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

- number of required parts
- reference number
- designation



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Datum:	08.06.15	10.06.16	19.06.17									
Name:	Trytko	Trytko	Sendker									
Geprüft:	Schulz	Schulz	Goebel									

Ersatzteilliste: spare parts list

**Membranventil fan support MS4, MSE4, MST4 FS-VSM ATEX**  
**Diaphragm valve fan support MS4, MSE4, MST4 FS-PSH ATEX**  
**DN 25-100; 1-4 Zoll / Inch**



SPX FLOW  
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**RN ATEX 064.9**

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Ersatzteilliste: spare parts list

**Membranventil fan support MS4, MSE4, MST4 FS-VSM ATEX**  
**Diaphragm valve fan support MS4, MSE4, MST4 FS-PSH ATEX**  
**DN25-100; 1-4 Zoll / Inch**

		Datum:		08.06.15		10.06.16		19.06.17	
		Name:	Trytko	Trytko	Trytko	Schulz	Schulz	Goebel	Goebel
		Geprüft:							
		Datum:							
		Name:							
		Geprüft:							
		Blatt		2		von		9	
		<b>APV</b> SPX FLOW Germany							
		<b>RN ATEX 064.9</b>							
pos.	item	Menge	Beschreibung	Material	DN25	1"	1,5"	DN50	2"
			description	material	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
1		1	Gehäuse M41 Housing M41	1.4404	000 39-41-295/47 H173274	000 39-41-320/47 H174026	000 39-41-420/47 H174156	000 39-41-445/47 H173255	000 39-41-470/47 H174105
		1	Gehäuse M42 Housing M42	1.4404	000 39-42-295/47 H174005	000 39-42-320/47 H174132	000 39-42-420/47 H174157	000 39-42-445/47 H174009	000 39-42-470/47 H174106
		1	Gehäuse ME41 Housing ME41	1.4404	000 39-45-295/47 H179378	000 39-45-320/47 H179384	000 39-45-420/47 H179385	000 39-45-445/47 H179380	000 39-45-470/47 H179386
		1	Gehäuse ME42 Housing ME42	1.4404	000 39-46-295/47 H179391	000 39-46-320/47 H179397	000 39-46-420/47 H179398	000 39-46-445/47 H177743	000 39-46-470/47 H179400
		1	Gehäuse ME43 Housing ME43	1.4404	000 39-47-295/47 H179407	000 39-47-320/47 H179426	000 39-47-420/47 H179427	000 39-47-445/47 H179414	000 39-47-470/47 H179428
		1	Gehäuse ME44 Housing ME44	1.4404	000 39-48-295/47 H179423	000 39-48-320/47 H179432	000 39-48-420/47 H179433	000 39-48-445/47 H177744	000 39-48-470/47 H176701
		1	Gehäuse MT41 Housing MT41	1.4404	000 39-43-295/47 H175704	000 39-43-320/47 H175706	000 39-43-420/47 H175718	000 39-43-445/47 H175710	000 39-43-470/47 H175720
		1	Gehäuse MT42 Housing MT42	1.4404	000 39-44-295/47 H175705	000 39-44-320/47 H175707	000 39-44-420/47 H175719	000 39-44-445/47 H175711	000 39-44-470/47 H175720
		1	Tellerdichtung Seat seal	EPDM	58-33-293/93 H77442	58-33-293/93 H77467	58-33-393/93 H77467	58-33-443/93 H77491	
		1	Tellerdichtung Seat seal	FPM	58-33-293/73 H77441	58-33-293/73 H77466	58-33-393/73 H77466	58-33-443/73 H77490	
		1	Tellerdichtung Seat seal	HNBR	58-33-293/33 H170176	58-33-293/33 H170176	58-33-393/33 H166676	58-33-443/33 H166085	
		1	Tellerdichtung Seat seal	VMQ	58-33-293/13 H77440	58-33-293/13 H77440	58-33-393/13 H77465	58-33-443/13 H77489	
3		1	Schaft unten Lower valve shaft	1.4404	3A0 39-22-295/43 H320422	3A0 39-22-320/43 H320589	3A0 39-22-420/43 H206855	3A0 39-22-445/43 H320311	3A0 39-22-470/43 H320590
4		1	Schaft oben Upper valve shaft	1.4301	39-22-070/12 H318486	39-22-070/12 H318486	39-22-071/12 H318487		
5		1	Membrane Diaphragm	TFM	58-23-050/23 H318545	58-23-050/23 H318545	58-23-051/23 H318544		
6		1	Stern Star	1.4301	08-48-520/12 H320414	08-48-520/12 H320414	08-48-521/12 H320249		






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Ersatzteilliste: spare parts list

**Membranventil fan support MS4, MSE4, MST4 FS-VSM ATEX**  
**Diaphragm valve fan support MS4, MSE4, MST4 FS-PSH ATEX**  
**DN25-100; 1-4 Zoll / Inch**

Datum:	08.06.15	10.06.16	19.06.17
Name:	Trytko	Trytko	Sendker
Geprüft:	Schulz	Schulz	Goebel
Datum:			
Name:			
Geprüft:			

			
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<b>RN ATEX 064.9</b>			

pos. item	Menge quantity	Beschreibung description	Material	DN25	1"	DN40	1,5"	DN50	2"
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
<b>Dichtungssatz MS4, MSE4 Standardausführung / seal kit MS4,MSE4 standard design</b>									
Pos. 2, 5, 11, 13, 15, 16, 20 nur im kompletten Dichtungssatz erhältlich / Item 2, 5, 11, 13, 15, 16, 20 available es complete seal kits only									
	1	Dichtungssatz Seal kit	TFM / FPM	58-36-920/00		58-36-921/00 H331957		58-36-922/00 H329916	
	1	Dichtungssatz Seal kit	TFM / EPDM	58-36-920/01 H324944		58-36-921/01 H324945		58-36-922/01 H324946	
	1	Dichtungssatz Seal kit	TFM / VMQ	58-36-920/02		58-36-921/02		58-36-922/02	
	1	Dichtungssatz Seal kit	TFM / HNBR	58-36-920/06 H329966		58-36-921/06 H329274		58-36-922/06 H328730	
<b>Dichtungssatz MST4 Standardausführung / seal kit MST4 standard design</b>									
Pos. 2, 5, 11, 13, 15, 16, 20, 24 nur im kompletten Dichtungssatz erhältlich / Item 2, 5, 11, 13, 15, 16, 20, 24 available es complete seal kits only									
	1	Dichtungssatz Seal kit	TFM / FPM	58-36-941/00		58-36-942/00		58-36-943/00	
	1	Dichtungssatz Seal kit	TFM / EPDM	58-36-941/01		58-36-942/01		58-36-943/01	
	1	Dichtungssatz Seal kit	TFM / VMQ	58-36-941/02		58-36-942/02		58-36-943/02	
	1	Dichtungssatz Seal kit	TFM / HNBR	58-36-941/06		58-36-942/06		58-36-943/06	





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Ersatzteilliste: spare parts list

**Membranventil fan support MS4, MSE4, MST4 FS-VSM ATEX**  
**Diaphragm valve fan support MS4, MSE4, MST4 FS-PSH ATEX**  
**DN25-100; 1-4 Zoll / Inch**

pos. item	Menge quantity	Beschreibung description	Material	DN65	2,5"	3"	DN80	DN100	4"	Datum:		Blatt		
										WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	08.06.15
7	1	Membranunterstützung Fan support	Ryton R4-XT	08-48-512/93 H318534	08-48-512/93 H318535	08-48-513/93 H318535	08-48-514/93 H318536	08-48-514/93 H318536	08-48-514/93 H318536	08-48-514/93 H318536	08-48-514/93 H318536	08-48-514/93 H318536	08-48-514/93 H318536	08-48-514/93 H318536
8	1	Zugstange Guide rod	1.4305	39-23-083/12 H202608	39-23-083/12 H202608	39-23-130/12 H320577	39-23-130/12 H320577	39-23-130/12 H320577	39-23-130/12 H320577	39-23-130/12 H320577	39-23-130/12 H320577	39-23-130/12 H320577	39-23-130/12 H320577	39-23-130/12 H320577
9	1	Laterne Yoke	1.4404	000 39-40-042/47 H318493	000 39-40-046/47 H318549	000 39-40-043/47 H318494	000 39-40-044/47 H320578	000 39-40-044/47 H320578	000 39-40-044/47 H320578	000 39-40-044/47 H320578	000 39-40-044/47 H320578	000 39-40-044/47 H320578	000 39-40-044/47 H320578	000 39-40-044/47 H320578
10	4	Skt. Schraube Hex. Screw	1.4301	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776	65-01-083/15 M8x20 H78776
11	1	Führungsbuchse Bushing	PTFE 25% Kohle	08-01-178/23 H207154	08-01-178/23 H207154	08-01-178/23 H207154	08-01-178/23 H207154	08-01-178/23 H207154	08-01-178/23 H207154	08-01-178/23 H207154	08-01-178/23 H207154	08-01-178/23 H207154	08-01-178/23 H207154	08-01-178/23 H207154
12	2	Entlüftungstopfen Venting plug	PHT/BLACK	08-60-005/94 H175308	08-60-005/94 H175308	08-60-005/94 H175308	08-60-005/94 H175308	08-60-005/94 H175308	08-60-005/94 H175308	08-60-005/94 H175308	08-60-005/94 H175308	08-60-005/94 H175308	08-60-005/94 H175308	08-60-005/94 H175308
13	1	O-Ring O-ring	EPDM FDA-konform	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794	58-06-078/64 20,2x3 H121794
14	1	Skt. Schraube Hex. Screw	1.4301	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772	65-01-081/15 4xM8x16 H78772
15	1	O-Ring O-ring	EPDM FDA-konform	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911	58-06-340/64 75x4,5 H324911
16	1	O-Ring O-ring	EPDM FDA-konform	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390	58-06-083/64 22x3,5 H319390
17	1	Steuerkopf Actuator	1.4301	000 15-32-052/17 H171380	000 15-32-052/17 H171380	000 15-32-052/17 H171380	000 15-32-052/17 H171380	000 15-32-052/17 H171380	000 15-32-052/17 H171380	000 15-32-052/17 H171380	000 15-32-052/17 H171380	000 15-32-052/17 H171380	000 15-32-052/17 H171380	000 15-32-052/17 H171380
18	1	O-Ring O-ring	NBR 70-75 Shore A	58-06-297/83 H173930	58-06-297/83 H173930	58-06-297/83 H173930	58-06-297/83 H173930	58-06-297/83 H173930	58-06-297/83 H173930	58-06-297/83 H173930	58-06-297/83 H173930	58-06-297/83 H173930	58-06-297/83 H173930	58-06-297/83 H173930
19	1	Zentrierscheibe Centering nut	1.4301	15-28-940/12 H170196	15-28-940/12 H170196	15-28-940/12 H170196	15-28-940/12 H170196	15-28-940/12 H170196	15-28-940/12 H170196	15-28-940/12 H170196	15-28-940/12 H170196	15-28-940/12 H170196	15-28-940/12 H170196	15-28-940/12 H170196
20	1	Skt. Mutter Hex. Nut	1.4301	65-50-105/15 H112376	65-50-105/15 H112376	65-50-105/15 H112376	65-50-105/15 H112376	65-50-105/15 H112376	65-50-105/15 H112376	65-50-105/15 H112376	65-50-105/15 H112376	65-50-105/15 H112376	65-50-105/15 H112376	65-50-105/15 H112376
21	1	Schaltlocke Operating cam	1.4523	08-52-291/97 H173087	08-52-291/97 H173087	08-52-291/97 H173087	08-52-291/97 H173087	08-52-291/97 H173087	08-52-291/97 H173087	08-52-291/97 H173087	08-52-291/97 H173087	08-52-291/97 H173087	08-52-291/97 H173087	08-52-291/97 H173087
22	1	VSM Gehäuse Proximity switch holder housing	Vestamid	15-33-932/93 H173931	15-33-932/93 H173931	15-33-932/93 H173931	15-33-932/93 H173931	15-33-932/93 H173931	15-33-932/93 H173931	15-33-932/93 H173931	15-33-932/93 H173931	15-33-932/93 H173931	15-33-932/93 H173931	15-33-932/93 H173931



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**RN ATEX 064.9**



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Ersatzteilliste: spare parts list

**Membranventil fan support MS4, MSE4, MST4 FS-VSM ATEX**  
**Diaphragm valve fan support MS4, MSE4, MST4 FS-PSH ATEX**  
**DN25-100; 1-4 Zoll / Inch**

		Datum:		08.06.15		10.06.16		19.06.17	
		Name:		Trytko		Trytko		Sendker	
		Geprüft:		Schulz		Schulz		Goebel	
		Datum:						Blatt 9 von 9	
		Name:						RN ATEX 064.9	
		Geprüft:							
pos.	Menge	Beschreibung	Material	DN65	2,5"	3"	DN80	DN100	4"
item	quantity	description	material	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
<b>Dichtungssatz MS4, MSE4 Standardausführung / seal kit MS4, MSE4 standard design</b>									
Pos. 2, 5, 11, 13, 15, 16, 20 nur im kompletten Dichtungssatz erhältlich / Item 2, 5, 11, 13, 15, 16, 20 available es complete seal kits only									
		Dichtungssatz Seal kit	TFM / FPM	58-36-923/00 H329273		58-36-926/00 H329968	58-36-924/00 H334314	58-32-925/00	
		Dichtungssatz Seal kit	TFM / EPDM	58-36-923/01 H324947		58-36-926/01 H324950	58-36-924/01 H324948	58-36-925/01 H324949	
		Dichtungssatz Seal kit	TFM / VMQ	58-36-923/02		58-36-926/02	58-36-924/02	58-36-925/02	
		Dichtungssatz Seal kit	TFM / HNBR	58-36-923/06 H329272		58-36-926/06 H329969	58-36-924/06	58-36-925/06 H329967	
<b>Dichtungssatz MST4 Standardausführung / seal kit MST4 standard design</b>									
Pos. 2, 5, 11, 13, 15, 16, 20, 24 nur im kompletten Dichtungssatz erhältlich / Item 2, 5, 11, 13, 15, 16, 20, 24 available es complete seal kits only									
	1	Dichtungssatz Seal kit	TFM / FPM	58-36-944/00		58-36-947/00	58-36-945/00	58-32-946/00	
	1	Dichtungssatz Seal kit	TFM / EPDM	58-36-944/01		58-36-947/01	58-36-945/01	58-36-946/01	
	1	Dichtungssatz Seal kit	TFM / VMQ	58-36-944/02		58-36-947/02	58-36-945/02	58-36-946/02	
	1	Dichtungssatz Seal kit	TFM / HNBR	58-36-944/06		58-36-947/06	58-36-945/06	58-36-946/06	







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Ersatzteilliste: spare parts list

**Membranventil fan support M504, M5EO4, M5TO4 FS-VSM Ex II 2G IIB TX**  
**Diaphragm valve fan support M5O4, M5EO4, M5TO4 FS-PSH Ex II 2G IIB TX**  
**DN25-100 ; 1-4 Zoll / inch**

Datum: 15.06.15  
 Name: Trytko  
 Geprüft: Schulz

Datum:   
 Name:   
 Geprüft:   
 Blatt 2 von 7



**RN ATEX 064.11**

pos. item	Menge quantity	Beschreibung description	Material	DN25	1"	DN40	1,5"	DN50	2"
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	
1	1	Gehäuse M41 Housing M41	1.4404				000 39-41-420/47 H174156		
	1	Gehäuse M42 Housing M42	1.4404				000 39-42-420/47 H174157		
1.1	1	Gehäuse ME41 Housing ME41	1.4404				000 39-45-420/47 H179385		
	1	Gehäuse ME42 Housing ME42	1.4404				000 39-46-420/47 H179398		
	1	Gehäuse ME43 Housing ME43	1.4404				000 39-47-420/47 H179427		
	1	Gehäuse ME44 Housing ME44	1.4404				000 39-48-420/47 H179433		
1.2	1	Gehäuse MT41 Housing MT41	1.4404				000 39-43-420/47 H175718		
	1	Gehäuse MT42 Housing MT2	1.4404				000 39-44-420/47 H175719		
2	O-Ring O-ring	PTFE 25% Kohle					58-06-127/23 32,5x5 H314795		
3	Schaft Valve shaft	1.4404					39-22-090/42 H334321		
4	Schaft oben Upper valve shaft	1.4301					39-22-071/12 H318487		
5	Membrane Diaphragm	TFM FDA-konform					58-23-051/23 H318544		
6	Stern Star	1.4301					08-48-521/12 H320249		
7	Membranunterstützung Fan support	Ryton R4-XT					08-48-511/93 H318533		
8	Zugstange Guide rod	1.4305					39-23-129/12 H320621		
9	Laterne Yoke	1.4404					000 39-40-041/47 H318492		







Ersatzteilliste: spare parts list

**Membranventil fan support M5O4, M5EO4, M5TO4 FS-VSM Ex II 2G IIB TX**  
**Diaphragm valve fan support M5O4, M5EO4, M5TO4 FS-PSH Ex II 2G IIB TX**  
**DN25-100 ; 1-4 Zoll / inch**

Datum: 15.06.15  
 Name: Trytko  
 Geprüft: Schulz

Datum:   
 Name:   
 Geprüft:   
 Blatt 5 von 7



**RN ATEX 064.11**

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	
1	1	Gehäuse M41 Housing M41	1.4404						
	1	Gehäuse M42 Housing M42	1.4404						
1.1	1	Gehäuse ME41 Housing ME41	1.4404						
	1	Gehäuse ME42 Housing ME42	1.4404						
	1	Gehäuse ME43 Housing ME43	1.4404						
	1	Gehäuse ME44 Housing ME44	1.4404						
1.2	1	Gehäuse MT41 Housing MT41	1.4404						
	1	Gehäuse MT42 Housing MT42	1.4404						
2	O-Ring O-ring	PTFE 25% Kohle							
3	Schaft Valve shaft	1.4404							
4	Schaft oben Upper valve shaft	1.4301							
5	Membrane Diaphragm	TFM FDA-konform							
6	Stern Star	1.4301							
7	Membranunterstützung Fan support	Ryton R4-XT							
8	Zugstange Guide rod	1.4305							
9	Laterne Yoke	1.4404							

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Ersatzteilliste: spare parts list

**Membranventil fan support M5O4, M5EO4, M5TO4 FS-VSM Ex II 2G IIB TX**  
**Diaphragm valve fan support M5O4, M5EO4, M5TO4 FS-PSH Ex II 2G IIB TX**  
**DN25-100 ; 1-4 Zoll / inch**

Datum: 15.06.15  
 Name: Trytko  
 Geprüft: Schulz

Datum:   
 Name:   
 Geprüft:   
 Blatt 6 von 7



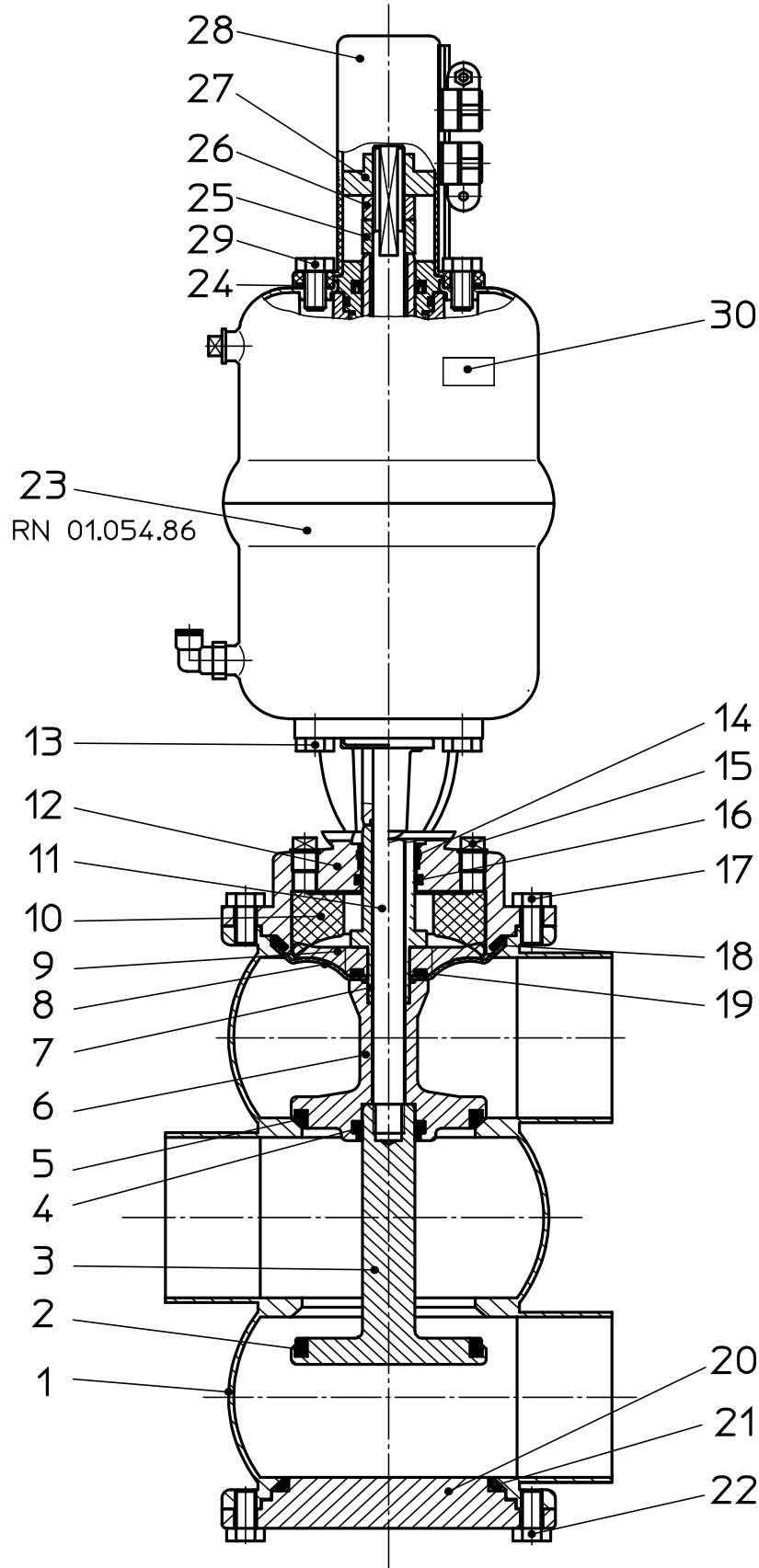
**RN ATEX 064.11**

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"
			material	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
10	4	Skt. Schraube Hex. Screw DIN EN 24017-A2-70	1.4301						
11	1	Führungsbuchse Bushing	PTFE 25% Kohle						
12	2	Entlüftungstopfen Venting plug G1/8"	PHT/BLACK						
13	1	O-Ring O-ring	EPDM FDA-konform						
14		Skt. Schraube Hex. Screw DIN EN 24017-A2-70	1.4301						
15	1	O-Ring O-ring	EPDM FDA-konform						
16		O-Ring O-ring	EPDM FDA-konform						
17	1	Steuerkopf Actuator	1.4301						
18	1	O-Ring O-ring OR 66x2	NBR 70-75 Shore A						
19	1	Zentrierscheibe Centering nut	1.4301						
20	1	Skt. Mutter Hex. Nut DIN EN ISO 10511 M12-A2	1.4301						
21	1	Schaltnocke Operating cam	1.4523						
22	1	VSM Gehäuse Proximity switch holder housing	Vestamid						
23	4	Skt. Schraube Hex. Screw DIN EN 24017 -A2-70	1.4301						
24	1	Gehäusedichtung Housing seal	EPDM FDA-konform						
	1	Gehäusedichtung Housing seal	FPM FDA-konform						





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4.1  
 nur bei DN25 und 1"  
 only for DN25 and 1"

Datum:	11.06.15	20.06.16	19.06.17							
Name:	Trytko	Trytko	Sendker							
Geprüft:	Schulz	Schulz	Goebel							

Ersatzteilliste: spare parts list

**Membranventil fan support MSES4 FS- VSM ATEX**  
**Diaphragm valve fan support MSES4 FS- PSH ATEX**  
 DN 25-100; 1-4 Zoll / Inch



SPX FLOW  
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Blatt 1 von 9

**RN ATEX 064.12**











Ersatzteilliste: spare parts list

**Membranventil fan support MSES4 FS- VSM ATEX**  
**Diaphragm valve fan support MSES4 FS- PSH ATEX**  
**DN25-100; 1-4 Zoll / Inch**

Datum:		11.06.15	20.06.16	19.06.17
Name:	Trytko	Trytko	Schulz	Sendker
Geprüft:	Schulz	Schulz	Goebel	
Datum:				
Name:				
Geprüft:				
Blatt		6	von	9
<b>RN ATEX 064.12</b>				

		3"		DN80		DN100		4"	
WS-Nr. ref.-no.		000 39-49-570/47 H176971		000 39-49-545/47 H176966		000 39-49-645/47 H176967		000 39-49-670/47 H176972	
WS-Nr. ref.-no.		000 39-50-570/47 H312048		000 39-50-545/47 H201915				000 39-50-670/47	
WS-Nr. ref.-no.		000 39-49-495/47 H176964		000 39-49-520/47 H176970				000 39-49-670/47	
WS-Nr. ref.-no.		000 39-50-495/47 H200921		000 39-50-520/47 H206292				000 39-50-670/47	
WS-Nr. ref.-no.		000 39-51-485/47 H201525						000 39-50-670/47	

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"
1	1	Gehäuse Housing MES45	1.4404	000 39-49-495/47 H176964	000 39-49-520/47 H176970	000 39-49-570/47 H176971	000 39-49-545/47 H176966	000 39-49-645/47 H176967	000 39-49-670/47 H176972
	1	Gehäuse Housing MES46	1.4404	000 39-50-495/47 H200921	000 39-50-520/47 H206292	000 39-50-570/47 H312048	000 39-50-545/47 H201915		000 39-50-670/47
	1	Gehäuse Housing MES47	1.4404						
	1	Gehäuse Housing MES48	1.4404	000 39-51-485/47 H201525					
2	1	Tellerdichtung Seat seal	EPDM FDA-konform	58-33-493/93 H77515	58-33-493/93 H77515	58-33-568/93 H77561	58-33-543/93 H77546	58-33-643/93 H77586	
	1	Tellerdichtung Seat seal	FPM FDA-konform	58-33-493/73 H77514	58-33-493/73 H77514	58-33-568/73 H77560	58-33-543/73 H77545	58-33-643/73 H77585	
	1	Tellerdichtung Seat seal	HNBR FDA-konform	58-33-493/33 H166678	58-33-493/33 H166678	58-33-568/33 H166679	58-33-543/33 H166681	58-33-643/33 H166682	
	1	Tellerdichtung Seat seal	VMQ FDA-konform	58-33-493/13 H77513	58-33-493/13 H77513	58-33-568/13 H77559	58-33-543/13 H77544	58-33-643/13 H77584	
3	1	Schaft unten Lower valve shaft	1.4404	39-22-803/42 H176997	39-22-819/42 H177024	39-22-820/42 H177025	39-22-804/42 H176998	39-22-805/42 H176999	39-22-812/42 H177027
	1	Schaftdichtung Shaft seal	EPDM FDA-konform				58-33-019/94 H331328		
4	1	Schaftdichtung Shaft seal	FPM FDA-konform				58-33-019/74 H331338		
	1	Schaftdichtung Shaft seal	HNBR FDA-konform				58-33-019/33 H331339		
4.1	1	O-Ring O-ring	VMQ						
	1	Tellerdichtung Seat seal	EPDM FDA-konform	58-33-493/93 H77515	58-33-493/93 H77515	58-33-568/93 H77561	58-33-543/93 H77546	58-33-643/93 H77586	
5	1	Tellerdichtung Seat seal	FPM FDA-konform	58-33-493/73 H77514	58-33-493/73 H77514	58-33-568/73 H77560	58-33-543/73 H77545	58-33-643/73 H77585	
	1	Tellerdichtung Seat seal	HNBR FDA-konform	58-33-493/33 H166678	58-33-493/33 H166678	58-33-568/33 H166679	58-33-543/33 H166681	58-33-643/33 H166682	



Ersatzteilliste: spare parts list

**Membranventil fan support MSES4 FS- VSM ATEX**  
**Diaphragm valve fan support MSES4 FS- PSH ATEX**  
**DN25-100; 1-4 Zoll / Inch**

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"	Datum:		Blatt	
										11.06.15	20.06.16	19.06.17	7
										Name:		RN ATEX 064.12	
										Geprüft:			
										Name:			
										Geprüft:			
5	1	Tellerdichtung Seat seal	VMQ FDA-konform	58-33-493/13 H77513	58-33-568/13 H77559	58-33-543/13 H77544	58-33-543/13 H77544	58-33-643/13 H77584					
6	1	Schaft mitte Middle valve shaft	1.4404	39-22-811/42 H177002	39-22-827/42 H177030	39-22-812/42 H177003	39-22-813/42 H177004	39-22-829/42 H177032					
7	1	Schaft oben Upper valve shaft	1.4301	39-22-072/12 H318488		39-22-073/12 H318489		39-22-074/12 H318490					
8	1	Membrane Diaphragm	TFM FDA-konform	58-23-052/23 H318543	58-23-053/23 H318542	58-23-054/23 H318541		58-23-054/23 H318541					
9	1	Stern Star	1.4301	08-48-522/12 H319397	08-48-523/12 H320316	08-48-524/12 H320332		08-48-524/12 H320332					
10	1	Membranunterstützung Fan support	Ryton R4-XT	08-48-512/93 H318534	08-48-513/93 H318535	08-48-514/93 H318536		08-48-514/93 H318536					
11	1	Zugstange Guide rod	1.4305	39-23-083/12 H202608				39-23-130/12 H320577					
12	1	Laterne Yoke	1.4404	39-40-042/47 H318493	39-40-043/47 H318494			39-40-044/47 H320578					
13	4	Skt. Schraube Hex. Screw	1.4301	65-01-081/15 M8x16 H78772	65-01-083/15 M8x20 H78776								
14	1	Führungsbuchse Bushing	PTFE 25% Kohle	08-01-178/23 H207154									
15	2	Entlüftungstopfen Venting plug	PHT/BLACK	08-60-005/94 H175308									
16	1	O-Ring O-ring	EPDM FDA-konform	58-06-078/64 20,2x3 H121794									
17		Skt. Schraube Hex. Screw	1.4301	65-01-081/15 4xM8x16 H78772	65-01-130/15 8xM10x16 H78806								
18	1	O-Ring O-ring	EPDM FDA-konform	58-06-340/64 75x4,5 H324911	58-06-488/64 95x4,5 H324912			58-06-581/64 120x4,5 H324913					
19	1	O-Ring O-ring	EPDM FDA-konform	58-06-083/64 22x3,5 H319390	58-06-098/64 24x3,5 H320270			58-06-140/64 31,1x3,5 H320271					
20	1	Gehäusedeckel Housing lid	1.4404	39-01-139/47 H107248	000 39-01-144/47 H161561	39-01-140/47 H68671		39-01-143/47 H107251					

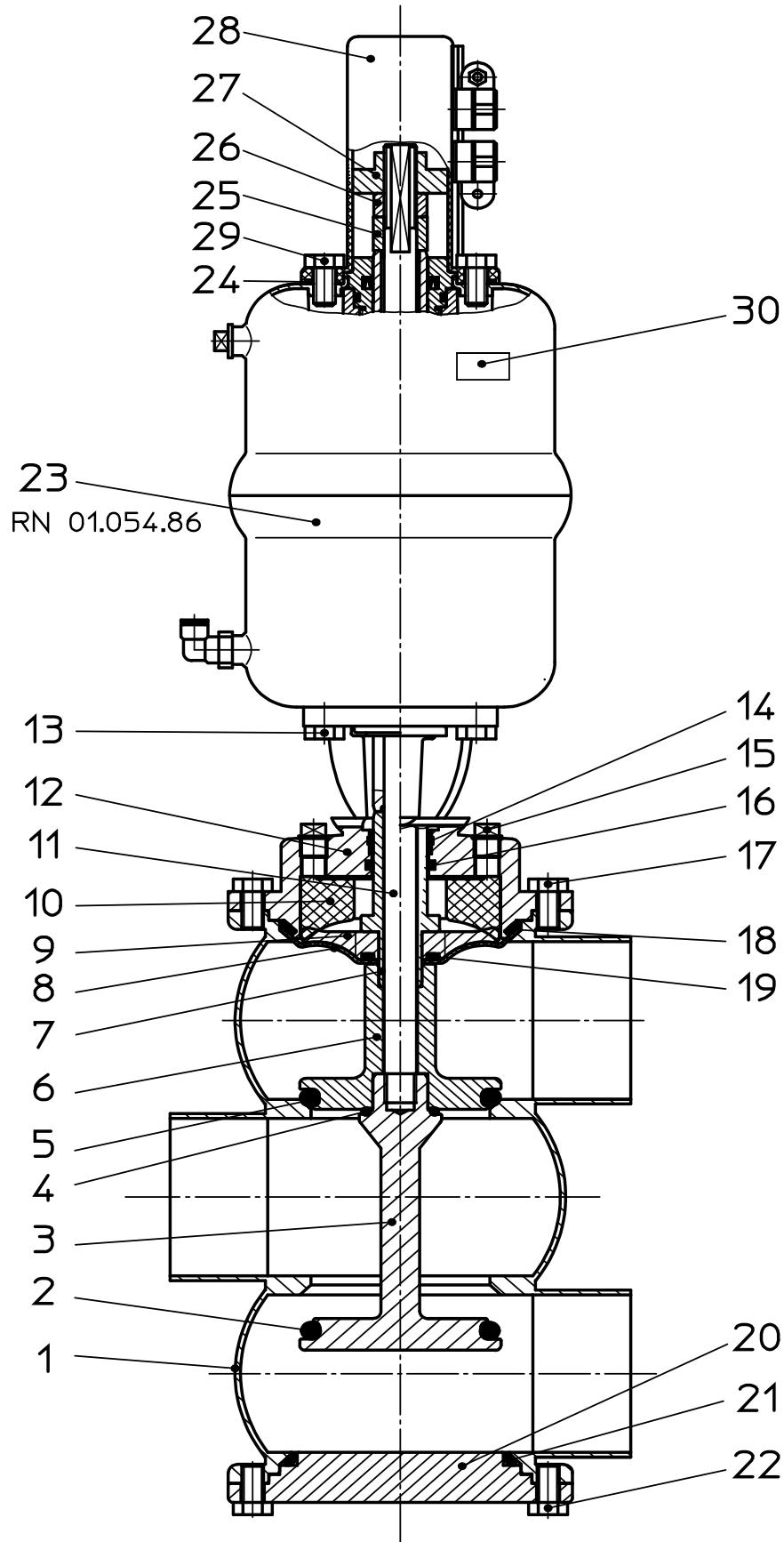








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Datum:	15.06.15										
Name:	Trytko										
Geprüft:	Schulz										

Ersatzteilliste: spare parts list  
**Membranventil fan support MSES04 FS- VSM Ex II 2G IIB TX**  
**Diaphragm valve fan support MSES04 FS- PSH Ex II 2G IIB TX**  
**DN 25-100 ; 1-4 zoll / inch**



SPX FLOW  
Germany

Blatt 1 von 7

**RN ATEX 064.13**

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Ersatzteilliste: spare parts list

## Membranventil fan support MSEOS4 FS- VSM Ex II 2G IIB TX Diaphragm valve fan support MSES04 FS- PSH Ex II 2G IIB TX DN25-100 ; 1-4 Zoll / inch

pos. item	Menge quantity	Beschreibung description	Material	DN25	1"	DN40	1,5"	DN50	2"
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	
1	1	Gehäuse Housing	1.4404				000 39-49-420/47 H176968		
	1	Gehäuse Housing	1.4404			000 39-50-420/47 H178501			
	1	Gehäuse Housing	1.4404						
	1	Gehäuse Housing	1.4404						
2	O-Ring O-ring	PTFE 25% Kohle			58-06-127/23 32,5x5 H314795				
3	Schaft unten Lower valve shaft	1.4404			39-22-081/42 H334201				
4	O-Ring O-ring	FEP FKM			58-06-092/76 22x3,5 H206351				
5	O-Ring O-ring	FEP FKM			58-06-092/76 22x3,5 H206351				
6	Schaft mitte Middle valve shaft	1.4404			39-22-080/42 H334200				
7	Schaft oben Upper valve shaft	1.4301			39-22-071/12 H318487				
8	Membrane Diaphragm	TFM FDA-konform			58-23-051/23 H318544				
9	Stern Star	1.4301			08-48-521/12 H320249				
10	Membranunterstützung Fan support	Ryton R4-XT			08-48-511/93 H318533				
11	Zugstange Guide rod	1.4305			39-23-129/12 H320621				
12	Laterne Yoke	1.4404			39-40-041/47 H318492				
13	Skt. Schraube Hex. Screw	1.4301			65-01-081/15 M8x16 H78772				

Datum: 15.06.15  
Name: Trytko  
Geprüft: Schulz

Datum:  
Name:  
Geprüft:

Blatt 2 von 7

**APV**  
SPX FLOW  
Germany  
**RN ATEX 064.13**







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Ersatzteilliste: spare parts list

## Membranventil fan support MSEOS4 FS- VSM Ex II 2G IIB TX Diaphragm valve fan support MSES04 FS- PSH Ex II 2G IIB TX DN25-100 ; 1-4 Zoll / inch

Datum:	15.06.15								
Name:	Trytko								
Geprüft:	Schulz								
Datum:									
Name:									
Geprüft:									



pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	
1	1	Gehäuse Housing	1.4404						
	1	Gehäuse Housing	1.4404						
	1	Gehäuse Housing	1.4404						
	1	Gehäuse Housing	1.4404						
2	1	O-Ring	PTFE						
	1	O-ring	25% Kohle						
3	1	Schaft unten Lower valve shaft	1.4404						
	1	O-Ring	FEP FKM						
4	1	O-ring	FEP FKM						
	1	O-Ring	FEP FKM						
6	1	Schaft mitte Middle valve shaft	1.4404						
	1	Schaft oben Upper valve shaft	1.4301						
8	1	Membrane	TFM						
	1	Diaphragm	FDA-konform						
9	1	Stern	1.4301						
	1	Star							
10	1	Membranunterstützung Fan support	Ryton R4-XT						
	1	Zugstange Guide rod	1.4305						
12	1	Laterne	1.4404						
	1	Yoke							
13	4	Skt. Schraube Hex. Screw	1.4301						
			DIN EN 24017-A2-70						



Blatt 5 von 7  
RN ATEX 064.13







Ersatzteilliste: spare parts list

**Steuerkopf SW4  
Actuator SW4**

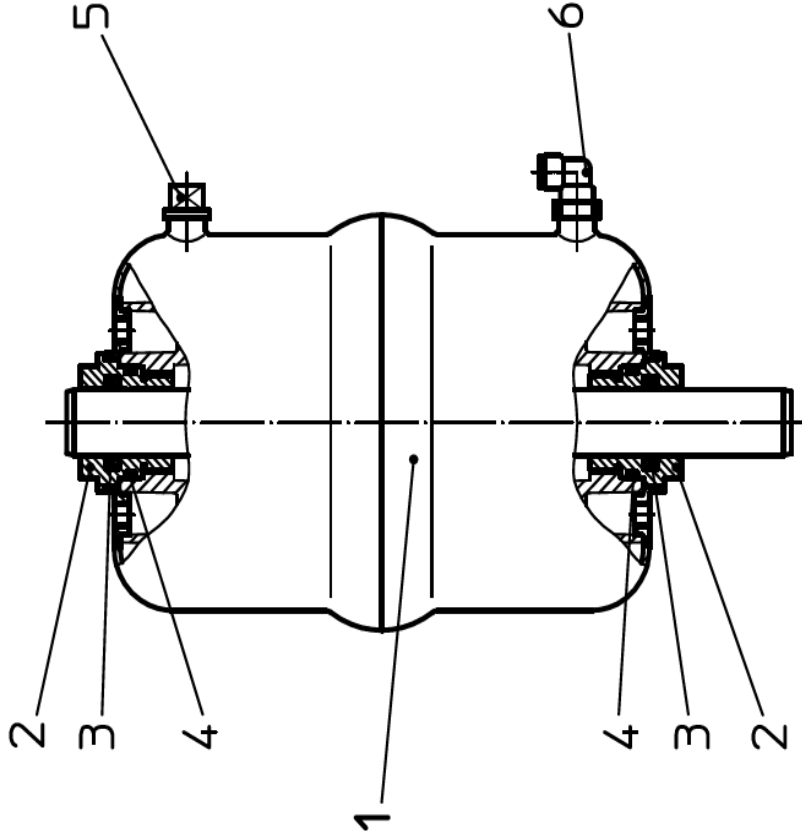
Datum:	11/08	12/09	27.01.15	10.7.17
Name:	Peters	Peters	Trytko	Keil
Geprüft:				



Datum:	Blatt	1	von	1
Name:				
Geprüft:				

**RN 01.054.86**

pos.	Menge quantity	Beschreibung description	Ø 74	Ø 110	Ø 165
item			WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
1	1	Steuerkopf kpl. Feder/Luft - matt glänzend Actuator cpl. Spring/air satin finish	15-32-050/17 H171378	15-32-051/17 H171379	15-32-052/17 H171380
	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	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	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 MS4

DN25-100, 1"-4"

DN25-80, 1"-3"



DIAPHRAGM VALVE

FOR SPECIFIC ATEX-APPLICATIONS

**SPXFLOW**

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SPX FLOW reserves the right to incorporate the latest design and material changes without notice or obligation.

Design features, materials of construction and dimensional data, as described in this manual, are provided for your information only and should not be relied upon unless confirmed in writing. Please contact your local sales representative for product availability in your region. For more information visit [www.spxflow.com](http://www.spxflow.com).

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