

APV SW4

SINGLE SEAT AND CHANGE-OVER VALVE

FORM NO.: H170733 REVISION: GB-5

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



Scan for SW4 Valve
Maintenance Video



We,

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Crawley, RH10 9PY

declare under our sole responsibility that the

APV double seal and double seat valves of the series
SD4, SDT4, SDU4, SDMS4, SDMSU4, SDTMS4, SWcip4, DSV, DA4, DA4 DPF, D4 SL, DU4
SL, DT4 SL, DP4 SL, D4, DA3, DA3SLD, DE3, DEU3, DET3, DKR2, DKRT2, DKRH2

APV butterfly valves of the series SV1, SVS1F, SV2, SVS2F, SVL, SVSL, SVE, SVSE

APV ball valves of the series BLV1

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, UF/R4, VRA/H

and the valve manifolds installed thereof

meet the requirements of the Machinery Directive 2006/42/EC
& EN ISO 12100-2010, DIN EN ISO 14159-2008-07, DIN EN 1672-2-2009-07.

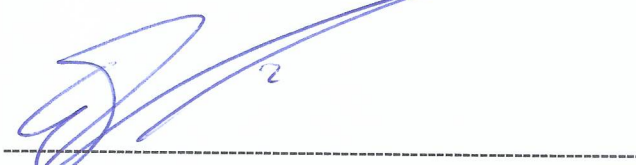
Holzwickede, November 2022



Dr.-Ing. Behdad Ariatabar, Design Center Lead - Valves

meet the requirements of the Supply of Machinery (Safety) Regulations 2008 No. 1597
& BS harmonized standards.

Crawley, November 2022



Ewout Roozendaal, Director Global Pricing

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1. General Terms

This instruction manual must be read carefully 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.

2. Safety

2.1 Symbols



Caution!

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 and risks for persons and / or material assets.



Important Note!

Critical technical information

2.2. Safety Instructions



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

Actuators which are no longer used and/or are 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.

Please address to your local SPX FLOW company.

- Never touch the valve or pipelines during hot liquid processes!



- **Do not touch the open valve or yoke!**
Risk of injury by sudden valve operation.



- Before any maintenance work, **depressurize** the line and cleaning system and discharge the lines if possible.



- Disconnect electric and pneumatic connections.



- During disassembly you may find liquid residues in the valve.

2. Safety



- Remove the turning actuator before the replacement of seals.



- Observe Service Instructions to ensure safe maintenance of the valve.



- Regular maintenance of the valve including replacement of all seals must be scheduled in order to prevent leakages and liquid emersion.



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

3. Intended Use

The intended use as field of application of the APV SW4 single seat and change-over valves is the shut-off of line sections in the food and beverage industries as well as in pharmaceutical and chemical applications.



Caution! The standard SW4 valve must not be used in explosive atmospheres.



Caution! The standard SW4 valve must not be used in aseptic applications.



Caution! Arbitrary, structural changes at the valves may affect safety as well as the intended functionality of the valves and are not permitted.



Note! SPX FLOW Valves (without safety function) are allocated to Category 1 and are evaluated as per Conformity Assessment Module A of the Pressure Equipment Directive 2014/68/EU. According to Article 13, the following allocation applies for the fluids processed in the valves.
Product media – Fluid group 2 – valves in all dimensions.
CIP-cleaning liquids – Fluid group 1 – valves in the dimensions \leq DN100/4" can be used at temperatures up to 140 °C, valves in the dimensions $>$ DN100/4" at temperatures up to 100 °C.

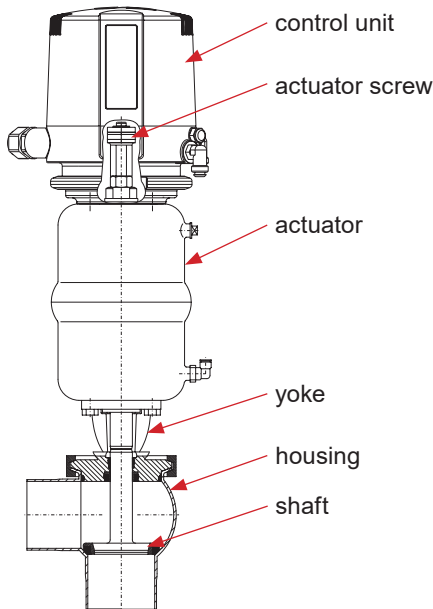
Authorizations and External Approvals

To view the certifications for this and other innovative SPX FLOW products, visit
<https://www.spxflow.com/en/apv/about-us/certifications/>

It is within the responsibility of the plant operator to evaluate and verify the suitability of SPX FLOW products for the intended purpose and service conditions, as well as to determine and follow the applicable laws for the intended applications and areas of application.

4. Mode of Operation

Single seat valve



4.1. General terms

Single seat and change-over valves APV SW4 have been developed for use in the brewing and beverage, dairy and food industries as well as for chemical and pharmaceutical applications.

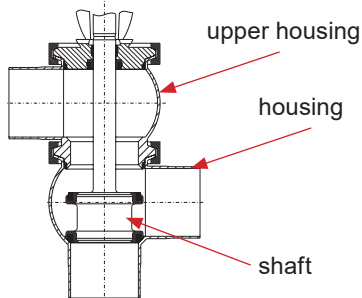
The valves are designed for universal applications and stand out for their increased mechanical reliability and absolute ease of service.

The field of application of the APV SW4 valve is to shut off and to change over line sections.

- Operation by pneumatic actuator with air connection, reset by spring force.
- By different assembly of the actuator, the following designs are possible:
NC: actuator normally closed / air-to-raise, spring-to-lower
NO: actuator normally open / air-to-lower, spring-to-raise
- The inner parts of the actuator need not be serviced.
- As standard design, the SW4 valve is equipped with a control unit CU41 Direct Connect.

The luminous diodes in the control unit indicate the position of the valve shaft.

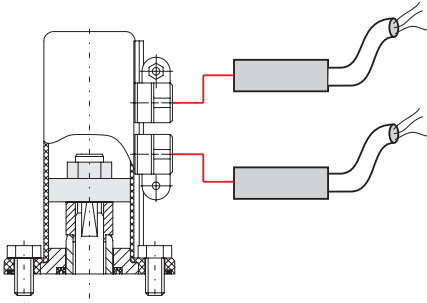
Change-over valve



5. Auxiliary Equipment

5.1. Valve position indication (fig. 5.1.)

fig. 5.1.



Proximity switch holders (PSH) for the valve position indication can be mounted direct on the actuator. Proximity switches to signal the limit position of the valve seat can be installed at the proximity switch holder.

We recommend to use our APV standard types:
 Operating distance: 5 mm / Diameter: 11 mm.
 Operating voltage: 10 - 30 VDC
 Outlet: operating voltage pnp positive switching
 Connection: moulded cable 5 m length
 Protective type: IP 67
 Reference number: 08 - 60 - 011/93; H16223

If the customer decides to use valve position indicators other than those listed above, SPX FLOW cannot assume any liability for the functionality of the valve.

5.2. Control unit (fig. 5.2.)

For the start-up as well as assembly and disassembly of the different designs, please use the respective manual.

The following different designs are available:

fig. 5.2.



Direct Connect reference number; ID-No.	CU41-S-Direct Connect 08-45-100/93; H320460
AS-interface extended reference number; ID-No.	CU41-S-AS-i extended 08-45-110/93; H320467

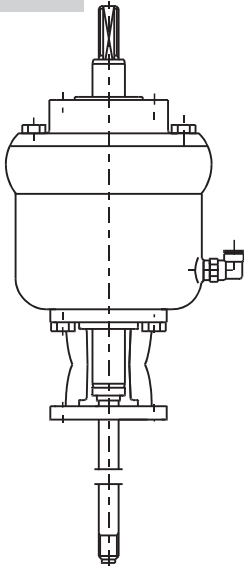
Direct Connect plus reference number; ID-No.	CU41-S-Direct Connect 08-45-100/93; H320460
AS-interface plus reference number; ID-No.	CU41plus-S-AS-i extended 08-45-350/93; H333118
IO-Link plus reference number; ID-No.	CU41plus-S-M12 IO-Link 08-45-481/93; H345124

An adapter is required to install the control unit on the SW4 valve.

CU4 reference number; ID-No.	CU41-S-adapter DN25 - 100 /1"-4" 08-46-600/93; H320474
CU4 plus reference number; ID-No.	CU41-S-plus adapter DN25 - 100 /1"-4" 08-48-690/93; H333143

5. Auxiliary Equipment

fig. 5.3.



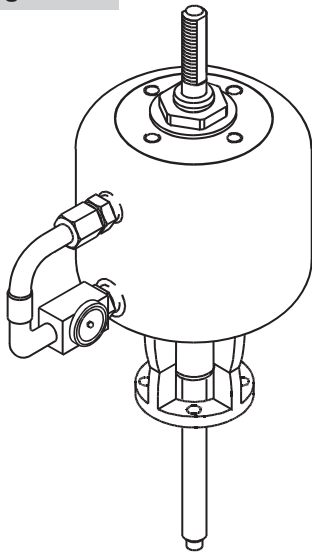
5.3. Stroke limitation SW4 / M4 (fig. 5.3.)

The pneumatic stroke limitation provides for the continuous adjustment of the total valve stroke of 0 - 100%. The pneumatic stroke limitation is installed on the actuator. The valve disc can be in the three different positions: open, throttled and closed. The stroke limitation can only be applied with valve design NC (FS) = normally closed.

To operate the pneumatic stroke limitation a separate control is required. The control unit CU43-S-2 Hall sensors-Direct Connect can be used for this purpose.

control unit + adapter	
Designation: reference No.;	CU43-S-2 Hall sensors-Direct Connect
ID-No.	000 08-45-106/93; H320466
Designation: reference No.;	CU4-S-Adapter
ID-No.	000 08-48-600/93; H320474

fig. 5.4.



5.4. Oil dampening cylinder (fig. 5.4.)

The oil dampening cylinder provides for a slow opening and closing of the valve (to prevent pressure hammers in the line system). The oil dampener is installed between the actuator and the control unit. Function: During valve switching, a throttling valve presses the oil from one chamber of the dampening cylinder into the second chamber of the cylinder. By adjustment of the throttling screw, the required delay can be variably adjusted.

5.5. SW4 variants

The APV SW4 range contains the following designs:

- SW4 - DN125-150
- SW4 with manual actuation
- SWT4 - tank outlet valve
- SW4 - long stroke version
- SW4 -DPF (with steam chamber)
- SWR4 (with modulating cone)
- SW4 - ATEX DN 25-100, Inch 1"-4"

Corresponding manuals are available for the different designs.

6. Cleaning

6.1. Cleaning recommendation

- **Flow passages**

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

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



Caution!

The cleaning liquid applied must be compatible with the respective seal material.

7. Installation and Commissioning

7.1. General terms

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

- **Single seat valve:**

Except for the single seat valves with SWE41 and SWE42 housing configurations, the valve housing can be welded direct into the pipeline system (completely dismantlable valve insert).

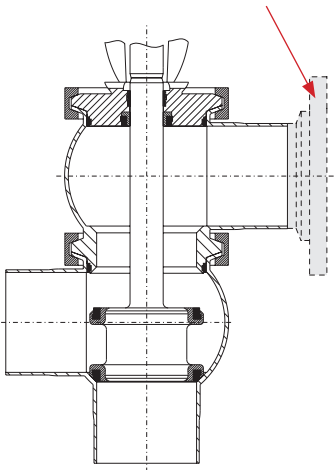
- **Change-over valve:**

The upper housing is connected with the pipeline via a flange or clamp connection in detachable manner (see fig. 7.).

fig. 7.

Change-over valve

separate connection



Note! Observe Welding Instructions 7.3.



Caution!
Before first startup:

- Check the function of the control unit or valve position indication if installed.
- Check for possible leakages during commissioning. Replace defective seals.

7.2. Connections

Besides the basic version with weld ends, the valve housing are also available with threaded, flange and clamp connection.

7. Installation and Commissioning

7.3. Welding Instructions

Shut-off valve

- Before welding of the valve, the valve insert must be dismantled from the housing. Careful handling to avoid damage to the parts is necessary.

Change-over valve:

- Before welding of the valves, the valve insert must be dismantled from the housing. The lower housing seal must be removed. 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).
- 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 as a square butt joint without air. (Consider shrinkage!)
- TIG orbital welding is best!



Caution!

After welding of the valve housing or of the mating flanges, and after performing any work on the piping, do not operate the valves until the corresponding areas of the installation and piping have been cleaned and welding residue has been removed. If the piping is not cleaned before operation, welding residue and dirt particles can settle in the valves and cause damage to the valves and seals.

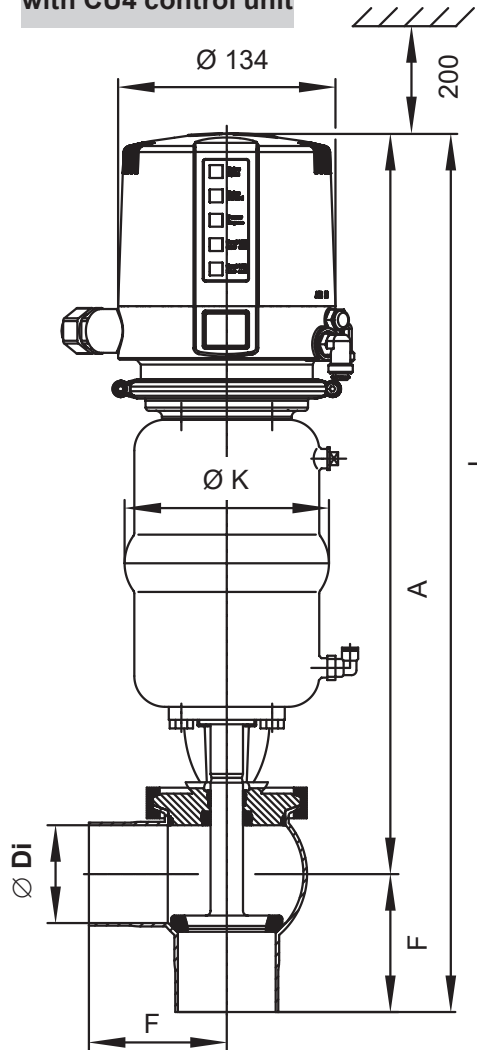
- If these welding instructions are not followed, any resulting damage will not be covered by the warranty.
- Welding directives for aseptic applications shall be drawn from the AWS/ANSI Directives and EHEDG Guidelines.

8. Dimensions/Weights

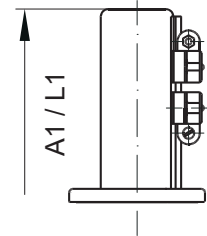
8.1. Single seat valve housing variants



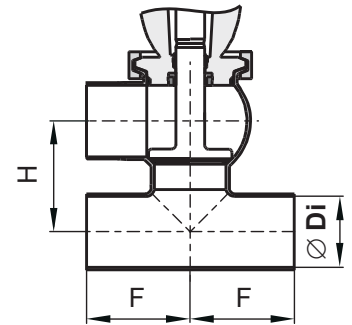
Single seat valve with CU4 control unit



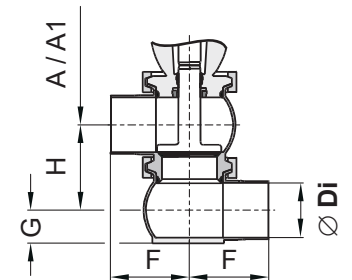
Valve position indicator



SWE 43/44



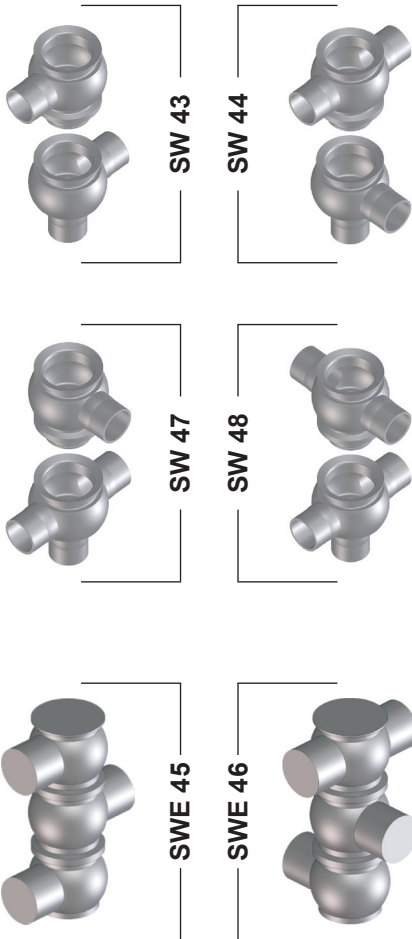
SWE 41/42



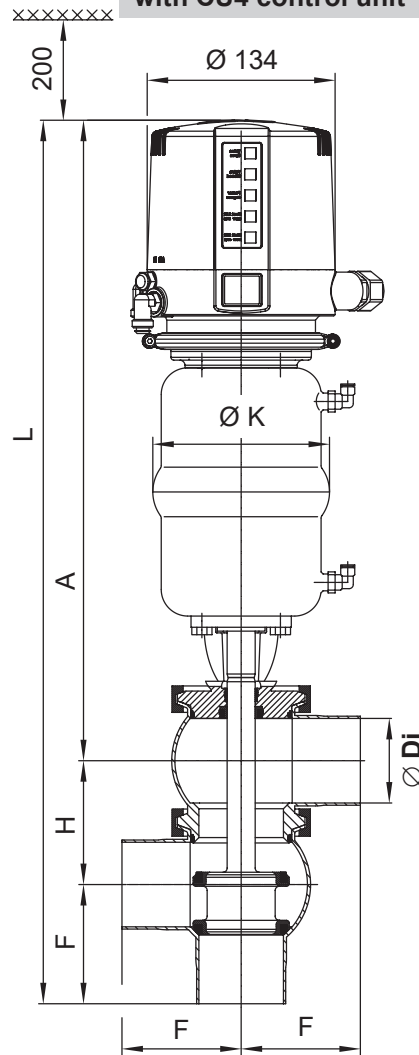
Dimensions in mm										Weight in kg
DN	A	L	Ø Di	F	Ø G	H	Ø K	A1	L1	
25	410	460	26	50	18	54	86	338	388	5
40	414	481	38	67	24	66	86	342	409	5
50	451	523	50	72	32	78	126	379	451	7
65	459	544	66	85	40	94	126	387	472	7
80	512	610	81	98	47,5	109	189	440	438	13
100	522	633	100	111	57	128	189	450	561	15
Inch										
1"	408	458	22,6	50	16,3	50,6	86	336	386	5
1,5"	412	479	34,9	67	22,4	62,9	86	340	407	5
2"	450	522	47,6	72	30,8	75,6	126	378	450	7
2,5"	456	541	60,3	85	37,2	88,3	126	384	469	7
3"	507	597	72,9	90	43,5	100,9	189	435	525	13
4"	520	631	97,6	111	55,8	125,6	189	448	559	15

8. Dimensions/Weights

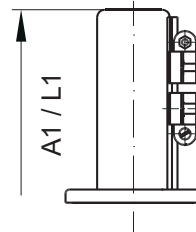
8.2. Change-over valve housing variants



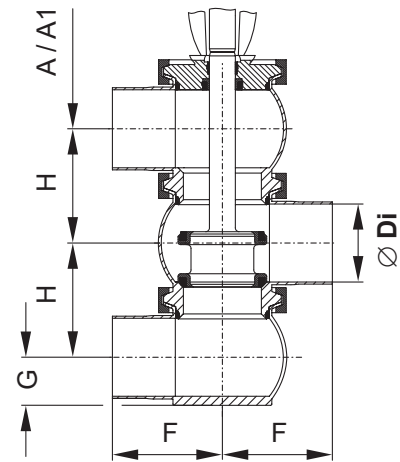
Change-over valve with CU4 control unit



Valve position indicator



SWE 45/46



Dimensions in mm										Weight in kg
DN	A	L	Ø Di	F	Ø G	H	Ø K	A1	L1	
25	410	514	26	50	18	54	86	338	442	6
40	414	547	38	67	24	66	86	342	475	6
50	451	601	50	72	32	78	126	379	529	8
65	459	638	66	85	40	94	126	387	566	8
80	512	719	81	98	47,5	109	189	440	647	15
100	522	761	100	111	57	128	189	450	689	17
Inch										
1"	408	509	22,6	50	16,3	50,6	86	336	437	6
1,5"	412	542	34,9	67	22,4	62,9	86	340	470	6
2"	450	598	47,6	72	30,8	75,6	126	378	526	8
2,5"	456	629	60,3	85	37,2	88,3	126	384	557	8
3"	507	698	72,9	90	43,5	100,9	189	435	626	15
4"	520	757	97,6	111	55,8	125,6	189	448	685	17

9. Technical Data

9.1. General data

- Product-wetted parts: 316 L, 1.4404 (DIN EN 10088)
- Other parts: 1.4301 (DIN EN 10088)
- Seals: standard design: EPDM
- Option: HNBR, FPM, VMQ
- Max. line pressure: 10 bar
- Operating pressure: depending on actuator
- see 9.6
- Max. operating temperature: 135°C EPDM, HNBR
*FPM, *VMQ
- Short-term load: 140°C EPDM, HNBR
*FPM, *VMQ
*(no steam)



Caution!

Valves > DN100/4"

CIP cleaning liquid
up to 100 °C

- Air connection (for hose): 6 x 1 mm
- Max. pneumatic air pressure: 8 bar
- Min. pneumatic air pressure: 6 bar

Use dry and clean air, only.

9.2. Compressed air quality

- Compressed air quality: quality class according to ISO 8573-1
- Content of solid particles: quality class 3,
max. number of 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. Closing times for single seat and change-over valves

The opening and closing times of the valves which are equipped with a control unit, can be fixed through adjustment of the throttling screws at the solenoid valve.

		Closing times in sec Pneumatic air pressure 6bar	
		hose length 1 m	
DN	Inch	1m	10m
25	1"	1 sec.	1,5 sec.
40	1,5"	1 sec.	1,5 sec.
50	2"	1 sec.	1,5 sec..
65	2,5"	1 sec.	2,5 sec.
80	3"	1 sec.	3,0 sec.
100	4"	1.2 sec.	3,5 sec.

Times mentioned are only approximate values from sample measurements.

9.4. Valve stroke

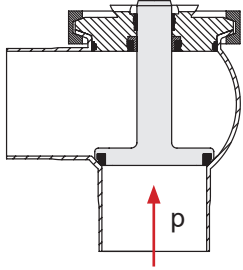
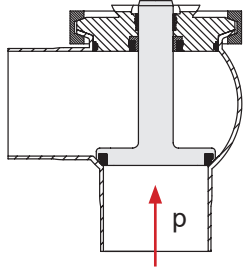
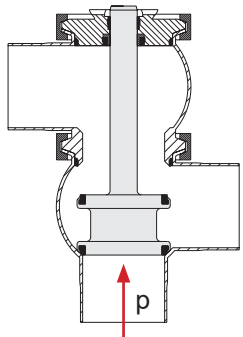
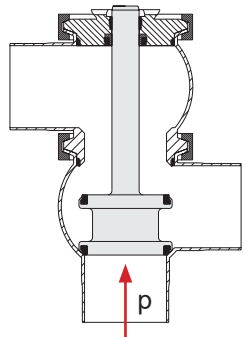
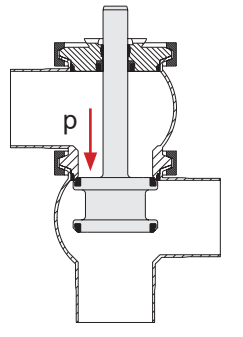
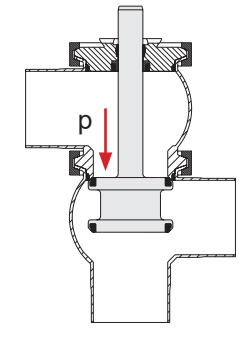
DN	Inch	Single seat valve SW 41, SW 42 SWE41, 42, 43, 44	Change-over valve SW43, SW44 SWE45, 46
25	1"	12	9
40	1,5"	25	22
50	2"	28	25
65	2,5"	28	25
80	3"	28	25
100	4"	28	25

9.5. Pneumatic air consumption at 6 bar control pressure

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

9. Technical Data

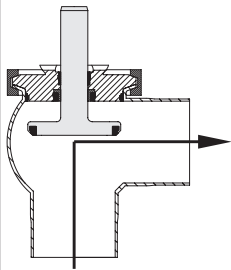
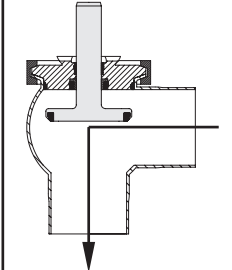
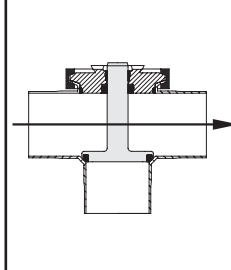
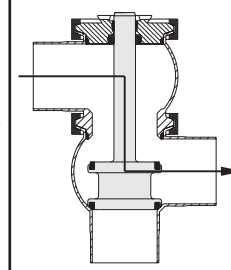
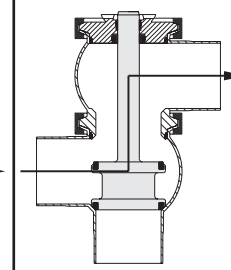
9.6. Calculatory product pressures in (bar) at 6 bar pneumatic air pressure

		Single seat valve SW41 FS			Single seat valve SW41 NO with 6 bar air pressure								
													
		Change-over valve SW43 NC lower seat			Change-over valve SW43 NO with 6 bar air pressure			Change-over valve SW43 NC upper seat with 6 bar air pressure			Change-over valve SW43 NO upper seat		
													
		Ø Actuator in mm			Ø Actuator in mm			Ø Actuator in mm			Ø Actuator in mm		
DN	Inch	Ø 74	Ø 110	Ø 165	Ø 74	Ø 110	Ø 165	Ø 74	Ø 110	Ø 165	Ø 74	Ø 110	Ø 165
25	1"	11,7			11,2			20,3			21,2		
40	1,5"	5,0	12,5		5,4	11,2		6,9	14,4		6,0	16,0	
50	2	2,8	7,6	19,6	3,4	7,1	16,8	4,0	8,3	19,5	3,3	8,8	22,8
	2,5"	2,0	5,4	13,8	2,4	5,0	11,9	2,7	5,5	13,1	2,2	6,0	15,3
65		1,7	5,0	11,7	2,0	5,0	10,0	2,2	5,0	10,9	1,8	5,0	12,7
	3"		3,8	9,9		3,6	8,5		3,8	9,1		4,1	10,6
80			3,1	7,9		2,9	6,8		3,0	7,2		3,3	8,4
100	4"		2,1	5,3		1,9	5,0		2,0	5,0		2,1	5,5

 standard actuator

9. Technical Data

9.7. Kvs values in m³/h

	SW41, 42 SWE41, 42 SWE43, 44	SW41, 42 SWE41, 42 SWE43, 44	SW42 SWE42 SW44	SW43, 44 SW47, 48	SW43, 44 SW47, 48
					
DN					
25	20	21	28	14	13
40	45	53	60	33	31
50	92	85	120	58	51
65	159	159	215	100	89
80	201	209	350	160	137
100	302	325	540	245	212
Inch					
1"	16	18	26	10	10
1,5"	38	45	57	30	28
2"	83	77	118	54	49
2,5"	133	133	185	87	76
3"	176	176	300	137	114
4"	292	310	530	225	210

10. Maintenance

Scan for SW4 Valve Maintenance Video



Note!

The maintenance intervals are different depending on the application and must be determined by the operator performing regular checks.



Caution!

Do not clean the valve with products containing abrasive or polishing substances. Abrasive and polishing agents are especially harmful to the valve shaft.



Required tools for standard maintenance:

- 1x wrench SW13
- 1x wrench SW17
- 1x wrench SW19
- 1x wrench SW30
- assembly tool for seat seal (see chapter 14.)

- Exchange of seals is done according to Service Instructions.

Customer stock keeping of spare seals is recommended.
 For valve maintenance SPX FLOW offers complete seal kits (see spare parts lists).

Assembly of the valve and change of the valve design NC or NO according to Service Instructions.



Caution!

The use of seal materials being compatible with the product, application and CIP liquids must be ensured. In case of doubt, contact your local SPX FLOW representative.

- Provide all seals with a thin layer of grease before their installation!

Recommendation:

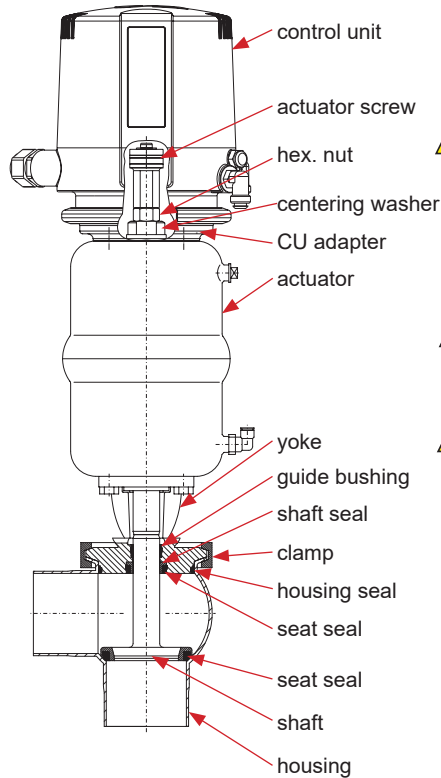
APV assembly grease for EPDM, FPM, HNBR and NBR
 (0,75 kg/tin - ref.-No. 000 70-01-019/93; H147382)
 (60 g/tube - ref.-No. 000 70-01-018/93; H147381)
 or
 APV assembly grease for VMQ (Silicone)
 (0,6 kg/tin - ref.-No. 000 70-01-017/93; H147380)
 (60 g/tube - ref.-No. 000 70-01-016/93; H147379)

- ! Do not use grease containing mineral oil for EPDM seals.
- ! Do not use Silicone-based grease for VMQ seals.

Less suited grease types can influence function and life time.

11. Service Instructions for Single Seat Valve

Single seat valve



11.1. Dismantling from line system

Single seat valves

APV SW41, SW42, SWE41, SWE42, SWE43, SWE44



Caution!

1. Shut off the line pressure in the product and cleaning lines, and discharge the pipes if possible.
2. Release connection between the upper housing globe and the connected line.



Note!

**Valve design NC:
Control actuator with air.**



Caution!

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

3. Detach clamp and lift valve insert off the housing.
4. Shut off compressed air and remove compressed air supply.
5. Remove control unit from actuator.

11.2. Dismantling of product-wetted parts

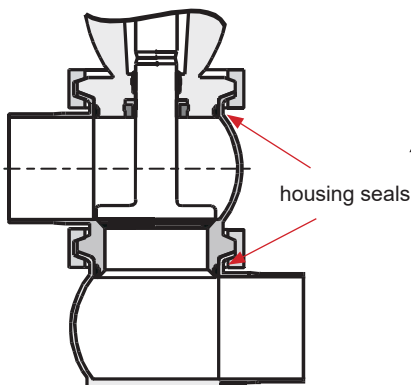
1. Remove housing seal.
2. Unscrew actuator screw from guide rod.
3. Release safety nut while holding up the centering washer. Remove the centering washer.
4. Pull the valve shaft out of the actuator. Remove the seat seal.
5. Unscrew the yoke from the actuator.
6. Detach the seat seal, shaft seal and guide bushing.

Note!

To dismantle the lower housing seal of the SWE41/42 valve variants, detach clamp, separate housing and remove the housing seal.

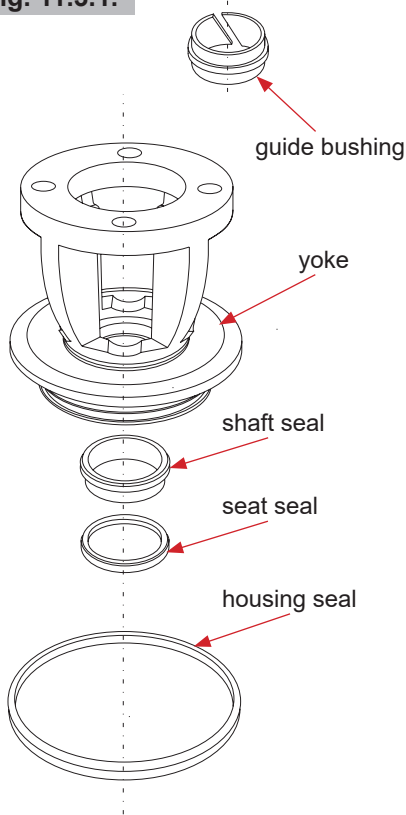


SWE41/42 housing variants



11. Service Instructions for Single Seat Valve

fig. 11.3.1.



11.3. Installation of seals and assembly of valve

1. Insert the guide bushing into the yoke. Afterwards, insert the shaft seal and press in the slightly greased seat seal (see fig. 11.3.1.). See to the correct installing position.
2. Install the yoke at the actuator.
3. Insert the seat seal into the shaft. Use the assembly tool to install the seat seal (see chapter 14). Grease the seat seal only slightly before its installation. In case of manual installation, vent the seal groove with a thin object between the seal and groove wall.

4. Install the protective tube via the thread of the guide rod. Slide the shaft through the yoke and actuator. Place centering washer and tighten it with the safety nut. Hold up the centering washer during this process.



Note! Tightening torque 40 Nm.

5. Slightly grease the housing seal and install it in the groove of the yoke, respectively for SWE41/42 in the groove of the upper housing.
6. Install the adapter for the control unit on the actuator. Apply a drop of a screw locker (e.g. type: Loctite semi-solid) in the area of the threaded bore of the actuator screw. Fasten actuator screw on the guide rod.

11.4. Installation of valve

1. Fasten the control unit.
2. Connect compressed air supply.



Note! Valve design NC: Control actuator with air.



Caution! Do not touch movable valve parts! Risk of injury by sudden valve operation.

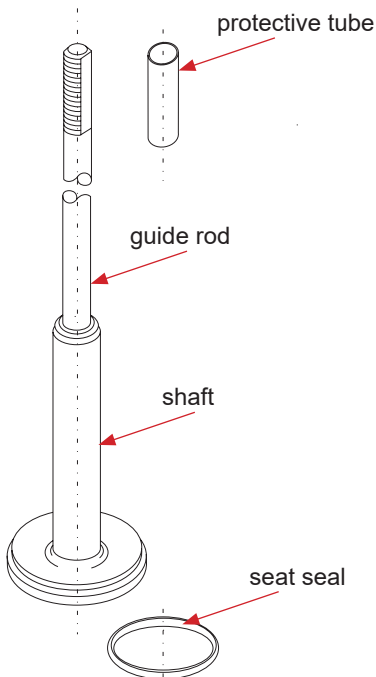
3. Place the valve insert carefully into the housing and fasten the clamp. The housing seal must not be damaged during the installation.



Note! Valve design NC: Shut off compressed air.

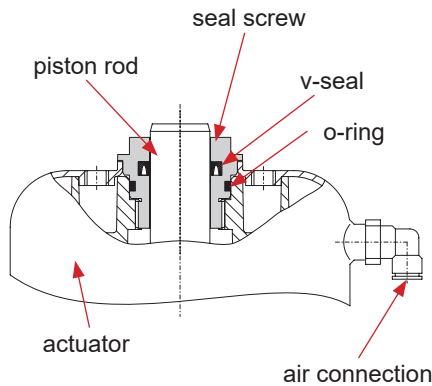
4. Check the basic adjustment of the valve position indication if necessary.

- The shift points can be adjusted by turning the positioning screw in the control unit.



12. Service Instructions for Actuator

fig. 12.1.



12.1. Maintenance of actuator

1. Remove the air hoses from the actuator.
2. Remove the inner hexagon screws from the adapter of the control unit.
3. Unscrew the two seal screws with a spanner SW30 while holding up the actuator with a strap wrench.

12.2. Installation of seals and assembly of actuator

1. Install the greased o-rings and v-seals in the seal screws (fig. 12.2). See to the correct installing direction 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 for the control unit and the yoke on the actuator.



Note!

Observe position of the adapter.



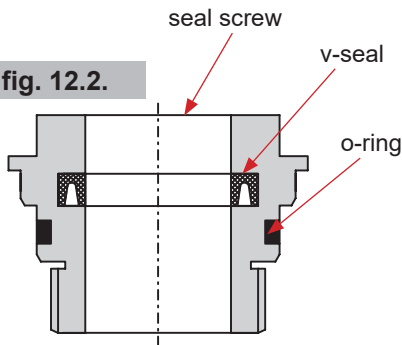
Note!

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

NC = normally closed / air-to-raise, spring-to-lower
NO = normally open / air-to-lower, spring-to-raise

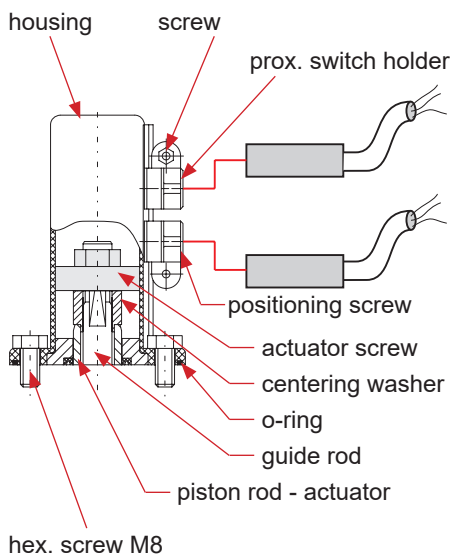
4. Fasten the air hoses.

fig. 12.2.



12.3. Actuator with valve position indicator Assembly of holders (fig. 12.3.)

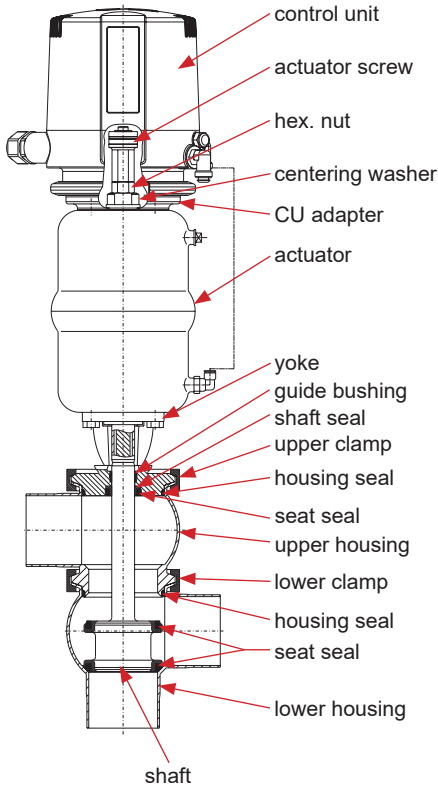
fig. 12.3.



1. Install the actuator screw on the actuator.
2. Provide the housing with the o-ring.
3. Fasten the housing by means of the 4 hex. screws M8 on the actuator.
4. Release the screws at the proximity switch holder and insert the corresponding proximity switches. Then fasten the screws.
5. Place the actuator in one limit position.
6. Place the corresponding proximity switch in the corresponding position. Release the positioning screw and move the holder until the corresponding signal is indicated. Then continue the movement by 2 to 3 mm to secure indication. Fasten the positioning screw.
7. Place the actuator in the other limit position and carry out positioning of the second proximity switch.

13. Service Instructions for Change-Over Valve

Change-over valve



13.1. Dismantling from the line system

Caution!

1. Shut off the line pressure in the product and cleaning lines, and discharge the pipes if possible.
2. Release connection between the upper housing globe and the connected line.



Note!

**Valve design NC:
Control actuator with air.**



Caution!

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

3. Remove the lower clamp.
4. Lift the valve insert together with the upper housing off the lower housing.



Note!

**Valve design NC:
Shut off compressed air and
remove compressed air supply.**

5. Remove the control unit from the actuator.

13.2. Dismantling of product-wetted parts

1. Unscrew the actuator screw from the guide rod. Dismantle adapter for control unit.



Note!

**Valve design NO:
Control valve with compressed air.**

2. Unscrew the safety nut while holding up the centering washer. Remove the centering washer.



Note!

**Valve design NO:
Shut off valve with compressed air.**

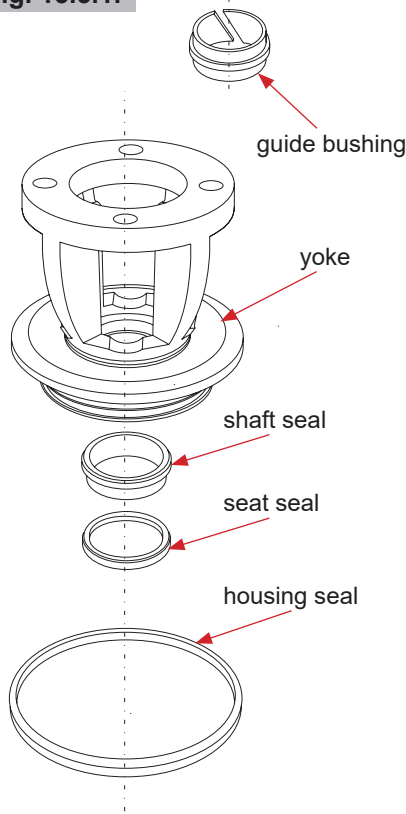
3. Take the shaft out of the actuator and remove the seat seals.
4. Detach the upper clamp and upper housing. Remove the two housing seals.
5. Unscrew the yoke from the actuator.
6. Take off seat seals, shaft seal and guide bushing.

Service of actuator, see chapter 12.

13. Service Instructions for Change-Over Valve

13.3. Installation of seals and assembly of valve

fig. 13.3.1.



1. Insert the guide bushing into the yoke. Then place the shaft seal and press in the slightly greased seat seal.
See to the correct installing position.
2. Install the yoke at the actuator.
3. Insert the seat seal in the shaft. Use the APV assembly tool to install the seat seal, see chapter 14. Grease the seat seal only slightly before its installation. In case of manual installation, vent the seal groove with a thin object between seal and groove wall.
4. Slightly grease the housing seals and install them in the grooves of the yoke and of the upper housing. Fasten the upper housing at the yoke by means of the clamp.



Note!

**Valve design NO:
Control the valve with air.**

5. Slide the protective tube over the thread of the guide rod. Slide the shaft through the upper housing, yoke and actuator. Place the centering washer and tighten the safety nut. Hold up the safety nut during this process.



Note!

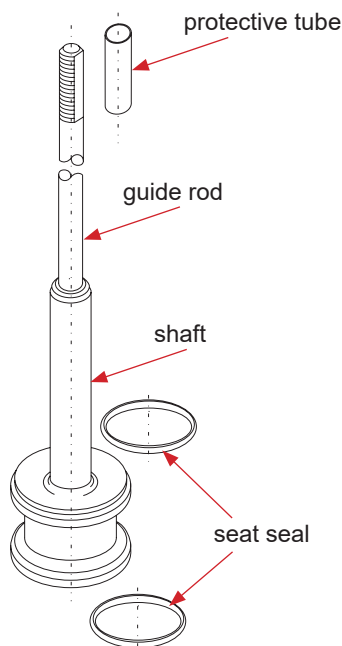
Tightening torque 40 Nm.



Note!

**Valve design NO:
Shut off compressed air.**

6. Install the adapter for the control unit on the actuator. Apply a drop of a screw locker (e.g. type: Loctite semi-solid) in the area of the threaded bore of the actuator screw. Fasten actuator screw on the guide rod.



13.4. Installation of valve

1. Fasten the control unit on the adapter.
2. Connect compressed air supply.



Note!

**Valve design NC:
Control actuator with air.**



Caution!

**Do not touch movable valve parts!
Risk of injury by sudden valve operation!**

3. Place the valve insert carefully into the lower housing and fasten the lower clamp. The housing seals must not be damaged during the installation.

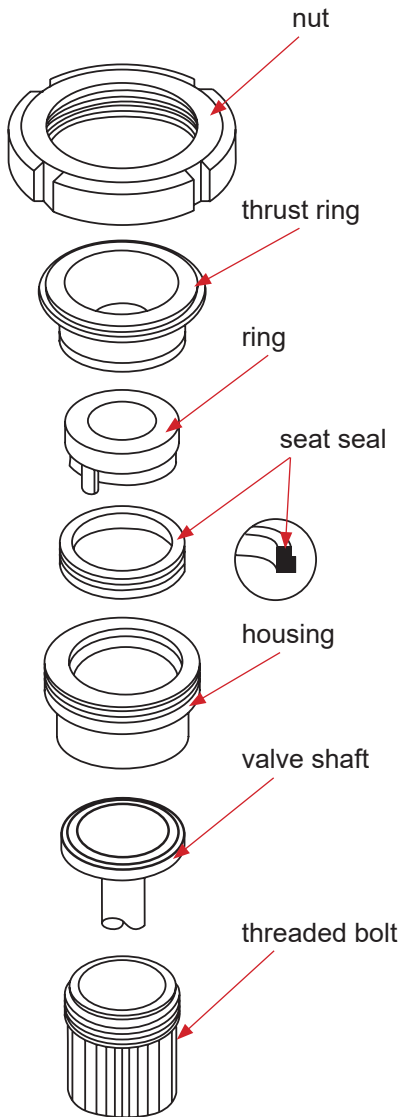


Note!

**Valve design NC:
Shut off compressed air.**

4. Check the basic adjustment of the valve position indicator if necessary.
 - The shift points can be adjusted by turning the positioning screw in the control unit.

14. Assembly Tool



The assembly tool consists of:

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

Installation of seat seal in the valve shaft

1. Insert the valve shaft into the housing in such a way that the seal groove is in the housing.
2. Clamp the shaft into the housing by means of the threaded bolt. Clamp the housing in a vice.
3. Slightly grease the seat seal with APV assembly grease. Then install the seal on the ring with the venting nose until it stops.
4. Introduce the ring with the installed seat seal into the housing and press it down until it stops sensibly.
5. Insert the thrust ring into the housing. Screw on the nut and tighten it with a hook spanner until it stops.
6. Release the nut. Take ring and thrust ring off the housing.
7. Take housing out of the vice, take off the threaded bolt. Detach the valve shaft from the housing.

Check the even fit of the seat seal.

To simplify the installation of the seat seal, the following assembly tools are available:

14.1. Assembly tool for seat seal			
DN	Inch	Reference No.	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
	2,5"	000 51-13-120/17	H179468
65		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. Reconstruction of Actuator

With SW4 valves, the size of the actuator can be changed.

Observe the respective line pressure, see table 9.6, to increase or decrease the actuator sizes (Ø 74 mm, Ø 110 mm, Ø 165 mm).

15.1. Reconstruction of actuator

Disassembly

Disassembly is carried out as described in chapter 11. for single seat valves and in chapter 13. for change-over valves.

To change the actuator size, the respective guide rod (4) must be replaced.



Note!

Clamp the valve disc in a vice.
The valve disc must not be damaged (use protective cheeks or cleaning rags). Even inferior damage at the shaft rod can lead to leakages.

Turn the guide rod out of the shaft by means of the centering washer and a wrench SW17.

15.2. Assembly of actuator



1. Turn the respective guide rod into the shaft to the actuator.

Note! Tightening torque 40 Nm

2. Further assembly is undertaken in reverse order.

16. Trouble Shooting

Failure	Remedy
Valve closed and pressure in upper housing	
Valve is untight.	Replace seat seals. Check line pressure: Permissible line pressure see chapter 9.
Leakage in the area of the clamp	Replace housing seals.
Leakage at upper shaft in the yoke area	Replace shaft seal, seat seal and guide bushing.
Actuator	
Air escapes at the actuator rod.	Replace complete seal screw for actuator.
Actuator does not work (air escapes permanently from the venting plug).	Replace complete actuator.
Valve position indication	
No feedback.	Carry out fine adjustment.

17. Spare Parts Lists

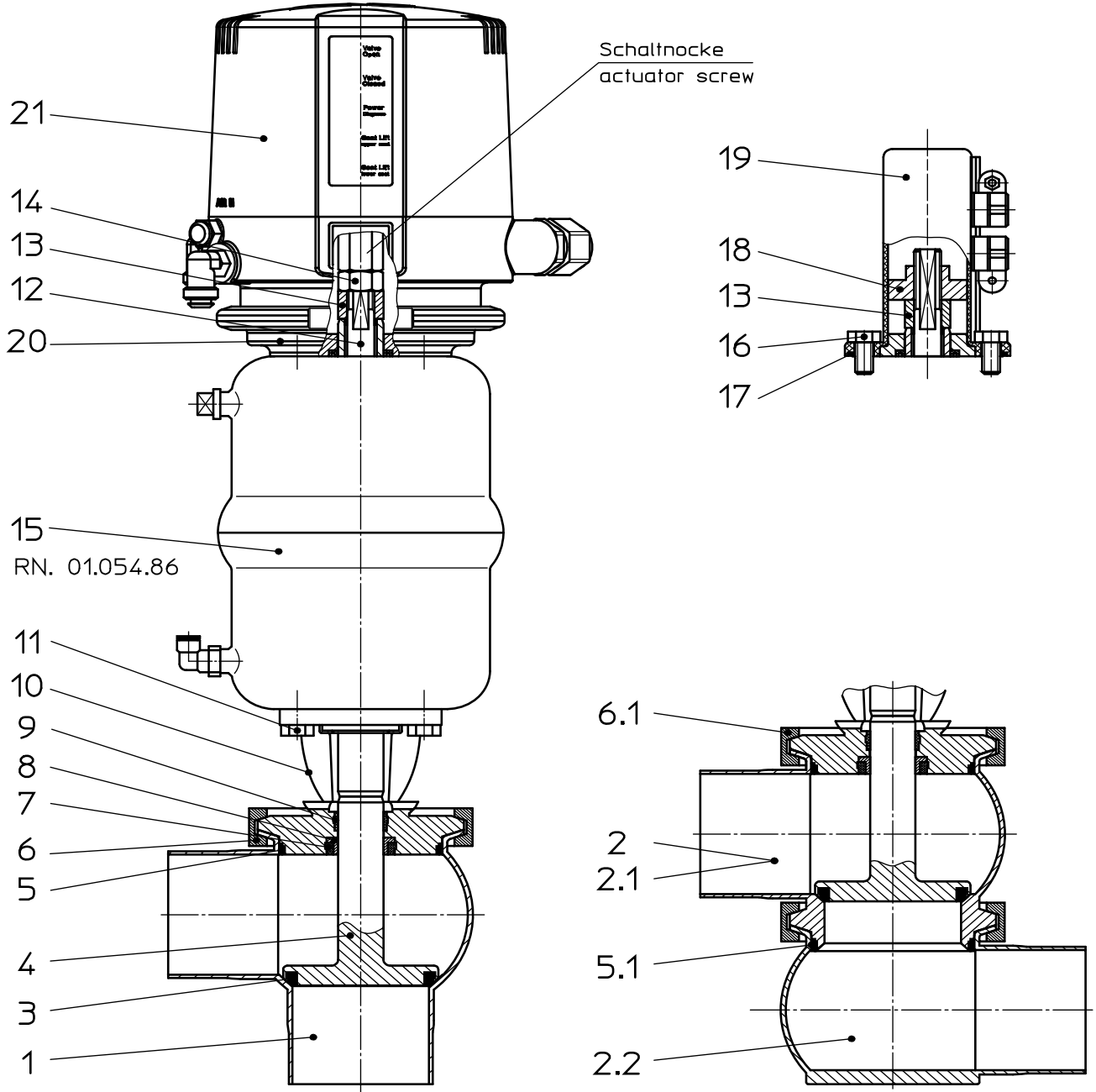
The reference numbers of the spare parts for the different valve designs and sizes are included in the attached spare parts drawings with corresponding lists.

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

- number of required parts
- reference number
- designation

Data are subject to change.

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Datum:	03.09.13	23.03.16									
Name:	Trytko	Trytko									
Geprüft:											

Ersatzteilliste: spare parts list

Ventil SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU und VSM
Single seat valve SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU and PSH
DN25-100 ; 1-4 Zoll / inch

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Ersatzteilliste: spare parts list

Ventil SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU und VSM
Single seat valve SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU and PSH
DN25-100 , 1-4 Zoll / inch

SPX FLOW

pos. item	Menge quantity	Beschreibung description	Material	DN25	1"		1,5"		DN50	2"
					WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.		
1	1	Gehäuse Housing	1.4404	15-60-290/47 H168561	15-60-315/47 H168673	15-60-390/47 H171391	15-60-415/47 H171404	15-60-440/47 H168596	15-60-465/47 H168747	
	1	Gehäuse Housing	1.4404	15-61-290/47 H172428	15-61-315/47 H172434	15-61-390/47 H172429	15-61-415/47 H172435	15-61-440/47 H172430	15-61-465/47 H172436	
	1	Gehäuse Housing	1.4404	15-66-280/47 H169949	15-66-305/47 H172804	15-66-380/47 H169950	15-66-405/47 H172805	15-66-430/47 H169951	15-66-455/47 H172806	
	1	Gehäuse Housing	1.4404	15-67-280/47 H172645	15-67-305/47 H172810	15-67-380/47 H172646	15-67-405/47 H172811	15-67-430/47 H172647	15-67-455/47 H172812	
2	1	Gehäuse Oberteil Housing upper part	1.4404	15-62-001/47 H168564	15-62-010/47 H168678	15-62-002/47 H171395	15-62-011/47 H171400	15-62-003/47 H168601	15-62-012/47 H168753	
2.1	1	Gehäuse Oberteil Housing upper part	1.4404	15-63-001/47 H172466	15-63-010/47 H172476	15-63-002/47 H172467	15-63-011/47 H172477	15-63-003/47 H172468	15-63-012/47 H172478	
2.2	1	Gehäuse Unterteil Housing lower part	1.4404	15-60-100/47 H172763	15-60-110/47 H172711	15-60-101/47 H172765	15-60-111/47 H172712	15-60-102/47 H172687	15-60-112/47 H172713	
3	1	Tellerdichtung Seat seal	EPDM	58-33-293/93 H77442	58-33-293/93 H77442	58-33-393/93 H77467	58-33-393/93 H77467	58-33-443/93 H77491	58-33-443/93 H77491	
	1	Tellerdichtung Seat seal	HNBR	58-33-293/33 H170176	58-33-293/33 H170176	58-33-393/33 H166676	58-33-393/33 H166676	58-33-443/33 H166085	58-33-443/33 H166085	
	1	Tellerdichtung Seat seal	FPM	58-33-293/73 H77441	58-33-293/73 H77441	58-33-393/73 H77466	58-33-393/73 H77466	58-33-443/73 H77490	58-33-443/73 H77490	
	1	Tellerdichtung Seat seal	VMQ	58-33-293/13 H77440	58-33-293/13 H77440	58-33-393/13 H77465	58-33-393/13 H77465	58-33-443/13 H77489	58-33-443/13 H77489	
4	1	Schaft Valve shaft	1.4404	15-25-278/42 H170329	15-25-303/42 H170335	15-25-378/42 H170330	15-25-403/42 H170336	15-25-428/42 H170331	15-25-453/42 H170337	
5	1	Gehäusedichtung Housing seal	EPDM	58-33-267/93 H136432	58-33-267/93 H136432	58-33-292/93 H77439	58-33-292/93 H77439	58-33-124/93 H170665	58-33-124/93 H170665	
	1	Gehäusedichtung Housing seal	HNBR	58-33-267/33 H172124	58-33-267/33 H172124	58-33-292/33 H170017	58-33-292/33 H170017	58-33-124/33 H170654	58-33-124/33 H170654	
	1	Gehäusedichtung Housing seal	FPM	58-33-267/73 H136431	58-33-267/73 H136431	58-33-292/73 H77438	58-33-292/73 H77438	58-33-124/73 H170666	58-33-124/73 H170666	
5.1	2	Gehäusedichtung Housing seal	EPDM	58-33-267/93 H136432	58-33-267/93 H136432	58-33-292/93 H77439	58-33-292/93 H77439	58-33-124/93 H170665	58-33-124/93 H170665	

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Ersatzteilliste: spare parts list

**Ventil SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU und VSM
Single seat valve SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU and PSH
DN25-100 , 1-4 Zoll / inch**

pos. item	Menge quantity	Beschreibung description	Material	DN25	1"	DN40	1,5"	DN50	2"	03.09.13		23.03.16		SPX FLOW		
										WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	Trytko	Trytko	Page
5.1	2	Gehäusedichtung Housing seal	SWE41,42	HNBR	58-33-267/33 H172124	58-33-292/33 H170017	58-33-292/33 H170017	58-33-124/33 H170654	58-33-124/33 H170654							
	2	Gehäusedichtung Housing seal	SWE41,42	FPM	58-33-267/73 H136431	58-33-292/73 H77438	58-33-292/73 H77438	58-33-124/73 H170666	58-33-124/73 H170666							
6	1	Gelenkklemme Clamp	SW41,42, SWE43,44	1.4301	42-40-287/12 H126263	42-40-387/12 H126264	42-40-387/12 H126264	42-40-437/12 H126265	42-40-437/12 H126265							
6.1	2	Gelenkklemme Clamp	SWE41,42	1.4301	42-40-287/12 H126263	42-40-387/12 H126264	42-40-387/12 H126264	42-40-437/12 H126265	42-40-437/12 H126265							
7	1	Tellerdichtung Seat seal		EPDM		58-33-293/93 H77442	58-33-293/93 H77442									
	1	Tellerdichtung Seat seal		HNBR		58-33-293/33 H170176	58-33-293/33 H170176									
	1	Tellerdichtung Seat seal		FPM		58-33-293/73 H77441	58-33-293/73 H77441									
	1	Tellerdichtung Seat seal		VQM		58-33-293/13 H77440	58-33-293/13 H77440									
8	1	Schafdichtung Shaft seal		Turcon MF6		3A0 58-33-151/24 H323082	3A0 58-33-151/24 H323082									
	1	Führungsbuchse Bushing		PTFE + 25% Kohle		08-01-178/23 H207154	08-01-178/23 H207154									
10	1	Laterne Yoke		1.4404	15-40-960/47 H171382	15-40-961/47 H171383	15-40-961/47 H171383	15-40-962/47 H171384	15-40-962/47 H171384							
	4	Skt. Schraube Hex. Screw	DIN EN 24017-A2-70	1.4301		65-01-081/15 M8x16 H78772	65-01-081/15 M8x16 H78772									
12	1	Zugstange Guide rod		1.4305	15-23-850/12 H171061	15-23-850/12 H171061	15-23-850/12 H171061	15-23-851/12 H171062	15-23-851/12 H171062							
13	1	Zentrierscheibe Centering nut		1.4301		15-28-940/12 H170196	15-28-940/12 H170196									
14	1	Skt. Mutter Hex. Nut	DIN EN ISO 10511-M12-A2	1.4301		65-50-101/15 H79298	65-50-101/15 H79298									
15	1	Steuerkopf Actuator		1.4301	15-32-050/17 H171378	15-32-050/17 H171378	15-32-050/17 H171378	15-32-051/17 H171379	15-32-051/17 H171379							

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Ersatzteilliste: spare parts list

Ventil SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU und VSM
Single seat valve SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU and PSH
DN25-100 , 1-4 Zoll / inch

pos. item	Menge quantity	Beschreibung description	Material	DN25	1"	DN40	1,5"	DN50	2"	SPX FLOW		
										WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
16	4	Skt. Schraube Hex. Screw DIN EN 24017-A2-70	1.4301							Datum: 03.09.13	23.03.16	Page 4 of 7
17	1	O-Ring O-ring	NBR							Name: Trytko	Trytko	
18	1	Schaltnocke Operating cam	1.4523	08-52-290/97 H173086						Geprüft: H173930		
19	1	VSM Gehäuse-SW4 Proximity switch holder housing SW4	VESTAMID							Datum: 15-33-932/93		
20		CU4-S-Adapter CU4-S-adapter	PA6.6 GF30 schwarz							Name: H173931		
21	1	Control-Unit CU Control-Unit CU	PA6.6 GF30 schwarz							Geprüft: H320474		
										siehe Betriebsanleitung CU see manual CU		
Dichtungssatz / seal kit SW41, SW42, SWE43, SWE44												
Pos. 3, 5, 7, 8, 9 nur im kompletten Dichtungssatz erhältlich / Item 3, 5, 7, 8, 9 available as complete seal kits only												
1		Dichtungssatz Seal kit SW 41, 42, SWE 43, 44	FPM	58-34-700/00 H310446						58-34-701/00 H310448		58-34-702/00 H203385
1		Dichtungssatz Seal kit SW 41, 42, SWE 43, 44	EPDM	58-34-700/01 H175805						58-34-701/01 H175806		58-34-702/01 H175807
1		Dichtungssatz Seal kit SW 41, 42, SWE 43, 44	VMQ	58-34-700/02 H310447						58-34-701/02 H310449		58-34-702/02 H201991
1		Dichtungssatz Seal kit SW 41, 42, SWE 43, 44	HNBR	58-34-700/06 H175811						58-34-701/06 H175812		58-34-702/06 H175813
Dichtungssatz / seal kit SWE41, SWE42												
Pos. 3, 5, 1, 7, 8, 9 nur im kompletten Dichtungssatz erhältlich / Item 3, 5, 1, 7, 8, 9 available as complete seal kits only												
1		Dichtungssatz Seal kit SWE 41, 42,	FPM	58-34-715/00 H310455						58-34-716/00 H310457		58-34-717/00 H310459
1		Dichtungssatz Seal kit SWE 41, 42,	EPDM	58-34-715/01 H175821						58-34-716/01 H175822		58-34-717/01 H175824
1		Dichtungssatz Seal kit SWE 41, 42,	VMQ	58-34-715/02 H310456						58-34-716/02 H310458		58-34-717/02 H205952
1		Dichtungssatz Seal kit SWE 41, 42,	HNBR	58-34-715/06 H175828						58-34-716/06 H175829		58-34-717/06 H175830

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Ersatzteilliste: spare parts list

**Ventil SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU und VSM
Single seat valve SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU and PSH
DN25-100 , 1-4 Zoll / inch**

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"		3"		DN80	DN100	SPX FLOW	
					WS-Nr. ref.-no.	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	15-60-490/47 H168644	15-60-515/47 H168762	15-60-565/47 H168781	15-60-540/47 H168630	15-60-640/47 H161864	15-60-665/47 H168804			
	1	Gehäuse Housing	1.4404	15-61-490/47 H172431	15-61-515/47 H172437	15-61-565/47 H172438	15-61-540/47 H172432	15-61-640/47 H172433	15-61-665/47 H172439			
	1	Gehäuse Housing	1.4404	15-66-480/47 H169952	15-66-505/47 H172807	15-66-555/47 H172808	15-66-530/47 H169953	15-66-630/47 H169954	15-66-655/47 H172809			
	1	Gehäuse Housing	1.4404	15-67-480/47 H172648	15-67-505/47 H172813	15-67-555/47 H172814	15-67-530/47 H173728	15-67-630/47 H173727	15-67-655/47 H172815			
2	Gehäuse Oberteil Housing upper part	1.4404	15-62-004/47 H168649	15-62-013/47 H168767	15-62-014/47 H168787	15-62-005/47 H168638	15-62-006/47 H168660	15-62-015/47 H168809				
2.1	Gehäuse Oberteil Housing upper part	1.4404	15-63-004/47 H172469	15-63-013/47 H172479	15-63-014/47 H172480	15-63-005/47 H172470	15-63-006/47 H172471	15-63-015/47 H172481				
2.2	Gehäuse Unterteil Housing lower part	1.4404	15-60-103/47 H172688	15-60-113/47 H172714	15-60-114/47 H172715	15-60-104/47 H172689	15-60-105/47 H172690	15-60-115/47 H172716				
3	1	Tellerdichtung Seat seal	EPDM	58-33-493/93 H77515	58-33-109/93 H170662	58-33-568/93 H77561	58-33-543/93 H77546	58-33-643/93 H77586				
	1	Tellerdichtung Seat seal	HNBR	58-33-493/33 H166678	58-33-109/33 H170658	58-33-568/33 H166679	58-33-543/33 H166681	58-33-643/33 H166682				
	1	Tellerdichtung Seat seal	FPM	58-33-493/73 H77514	58-33-109/73 H170663	58-33-568/73 H77560	58-33-543/73 H77545	58-33-643/73 H77785				
	1	Tellerdichtung Seat seal	VMQ	58-33-493/13 H77513	58-33-109/13 H170664	58-33-568/13 H77559	58-33-543/13 H77544	58-33-643/13 H77584				
4	Schaft Valve shaft	1.4404	15-25-478/42 H170332	15-25-503/42 H170338	15-25-553/42 H170339	15-25-528/42 H170333	15-25-628/42 H170334	15-25-653/42 H170340				
5	1	Gehäusedichtung Housing seal	EPDM	58-33-442/93 H77488	58-33-125/93 H170667	58-33-126/93 H170669	58-33-492/93 H77512	58-33-127/93 H170671				
	1	Gehäusedichtung Housing seal	HNBR	58-33-442/33 H168714	58-33-125/33 H170655	58-33-126/33 H170656	58-33-492/33 H168759	58-33-127/33 H170657				
	1	Gehäusedichtung Housing seal	FPM	58-33-442/73 H77487	58-33-125/73 H170668	58-33-126/73 H170670	58-33-492/73 H77511	58-33-127/73 H170672				
5.1	Gehäusedichtung Housing seal	EPDM	58-33-442/93 H77488	58-33-125/93 H170667	58-33-126/93 H170669	58-33-492/93 H77512	58-33-127/93 H170671					

Ersatzteilliste: spare parts list

**Ventil SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU und VSM
Single seat valve SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU and PSH
DN25-100 , 1-4 Zoll / inch**

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"	Datum: 03.09.13 23.03.16		SPX FLOW	
										WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
5.1	2	Gehäusedichtung Housing seal	HNBR	58-33-442/33 H168714	58-33-125/33 H170655	58-33-126/33 H170656	58-33-492/33 H168759	58-33-127/33 H170657					
	2	Gehäusedichtung Housing seal	FPM	58-33-442/73 H77487	58-33-125/73 H170668	58-33-126/73 H170670	58-33-492/73 H77511	58-33-127/73 H170672					
6	1	Gelenkklemme Clamp	1.4301	42-40-487/12 H126266		42-40-537/12 H126267		42-40-637/12 H126268					
6.1	2	Gelenkklemme Clamp	1.4301	42-40-487/12 H126266		42-40-537/12 H126267		42-40-637/12 H126268					
7	1	Tellerdichtung Seat seal	EPDM			58-33-293/93 H77442							
	1	Tellerdichtung Seat seal	HNBR			58-33-293/33 H170176							
	1	Tellerdichtung Seat seal	FPM			58-33-293/73 H77441							
	1	Tellerdichtung Seat seal	VQM			58-33-293/13 H77440							
8	1	Schafdichtung Shaft seal	Turcon MF6			3A0 58-33-151/24 H323082							
	1	Führungsbuchse Bushing	PTFE + 25% Kohle			08-01-178/23 H207154							
10	1	Laterne Yoke	1.4404	15-40-963/47 H171385	15-40-964/47 H171388	15-40-965/47 H171389	15-40-966/47 H171386	15-40-967/47 H171387					
	4	Skt. Schraube Hex. Screw	1.4301	65-01-081/15 M8x16 H78772			65-01-083/15 M8x20 H78776						
12	1	Zugstange Guide rod	1.4305	15-23-851/12 H171062			15-23-852/12 H171063						
13	1	Zentrierscheibe Centering nut	1.4301			15-28-940/12 H170196							
14	1	Skt. Mutter Hex. Nut	1.4301			65-50-101/15 H79298							
15	1	Steuerkopf Actuator	1.4301	15-32-051/17 H171379			15-32-052/17 H171380						

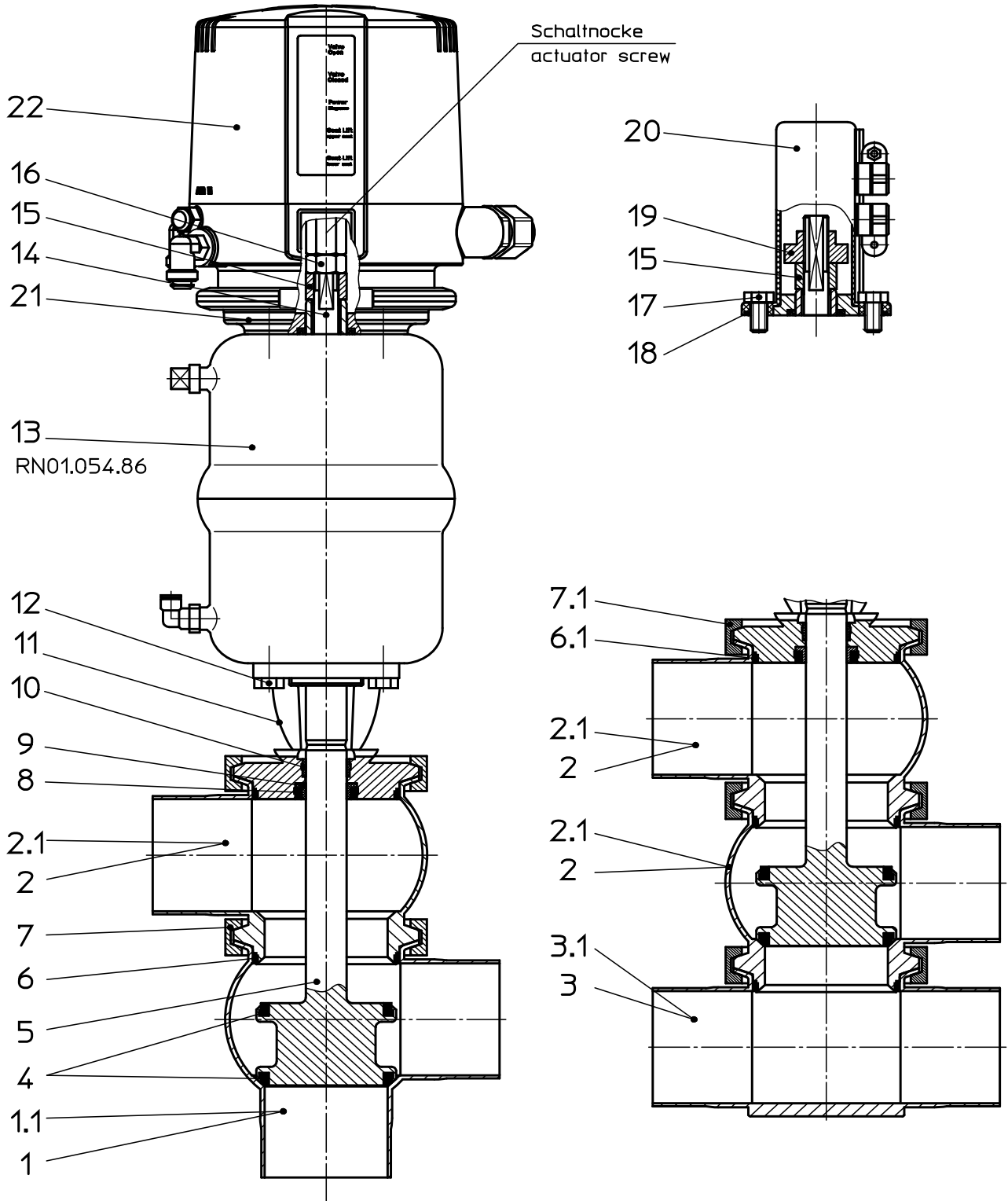
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Ersatzteilliste: spare parts list

**Ventil SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU und VSM
Single seat valve SW41, SW42, SWE41, SWE42, SWE43, SWE44-FS-CU and PSH
DN25-100 , 1-4 Zoll / inch**

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"	Datum: 03.09.13 23.03.16		SPX FLOW	
										WS-Nr. ref.-no.	WS-Nr. ref.-no.	Trytko	Trytko
16	4	Skt. Schraube Hex. Screw DIN EN 24017-A2-70	1.4301										
17	1	O-Ring O-ring	NBR										
18	1	Schaltnocke Operating cam	1.4523										
19	1	VSM Gehäuse-SW4 Proximity switch holder housing SW4	VESTAMID										
20		CU4-S-Adapter CU4-S-adapter	PA6.6 GF30 schwarz										
21	1	Control-Unit CU Control-Unit CU	PA6.6 GF30 schwarz										
siehe Betriebsanleitung CU see manual CU													
Dichtungssatz / seal kit SW41, SW42, SWE43, SWE44													
Pos. 3, 5, 7, 8, 9 nur im kompletten Dichtungssatz erhältlich / Item 3, 5, 7, 8, 9 available as complete seal kits only													
	1	Dichtungssatz Seal kit SW 41, 42, SWE 43, 44	FPM	58-34-703/00 H310450	58-34-710/00 H310451	58-34-711/00 H310453	58-34-704/00 H203384				58-34-705/00 H204908		
	1	Dichtungssatz Seal kit SW 41, 42, SWE 43, 44	EPDM	58-34-703/01 H175808	58-34-710/01 H175817	58-34-711/01 H175818	58-34-704/01 H175809				58-34-705/01 H175810		
	1	Dichtungssatz Seal kit SW 41, 42, SWE 43, 44	VMQ	58-34-703/02 H202920	58-34-710/02 H201992	58-34-711/02 H201994	58-34-704/02 H310452				58-34-705/02 H310454		
	1	Dichtungssatz Seal kit SW 41, 42, SWE 43, 44	HNBR	58-34-703/06 H175814	58-34-710/06 H175819	58-34-711/06 H175820	58-34-704/06 H175815				58-34-705/06 H175816		
Dichtungssatz / seal kit SWE41, SWE42													
Pos. 3, 5, 1, 7, 8, 9 nur im kompletten Dichtungssatz erhältlich / Item 3, 5, 1, 7, 8, 9 available as complete seal kits only													
	1	Dichtungssatz Seal kit SWE 41, 42,	FPM	58-34-718/00 H310461	58-34-725/00 H310460	58-34-726/00 H310462	58-34-719/00 H310464				58-34-720/00 H310466		
	1	Dichtungssatz Seal kit SWE 41, 42,	EPDM	58-34-718/01 H175825	58-34-725/01 H175834	58-34-726/01 H175835	58-34-719/01 H175826				58-34-720/01 H175827		
	1	Dichtungssatz Seal kit SWE 41, 42,	VMQ	58-34-718/02 H204026	58-34-725/02 H205953	58-34-726/02 H310463	58-34-719/02 H310465				58-34-720/02 H310467		
	1	Dichtungssatz Seal kit SWE 41, 42,	HNBR	58-34-718/06 H175831	58-34-725/06 H175836	58-34-726/06 H175837	58-34-719/06 H175832				58-34-720/06 H175833		

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Datum:	30.09.13	30.07.15	23.03.16	19.09.16						
Name:	Trytko	Trytko	Trytko	C.Keil						
Geprüft:										

SPX FLOW

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Ersatzteilliste: spare parts list

Umschaltventil SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-CU und VSM
Change-over valve SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-Cu and PSH
DN 25-100 ; 1-4 Zoll / inch

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Ersatzteilliste: spare parts list

**Umschaltventil SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-CU und VSM
Change over valve SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-CU and PSH
DN 25-100 , 1-4 Zoll / inch**

SPX FLOW

pos. item	Menge quantity	Beschreibung description	Material	DN25	1"		1,5"		DN50	2"
					WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.		
1	1	Gehäuse Housing	1.4404	15-60-290/47 H168561	15-60-315/47 H168673	15-60-415/47 H171404	15-60-440/47 H168596	15-60-465/47 H168747		
1.1	1	Gehäuse Housing	1.4404	15-61-290/47 H172428	15-61-315/47 H172434	15-61-415/47 H172435	15-61-440/47 H172430	15-61-465/47 H172436		
2	1	Gehäuse Oberteil Housing upper part	1.4404	15-62-001/47 H168564	15-62-010/47 H168678	15-62-011/47 H171400	15-62-003/47 H168601	15-62-012/47 H168753		
2.1	1	Gehäuse Oberteil Housing upper part	1.4404	15-63-001/47 H172466	15-63-010/47 H172476	15-63-011/47 H172477	15-63-003/47 H172468	15-63-012/47 H172478		
3	1	Gehäuse Unterteil Housing lower part	1.4404	15-60-100/47 H172763	15-60-110/47 H172711	15-60-111/47 H172712	15-60-102/47 H172687	15-60-112/47 H172713		
3.1	1	Gehäuse Unterteil Housing lower part	1.4404	15-65-281/47 H311363	15-65-306/47 H311367	15-65-406/47 H202852	15-65-431/47 H311365	15-65-456/47 H311368		
	2	Tellerdichtung Seat seal	EPDM	58-33-293/93 H77442	58-33-293/93 H77467	58-33-393/93 H77467	58-33-443/93 H77491			
	2	Tellerdichtung Seat seal	HNBR	58-33-293/33 H170176	58-33-293/33 H166676	58-33-393/33 H166676	58-33-443/33 H166085			
4	2	Tellerdichtung Seat seal	FPM	58-33-293/73 H77441	58-33-293/73 H77441	58-33-393/73 H77466	58-33-443/73 H77490			
	2	Tellerdichtung Seat seal	VMQ	58-33-293/13 H77440	58-33-293/13 H77440	58-33-393/13 H77465	58-33-443/13 H77489			
5	1	Schaft Valve shaft	1.4404	15-25-279/42 H170566	15-25-304/42 H170572	15-25-379/42 H170567	15-25-429/42 H170568	15-25-454/42 H170574		
	2	Gehäusedichtung Housing seal	EPDM	58-33-267/93 H136432	58-33-267/93 H136432	58-33-292/93 H77439	58-33-124/93 H170665			
6	2	Gehäusedichtung Housing seal	HNBR	58-33-267/33 H172124	58-33-267/33 H172124	58-33-292/33 H170017	58-33-124/33 H170654			
	2	Gehäusedichtung Housing seal	FPM	58-33-267/73 H136431	58-33-267/73 H136431	58-33-292/73 H77438	58-33-124/73 H170666			
	3	Gehäusedichtung Housing seal	EPDM	58-33-267/93 H136432	58-33-267/93 H136432	58-33-292/93 H77439	58-33-124/93 H170665			
6.1	3	Gehäusedichtung Housing seal	HNBR	58-33-267/33 H172124	58-33-267/33 H172124	58-33-292/33 H170017	58-33-124/33 H170654			

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Ersatzteilliste: spare parts list

Umschaltventil SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-CU und VSM Change over valve SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-CU and PSH DN 25-100 , 1-4 Zoll / inch

SPX FLOW

pos. item		Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"	Datum: 30.09.13 30.07.15 23.03.16 19.09.16		
											WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
1	1	Gehäuse Housing	SW41	1.4404	15-60-490/47 H168644	15-60-515/47 H168762	15-60-565/47 H168781	15-60-540/47 H168630	15-60-640/47 H161864	15-60-665/47 H168804			
1.1	1	Gehäuse Housing	SW42	1.4404	15-61-490/47 H172431	15-61-515/47 H172437	15-61-565/47 H172438	15-61-540/47 H172432	15-61-640/47 H172433	15-61-665/47 H172439			
2	1	Gehäuse Oberteil Housing upper part	SW43	1.4404	15-62-004/47 H168649	15-62-013/47 H168767	15-62-014/47 H168787	15-62-005/47 H168638	15-62-006/47 H168660	15-62-015/47 H168809			
2.1	1	Gehäuse Oberteil Housing upper part	SW44	1.4404	15-63-004/47 H172469	15-63-013/47 H172479	15-63-014/47 H172480	15-63-005/47 H172470	15-63-006/47 H172471	15-63-015/47 H172481			
3	1	Gehäuse Unterteil Housing lower part	SWE41	1.4404	15-60-103/47 H172688	15-60-113/47 H172714	15-60-114/47 H172715	15-60-104/47 H172689	15-60-105/47 H172690	15-60-115/47 H172716			
3.1	1	Gehäuse Unterteil Housing lower part	SWE48	1.4404	15-65-481/47 H201534	15-65-506/47 H207429	15-65-556/47 H311369	15-65-531/47 H202935	15-65-631/47 H311366	15-65-656/47 H311370			
4	2	Tellerdichtung Seat seal		EPDM	58-33-493/93 H77515	58-33-109/93 H170662	58-33-568/93 H77561	58-33-543/93 H77546	58-33-643/93 H77586				
	2	Tellerdichtung Seat seal		HNBR	58-33-493/33 H166678	58-33-109/33 H170658	58-33-568/33 H166679	58-33-543/33 H166681	58-33-643/33 H166682				
	2	Tellerdichtung Seat seal		FPM	58-33-493/73 H77514	58-33-109/73 H170663	58-33-568/73 H77560	58-33-543/73 H77545	58-33-643/73 H77785				
	2	Tellerdichtung Seat seal		VMQ	58-33-493/13 H77513	58-33-109/13 H170664	58-33-568/13 H77559	58-33-543/13 H77544	58-33-643/13 H77584				
5	1	Schaft Valve shaft		1.4404	15-25-479/42 H170569	15-25-504/42 H170575	15-25-554/42 H170576	15-25-529/42 H170570	15-25-629/42 H170571	15-25-654/42 H170577			
6	2	Gehäusedichtung Housing seal	SW43, 44 SW47, 48	EPDM	58-33-442/93 H77488	58-33-125/93 H170667	58-33-126/93 H170669	58-33-492/93 H77512	58-33-127/93 H170671				
	2	Gehäusedichtung Housing seal	SW43, 44 SW47, 48	HNBR	58-33-442/33 H168714	58-33-125/33 H170655	58-33-126/33 H170656	58-33-492/33 H168759	58-33-127/33 H170657				
6.1	2	Gehäusedichtung Housing seal	SW43, 44 SW47, 48	FPM	58-33-442/73 H77487	58-33-125/73 H170668	58-33-126/73 H170670	58-33-492/73 H77511	58-33-127/73 H170672				
	3	Gehäusedichtung Housing seal	SWE45, 46 SWE47, 48	EPDM	58-33-442/93 H77488	58-33-125/93 H170667	58-33-126/93 H170669	58-33-492/93 H77512	58-33-127/93 H170671				
	3	Gehäusedichtung Housing seal	SWE45, 46 SWE47, 48	HNBR	58-33-442/33 H168714	58-33-125/33 H170655	58-33-126/33 H170656	58-33-492/33 H168759	58-33-127/33 H170657				

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Ersatzteilliste: spare parts list

Umschaltventil SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-CU und VSM
Change over valve SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-CU and PSH
DN 25-100 , 1-4 Zoll / inch

SPX FLOW

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"	30.09.13		23.03.16		19.09.16		
										WS-Nr. ref.-no.	WS-Nr. ref.-no.	Trytko	Trytko	Trytko	C. Keil	
6.1	3	Gehäusedichtung Housing seal SWE45, 46 SWE47, 48	FPM	58-33-442/73 H77487	58-33-125/73 H170668	58-33-126/73 H170670	58-33-492/73 H77511	58-33-127/73 H170672								
7	2	Gelenkklemme Clamp SW43, 44 SW47, 48	1.4301	42-40-487/12 H126266		42-40-537/12 H126267		42-40-637/12 H126268								
7.1	3	Gelenkklemme Clamp SWE45, 46, SWE47, 48	1.4301	42-40-487/12 H126266		42-40-537/12 H126267		42-40-637/12 H126268								
	1	Tellerdichtung Seat seal	EPDM			58-33-293/93 H77442										
	1	Tellerdichtung Seat seal	HNBR			58-33-293/33 H170176										
8	1	Tellerdichtung Seat seal	FPM			58-33-293/73 H77441										
	1	Tellerdichtung Seat seal	VQM			58-33-293/13 H77440										
9	1	Schafstdichtung Shaft seal	Turcon MF6			3A0 58-33-15/1/24 H323082										
10	1	Führungsbuchse Bushing	PTFE + 25% Kohle			08-01-178/23 H207154										
11	1	Laterne Yoke	1.4404	15-40-963/47 H171385	15-40-964/47 H171388	15-40-965/47 H171389	15-40-966/47 H171386	15-40-967/47 H171387								
12	4	Skt. Schraube Hex. Screw DIN EN 24017-A2-70	1.4301	65-01-081/15 M8x16 H78772			65-01-083/15 M8x20 H78776									
13	1	Steuerkopf Actuator	1.4301	15-32-051/17 H171379			15-32-052/17 H171380									
14	1	Zugstange Guide rod	1.4305	15-23-851/12 H171062			15-23-852/12 H171063									
15	1	Zentrierscheibe Centering nut	1.4301				15-28-940/12 H170196									
16	1	Skt. Mutter Hex. Nut DIN EN ISO 10511-M12-A2	1.4301				65-50-101/15 H79298									
17	4	Skt. Schraube Hex. Screw DIN EN 24017-A2-70	1.4301				65-01-081/15 M8x16 H78772									

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Ersatzteilliste: spare parts list

Umschaltventil SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-CU und VSM Change over valve SW43, 44, 47, 48, SWE45, 46, 47, 48 -FS-CU and PSH DN 25-100 , 1-4 Zoll / inch

Datum:	30.09.13	30.07.15	23.03.16	19.09.16	SPX FLOW
Name:	Trytko	Trytko	Trytko	C. Keil	
Geprüft:					
Datum:					Page 7 of 7
Name:					RN01.054.807
Geprüft:					

pos. item	Menge quantity	Beschreibung description	Material	DN65	2.5"	3"	DN80	DN100	4"
18	1	O-Ring O-ring	NBR						
19	1	Schaltnocke Operating cam	1.4523	08-52-290/97 H173086			08-52-291/97 H173087		
20	1	VSM Gehäuse-SW4 Proximity switch holder housing SW4	VESTAMID				15-33-932/93 H173931		
21	1	CU4-S-Adapter CU4-S-adapter	PA6.6 GF30 schwarz				08-48-600/93 H320474		
22	1	Control-Unit CU Control-Unit CU	PA6.6 GF30 schwarz				58-06-297/83 H173930		
							siehe Betriebsanleitung CU see manual CU		
Dichtungssatz / seal kit SW43, SW44, SW47, SW48									
Pos. 4, 6, 8, 9, 10 nur im kompletten Dichtungssatz erhältlich / Item 4, 6, 8, 9, 10 available as complete seal kits only									
1		Dichtungssatz Seal kit	FPM	58-34-733/00 H203386	58-34-740/00 H205606	58-34-741/00 H310469	58-34-734/00 H203383	58-34-735/00 H207422	
1		Dichtungssatz Seal kit	EPDM	58-34-733/01 H175841	58-34-740/01 H175850	58-34-741/01 H175851	58-34-734/01 H175842	58-34-735/01 H175843	
1		Dichtungssatz Seal kit	VMQ	58-34-733/02 H177395	58-34-740/02 H201996	58-34-741/02 H310471	58-34-734/02 H310471	58-34-735/02 H310472	
1		Dichtungssatz Seal kit	HNBR	58-34-733/06 H175847	58-34-740/06 H175852	58-34-741/06 H175853	58-34-734/06 H175848	58-34-735/06 H175849	
Dichtungssatz / seal kit SWE45, SWE46, SWE47, SWE48									
Pos. 4, 6, 1, 8, 9, 10 nur im kompletten Dichtungssatz erhältlich / Item 4, 6, 1, 8, 9, 10 available as complete seal kits only									
1		Dichtungssatz Seal kit	FPM	58-34-747/00 H325424	58-34-790/00 H325410	58-34-791/00 H325408	58-34-748/00 H327506	58-34-749/00 H327507	
1		Dichtungssatz Seal kit	EPDM	58-34-747/01 H203756	58-34-790/01 H203760	58-34-791/01 H203761	58-34-748/01 H203757	58-34-749/01 H203758	
1		Dichtungssatz Seal kit	VMQ	58-34-747/02	58-34-790/02	58-34-791/02	58-34-748/02	58-34-749/02	
1		Dichtungssatz Seal kit	HNBR	58-34-747/06 H325423	58-34-790/06 H325409	58-34-791/06 H325407	58-34-748/06 H321851	58-34-749/06 H325242	

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Ersatzteilliste: spare parts list

Steuerkopf SW4 Actuator SW4

SPX FLOW

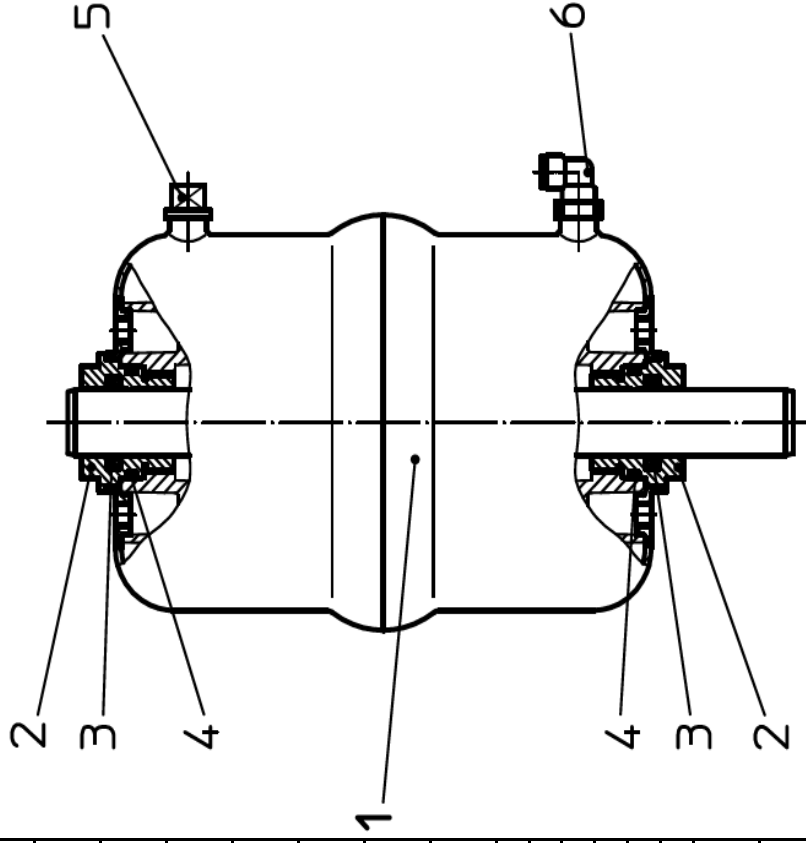
Datum:	11/08	12/09	27.01.15	10.7.17
Name:	Peters	Peters	Trytko	Kell
Geprüft:				

Blatt 1 von 1

RN 01.054.86

Datum:	
Name:	
Geprüft:	

pos. item	Menge quantity	Beschreibung description	Ø 74		Ø 110		Ø 165		
			WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	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 SW4

SINGLE SEAT AND
CHANGE-OVER VALVE

SPXFLOW®

SPX FLOW

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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.

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Scan for SW4 Valve
Maintenance Video

