

APV DELTA DE3

DOUBLE SEAT VALVE

FORM NO.: 170731 REVISION: GB-7

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



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

APV butterfly valves of the series SV1 and SVS1F, SV2 and SVS2F, SVL and SVSL
in the nominal diameters DN 25 - 100, DN 125 - 250 and ISO 1" – 4"

APV ball valves of the series KHI, KHV, BLV1
in the nominal diameters DN 15 – 100, ISO 1/2" – 4"

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

and the valve manifolds installed thereof

meet the requirements of the Directive 2006/42/EC.


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

The conformity of the valves and valve manifolds is guaranteed.

Authorised person for the documentation:
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January 2020



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1. General Terms

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.

2. Safety Instructions



Danger!

The technical safety symbol draws your attention to important directions for operating safety. You will find it wherever the activities described are bearing risks of personal injury.

- Disconnect electrical and pneumatic connections.



- **Depressurize** the line and cleaning system and discharge the lines, if possible, before any maintenance work.
- Observe Service Instructions to ensure safe maintenance of the valve.
- Connections which are not used must be sealed by a plug.



- Safe discharge of the cleaning liquids must be ensured!
- 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.

2. Safety Instructions

**Danger!**

Welded actuators are preloaded by spring force.

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

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

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

Please address to your local SPX FLOW representative.

3. Intended Use

The intended use as field of application of the double seat valves is the shut-off of line sections.

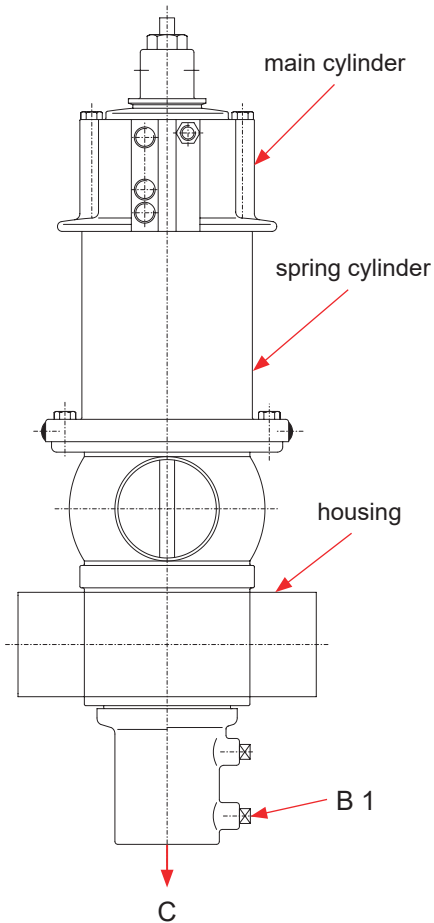
Arbitrary, constructive changes at the valve will influence safety as well as the intended functionality of the valve and are **not** permissible.

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/>

4. Mode of Operation

DE3 double seat valve



4.1. General Terms

Due to its construction and mode of operation as well as to the use of high quality stainless steel and adequate seal materials, the double-seat mixproof valve DELTA DE3 is suited for applications in the food and beverage industries as well as in the pharmaceutical and chemical industries.

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

The valve opens from the top to the bottom in low leakage operation (unpressurized drain of fluid residues via the annular cleaning gaps in the seat area).

Separation of two line passages by two balanced and independently operating valve slides with intervening leakage chamber. Flushing connection at **(B1)**.

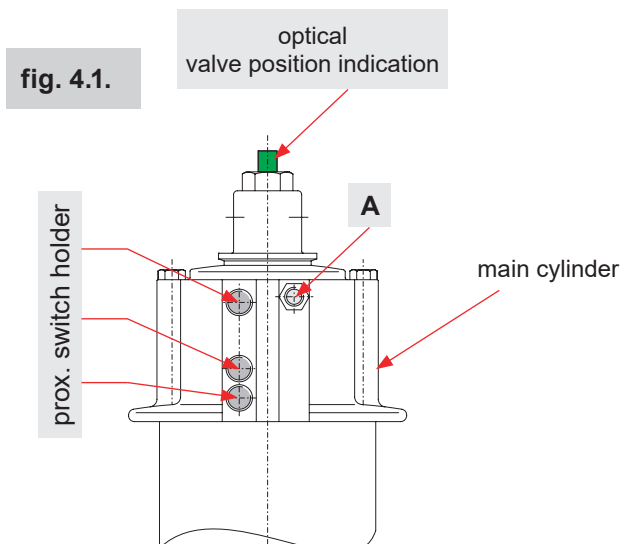
Double sealing function by two seals acting independently of one another.

Arising leakages at the seat seals are discharged at **(C)** in depressurized state.

Proximity switches can be installed at the main cylinder as valve position indicators. **(fig. 4.1.)**

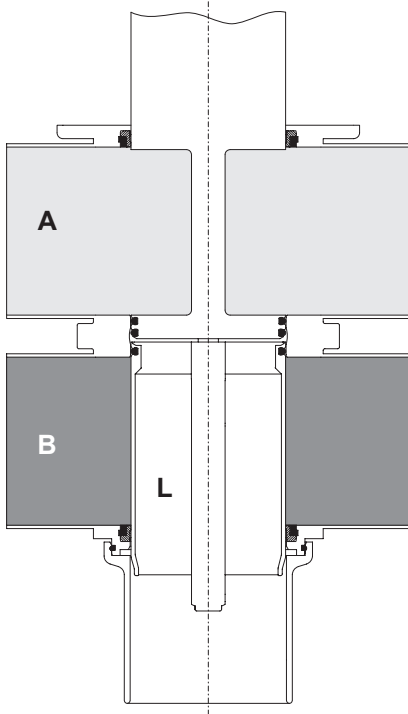
Operation by pneumatic actuator with air connection at **(A)**. Reset by spring force into the safety limit position "closed". Main cylinder can be maintained.

Optical indication of the valve position at the main cylinder.



4. Mode of Operation

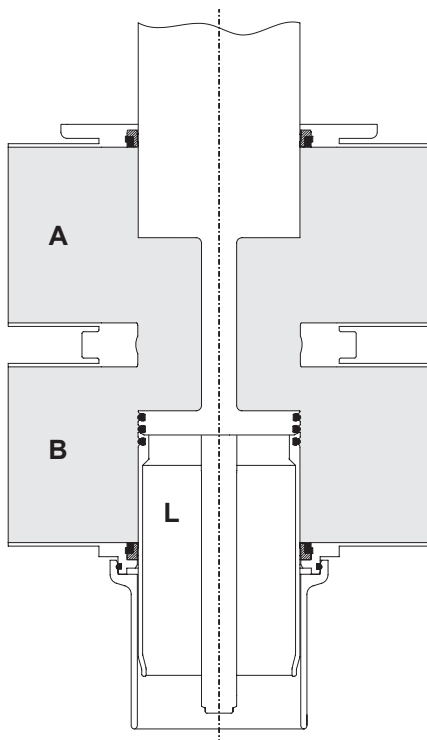
fig. 4.2.



4.2. Valve in "closed" position

The lower and upper valve shafts are closed by spring force and safely separate the different fluids **A** and **B**. The leakage chamber **L** which is situated between the two valve shafts, provides for a free and absolutely depressurized discharge to the bottom. The valve shafts are balanced and, thus, safe against pressure hammers.

fig. 4.3.



4.3. Valve in "open" position

During the opening process, the leakage chamber **L** is closed against the product area and the pipelines **A** and **B** are connected. In open valve position, the valve shafts are also balanced and, thus, safe against pressure hammers.

5. Auxiliary Equipment

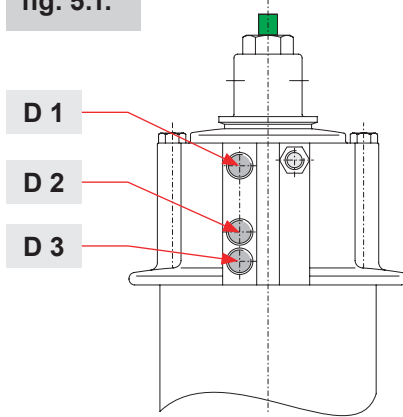
5.1. Valve position indication

Proximity switches to signal the limit positions of the valve shafts can be installed at the main cylinder if required (**fig. 5.1.**)

- D1** = valve position "closed"
- D2** = valve position "open" (only for DN 40 - 50, 1,5" - 2")
- D3** = valve position "open" (only for DN 65 - 150, 2,5" - 6")

We recommend to use our APV standard types:
operating distance: 5 mm / diameter: 11 mm
If the customer decides to use valve position indicators other than APV type, we cannot take over any liability for a faultless function.

fig. 5.1.



5.2. Control Unit

The installation of a control unit on the DE3 valve is possible. Start-up, assembly and dismantling of the different designs are described in the corresponding instruction manual.

The following different designs are available:

Direct Connect	CU41-M-Direct Connect 08 - 45 - 102/93 ; H320462
AS-interface extended	CU41-M-AS-i extended 62 slaves 08 - 45 - 112/93 ; H320469
Profibus	CU31-DE3 Profibus 08 - 45 - 003/93 ; H315497
Device Net	CU31-DE3 DeviceNet 16 - 31 - 242/93 ; H209424

- For the installation of the control unit on the DE3 valve an adapter is required.

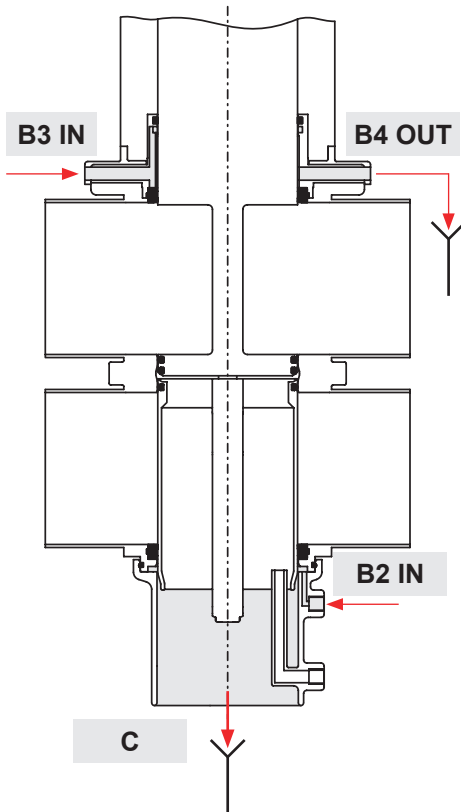
5.3. Adapter for control unit CU31 Profibus, CU31 DeviceNet

CU31 - adapter DA3 / DE3
reference number: 000 08 - 48 - 470/93; H314470

- **Adapter for control unit
CU41 M - Direct Connect, CU41 M - AS-interface**
reference number: 000 08 - 48 - 602/93; H320476

6. Cleaning

fig. 6.3.



6.3. Shaft surfaces outside the flow passages (option)

The DE3 valve provides for the areas of the upper and lower shaft rod which are not subject to cleaning, to be flushed (**fig. 6.3.**).

The valve is prepared for shaft flushing.
(see chapter 15).

Shaft flushing is recommended with sensible products to increase product safety and the service life of seals.

The connection of the flushing device is done according to the pattern described on the left via flushing connections.

6.3.1. Flushing and sterilisation of shaft surfaces

The following flushing liquids are permissible:

- hot water
- (slightly sour to avoid lime residues): **max. 85°C**
- common CIP liquids: **max. 80°C**

supply pressure at CIP cleaning connection:

min. 1 bar
max. 3 bar

flushing quantity per CIP cycle:

about 1.2ltr. / 10s

cleaning period:

30s

interval:

1x / day (e.g. milk)

depending on product and operating frequency:

1x / week (e.g. beer)

The free discharge of cleaning liquids must be ensured.

The upper and lower shaft flushing may only be carried out if product is not imminent in the appertaining part of the housing.

6.3.2. Installation of hoses:

upper shaft flushing	identification on spring cylinder
cleaning liquid supply at B3	IN
cleaning liquid discharge at B4	OUT
lower shaft flushing	
cleaning liquid supply at B2 cleaning liquid discharge at C	at drain pipe

7. Installation

7.1. General terms

- The valve must be installed in vertical position. Fluids are, therefore, freely drainable from the valve housing and the leakage chamber.
- Valve housings can be welded direct into the pipelines (completely dismantable valve insert).
- **Attention:** Observe welding instructions.
- Heights of installation and dismantling (see chapter 9).

7.2. Welding Instructions

Before welding of the valve, the valve insert must be dismantled from the housing. Careful handling to avoid damage to the parts is necessary (**see 12.1.5**).

It is not necessary to remove the lower shaft seal as it can be destroyed during dismantling.

Welding must only be carried out by certified welders (DIN EN ISO 9606-1). (Seam quality DIN EN ISO 5817).

Welding 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 shall be carried out as a square butt joint without air. Consider shrinkage!

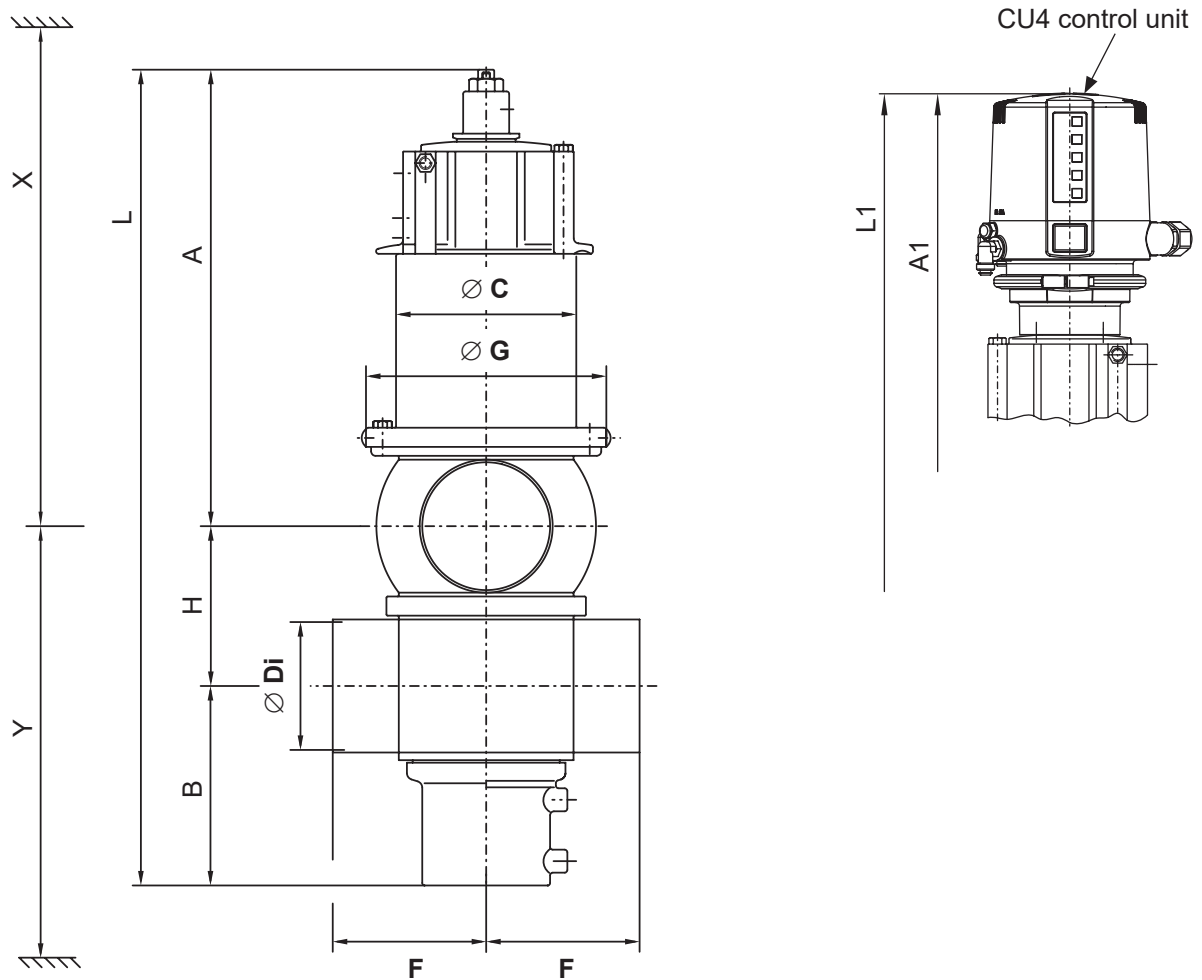
- TIG orbital welding is best!

After welding of the valve housing or of the mating flanges and after work at the pipelines, the corresponding parts of the installation and pipelines must be cleaned from welding residues and soiling before operation of the valves to avoid damage to the valves and seals.

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 applications shall be drawn from the AWS/ANSI Directives and EHEDG Guidelines.

8. Dimensions / Weights



Dimensions in mm											install. dimension min. in mm		weight in kg
DN	A	A1	B	∅ C	∅ Di	F	∅ G	H	L	L1	X	Y	
40	311	462	120	114,3	38	100	163	63	494	645	559	200	10,1
50	317	468	126	114,3	50	100	163	75	518	669	579	218	10,2
65	325	476	134	114,3	66	100	163	91	550	701	599	242	10,4
80	347	498,5	146,5	141	81	120	188	106	599,5	751	680	274	14,6
100	357	508	156	141	100	120	188	125	638	789	710	303	15,5
125	426	584	176	189	125	130	230	150	752	910	747	342	30,8
150	478	636	189	204	150	150	264	175	842	1000	978	392	-----
Inch													
1,5"	312	463	119	114,3	35,1	100	163	63	494	645	559	197	10,1
2"	318	469	125	114,3	47,8	100	163	75	518	669	579	216	10,2
2,5"	322	473	131	114,3	60,3	100	163	85	538	689	599	233	10,4
3"	328	479	137	114,3	72,9	100	163	97	562	713	626	251	10,5
4"	358	509	155	141	97,6	120	188	125	638	789	710	301	15,5
6"	479	637	188	204	146,9	150	264	175	844	1000	978	391	-----

9. Technical Data

9.1. General data

max. line pressure:	10bar
max. operating temperature:	135°C EPDM, HNBR *FPM
short-term load:	140°C EPDM, HNBR *FPM, *(no steam)

tightening torque of stop screw
at upper valve shaft: **25Nm**

tightening torque of safety nut
at upper and lower valve shaft: **40Nm**

leakage gap between
upper and lower valve shaft: **about 4mm**

Fig. 9.
(check after stop screw having been screwed in)

cleaning connection B1 (for hose)	
DN 40 - 100, 1,5" - 4" :	8x1 mm
DN125 - 150, 6" :	10x1 mm

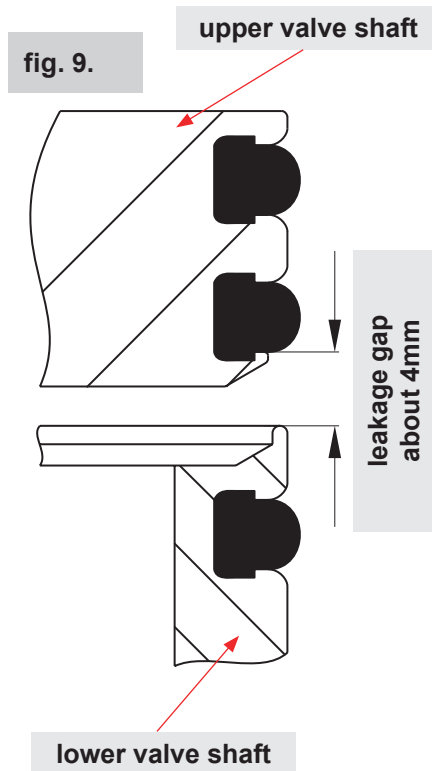
air connection (for hose):	6x1mm
max. pneumatic air pressure:	10bar
min. pneumatic air pressure:	6bar

Use dry and clean pneumatic air only.

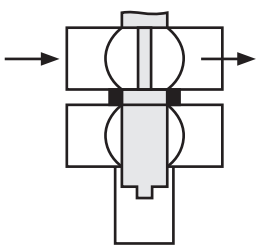
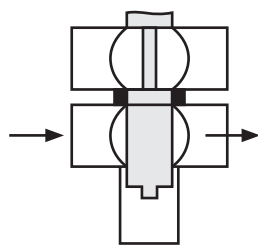
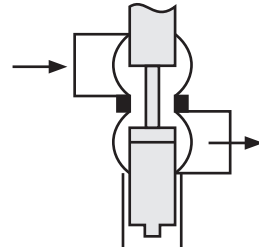
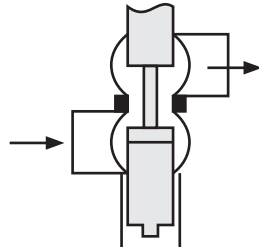
9.2. Compressed air quality

- Compressed air quality: Quality class acc. to DIN ISO 8573-1
- content of solid particles: quality class 3,
max. number of particles per m³
10000 of 0,5µm < d ≤ 1,0µm
500 of 1,0µm < d ≤ 5,0µm
- 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. 0,01mg/m³

The oil applied must be compatible with Polyurethane elastomer materials.



9. Technical Data

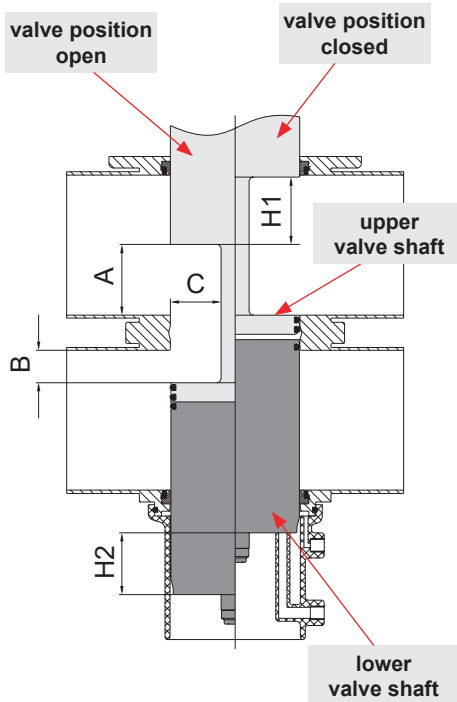
9.3.	Kvs - values in m ³ /h			
				
DN				
40	57	46	23	25
50	120	95	42	45
65	219	148	69	78
80	296	200	120	130
100	505	320	164	170
125	800*	500*	300	330
150	1200*	700*	360	380
Inch				
1,5"	47	70	21	24
2"	100	73	43	46
2,5"	170	122	59	66
3"	213	160	71	80
4"	490	294	150	160
6"	1150*	670*	340	360

* no measuring value

9.4.		Air consumption actuator at 6 bar pneum. pressure	Closing times in sec.	
		in NL / stroke	hose length	
DN	Inch		1 m	10 m
25	1"	0,9	1,5	2,5
40	1,5"	1,1	1,5	2,5
50	2"	1,3	1,5	2,5
65	2,5"	1,3	1,5	2,5
	3"	1,3	1,5	2,5
80		2,3	3,0	4,0
100	4"	2,3	3,0	4,0
125		4,0	5,0	6,0
150	6"	6,4	8,0	9,0

9. Technical Data

fig. 9.5.



9.5.		Valve stroke open / closed dimensions in mm				
DN	Inch	A	B	C	stroke H1 upper shaft	stroke H2 lower shaft
40	1,5"	6,5	5	21,2	30	26
50	2"	11,5	12	21,2	37	33
	2,5"	15,5	18	21,2	43	39
65		21,5	18	21,2	43	39
	3"	27,6	18	21,2	43	39
80		31,5	23	36,2	48	44
100	4"	50,5	23	36,2	48	44
125		69,5	29	42,7	54	50
150	6"	86,5	37	54,7	62	58

10. Materials

Product-wetted parts: **1.4571, 1.4404 (DIN EN 10088)**

Other parts: **1.4301 (DIN EN 10088)**

Seals:

Standard design:

Option:

EPDM/ PTFE

HNBR/ PTFE

FPM/ PTFE

Actuator:

PA 12 GF 30

Shaft bearing:

PPS

Drain pipe:

PP GF30

11. Maintenance

Scan for DE3 Valve
Maintenance Video



- The maintenance intervals depend on the application and should be determined by the user carrying out regular checks.

- Compressed air is not required to dismantle the valve.

Required tools:

- 1 x spanner SW13
- 2 x spanner SW17
- 2 x spanner SW24
- disassembly and assembly support for the lower shaft seal ref.-No. 000 51-13-100/1; H171889
- Replacement of seals according to Service Instructions. The customer is recommended to hold spare seals on stock. For valve maintenance SPX FLOW supplies complete seal kits including seal grease (pl. see spare parts lists).
- The valve must not be cleaned with products containing abrasive or polishing substances. Especially the valve shafts must not be cleaned with such agents under any circumstances. Damage of the valve shaft can produce leakages.
- Assembly of the valve according to Service Instructions.

All seals must be provided with a thin layer of grease before their installation. (see lubrication chart)

Attention! Use only food-grade special grease being suited for the respective seal material.

Recommendation:

APV assembly grease for EPDM, HNBR , FPM
(0,75 kg /tin - ref.-No. 000-70-01-019/93; H147382)
(60 g /tube - ref.-No. 000-70-01-018/93; H147381)

! Do not use grease on mineral oil basis for EPDM seals.

Recommendation for actuator (main cylinder):

APV pneumatic grease:
(25 ml / tube - ref.-No.: 000-70-01-008/93; H164725)

Less suited grease types can influence function and lifetime.

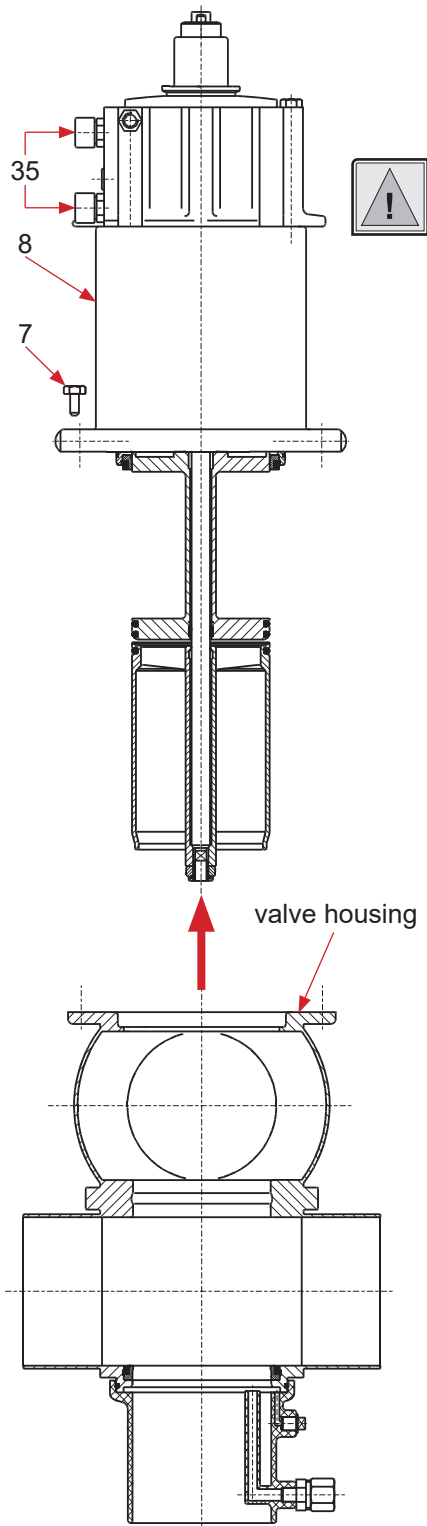
12. Service Instructions

The item numbers refer to the spare parts drawings.

DE3 - DN 40 - 150 ; 1,5 " - 6" : **RN 01.053.71**

DE3 - 1,5 - 4 Sh5: **RN 01.053.71-4**

12.1. Dismantling from the piping system



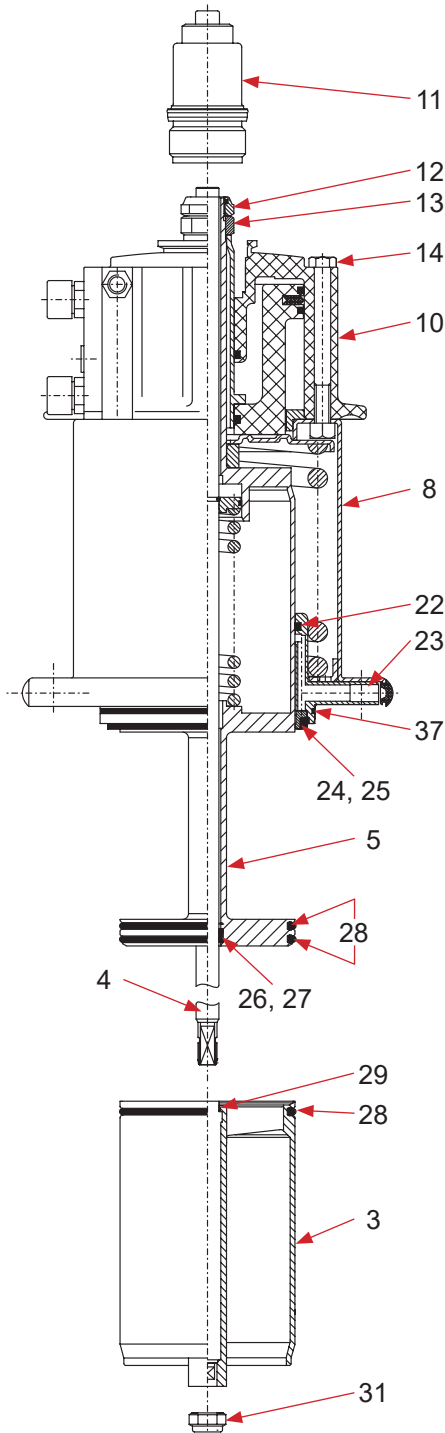
1. Shut off the line pressure in the product and cleaning lines, discharge the pipes if possible.
2. Remove the pneumatic air line and the flushing connection lines.
3. Release the nut of the proximity switch holder (35) and pull off the proximity switch.
- CU design:
Take off the control unit.
4. Remove the hex. screws (7) at the spring cylinder (8).
5. Screw in one flange screw into the threaded bore of the spring cylinder to lift the complete valve insert. Do not remove the screw which will help to re-install the valve insert.
6. Carefully lift the valve insert vertically out of the valve housing.

12. Service Instructions

12.2. Dismantling of product-wetted parts (service)

- **CU design:**

Release the 4 inner hex. screws and take off the CU adapter.



1. Screw off the stop screw (11).

2. Release the lower safety nut (31). Hold up the lower shaft (3) with a spanner SW17 to prevent it from turning.

3. Having removed the nut (31), pull the lower shaft (3) off the guide rod (4).

4. **Dismantling of seals from the lower shaft (3)**

Stick a peaked object into the lower seat seal (28) and pull the seal out of the groove. Pull the o-ring (29) out of the groove.

5. Pull off the guide rod to the top.

6. Remove the safety nut (12). Holding up the safety disc (13) with a spanner SW24 prevents the upper shaft (5) from turning.

7. Lift off the main cylinder (10) with spring cylinder (8) and shaft bearing (23) **(maintenance of spring cylinder, see 12.3).**

8. **Dismantling of seals from the upper shaft (5)**

Stick a peaked object into the upper and middle seat seal and pull them out of the groove. Afterwards, lift the two supporting rings (26) and the quading (27) off the groove.

9. **Dismantling of seals from the shaft bearing (23)**

Remove the upper shaft seal (24, 25) from the groove. Take the quading (22) and o-ring (37) out of the groove.

10. **Dismantling of lower shaft seal (24, 25) from the housing**

Take the metallic tip of the dismantling tool to stick into the elastomer seal (25) from the top and pull the seal off to the top. Then, take the tip of the assembly tool to pull the PTFE seal (24) off to the top through the housing.

12. Service Instructions

12.3. Maintenance of main cylinder

Dismantle the actuator, main cylinder (10) and spring cylinder (8) from the valve insert as described in 12.2 1.-7.

12.3.1. Disassembly of main cylinder and dismantling of seals

1. Remove the fastening screws (14). Remove the main cylinder (10) from the spring cylinder (8).
2. Press the piston rod out of the main cylinder. Remove the cover and the piston with piston rod.
3. Draw the piston rod out of the piston.
4. Remove the quadrings in the piston and in the main cylinder.
5. Remove the piston seal.
6. Clean the main cylinder, cover, piston rod and piston.

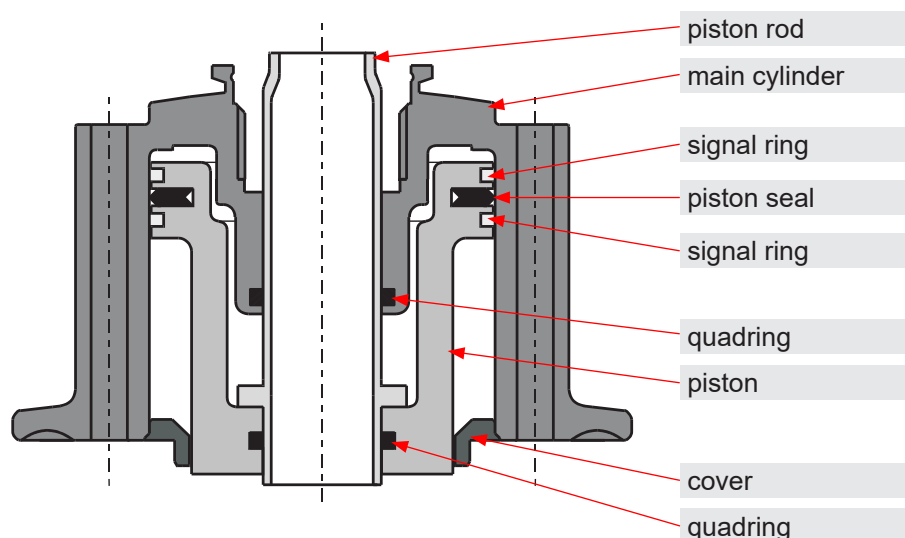
12.3.2. Installation of seals and assembly of main cylinder

Slightly grease the quadrings and the piston seal.
Use appropriate pneumatic grease.

- Recommendation for actuator (main cylinder):

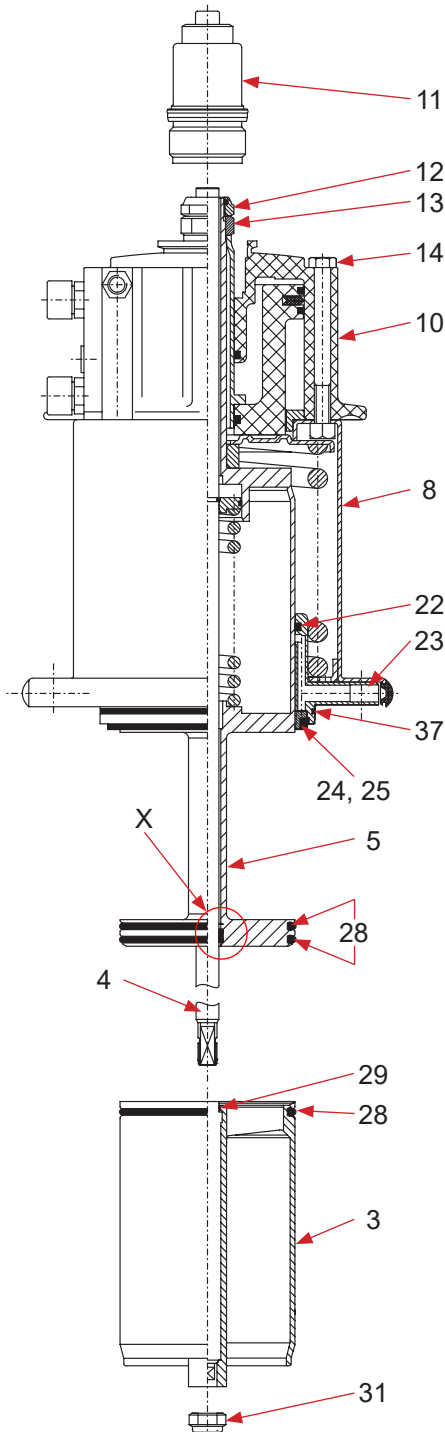
APV pneumatic grease:
(25 ml tube - ref.-No. 000 70-01-008/93; H164725)

7. Insert the quadrings and the piston seal.
8. Assembly to be undertaken in reverse order to the procedure described in 12.3.1.



12. Service Instructions

12.4. Installation of product-wetted seals and assembly of valve



All seals and guides can be serviced.

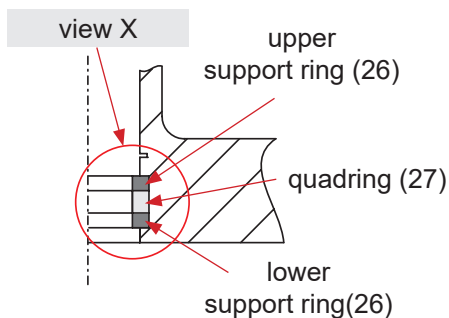
Attention: See to all seals and bearing surfaces in the product area being carefully greased before their assembly. (see Lubrication Chart: RN 260.086-1)

1. Install the lower shaft seal (24, 25) in the lower housing flanges (see page 20).
2. Install the quading (22) and o-ring (37) in the shaft bearing (23).
3. Afterwards insert the first supporting ring (26), then the quading (27) and then the second supporting ring (26) into the upper shaft (see fig. X).
4. Install the o-ring (29) in the lower shaft (3).
5. Insert the 3 seat seals (28) into the grooves of the upper and lower shafts. (see page 23 Service Instructions for Seat Seals) (Seals are symmetric).
6. Slide the upper shaft through the shaft bearing and the actuator. Screw up the upper shaft and actuator with the safety nut (12) and safety disc (13). **Tightening torque: Md = 40 Nm**
7. Installation of the upper shaft seal (24, 25).
8. First of all, slide the PTFE-ring (24) over the seat of the upper shaft and place it in the open groove of the shaft bearing (23). Then press the elastomer ring (25) with the wide side to the front into the groove.
9. Push in the guide rod (5) from the top until it stops.
10. Fasten the stop screw (11) until stop. **Tightening torque: Md = 25 Nm**
11. Slide the lower valve shaft (3) on the guide rod. Fasten the valve shaft with the safety nut (31). **Tightening torque: Md = 40 Nm**

Attention: Check the leakage gap (4 mm) between the upper and lower valve shaft (see page 14).

- **CU design:**

Place the CU adapter and fasten it with the inner hexagon screws.



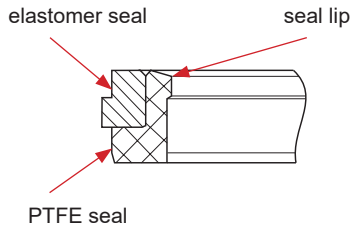
12. Service Instructions

12.5. Installation of valve insert

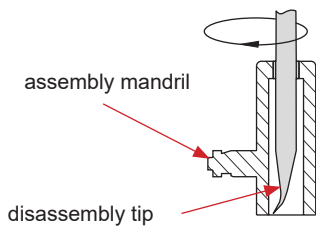
1. Carefully place the valve insert in the valve housing until the screw stops.
2. Remove the pulling screw and carefully press the valve insert into the housing.
3. Screw in the screws (7) and tighten them crosswise.
4. **CU design:** Place the control unit and fasten it.
5. Install the pneumatic air and cleaning lines.
6. Install the valve position indicator.
Release the union nut and slide the proximity switches into the socket until they stop.
7. Tighten the proximity switches with the nut.

13. Disassembly and Assembly Tool (for lower shaft seal, pos. 24, 25)

seal 24, 25



assembly tool



For a simple dismantling and installation of the lower shaft seal, the combi tool (ref.-No. 000 51-13-100/17; H171889) should be used.

Support by this tool is especially recommended for valves of the small series (DN 40 - 65, 1.5" - 3") for the lower shaft seal cannot be reached from the top as a result of the narrow fit.

Attention:

Do not damage the seal lip of the PTFE seal during assembly. To prevent injuries, the disassembly point, if not used, must be covered by the assembly mandril.

1. Assembly of the PTFE seal (fig. 1, 2)

- 1) Press the PTFE ring into an oval shape.
- 2) Introduce the PTFE ring, the wide side to the front, from the top through the housing intermediate ring into the lower housing by means of the assembly tool (fig. 1).
- 3) Round off the PTFE by means of the assembly mandril (fig. 2 / I) and press it into the groove. Do not strike or beat (fig. 2 / II).

2. Assembly of the elastomer seal (fig. 1, 3, 4)

- 1) Slightly grease the seal.
- 2) Introduce the elastomer, the wide side to the front, from the top through the housing intermediate ring into the lower housing by means of the assembly tool (fig. 1).
- 3) Fix the seal by means of the locating groove of the assembly mandril (fig. 3 / I).
- 4) Press in the elastomer at one spot between housing flange and PTFE (fig. 3 / II).
- 5) Pull the seal completely into the groove by passing around it with the assembly mandril (fig. 4). Check if the elastomer seal is evenly installed in the groove.

fig. 1

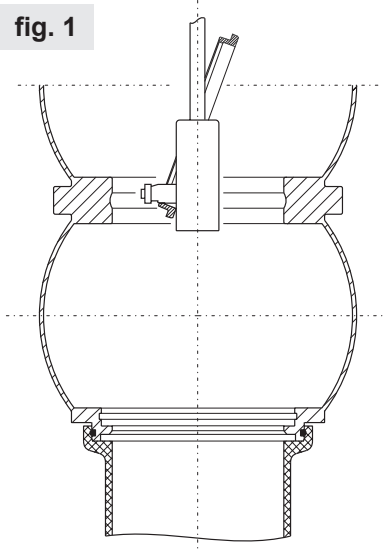


fig. 2

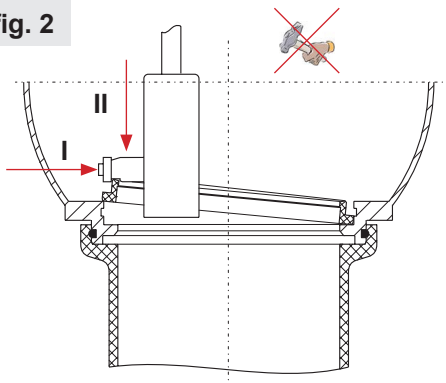


fig. 3

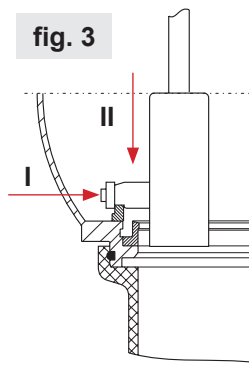
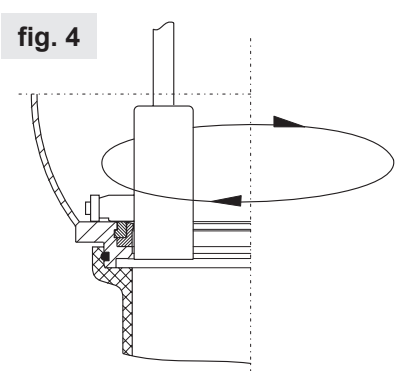


fig. 4



14. Special Accessory - Shaft flushing

The valve is prepared for the shaft flushing.
The required construction kit is available as accessory.

Construction kit for assembly of shaft flushing, complete
DN40 - 100, 1,5" - 4" H201675
DN125 - 150, 6" H312958

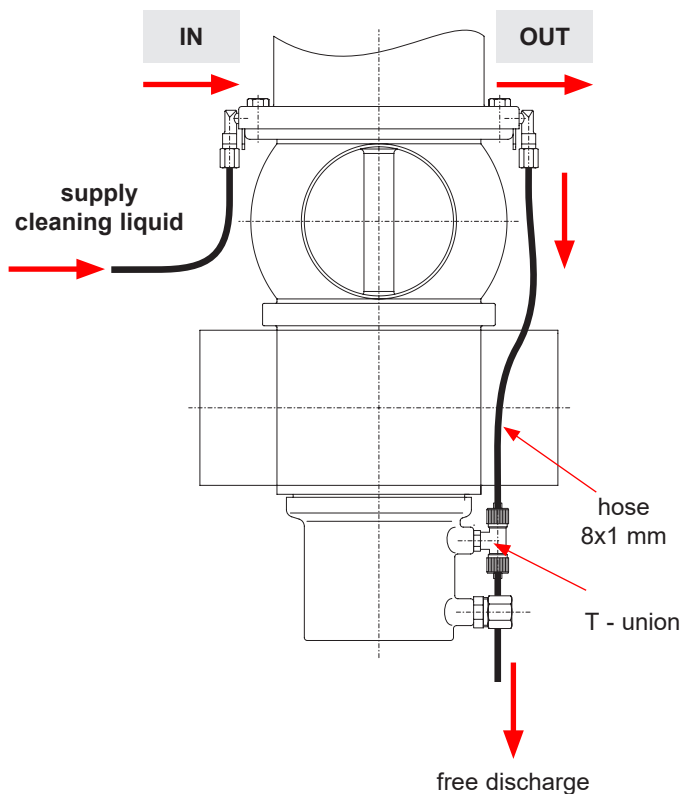
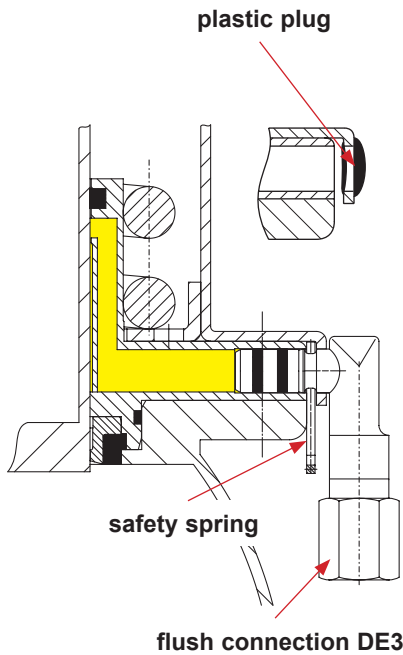
14.1. Assembly of shaft flushing

- Remove the plastic plug.
- Insert the flush connections in the shaft bearing and arrest them with the locking spring.

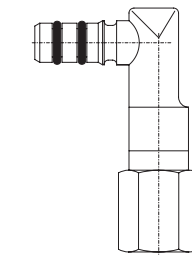
Bolt the supply hose for cleaning liquids to the flush connection.
Identification: IN

Bolt the discharge hose for cleaning liquids to the flush connection.
Identification: OUT

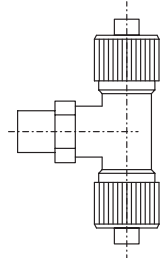
- Screw the T-union into the drain pipe and hose it.
- Check the passage of the cleaning liquid.



The construction kit for the shaft flushing consists of the following components:

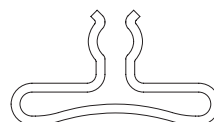


DN 40 - 150, 1,5" - 6"
 2 x flushing connection DE3
 ref.-No.: 000 16-38-070/93
H201674



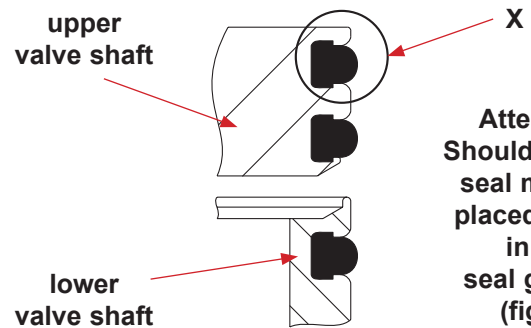
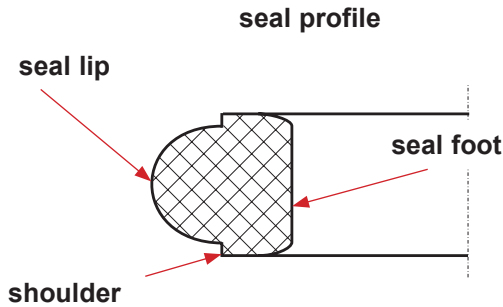
DN 40 - 100, 1,5" - 4"
 1 x T - union 8-1/8"-8
 ref.-No.: 000 08-63-371/93
H176993

DN 125 - 150, 6"
 1 x T - union 8-1/4"-8
 ref.-No.: 000 08-63-372/93
H312957

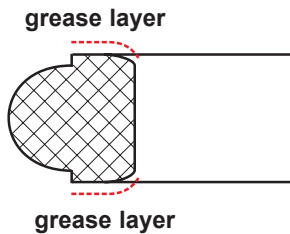


DN 40 - 150, 1,5" - 6"
 2 x safety spring DE3
 ref.-No.: 000 67-03-015/13
H171289

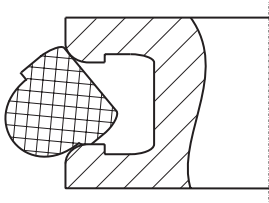
15. Service Instructions for the installation of seat seals



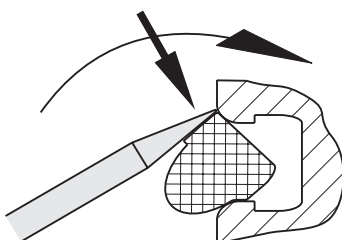
1. Provide the seal shoulder with a thin layer of grease.



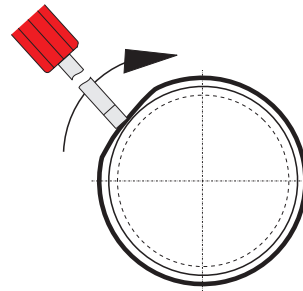
2. Insert the seat seal into the valve shaft; see to an even inclined position of the seal.



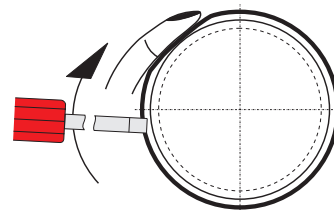
3. Press the seal circumferentially into the groove by means of an assembly tool (use screw driver with round edges). Place the assembly tool at the upper seal shoulder. To get an even fit of the seal, proceed step by step:



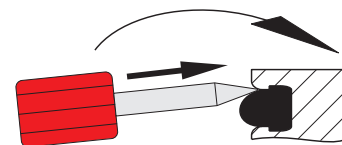
- 3.1. Press a short piece part of the seal into the groove.



- 3.2. Fix the seal - already pressed in - by your finger (to prevent loops). Use the assembly tool to press a short part of the seal into finger direction. Install the seal in the groove circumferences.



4. Press the assembly tool between the seal shoulder and the groove edge (both sides). Proceed around the circumferences. Then proceed around the circumferences of the lower seal shoulder. This is to vent the seal groove and to lock the seal shoulder.



16. Detection of seal damage

Failure	Remedy
Leakage at upper housing flange	Replace upper shaft seal (24, 25).
Leakage at drain pipe	Remove the drain pipe (1) to verify the leakage.
Leakage at the outside of the lower valve shaft	Replace lower shaft seal (24, 25).
Valve closed and pressure in upper housing	
Leakage from the leakage chamber of the lower valve shaft	Replace upper seat seal (28).
Valve closed and pressure in lower housing Remove spray connection.	
Leakage from the leakage chamber of the lower valve shaft	Replace lower seat seal (28).
Valve open	
Leakage from the leakage chamber of the lower valve shaft	Replace middle seal (28).
<p>! When damaged seals are changed, generally all seals should be replaced. For valve service actions SPX FLOW supplies complete seal kits (see spare parts lists).</p>	

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.

subject to change

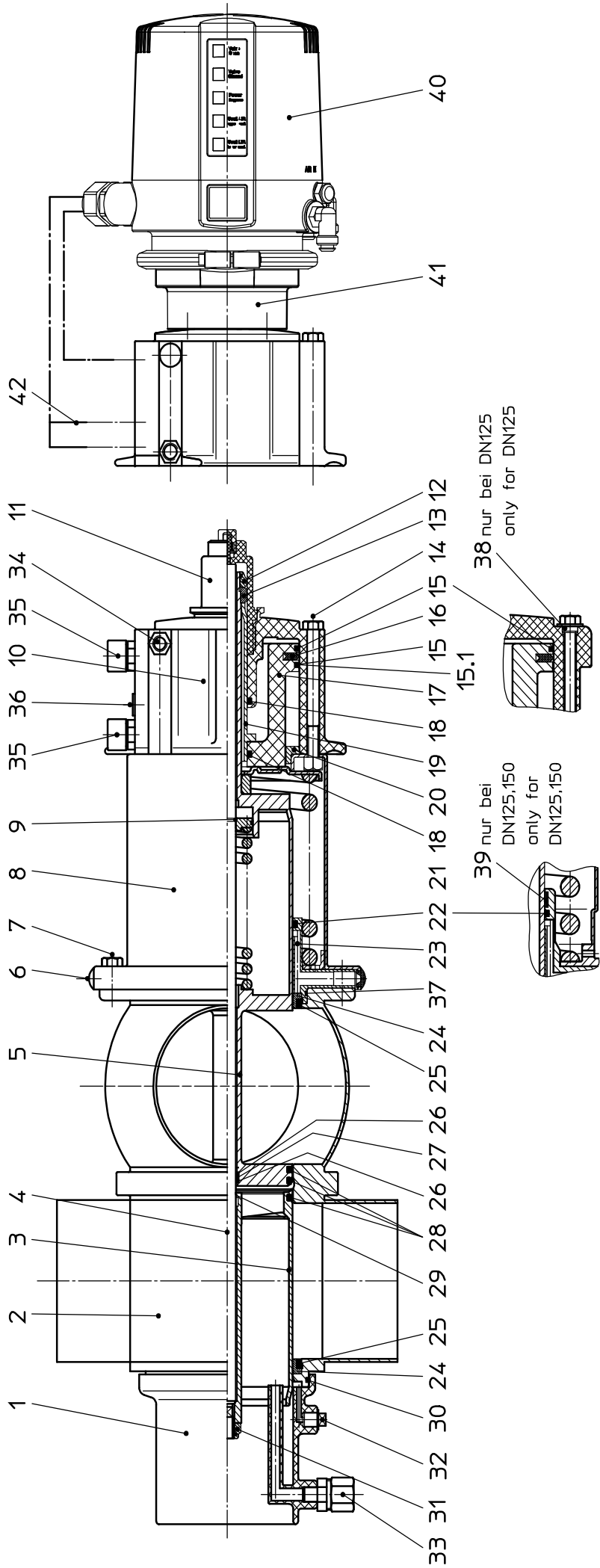
Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht schriftlich zugestanden. Verstößt verpflichtet zum Schadensersatz und kann strafrechtliche Folgen haben (Paragraf 18 UWG, Paragraf 106 UrhG). Eigentum und alle Rechte, auch für Patenterteilung und Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany

Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

Datum:	11/08	21.06.16	08.08.16
Name:	Peters	Trytko	Trytko
Geprüft:			
Datum:			
Name:			
Geprüft:			

	
Blatt	1 von 13
RN 01.053.71	



Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

Datum:	11/09	21.06.16	08.08.16
Name:	Peters	Trytko	Trytko
Geprüft:			
Datum:			
Name:			
Geprüft:			

												 SPX FLOW Germany	
												Blatt 2 von 13 RN 01.053.71	

pos.	item	Menge	Beschreibung	Material	DN25	1"	DN40	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.	WS-Nr. ref.-no.
1	1	1	Spritzanschluss CIP connection	PP				09-40-114/93 H168321		
	1	1	Gehäuse Housing	1.4404	16-66-376/47 H170237	16-66-401/47 H170242	16-66-426/47 H170238	16-66-451/47 H170243		
	1	1	Gehäuse Housing	1.4404	16-67-376/47 H170247	16-67-401/47 H170252	16-67-426/47 H170248	16-67-451/47 H170253		
2	1	1	Gehäuse Housing	1.4404	16-68-376/47 H170257	16-68-401/47 H170262	16-68-426/47 H170258	16-68-451/47 H170263		
	1	1	Gehäuse Housing	1.4404	16-69-376/47 H168999	16-69-401/47 H169001	16-69-426/47 H169000	16-69-451/47 H169002		
3	1	1	Schaft unten Lower valve shaft	1.4404	16-21-377/42 H169046			16-21-427/42 H169047		
4	1	1	Zugstange Guide rod	1.4404	16-24-398/42 H169069			16-24-448/42 H169068		
5	1	1	Schaft oben Upper valve shaft	1.4404	16-21-376/42 H169032			16-21-426/42 H169033		
6	2	2	Verschlußstopfen Plug	PVC			08-74-030/93 H200514			
7	4	4	Skt. Schraube Hex. Screw	A2-70			65-01-089/15 H120284			
8	1	1	Federzylinder Spring actuator	1.4301			16-30-250/12 H168223			
9	1	1	Sprengring Retainer ring	1.4310			08-39-083/13 H14883			
10	1	1	Hauptzylinder Main actuator	Vestamid			16-30-244/93 H168555			
11	1	1	Anschlagschraube Stop sleeve	Vestamid			16-28-704/93 H168553			
12	1	1	Sicherungsmutter Stop nut	1.4301			65-50-137/15 H147640			
13	1	1	Sicherungsscheibe Lock washer	1.4301			67-03-001/15 H147639			

Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht schriftlich zugestanden. Verstößt verpflichtet zum Schadensersatz und kann strafrechtliche Folgen haben (Paragraf 18 UWG, Paragraf 106 UrhG). Eigentum und alle Rechte, auch für Patenterteilung und Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany

Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

pos. item		Beschreibung description		Material	DN25	1"	DN40	1,5"	DN50	Blatt 3 von 13	
Menge quantity					WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	RN 01.053.71	
14	4	Skt. Schraube Hex. Screw	DIN EN 24017	A2-70							
15		Signalring Signal ring		1.4310							
15.1		Signalring Signal ring		1.4310							
16	1	Kolben-Dichtung Piston seal		NBR							
17	1	Kolben Piston		POM							
18	2	Quadring Quadring	Q4216-N7004	NBR							
19	1	Kolbenstange Piston shaft		1.4301							
20	1	Deckel Hzyl. Cover for main actuator		POM							
21	1	Distanzhülse Spacer bush		1.4301							
22	1	Quadring Quadring	Q4230-N7502	EPDM							
23	1	Schafthlager Shaft bearing		PPS GF40							
24	2	Schafthdichtung Shaft seal		PTFE							
25	2	Tellerdichtung Seat seal		EPDM							
		Tellerdichtung Seat seal		FDA-konform							
		Tellerdichtung Seat seal		HNBR							
		Tellerdichtung Seat seal		FDA-konform							
26	2	Stützring Support ring		PTFE							



Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

pos. item	Menge quantity	Beschreibung description	Material	DN25 WS-Nr. ref.-no.	1" WS-Nr. ref.-no.	DN40 WS-Nr. ref.-no.	1,5" WS-Nr. ref.-no.	DN50 WS-Nr. ref.-no.	Datei		
									11/09 Peters	09/11 Trytko	21.06.16 Trytko
27	1	Quadrang Q4112-N7004	NBR						Datum: Name: Geprüft:	Blatt Name: Geprüft:	4 von 13
	3	Sitzdichtung Seat seal	EPDM								
28	3	Sitzdichtung Seat seal	HNBR								
	3	Sitzdichtung Seat seal	FPM								
29	1	O-Ring OR12x1	EPDM								
30	1	O-Ring O-ring	EPDM								
31	1	Sicherungsmutter Self-locking nut	1.4301								
32	1	Entlüftungstopfen Venting plug	PE								
33	1	G-Verschraubung Straigh union	PVDF-schwarz								
34	1	W-Verschraubung Angular union									
35	2	Initiatorhalterung Mounting block	PA								
36	1	Verschlußkappe Cap	PVC								
37	1	O-Ring O-ring	FPM								
38	4	Buchse Bushing	1.4301								
39	1	Führungsband PTFE driving band	PTFE								
40	1	CU41-M-Direct Connect CU41-M-Direct Connect	PA6.6 GF30 schwarz								



RN 01.053.71

Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

Datum:	11/08	21.06.16	08.08.16
Name:	Peters	Trytko	Trytko
Geprüft:			
Datum:			
Name:			
Geprüft:			
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Datum:		11/08	21.06.16	08.08.16
Name:		Peters	Trytko	Trytko
Geprüft:				
Datum:				
Name:				
Geprüft:				
Blatt 5 von 13		RN 01.053.71		

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.
40		1	CU41-M-AS-I-extended	PA6.6 GF30 schwarz			08-45-112/93		
			CU41-M-AS-I-extended				H320469		
		1	CU41-M-AS-I-standard	PA6.6 GF30 schwarz			08-45-252/93		
			CU41-M-AS-I-standard				H324675		
41		1	CU41-M-Adapter	PA6.6 GF30 schwarz			08-48-602/93		
			CU41-M-adapter				H320476		
42		1	Luftschlauch Air hose	PA 12W			08-75-020/53		
							H16516		
		1	Ventileinsatz Valve insert	1.4404/EPDM			16-36-382/59	16-36-432/59	
							H169410	H169411	
		1	Ventileinsatz Valve insert	1.4404/HNBR			16-36-382/29	16-36-432/29	
							H171580	H171581	
		1	Ventileinsatz Valve insert	1.4404/FPM			16-36-382/69	16-36-432/69	
							H171573	H171574	
			Pos. 22, 24, 25, 26, 27, 28, 29, 37, 39 nur im kompletten Dichtungssatz erhältlich						
			Item 22, 24, 25, 26, 27, 28, 29, 37, 39 available as complete seal kits only						
		1	Dichtungssatz Seal kit	FPM			58-34-660/00		
							H170207		
		1	Dichtungssatz Seal kit	EPDM			58-34-660/01		
							H170212		
		1	Dichtungssatz Seal kit	HNBR			58-34-660/06		
							H171750		
		1	Anbauteile für den Umbau der Ventile für die obere Schaftspülung Mounting kit for reconstruction of valves for upper shaft flushing				34-12-299/99		
							H201675		

Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

Datum:	11/09	21.06.16	08.08.16
Name:	Peters	Tytko	Tytko
Geprüft:			
Datum:			
Name:			
Geprüft:			

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RN 01.053.71	



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.	WS-Nr. ref.-no.
14	4	Skt. Schraube Hex. Screw DIN EN 24017	A2-70	65-01-104/15 M8x85 H172965		65-01-100/15 M8x90 H172966			
15		Signalring Signal ring	1.4310	16-02-020/17 2x H169419		16-02-021/17 1x H169418			
15.1		Signalring Signal ring	1.4310			16-02-016/57 1x H204085			
16	1	Kolben-Dichtung Piston seal	NBR	58-01-760/83 H76868		58-01-761/83 H76869			
17	1	Kolben Piston	POM	16-29-124/93 H169390		16-29-125/93 H168348			
18	2	Quadring Quadring	NBR			58-01-236/83 H148385			
19	1	Kolbenstange Piston shaft	1.4301	16-29-130/12 H169391		16-29-131/12 H168332			
20	1	Deckel Hzyl. Cover for main actuator	POM	16-24-124/93 H169389		16-24-125/93 H168346			
21	1	Distanzhülse Spacer bush	1.4301			16-28-230/12 H168541			
22	1	Quadring Quadring	EPDM	58-01-329/63 H150898		58-01-238/63 H148387			
23	1	Schafthlager Shaft bearing	PPS GF40	16-28-212/93 H168233		16-28-213/93 H168151			
24	2	Schafthdichtung Shaft seal	PTFE	58-33-016/23 H149620		58-33-017/23 H150708			
	2	Tellerdichtung Seat seal	EPDM	58-33-493/93 H77515		58-33-643/93 H77586			
25	2	Tellerdichtung Seat seal	HNBR	58-33-493/33 H166678		58-33-643/33 H166682			
	2	Tellerdichtung Seat seal	FPM	58-33-493/73 H77514		58-33-643/73 H77585			
26	2	Stützring Support ring	PTFE			58-01-048/23 H76309			

Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

		Datum: 11/09		21.06.16		08.08.16			
		Name: Peters		Trytko		Trytko			
		Geprüft:							
		Datum:				Blatt 8 von 13			
		Name:				RN 01.053.71			
		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.
27	1	Quadrang Quadrang	NBR			58-01-049/93 H76310			
	3	Sitzdichtung Seat seal	EPDM	58-33-132/93 H168192				58-33-133/93 H168153	
28	3	Sitzdichtung Seat seal	HNBR	58-33-132/33 H171561				58-33-133/33 H171565	
	3	Sitzdichtung Seat seal	FPM	58-33-132/73 H171559				58-33-133/73 H171563	
29	1	O-Ring O-ring	EPDM			58-06-040/63 H169477			
30	1	O-Ring O-ring	EPDM	58-06-295/63 H77039				58-06-490/63 H77061	
31	1	Sicherungsmutter Self-locking nut	1.4301			65-50-087/15 H118903			
32	1	Entlüftungstopfen Venting plug	PE			08-60-005/93 H16218			
33	1	G-Verschraubung Straigh union	PVDF-schwarz			08-63-003/13 H16388			
34	1	W-Verschraubung Angular union				08-60-750/93 H208825			
35	2	Initiatorhalterung Mounting block	PA			15-33-918/93 H154913			
36	1	Verschlußkappe Cap	PVC	08-05-066/93 H154816					
37	1	O-Ring O-ring	FPM	58-06-332/73 H171616				58-06-503/73 H171288	
38	4	Buchse Bushing	1.4301						
39	1	Führungsband PTFE driving band	PTFE						
40	1	CU41-M-Direct Connect CU41-M-Direct Connect	PA6.6 GF30 schwarz						08-45-102/93 H320462



Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

Datum:	11/08	21.06.16	08.08.16
Name:	Peters	Trytko	Trytko
Geprüft:			

Datum:			
Name:			
Geprüft:			

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RN 01.053.71	

APV SPX FLOW Germany	
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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.
40	1	CU41-M-AS-I-extended	PA6.6 GF30 schwarz			08-45-112/93 H320469			
	1	CU41-M-AS-I-extended	PA6.6 GF30 schwarz			08-45-252/93 H324675			
41	1	CU41-M-Adapter	PA6.6 GF30 schwarz			08-48-602/93 H320476			
42	1	Luftschlauch 6x1 (øA x l 6x4) Air hose	PA 12W			08-75-020/53 H16516			
	1	Ventileinsatz Valve insert	1.4404/EPDM	16-36-482/59 H169413	16-36-507/59 H169412	16-36-557/59 H169414	16-36-532/59 H169415	16-36-632/59 H169416	
	1	Ventileinsatz Valve insert	1.4404/HNBR	16-36-482/29 H171583	16-36-507/29 H171582	16-36-557/29 H171584	16-36-532/29 H171585	16-36-632/29 H171586	
	1	Ventileinsatz Valve insert	1.4404/FPM	16-36-482/69 H171576	16-36-507/69 H171575	16-36-557/69 H171577	16-36-532/69 H171578	16-36-632/69 H171579	
	1	Dichtungssatz Seal kit	FPM	58-34-660/00 H170207				58-34-663/00 H170210	
	1	Dichtungssatz Seal kit	EPDM	58-34-660/01 H170212				58-34-663/01 H170215	
	1	Dichtungssatz Seal kit	HNBR	58-34-660/06 H171750				58-34-663/06 H171751	
	1	Anbauteile für den Umbau der Ventile für die obere Schaffspülung Mounting kit for reconstruction of valves for upper shaft flushing							34-12-299/99 H201675

Pos. 22, 24, 25, 26, 27, 28, 29, 37, 39 nur im kompletten Dichtungssatz erhältlich
Item 22, 24, 25, 26, 27, 28, 29, 37, 39 available as complete seal kits only

Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

pos. item	Menge Quantity	Beschreibung description	Material	DN125	5"		6"		Datum:				
					WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	11/09	21.06.16	08.08.16	21.09.16	
1	1	Spritzanschluss CIP connection	PP	09-40-117/93 H178450						Peters	Trytko	Trytko	C.Keil
	1	Gehäuse Housing	1.4404	16-66-676/47 H174085			16-66-726/47 H200818	16-66-776/47 H315922					
2	1	Gehäuse Housing	1.4404	16-67-676/47 H174086			16-67-726/47 H200819	16-67-776/47 H315923					
	1	Gehäuse Housing	1.4404	16-68-676/47 H174087			16-68-726/47 H200820	16-68-776/47 H315924					
	1	Gehäuse Housing	1.4404	16-69-676/47 H173779			16-69-726/47 H200821	16-69-776/47 H315925					
3	1	Schaft unten Lower valve shaft	1.4404	16-21-677/42 H174068			16-21-727/42 H315990						
4	1	Zugstange Guide rod	1.4404	16-24-698/42 H174139			16-24-748/42 H315992						
5	1	Schaft oben Upper valve shaft	1.4404	16-21-676/42 H174059			16-21-726/42 H315976						
6	2	Verschlußstopfen Plug	PVC	08-74-030/93 H200514			08-74-030/93 H200514						
7	4	Skt. Schraube Hex. Screw	A2-70	65-01-085/15 M8x28 H78778			65-01-136/13 M10x30 H78814						
8	1	Federzylinder Spring actuator	1.4301	16-30-772/12 H174092			16-30-774/12 H316010						
9	1	Sprengring Retainer ring	1.4310	08-39-083/13 H14883			08-39-083/13 H14883						
10	1	Hauptzylinder Main actuator	Vestamid	16-30-243/93 H178474			16-30-246/93 H173902						
11	1	Anschlagschraube Stop sleeve	Vestamid	16-28-704/93 H168553			16-28-704/93 H168553						
12	1	Sicherungsmutter Stop nut	1.4301	65-50-137/15 H147640			65-50-137/15 H147640						
13	1	Sicherungsscheibe Lock washer	1.4301	67-03-001/15 H147639			67-03-001/15 H147639						



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Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

Datum:	11/09	21.06.16	08.08.16	21.09.16
Name:	Peters	Trytko	Trytko	C.Keil
Geprüft:				



Datum:				
Name:				
Geprüft:				

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RN 01.053.71			

pos. item	Menge quantity	Beschreibung description	Material	DN125		5"		6"	
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
14	4	Skt. Schraube Hex. Screw DIN EN 24017 DIN EN 24014	A2-70	65-01-100/15 M8x90 H172966					
15	1	Signalring Signal ring	1.4310	16-02-022/17 H174144					
15.1		Signalring Signal ring	1.4310						
16	1	Kolben-Dichtung Piston seal	NBR	58-01-762/83 H76870					
17	1	Kolben Piston	POM	16-29-127/93 H174140					
18	2	Quadring Quadring Q4216-N7004	NBR	58-01-236/83 H148385					
19	1	Kolbenstange Piston shaft	1.4301	16-29-132/12 H174141					
20	1	Deckel Hzyl. Cover for main actuator	POM	16-24-128/93 H174143					
21	1	Distanzhülse Spacer bush	1.4301						
22	1	Quadring Quadring Q4230-N7502	EPDM	58-01-240/83 H174545					
23	1	Schafthlager Shaft bearing	PPS GF40	16-28-369/12 H174079					
24	2	Schafthdichtung Shaft seal	PTFE	58-33-140/23 H174056					
	2	Tellerdichtung Seat seal	EPDM FDA-konform	58-33-693/93 H77611					
25	2	Tellerdichtung Seat seal	HNBR FDA-konform	58-33-693/33 H170178					
	2	Tellerdichtung Seat seal	FPM FDA-konform	58-33-693/73 H77610					
26	2	Stützring Support ring	PTFE	58-01-048/23 H76309					

Ersatzteilliste: spare parts list

Doppelsitzventil DE3 DN40 - 150 ; 1.5 - 6"
Double seat valve DE3 DN40 - 150 ; 1.5 - 6"

Datum:	11/09	21.06.16	08.08.16	21.09.16
Name:	Peters	Trytko	Trytko	C.Keil
Geprüft:				

Datum:				
Name:				
Geprüft:				

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RN 01.053.71

pos. item	Menge Quantity	Beschreibung description	Material	DN125		5"		6"	
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
27	1	Quadring Quadring	NBR	58-01-049/93 H76310					
	3	Sitzdichtung Seat seal	EPDM	58-33-135/93 H173940					
28	3	Sitzdichtung Seat seal	HNBR	58-33-135/33 H179939					
	3	Sitzdichtung Seat seal	FPM	58-33-135/73					
29	1	O-Ring O-ring	EPDM	58-06-040/63 H169477					
30	1	O-Ring O-ring	EPDM	58-06-555/63 H77074					
31	1	Sicherungsmutter Self-locking nut	1.4301	65-50-087/15 H118903					
32	1	Verschlußstopfen Plug	Kunststoff schwarz	08-60-007/93 H176010					
33	1	G-Verschraubung Straigh union	1.4571	16-38-200/42 H329696					
34	1	W-Verschraubung Angular union		08-60-750/93 H208825					
35	2	Initiatorhalterung Mounting block	PA6.6 schwarz	15-33-918/93 H154913					
36	1	Verschlußkappe Cap	PVC						
37	1	O-Ring O-ring	FPM	58-06-589/73 H176512					
38	4	Buchse Bushing	1.4301	08-01-127/12 H174186					
39	1	Führungsband PTFE driving band	PTFE	08-39-189/93 H174200					
40	1	CU41-M-Direct Connect CU41-M-Direct Connect	PA6.6 GF30 schwarz						



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Ersatzteilliste: spare parts list

Doppelsitzventil DE3 1,5 - 4 Sh5 Double seat valve DE3 1,5 - 4 Sh5

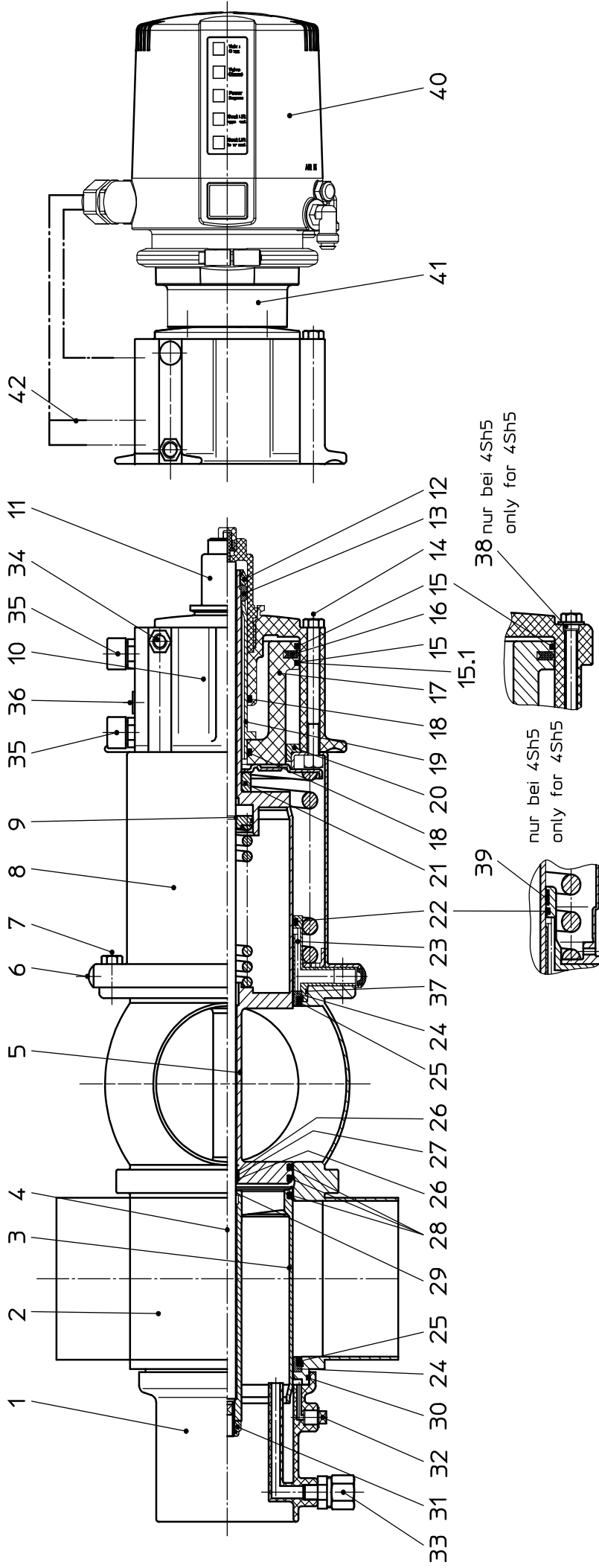
Datum: 09/10 21.06.16

Name: Trytko Trytko

Geprüft: Trytko

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RN 01.053.71-4



Ersatzteilliste: spare parts list

Doppelsitzventil DE3 1,5 - 4 Sh5
Double seat valve DE3 1,5 - 4 Sh5

Datum:	09/10	21.06.16
Name:	Trytko	Trytko
Geprüft:		
Datum:		
Name:		
Geprüft:		
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RN 01.053.71-4		

	
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pos. item	Menge Quantity	Beschreibung description	Material	1,5Sh5 WS-Nr. ref.-no.	2Sh5 WS-Nr. ref.-no.	2,5Sh5 WS-Nr. ref.-no.	3Sh5 WS-Nr. ref.-no.	4Sh5 WS-Nr. ref.-no.	WS-Nr. ref.-no.	
1	1	Spritz Anschluss CIP connection	PP	09-40-114/93 H168321			09-40-115/93 H168322	09-40-117/93 H178450		
	1	Gehäuse Housing	1.4404	16-66-406/47 H179147	16-66-456/47 H179146	16-66-506/47 H179148	16-66-556/47 H179149	16-66-656/47 H178776		
	1	Gehäuse Housing	1.4404	16-67-406/47 H179142	16-67-456/47 H176739	16-67-506/47 H179143	16-67-556/47 H179144	16-67-656/47 H178777		
2	1	Gehäuse Housing	1.4404	16-68-406/47	16-68-456/47	16-68-506/47	16-68-556/47	16-68-656/47 H178778		
	1	Gehäuse Housing	1.4404	16-69-406/47	16-69-456/47	16-69-506/47	16-69-556/47	16-69-656/47 H178779		
3	1	Schaft unten Lower valve shaft	1.4404	16-21-502/42 H169048	16-21-502/42 H169048	16-21-029/42 H179137	16-21-033/42 H179140	16-21-038/42 H178752		
	1	Zugstange Guide rod	1.4404	16-24-024/42 H179119	16-24-025/42 H176740	16-24-026/42 H179120	16-24-027/42 H179121	16-24-037/42 H178760		
5	1	Schaft oben Upper valve shaft	1.4404	16-21-021/42 H179125	16-21-025/42 H176742	16-21-028/42 H179126	16-21-032/42 H179127	16-21-037/42 H178758		
6	2	Blindstopfen Blind plug	PVC	08-74-030/93 H200514						
7	4	Skt. Schraube Hex. Screw	A2-70	65-01-089/15 MBx25 H120284						65-01-085/15 MBx28 H78778
8	1	Federzylinder Spring actuator	1.4301	16-30-250/12 H168223						16-30-251/12 H168222
9	1	Sprengring Retainer ring	1.4310	08-39-083/13 H14883						
10	1	Hauptzylinder Main actuator	Vestamid	16-30-244/93 H168555						16-30-245/93 H168554
11	1	Anschlagschraube Stop sleeve	Vestamid	16-28-704/93 H168553						
12	1	Sicherungsmutter Stop nut	1.4301	65-50-137/15 H147640						16-30-243/93 H178474
13	1	Sicherungsscheibe Lock washer	1.4301	67-03-001/15 H147639						

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Ersatzteilliste: spare parts list

Doppelsitzventil DE3 1,5 - 4 Sh5
Double seat valve DE3 1,5 - 4 Sh5

pos. item	Menge Quantity	Beschreibung description	Material	1,5Sh5				2,5Sh5				3Sh5				4Sh5			
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	
14	4	Skt. Schraube Hex. Screw	A2-70	65-01-104/15 M8x85	H172965	65-01-100/15 M8x90	H172966												
15		Signalring Signal ring	1.4310	16-02-020/17 2x	H169419	16-02-021/17 1x	H169418	16-02-022/17 1x	H174144										
15.1		Signalring Signal ring	1.4310			16-02-016/57 1x	H204085												
16	1	Kolben-Dichtung Piston seal	NBR	58-01-760/83 H76868		58-01-761/83 H76869		58-01-762/83 H76870											
17	1	Kolben Piston	POM	16-29-124/93 H169390		16-29-125/93 H168348		16-29-127/93 H174140											
18	2	Quadring Quadring	NBR	58-01-236/83 H148385															
19	1	Kolbenstange Piston shaft	1.4301	16-29-130/12 H169391		16-29-131/12 H168332		16-29-132/12 H174141											
20	1	Deckel Hzyl. Cover for main actuator	POM	16-24-126/93 H170525		16-24-124/93 H169389		16-24-125/93 H168346											
21	1	Distanzhülse Spacer bush	1.4301	16-28-230/12 H168541															
22	1	Quadring Quadring	EPDM	58-01-329/63 H150898		58-01-238/63 H148387		58-01-240/63 H174545											
23	1	Schafthlager Shaft bearing	PPS GF40	16-28-212/93 H168233		16-28-213/93 H168151		16-28-369/12 H174079											
24	2	Schafthdichtung Shaft seal	PTFE	58-33-016/23 H149620		58-33-017/23 H150708		58-33-140/23 H174056											
	2	Tellerdichtung Seat seal	EPDM	58-33-493/93 H77515		58-33-643/93 H77586		58-33-693/93 H77611											
25	2	Tellerdichtung Seat seal	HNBR	58-33-493/33 H166678		58-33-643/33 H166682		58-33-693/33 H170178											
	2	Tellerdichtung Seat seal	FPM	58-33-493/73 H77514		58-33-643/73 H77585		58-33-693/73 H77610											
26	2	Stützring Support ring	PTFE	58-01-048/23 H76309															

Datum: 21.06.16
 Name: Trytko
 Geprüft:

Datum:
 Name:
 Geprüft:

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Ersatzteilliste: spare parts list

Doppelsitzventil DE3 1,5 - 4 Sh5 Double seat valve DE3 1,5 - 4 Sh5

Datum:	09/10	21.06.16
Name:	Trytko	Trytko
Geprüft:		
Datum:		
Name:		
Geprüft:		
Blatt 4 von 5		
RN 01.053.71-4		

	
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pos. item	Menge Quantity	Beschreibung description	Material	1,5Sh5				2,5Sh5				3Sh5				4Sh5			
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	
27	1	Quadring Quadring	NBR	Q4112-N7004				58-01-049/93 H76310											
28	3	Sitzdichtung Seat seal	EPDM FDA-konform	58-33-132/93 H168192				58-33-133/93 H168153				58-33-135/93 H173940				58-33-135/93 H173940			
	3	Sitzdichtung Seat seal	HNBR FDA-konform	58-33-132/33 H171561				58-33-133/33 H171565				58-33-135/33 H173939				58-33-135/73 H171563			
29	3	Sitzdichtung Seat seal	FPM FDA-konform	58-33-132/73 H171559				58-33-133/73 H171563				58-33-135/73 H171563							
	1	O-Ring O-ring	EPDM	58-06-040/63 H169477															
30	1	O-Ring O-ring	EPDM	58-06-295/63 H77039				58-06-490/63 H77061				58-06-555/63 H77074							
	1	Sicherungsmutter Self-locking nut	1.4301	65-50-087/15 H118903															
32	1	Entlüftungstopfen Venting plug	PE	08-60-005/93 H16218				08-60-007/93 H176010				08-60-007/93 H176010							
	1	G-Verschraubung Straigh union	PVDF-schwarz 1.4571	08-63-003/13 H16388				16-38-200/42 H329696				16-38-200/42 H329696							
34	1	W-Verschraubung Angular union		08-60-750/93 H208825															
	2	Initiatorhalterung Mounting block	PA6.6 schwarz	15-33-918/93 H154913															
36	1	Verschlußkappe Cap	PVC	08-05-066/93 H154816															
	1	O-Ring O-ring	FPM	58-06-332/73 H171616				58-06-503/73 H171288				58-06-589/73 H176512				58-06-589/73 H176512			
38	4	Buchse Bushing	1.4301													08-01-127/12 H174186			
	1	Führungsband PTFE driving band	PTFE													08-39-189/93 H174200			
40	1	CU41-M-Direct Connect CU41-M-Direct Connect	PA6.6 GF30 schwarz													08-45-102/93 H320462			

Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht schriftlich zugestanden. Verstoß verpflichtend zum Schadensersatz und kann strafrechtliche Folgen haben (Paragraf 18 UWG, Paragraf 106 UrhG). Eigentum und alle Rechte, auch für Patenterteilung und Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany

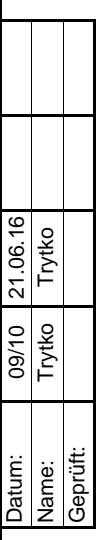
Ersatzteilliste: spare parts list

Doppelsitzventil DE3 1,5 - 4 Sh5 Double seat valve DE3 1,5 - 4 Sh5

Datum:	09/10	21.06.16
Name:	Trytko	Trytko
Geprüft:		

Datum:			
Name:			
Geprüft:			

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pos. item	Menge Quantity	Beschreibung description	Material	1,5Sh5 WS-Nr. ref.-no.	2Sh5 WS-Nr. ref.-no.	2,5Sh5 WS-Nr. ref.-no.	3Sh5 WS-Nr. ref.-no.	4Sh5 WS-Nr. ref.-no.
40	1	CU41-M-AS-I-extended	PA6.6 GF30 schwarz			08-45-112/93 H320469		
	1	CU41-M-AS-I-standard	PA6.6 GF30 schwarz			08-45-252/93 H324675		
	1	CU4-M-Adapter	PA6.6 GF30 schwarz			08-48-602/93 H320476		
	1	Luftschlauch Air hose	PA 12W			08-75-020/53 H16516		

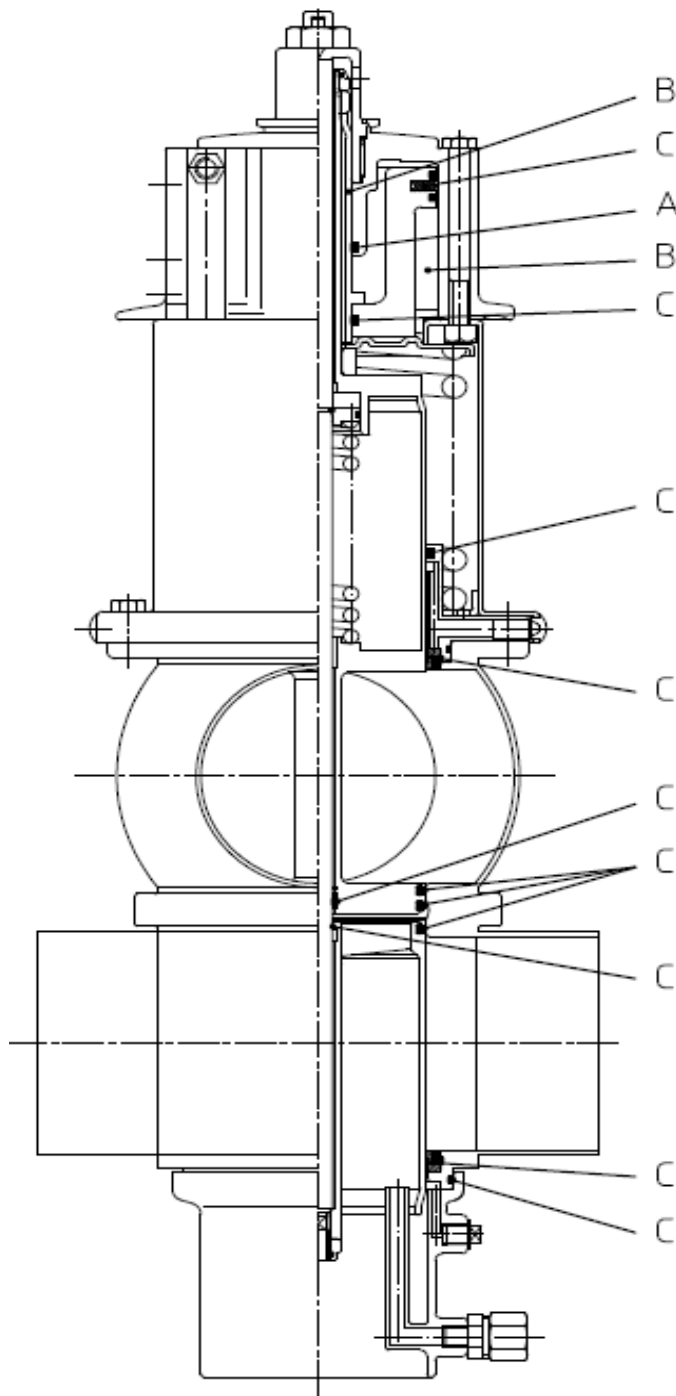
1	Ventileinsatz Valve insert	1.4404/EPDM	16-36-043/59	16-36-045/59 H176743	16-36-048/59	16-36-038/59 H319623	16-36-039/59 H178751	
1	Ventileinsatz Valve insert	1.4404/HNBR	16-36-043/29	16-36-045/29	16-36-048/29	16-36-038/29	16-36-039/29	
1	Ventileinsatz Valve insert	1.4404/FPM	16-36-043/69	16-36-045/69	16-36-048/69	16-36-038/69	16-36-039/69	

**Pos. 22, 24, 25, 26, 27, 28, 29, 37, 39 nur im kompletten Dichtungssatz erhältlich
Item 22, 24, 25, 26, 27, 28, 29, 37, 39 available as complete seal kits only**

1	Dichtungssatz Seal kit	FPM	58-34-660/00 H170207	58-34-660/01 H170212	58-34-663/00 H170210	58-34-663/01 H179215	58-34-691/00	
1	Dichtungssatz Seal kit	EPDM	58-34-660/06 H171750			58-34-663/06 H171751	58-34-691/01 H179212	
1	Dichtungssatz Seal kit	HNBR					58-34-691/06 H179211	

1	Anbauteile für den Umbau der Ventile für die Schaftspülung Mounting kit for reconstruction of valves for shaft flushing		34-12-299/99 H201675				34-18-299/99 H312958	
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Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht schriftlich zugestanden. Verstoß verpflichtet zum Schadensersatz und kann strafrechtliche Folgen haben (Paragraf 18 UWG; Paragraf 106 UrhG). Eigentum und alle Rechte, auch für Patenterteilung und Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany



Actuator parts:

Grease: Autol Top 2000
25 ml tube. ref.-No.:70-01-008/93

- A - bearing surface and dynamic seal with continuous coating.
- B - surface of cylinder and rod with continuous coating.
- C - lightly grease seals for installation.

Parts in contact with product:

Grease: for EPDM and Viton
Klüber Paraliq GTE 703
0,75 kg can ref.-No.: 70-01-019/93
60 g tube ref.-No.: 70-01-018/93.

CAUTION!

Avoid grease residues in product area.

Grease all screws and threads before installation.
Recommendation: Klüber Grease UH1 84-201

Datum:	11/08																		
Name:	Peters																		
Geprüft:																			

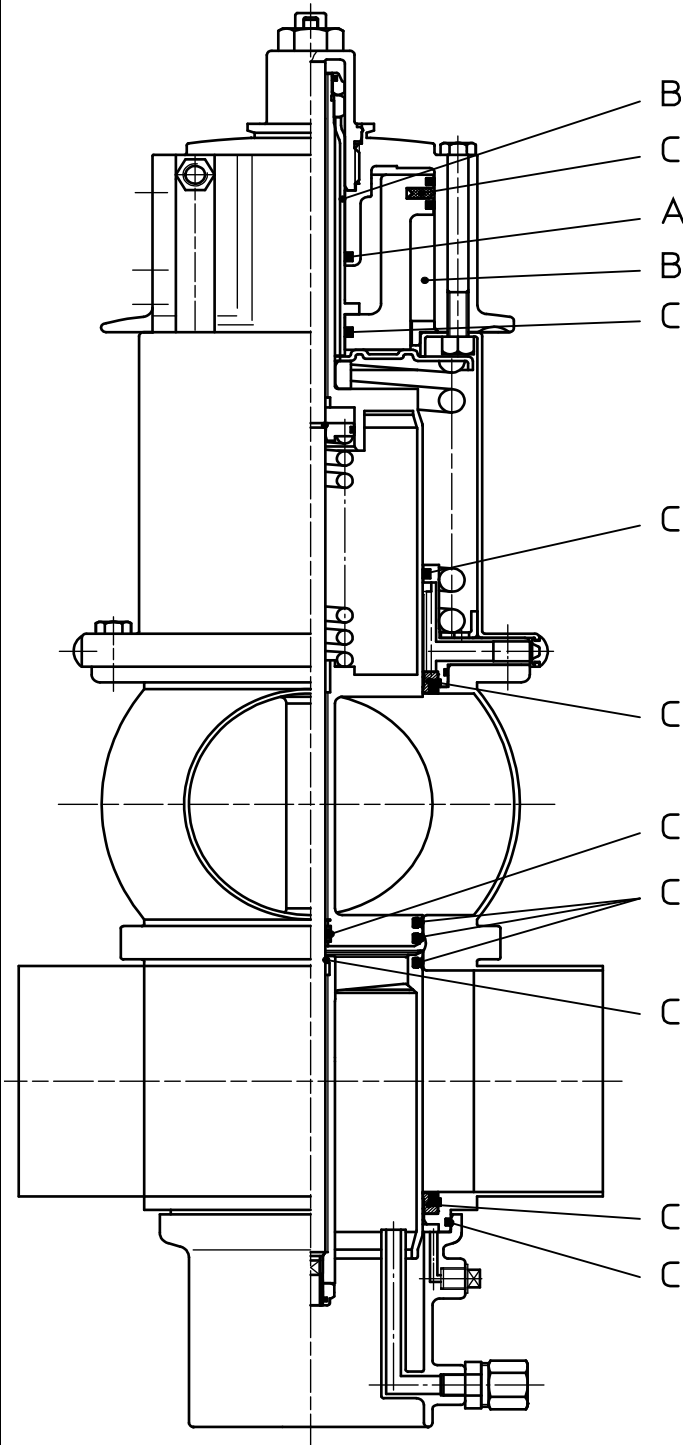


Ersatzteilliste: spare parts list

DE3 Lubrication Chart

SPX FLOW Germany		
Blatt	1	von 1
RN GB 260.068-1		

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Antriebsteile:

Fett: Autol Top 2000
25 ml Tube. WS-Nr.:70-01-008/93

- A - Lagerlauffläche und dynamische Dichtung mit durchgehendem Fettfilm.
- B - Lauffläche Zylinder bzw. Stange mit durchgehendem Fettfilm.
- C - Dichtung für Montage leicht fetten.

Produktberührte Bauteile:

Fett: Für EPDM und HNBR
Klüber Paraliq GTE 703
0,75 kg Dose WS-Nr.: 70-01-019/93
60 g Tube WS-Nr.: 70-01-018/93.

A C H T U N G !

Keine Fettreste im Produktraum.

Alle Schrauben und Gewindeteile vor Montage mit Fett versehen.
Empfehlung: Klüberpaste UH1 84-201

Datum:	11/08																		
Name:	Peters																		
Geprüft:																			



Ersatzteilliste: spare parts list

SPX FLOW
Germany

DE3 Schmierplan

Blatt 1 von 1

RN 260.068-1

APV DELTA DE3

DOUBLE SEAT 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 DE3 Valve
Maintenance Video

