

APV DELTA DA3+

DOUBLE SEAT MIX PROOF VALVE

FORM NO.: H179518 REVISION: GB-5

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



Scan for DA3+ 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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DA3 DN40 - 150, Inch 1,5" - 4"	RN 01.053.73
DA3 1,5 - 4 Sh5	RN 01.053.73 - 2
DA3 Lubrication chart	RN 260.064 - 1

1. General Terms

This instruction manual should be read carefully by the competent 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.

- A safe discharge of the cleaning liquids must be ensured.



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

- Welded actuators are preloaded by spring force.

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

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

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

Please address to your local SPX FLOW company.

3. Intended Use

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

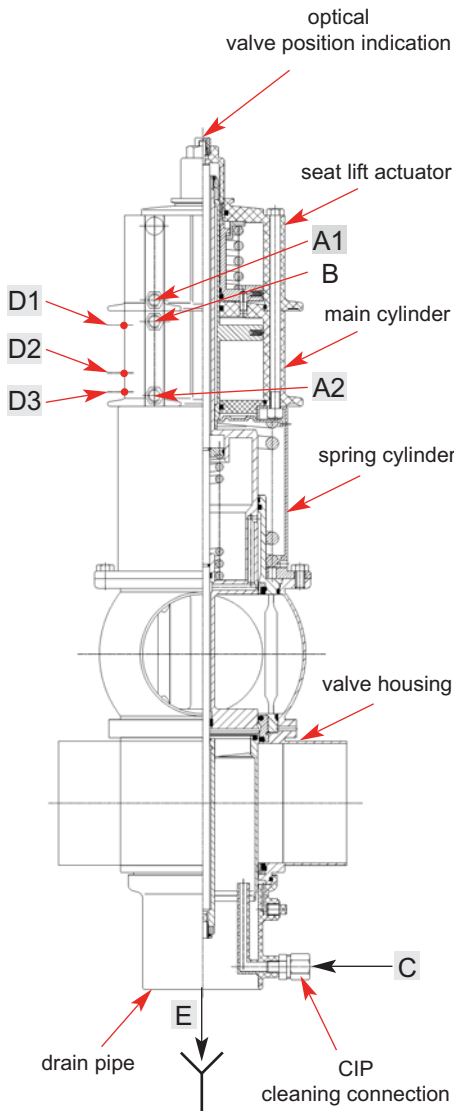
Arbitrary, structural changes at the valve may affect safety as well as the intended functionality of the valve and are ***not*** permissible.

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

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 DA3 is suited for applications in the food and beverage industries as well as in the pharmaceutical and chemical industries

- 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.
- Arising leakages at the seat seals are discharged at (E) in depressurized state.
- Proximity switches can be installed as valve position indicators.
D1 = valve position "closed"
D2 = valve position "open" (DN 40, 1,5" only)
D3 = valve position "open" (DN 50 to 150, 2" - 4")
- An optical indication of the valve position is installed in the upper area.
- Operation by pneumatic actuator with air connection at (B). Reset by spring force into the safety limit position "closed".

B = valve open



- Maintainable actuator (see 11.3.).
- Cleaning of the leakage chamber is undertaken via the cleaning connection (C).
- Cleaning of the seat and shaft seal areas is realized by operation of the air connections::

A1 = lifting of lower shaft



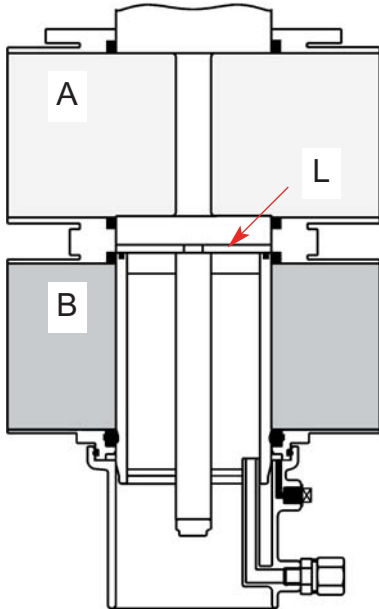
A2 = lifting of upper shaft



- Reset by spring force.

4. Mode of Operation

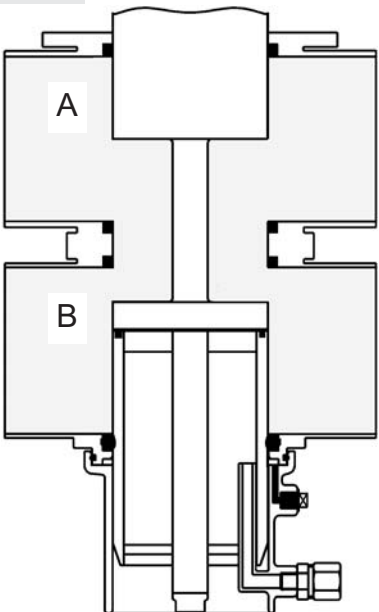
fig. 4.2.



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.



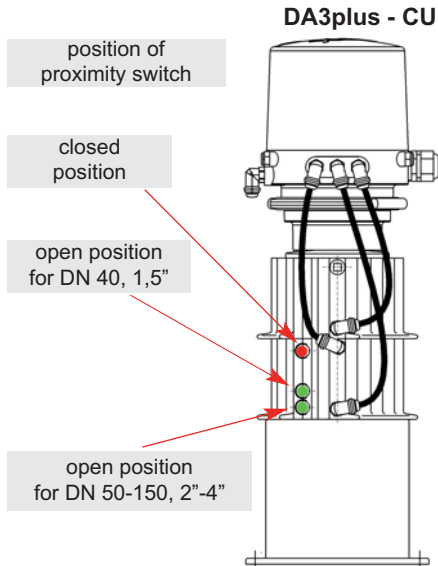
4.3. Valve in “open” position

By control of the actuator, the upper valve shaft is pressed against the seal of the lower valve shaft. Thus, the leakage chamber **L** is closed against the product chamber.

Then the two valve shafts move downwards into the open position. A connection between the two pipelines **A** and **B** is produced.

5. Auxiliary Equipment

fig. 5.1.



5.1. Valve position indication

Proximity switches to signal the limit position of the valve shafts can be installed at the actuator if requested (fig. 5.1.).

We recommend to use our APV standard types:

three-wire proximity switch

operating distance: 5 mm / diameter: 11 mm.

operating voltage 10 - 30 V DC

pnp pulse-shifting, closing function

installation "non-flush"

If the customer decides to use valve position indicators other than APV type, we cannot take over any liability for a faultless function.

5.2. Control unit

The installation of a control unit of the DA3+ valve is possible.

The following different designs are available:

Control Unit CU3



Control Unit CU4



3 solenoid valves

Direct Connect reference number:	CU43-M-Direct Connect 08 - 45 - 105/93 H320465
Profibus reference number:	CU33-DA3 Profibus 08 - 45 - 004/93 H315498
DeviceNet reference number:	CU33 - DeviceNet 16 - 31 - 242/93 H209425
AS-interface reference number:	CU43-M-AS-i extended 62 slaves 08 - 45 - 115/93 H320472

- For the installation of the control unit on the DA3+ valve an adapter is required:

5.3. Adapter for control unit

CU33 Profibus, CU33 DeviceNet, CU33 AS-interface 2.1

CU33 adapter DA3

reference number: 000 08 - 48 - 471/93, H314469

- **Adapter for control unit**

CU43 M - Direct Connect, CU43 M - AS-i extended

reference number: 000 08 - 48 - 602/93, H320476

6. Cleaning

Cleaning the DELTA DA3+ valve, one has to distinguish between three areas:

6.1. The flow areas

The upper and lower passages are cleaned by the passing cleaning liquid during the cleaning of the connected pipelines.

6.2. The seal surfaces

The seal surfaces of the **upper area** (upper shaft and seat seal) and the **lower area** (lower shaft and seat seal) are **flushed and cleaned** by cleaning liquid through lifting of the individual valve shafts during the cleaning of the respective passage.

6.3. The leakage chamber

The cleaning of the leakage chamber is undertaken by CIP spraying. CIP cleaning connection (C).

The valve shafts being lifted, the CIP liquid also cleans the leakage chamber.

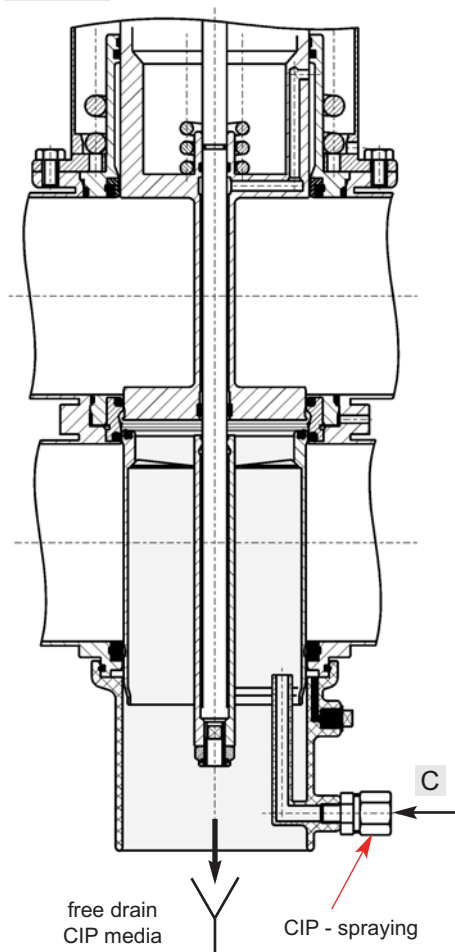
The spraying does not produce pressure build-up in the leakage chamber and can be carried out in closed and in open valve position. The conduct of the cleaning liquid provides for a biologically perfect cleaning of the whole leakage chamber.

Under standard conditions
15 valves DN 40 - 100 / 1,5" - 4"
10 valves DN 125 - 150 can be cleaned
via one spray distribution line DN 25.

6.4. Cleaning recommendation:

Cleaning steps	lifting cycle	CIP spraying
pre-flushing	—————	3 x 10 sec.
caustic flushing 80 °C	3 x 5 sec.	3 x 10 sec.
intermediate flushing	2 x 5 sec.	2 x 10 sec.
acid flushing	3 x 5 sec.	3 x 10 sec.
subsequent flushing	2 x 5 sec.	2x 10 sec.

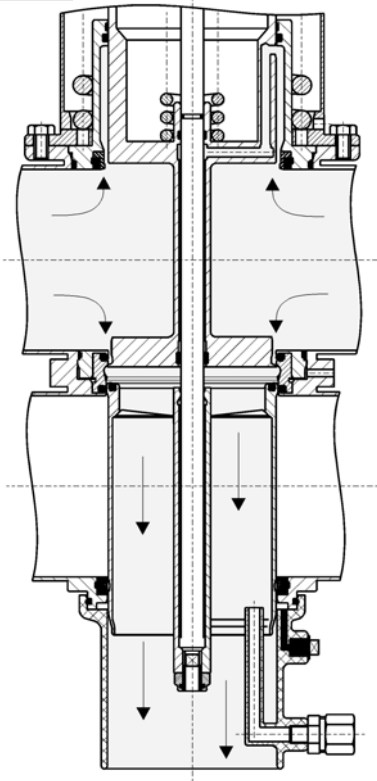
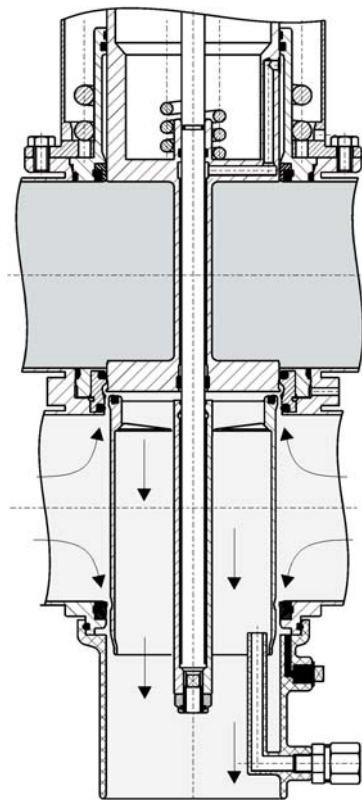
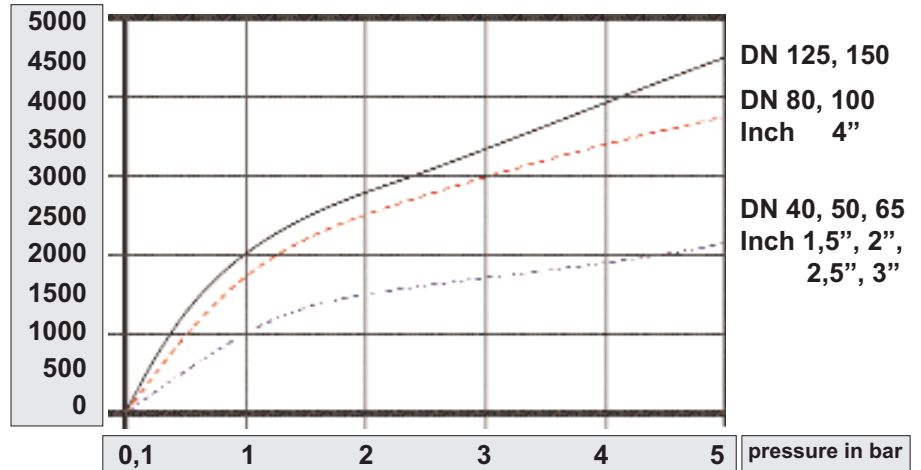
fig. 6.3.



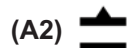
- The lifting cycles refer to a cleaning pressure of **p = 2 - 5 bar**
- Depending on the pressure ratio, cleaning temperatures, cleaning steps and degree of soiling, different cycles must be adjusted.
- Flushing quantities per CIP spraying cycle:

DN 40 -100 / 1,5" - 4"	about 1,2ltr/10s
DN 125, 150	about 5ltr/10s
- Cleaning pressure at CIP cleaning connection: **min. 2 bar.**
max. 5 bar.

6. Cleaning

fig. 6.6.

fig. 6.7.

6.5. Flushing quantity in ml per lifting cycle / 5 sec.

6.6. Cleaning of upper area (fig. 6.6.)

The upper valve shaft is lifted via the connection



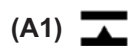
By lifting of the upper valve shaft, the cleaning liquid flushes over the upper seat seal and the upper valve seat into the leakage chamber and cleans this area. The cleaning liquid is drained off to the bottom in depressurized state.

Simultaneously, the upper shaft seal and the outer surface of the upper valve shaft are cleaned. Then the cleaning liquid is drained off at the inner tube of the lower valve shaft to the bottom.

The lifting stroke is limited by a metallic stop.

6.7. Cleaning of lower area (fig. 6.7.)

The lower valve shaft is lifted via the connection



By lifting of the lower valve shaft, the cleaning liquid flushes over the lower seat seal into the leakage chamber and cleans this area. The cleaning liquid is drained off to the bottom in depressurized state.

Simultaneously, the lower shaft seal and the outer surfaces of the lower valve shaft are cleaned. The cleaning liquid flushes the spray connection and is then drained off to the bottom in depressurized state.

The lifting stroke is limited by a metallic stop.

7. Installation

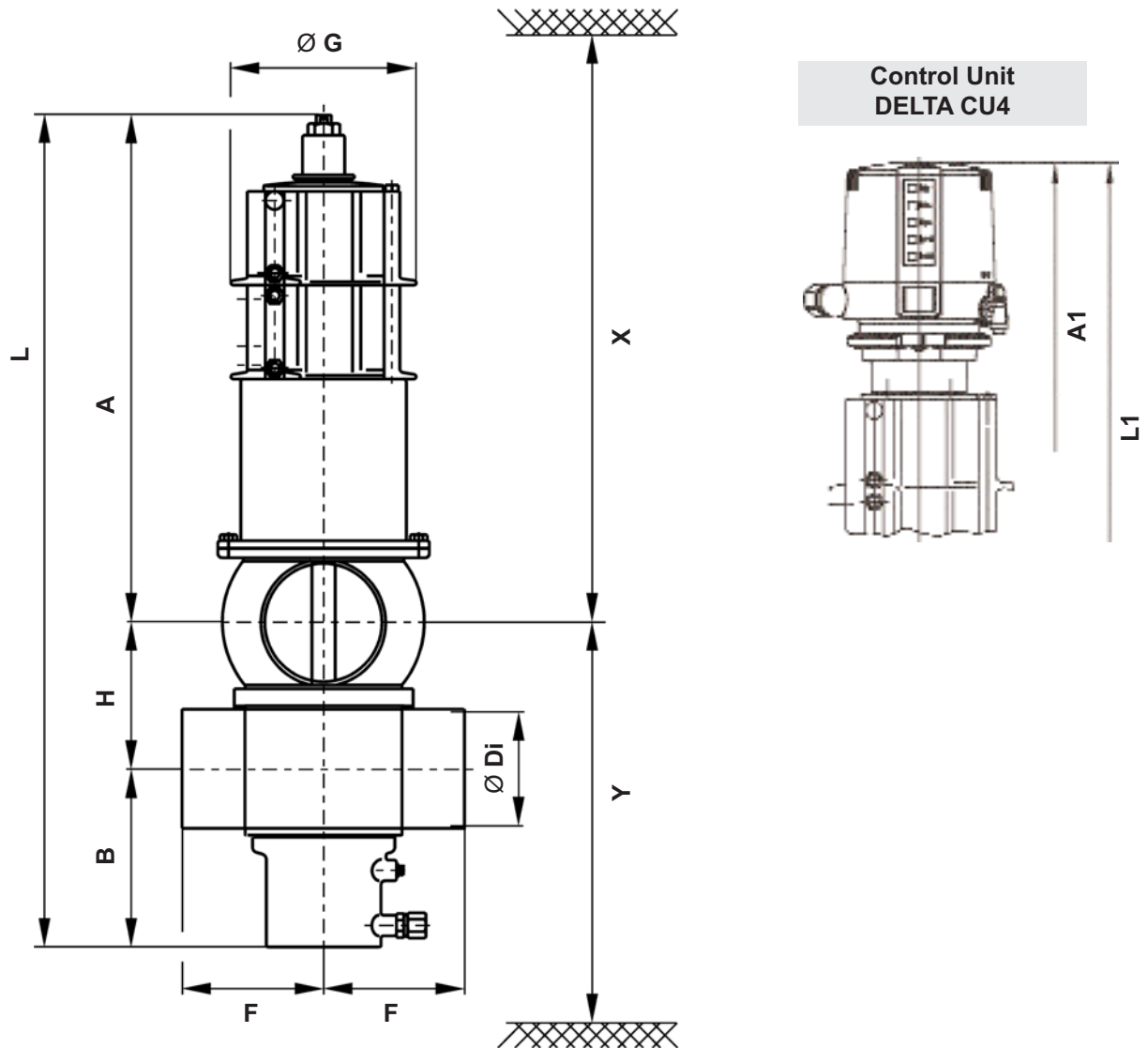
- The valve must be installed in vertical position. Fluids are, therefore, freely drainable from the valve housing and the leakage chamber.
- Valve housings can be welded direct into the pipelines (completely dismantable valve insert).
- **Attention:** Observe welding instructions.
- Heights of installation and dismantling (see **chapter 7**).

7.1. Welding Instructions

DA3+

- 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 11.1**).
It is not necessary to remove the lower shaft seal as it can be destroyed during dismantling
- 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!
- 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										inst. dimensions min.in mm		weights in kg
DN	A	A1	B	Ø Di	F	Ø G	H	L	L1	X	Y	
40	378	502	120	38	100	163	63	561	715	660	200	13,7
50	384	508	126	50	100	163	75	585	739	680	218	13,8
65	392	516	134	66	100	163	91	617	771	700	242	14,0
80	419	543	146	81	120	188	106	671	825	790	274	19,2
100	429	553	156	100	120	188	125	710	864	820	303	20,3
125	507	631	176	125	150	236	150	833	987	950	342	46,6
150	519	643	189	150	150	236	175	883	1037	1010	392	47,5
Inch												
1,5"	379	503	119	34,9	100	163	63	561	715	660	197	13,7
2"	385	509	125	47,6	100	163	75	585	739	680	216	13,8
2,5"	389	513	131	60,3	100	163	85	605	759	700	233	14,0
3"	395	519	137	72,9	100	163	97	629	783	730	251	14,2
4"	430	554	155	97,6	120	188	125	710	864	820	301	20,3

9. Technical Data

9.1. General data

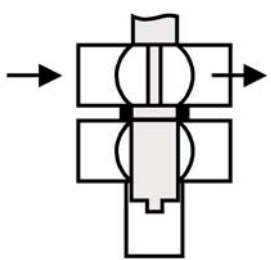
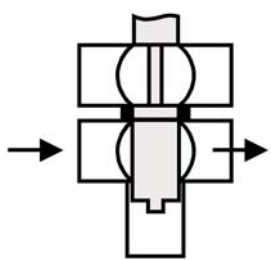
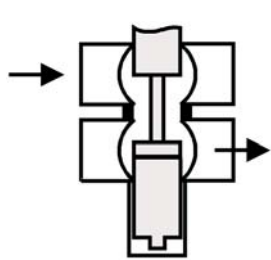
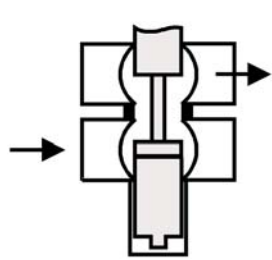
product-wetted parts:	1.4571, 1.4404 (DIN EN 10088)
other parts:	1.4301 (DIN EN 10088)
seals:	
standard design:	EPDM/ PTFE
option:	HNBR/ PTFE FPM/ PTFE VMQ/ PTFE
actuator:	PA 12 GF 30
spray connection:	PP
max. line pressure:	10 bar
max. operating temperature:	135°C EPDM, HNBR *VMQ, *FPM
short-term load:	140°C EPDM, HNBR *VMQ, *FPM * (no steam)
Tightening torque for stop screw (11) :	15Nm
Tightening torque for safety nuts (42, 16) at lower and upper valve shaft:	40Nm
cleaning connection (for hose)	
DN 40 - 100 / 1,5" - 4" :	8 x 1mm
DN 125 - 150 :	10 x 1mm
air connection (for hose):	6 x 1mm
max. pneumatic air pressure:	10 bar
min. pneumatic air pressure:	6 bar

9.2. Compressed air quality: Quality class acc. to DIN ISO 8573-1

content of solid particles:	quality class 3 max. size of solid particles per m ³ 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/m ³

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	40	21	24
2"	100	73	43	46
2,5"	170	122	59	66
3"	213	160	71	80
4"	490	294	150	160

* no measuring value

9.4.		Air consumption actuator	Air consumption seat lift actuator		Closing times in sec.	
DN	Inch	NL / stroke valve open	NL / stroke upper seat lift	NL / stroke lower seat lift	1 m	10 m
40	1,5"	0,9	1,1	0,3	1,5	2,5
50	2"	1,1	1,3	0,3	1,5	2,5
65	2,5"	1,3	1,5	0,3	1,5	2,5
	3"	1,3	1,5	0,3	1,5	2,5
80		2,3	2,6	0,45	3,0	4,0
100	4"	2,3	2,6	0,45	3,0	4,0
125		6,4	7,0	1,1	5,0	6,0
150		6,4	7,0	1,1	8,0	9,0

9. Technical Data

9.5. Valve stroke / Opening cross section

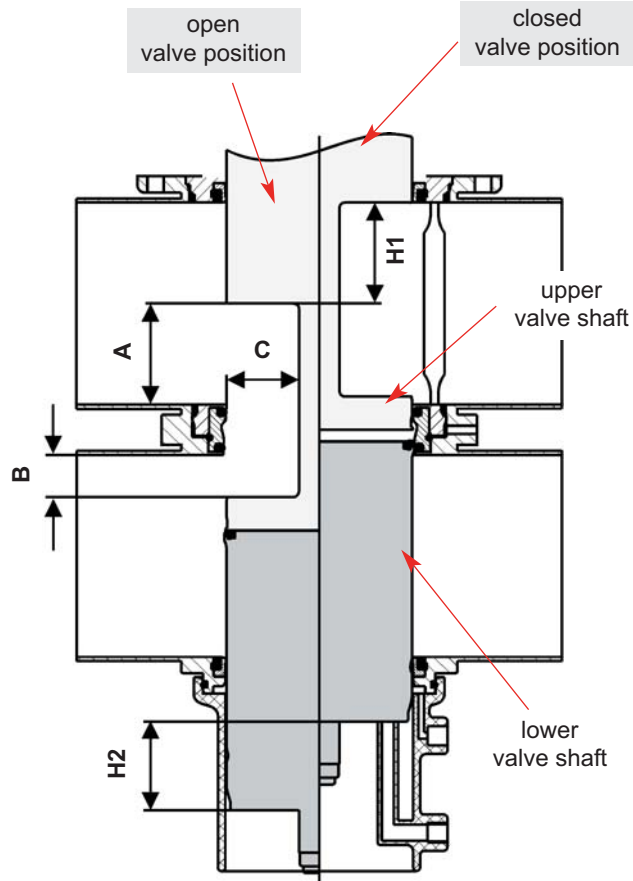


Table to fig. 9.5.
Dimensions in mm

DN	A	B	C	stroke H1 upper shaft	stroke H2 lower shaft
40	6	3	21,2	32	26
50	11	10	21,2	39	33
65	21	16	21,2	45	39
80	31	21	36,2	50	44
100	50	21	36,2	50	44
125	63	33	55,2	62	56
150	88	33	55,2	62	56
Inch					
1,5"	6	3	21,2	32	26
2"	11	10	21,2	39	33
2,5"	15	16	21,2	45	39
3"	27	16	21,2	45	39
4"	50	21	36,2	50	44

10. Maintenance

Scan for DA3+ Valve Maintenance Video



The maintenance intervals are different depending on the application and must be determined by the operator himself carrying out **temporary checks**.

- For the dismantling of the valve, compressed air is not required.
- Required tools:
 - 1 x wrench SW13
 - 2 x wrench SW17
 - 2 x wrench SW24
- disassembly and assembly tool for the lower shaft seal, **ref.-No. 000 51-13-100/17; H171889**
- For the valve maintenance we supply complete seal kits (see spare parts lists).
- Replacement of seals, see Service Instructions.
- To simplify the installation of the middle seal, the following assembly tools are available.

Assembly tool for middle seal (see page 21)

DN	Inch	Designation	Reference number
40 50 65	1,5" 2" 2,5" 3"	DA3 - 62	51 - 13 - 210/17 H207310
80 100	4"	DA3 - 92	51 - 13 - 211/17 H207311
125* 150*		D3 - 138	51 - 13 - 676/17 H151824

Provide all seals with a thin layer of grease before their installation (see lubrication chart)!

Recommendation:

APV assembly grease for EPDM, HNBR and FPM (Viton)

(0,75 kg/ tin - ref.-No. 000 70-01-019/93; H147382)
(60 g/ tube - ref.-No. 000 70-01-018/93; H147381)

APV assembly grease for VMQ (Silikon)

(0,60kg/ tin - ref.-No. 000 70-01-017/93; H147380)
(60 g/ tube - ref.-No. 000 70-01-016/93; H147379)

Recommendation for actuator:

APV pneumatic grease:

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

- Assembly of valve according to Service Instructions.

11. Service Instructions

The item numbers refer to the spare parts drawings

DIN design: **RN 01.053.73**

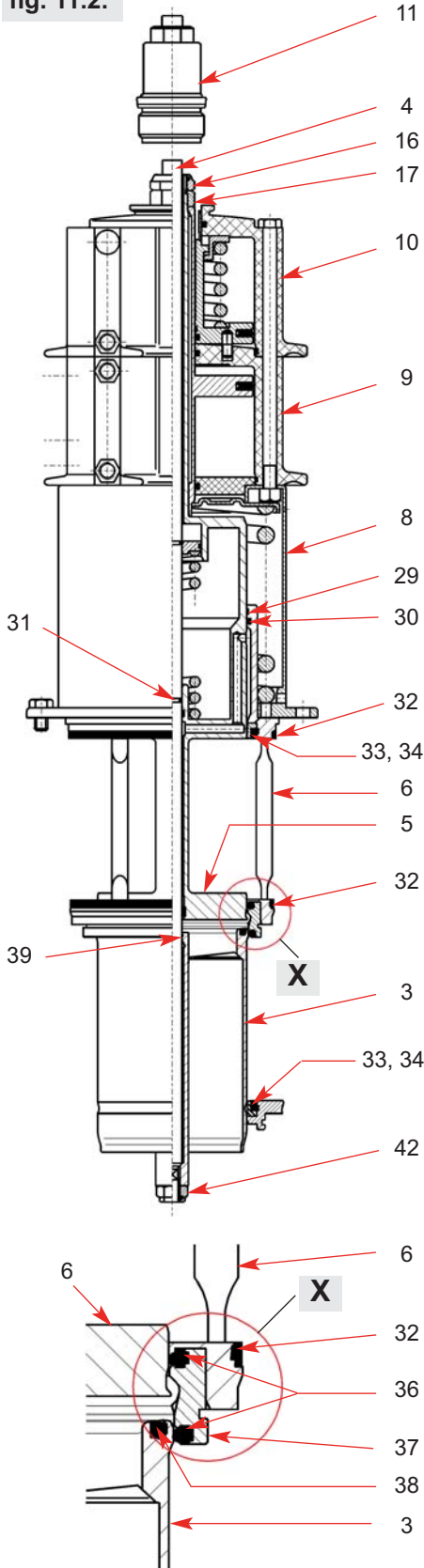
Inch design: **RN 01.053.73-1**



11.1. Dismantling from the line system

1. Shut off the line pressure in the product and cleaning lines, discharge the pipes if possible.
2. Remove the pneumatic air line.
3. Release the nut of the proximity switch holder **(13)** and pull off the proximity switch (remove CU if necessary).
4. Remove the flange 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.

11. Service Instructions

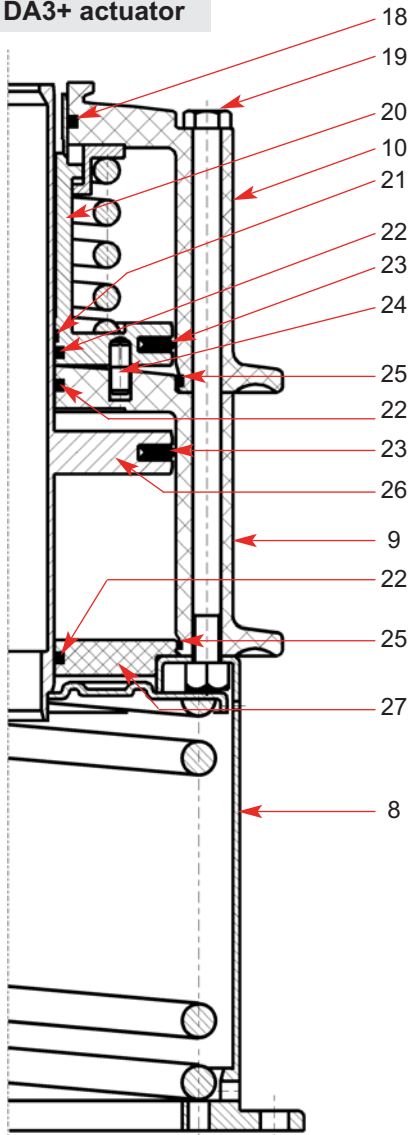
fig. 11.2.


11.2. Dismantling of product-wetted parts (service, fig. 11.2.)

1. Remove the lower and upper housing seal (32) from the valve seat (6).
2. Release the lower safety nut (42). Holding the lower shaft (3) with a wrench SW17 prevents it from turning.
3. After removal of the nut, draw off the lower shaft.
4. Take a pointed tool to stick into the middle seal (38) and to pull it out of the groove. Take the o-ring (39) out of the groove.
5. Unscrew the stop screw (11).
6. Lift the guide rod (4) out to the top and remove the o-ring (31).
7. Remove the safety nut (16). By holding the safety disc (17) with a wrench SW24 it is prevented from turning. Remove the safety disc.
8. Lift off the spring cylinder (8) with main cylinder (9) and seat lift cylinder (10). (Service of main and seat lift cylinder, see 11.3).
9. Press the upper valve shaft (5) with seat ring (37) to the bottom out of the valve seat (6).
10. Slide the seat ring (37) over the compensating piston of the upper valve shaft.
11. Remove the seat seals (36) from the groove. (see fig. X)
12. **Dismantling of upper shaft seal (33, 34)**
Take a peaked object to stick into the seat seal (33) and pull it out of the valve seat. Afterwards, remove the PTFE seal (34).
13. **Dismantling of lower shaft seal (33, 34) from the housing**
Take the metal point of the disassembly tool to stick into the seat seal (33) and pull it off to the top. Afterwards, remove the PTFE seal (34) to the top through the housing by means of the mandril of the assembly tool.
14. Remove the seal ring (30) and guide band (29) from the groove of the valve seat (6).

11. Service Instructions

DA3+ actuator



The spring cylinder (8) is preloaded by spring force.

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

11.3. Actuator / Cylinder (service)

1. The actuator (seat lift cylinder (10), main cylinder (9) and spring cylinder (8) must be dismantled from the valve insert as described in 11.2 1.-8.

2. Remove the hexagon screws (19).
Lift the seat lift cylinder with the main cylinder from the spring cylinder.

11.3.1. Dismantling of seals and disassembly of the seat lift and main cylinder

1. Lift the seat lift cylinder (10) from the main cylinder (9).
Push the piston rod (20) out of the seat lift cylinder.

2. Remove the piston seal (23), quadrings (18, 22), guide band (21) and o-ring (25).

3. Clean the seat lift cylinder and the piston rod.

4. Press the piston of the main cylinder (26) with cover (27) out of the main cylinder. Slide the cover from the piston.

5. Remove the quadrings (22), o-ring (25) and piston seal (23).

6. Clean the main cylinder, cover and piston.

11.3.2. Installation of seals and assembly of the seat lift and main cylinder

1. Slightly grease all seals.

Attention: See to all seals and bearing surfaces in the seat lift cylinder and main cylinder being greased sufficiently!

(see lubrication chart: RN 260.064-1)

Use appropriate pneumatic grease.

Recommendation for the actuator (main cylinder):

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

2. Insert the seals into their corresponding grooves.

3. Insert the piston rod (20) in the seat lift actuator.

4. Slide the piston of the main cylinder (26) into the main cylinder until it stops.

5. Slide the cover (27) over the piston (26). Press the cover into the main cylinder.

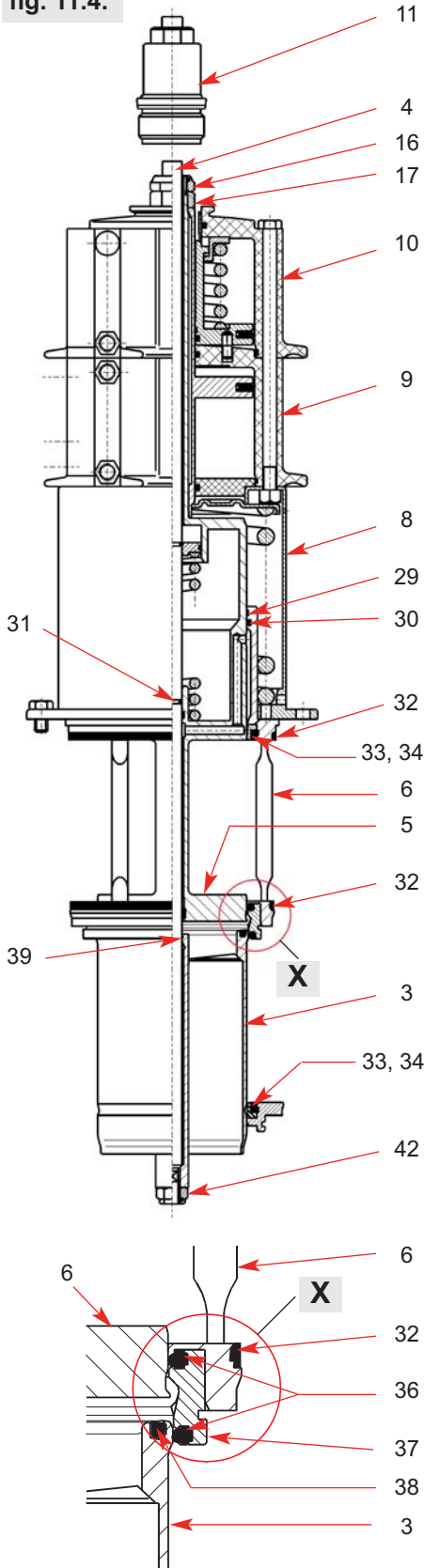
6. Place the seat lift cylinder on the main cylinder:
The cylindrical dowel pin (24) must engage in the bore of the housing of the main cylinder.

7. Place the main cylinder with the seat lift cylinder on the spring cylinder (8).

8. Insert the hexagon screws (19) and tighten them crosswise.

11. Service Instructions

fig. 11.4.



11.4. Installation of product-wetted seals and assembly of the valve DELTA DA3+

Attention: See to all seals and bearing surfaces in the product area being slightly greased before their installation (see **lubrication chart: RN 260.064-1**).

1. Install the lower shaft seal (33, 34) in the lower housing flange (see **page 19**).
2. Place the quadding (30) and the guide band (29) in the valve seat (6).
3. Install the upper shaft seal (33, 34) in the valve seat. Insert the PTFE ring (34), at first. Then press the elastomer ring (33), the wide side to the front, into the groove between PTFE seal and valve seat.
4. Install the upper and lower housing seals (32).
5. Press the upper and lower seat seal (36) into the seat ring (37).

Attention: The seal shoulder must fit properly into the groove (see **fig. X**).

6. Slide the seat ring (37) from the top over the compensating piston of the upper valve shaft (5).
7. Slide the valve seat (6) over the compensating piston of the upper valve shaft (5) in the same way.
8. Insert the upper valve shaft (5) with seat ring (37) and valve seat (6) through the actuator until it stops.
9. Fasten the valve shaft with safety disc (17) and safety nut (16). Holding the safety disc with a wrench SW24 prevents the safety nut from turning.
Tightening torque: Md = 40 Nm
10. Insert the middle seal (38) into the lower shaft (3) by means of the assembly tool (see **page 21**).

Assembly without assembly tool:

Press the slightly greased seal at four spots into the groove. Then press the four loops in by means of an even object. Vent the seal groove at this occasion.

11. Insert the o-ring (39) in the lower valve shaft.
12. Install the o-ring (31) on the guide rod (4).
13. Slide in the guide rod from the top through the actuator until it stops.
14. Slide the lower valve shaft on the guide rod and fasten it with the safety nut (42).

Tightening torque: Md = 40 Nm

Attention: Check the position of the lower seat seal (36) (**section X**).

15. Screw in the stop screw (11) until it stops.
Tightening torque: Md = 15 Nm

11. Service Instructions

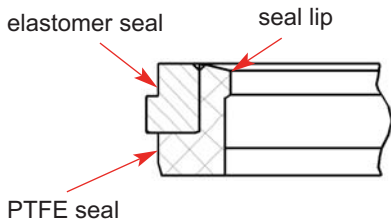
11.5. Installation of the valve insert

1. Carefully place the valve insert in the valve housing until the screw stops (**see 11.1.5.**).
2. Remove the stop screw and carefully press the valve insert into the housing.
3. Enter screws (**7**) and tighten them crosswise.
4. Install the pneumatic air and cleaning lines.

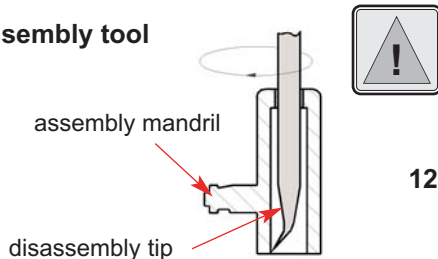
upper air connection A1	:	lifting of lower shaft
medium air connection B	:	valve open
lower air connection A2	:	lifting of upper shaft
5. Installation of valve position indication.
Release nut and push the proximity switches into the sleeve until they stop.
6. Fix the proximity switches by the nut.
(Install CU if necessary.)
7. The spray connection (**1**) can be disassembled from the housing (**2**) by levering it by means of a wide screw driver.

12. Disassembly and Assembly Tool

Seal 33, 34



Assembly tool



12.1. Assembly of lower shaft seal, pos. 33, 34

For a simple disassembly and assembly of the lower shaft seal a universal tool (**ref.-No. 000 51-13-100/17; H171889**) can be used.

The use of this tool is especially recommended for valves of the small series (DN 40-65, 1,5"-3"), as access to the lower shaft seal from the top is impossible as a result of the narrow seat.

Attention:

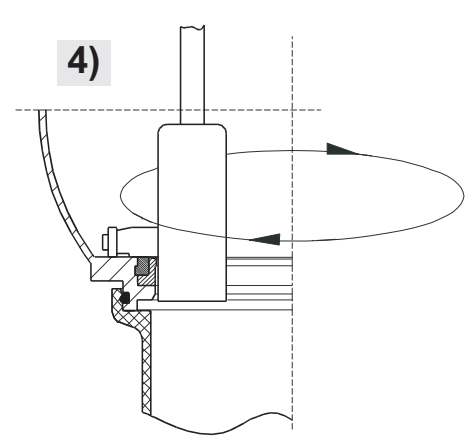
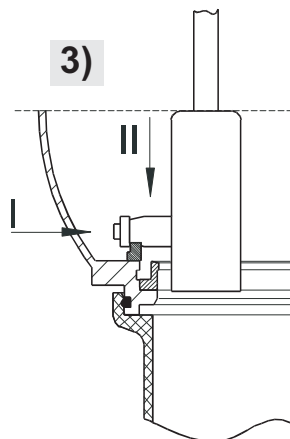
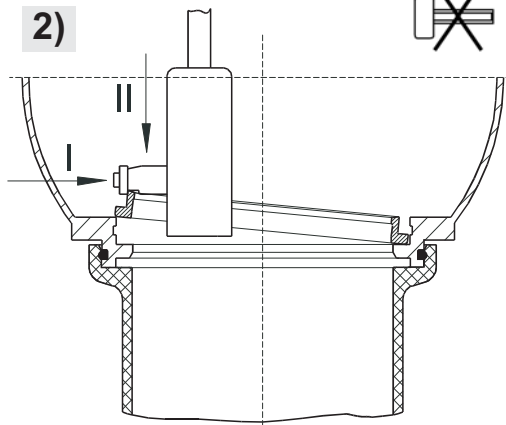
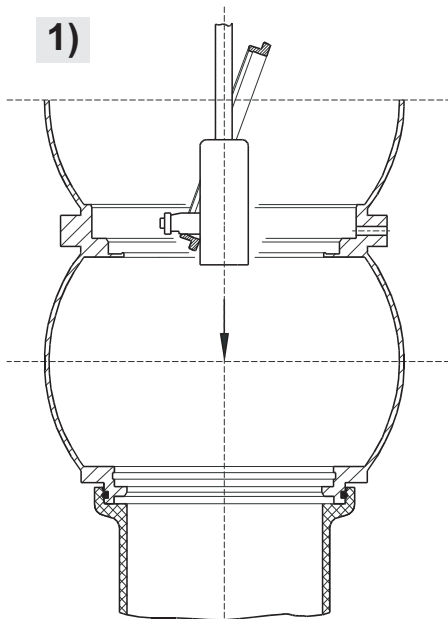
Do not damage the seal lip of the PTFE seal during assembly. To avoid injuries the disassembly tip must be covered by the assembly mandril if not used.

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

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

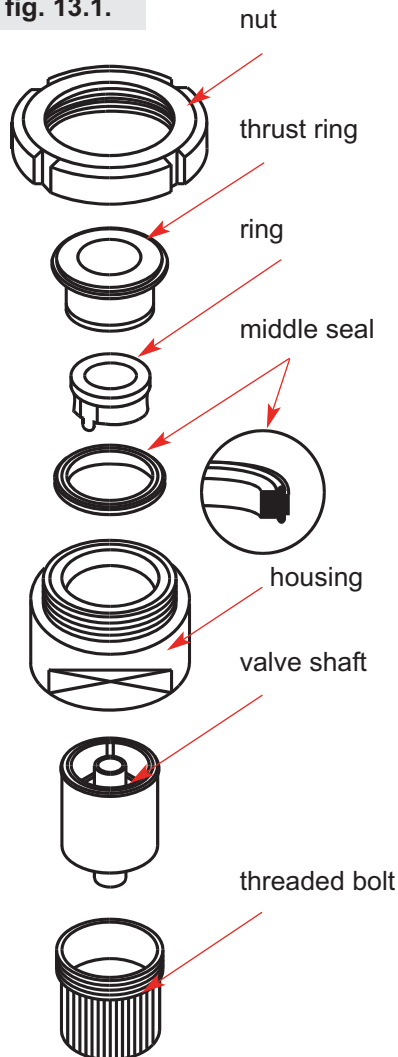
12.1.2. Assembly of the elastomer seal (fig. 1,3,4)

1. Slightly grease the seal.
2. Insert the elastomer from the top by means of the assembly tool, the wide side to the front, through the intermediate ring of the housing into the lower housing (**fig. 1**).
3. Fix the seal by means of the groove of the assembly mandril (**fig. 3/I**).
4. Press in the elastomer at one spot between the housing flange and the PTFE (**fig. 3/II**).
5. By sliding the assembly mandril around the seal, the seal is inserted completely into the groove (**fig. 4**). See to an even fit of the elastomer seal in the groove.



13. Assembly Tool for Middle Seal

fig. 13.1.



The assembly tool consists of:

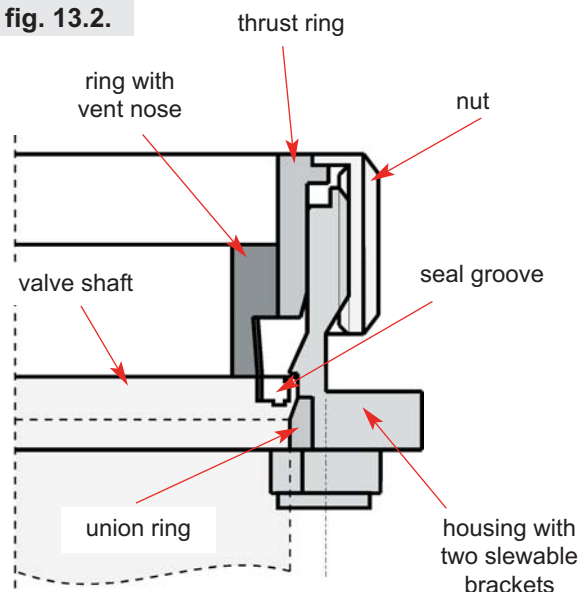
- nut
- thrust ring
- ring with vent nose
- housing
- threaded bolt

Installation of the middle seal in the valve shaft (fig. 13.1)

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 into a vice.
3. Slightly grease the middle seal with APV food-grade grease. Then install the seal on the ring.
4. Introduce the ring with the installed seat seal into the housing. The vent nose is positioned in the seal groove.
5. Insert the thrust ring around the ring in 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 middle seal.

fig. 13.2.



Assembly tool for middle seal (fig. 13.1.)			
DN	Inch	Designation	Reference number
40 50 65	1,5" 2" 2,5" 3"	DA3 - 62	51 - 13 - 210/17 H207310
80 100	4"	DA3 - 92	51 - 13 - 211/17 H207311
125* 150*		D3 - 138 (fig. 12.2.)	51 - 13 - 676/17 H151824

* For the valves of the series DN 125, 150 the assembly tool in the old design must be used. See fig. 13.2.

14. Trouble Shooting

<i>Failure</i>	<i>Remedy</i>
Leakage at the upper housing flange	Replace upper housing seal (32).
Leakage from the leakage bore between the connecting ports	Replace lower housing seal (32) and seat seals (36).
Leakage from the bore of the spring cylinder (8)	Replace upper shaft seal (33, 34) and seals in flushing chamber (29, 30).
Valve closed and pressure in the upper housing	
Liquids from the drain pipe	To be able to make a detailed diagnosis, remove the drain pipe (1).
Valve closed and pressure in the upper housing	
Leakage at the inner side of the lower valve shaft (3)	Replace upper seat seal (36).
Leakage at the inner tube of the lower valve shaft (3)	Replace upper shaft seal (33, 34).
Valve closed and pressure in the lower housing	
Leakage at the inner side of the lower valve shaft (3)	Replace lower seat seal (36).
Leakage at the outer side of the lower valve shaft (3)	Replace lower shaft seal (33, 34).
Open valve position	
Leakage at the inner side of the lower valve shaft (3)	Replace middle seal (38).

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

15. Spare Parts Lists and Lubrication Chart

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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Ersatzteilliste: spare parts list

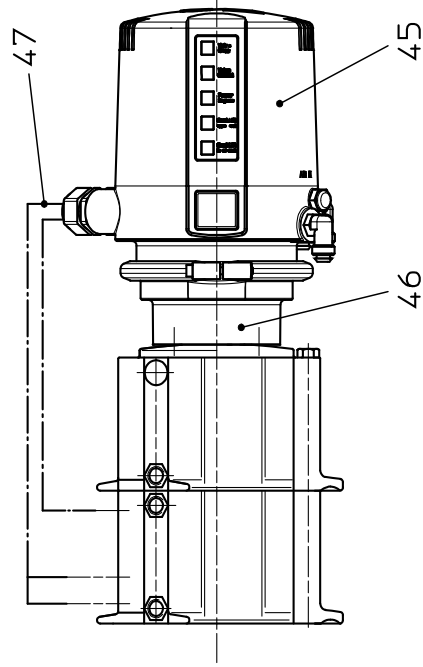
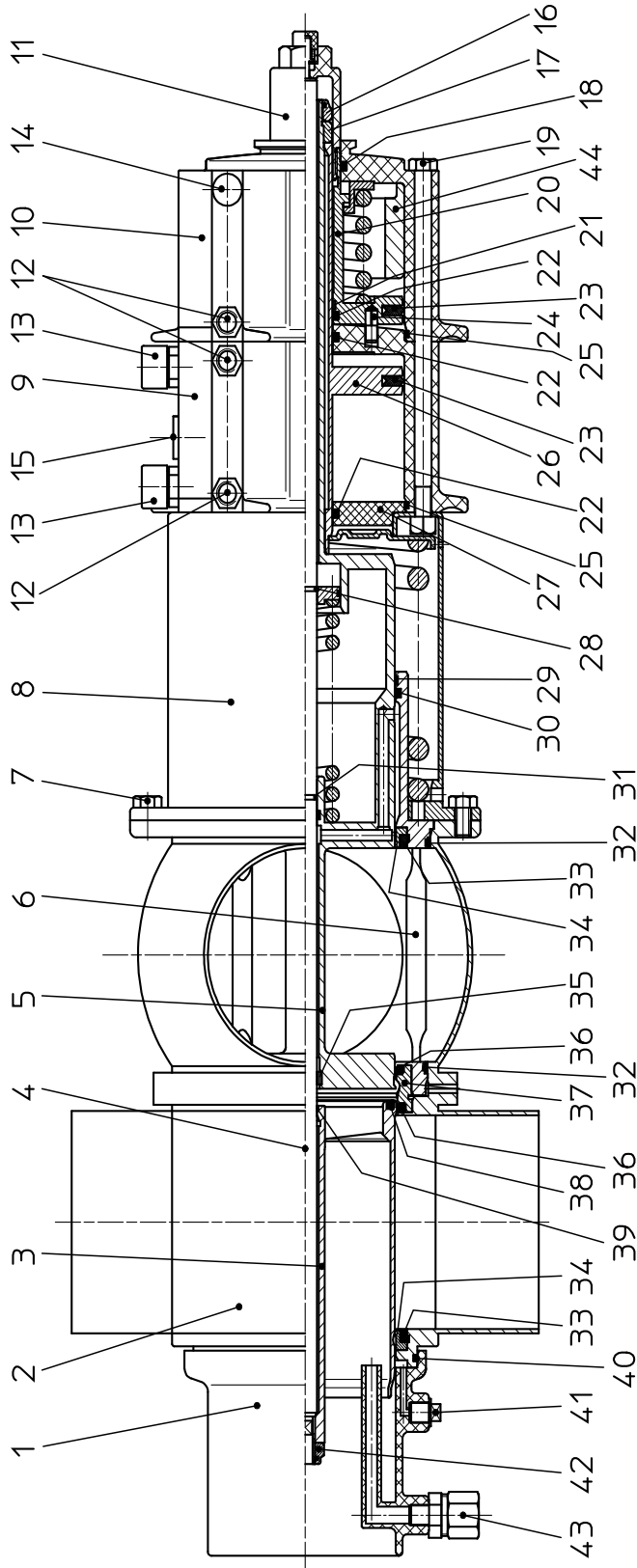
Doppelsitzventil DA3 DN40 - 150 ; 1.5" - 4"
Double seat valve DA3 DN40 - 150 ; 1.5" - 4"

Datum:	17.01.13	08.05.13	04.03.14	18.09.14
Name:	Trytko	Trytko	Trytko	Trytko
Geprüft:				

Blatt	1	von	11
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Datum:	21.09.16
Name:	C. Keil
Geprüft:	

RN 01.053.73



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Ersatzteilliste: spare parts list

Doppelsitzventil DA3 DN40 - 150 ; 1.5" - 4"
Double seat valve DA3 DN40 - 150 ; 1.5" - 4"

pos. item	Menge Quantity	Beschreibung description	Material	DN40	1,5"	DN50	2"	DN65	2,5"	Datum:		18.09.14	
										WS-Nr. ref.-no.	WS-Nr. ref.-no.	Trytko	Trytko
1	1	Spitz Anschluss CIP connection	PP GF30 HOSTAC							17.01.13	08.05.13	04.03.14	18.09.14
										Trytko	Trytko	Trytko	Trytko
										Blatt 2 von 11			
										RN 01.053.73			
						09-40-114/93 H168321							
1	1	Gehäuse Housing	1.4404	16-61-382/47 H176634	16-61-407/47 H176629	16-61-432/47 H176635	16-61-457/47 H176630	16-61-482/47 H176636	16-61-507/47 H176631	WS-Nr. ref.-no.	WS-Nr. ref.-no.		
2	1	Gehäuse Housing	1.4404	16-62-382/47 H176645	16-62-407/47 H176640	16-62-432/47 H176646	16-62-457/47 H176641	16-62-482/47 H176647	16-62-507/47 H176642				
	1	Gehäuse Housing	1.4404	16-63-382/47 H176655	16-63-407/47 H176650	16-63-432/47 H176656	16-63-457/47 H176651	16-63-482/47 H176657	16-63-507/47 H176652				
	1	Gehäuse Housing	1.4404	16-64-382/47 H176320	16-64-407/47 H176325	16-64-432/47 H176321	16-64-457/47 H176326	16-64-482/47 H176322	16-64-507/47 H176327				
3	1	Schaft unten Lower valve shaft	1.4404	16-22-393/42 H176351		16-22-443/42 H176356		16-22-493/42 H176368	16-22-518/42 H176363				
4	1	Zugstange Guide rod	1.4404	16-24-392/42 H176393		16-24-442/42 H176394		16-24-492/42 H176396	16-24-517/42 H176395				
5	1	Schaft oben Upper valve shaft	1.4404	16-22-210/42 H149299		16-22-211/42 H149300		16-22-213/42 H149302	16-22-212/42 H149301				
6	1	Ventilsitz mit Spülkammer Valve seat with flushing chamber	1.4404	16-37-394/43 H176344		16-37-444/43 H176345		16-37-494/43 H176347	16-37-519/43 H176346				
7	4	Skt. Schraube Hex. Screw	1.4301	DIN EN 24017- M8x14-A2-70		65-01-079/15 H78768							
8	1	Federzylinder Spring actuator	1.4301			16-30-500/17 H323172							
9	1	Hauptzylinder Main actuator	Vestamid			15-31-239/93 H151072							
10	1	Anlüftzylinder Seat lifting device	Vestamid			16-30-225/93 H151130							
11	1	Anschlagschraube Stop sleeve	Vestamid			16-28-260/93 H176400							
12	3	W-Verschraubung Angular union	1.4301	G1/8" 6x1		08-60-750/93 H208825							
13	2	Initiatorhalterung Mounting block	PA6.6 schwarz			15-33-918/93 H154913							



Ersatzteilliste: spare parts list

Doppelsitzventil DA3 DN40 - 150 ; 1.5" - 4"
Double seat valve DA3 DN40 - 150 ; 1.5" - 4"

		Datum: 17.01.13			08.05.13			04.03.14			18.09.14		
		Trytko			Trytko			Trytko			Trytko		
		Name:			Name:			Name:			Name:		
		Geprüft:			Geprüft:			Geprüft:			Geprüft:		
		Blatt 4			von 11			RN 01.053.73			RN 01.053.73		
		APV			SPX FLOW			Germany			Germany		
30	1	Quadring Quadring	Q4230-N7502	Material	DN40	1,5"	DN50	2"	DN65	2,5"	WS-Nr.		WS-Nr.
											ref.-no.		
31	1	O-Ring O-ring	OR 9,25x1,78	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
32	2	Gehäusedichtung Housing seal	EPDM	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
32	2	Gehäusedichtung Housing seal	FPM	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
32	2	Gehäusedichtung Housing seal	HNBR	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
32	2	Tellerdichtung Seat seal	EPDM	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
33	2	Tellerdichtung Seat seal	FPM	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
33	2	Tellerdichtung Seat seal	HNBR	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
33	2	Tellerdichtung Seat seal	VMQ	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
34	2	Schafldichtung Shaft seal	PTFE	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
35	1	Führungsring Guide ring	25%Kohle	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
36	2	Sitzdichtung Seat seal	EPDM	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
36	2	Sitzdichtung Seat seal	FPM	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
36	2	Sitzdichtung Seat seal	HNBR	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
36	2	Sitzdichtung Seat seal	VMQ	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		
37	1	Sitzring Seat ring	1.4404	material	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.	ref.-no.	WS-Nr.		WS-Nr.
											ref.-no.		

Ersatzteilliste: spare parts list

Doppelsitzventil DA3 DN40 - 150 ; 1.5" - 4"
Double seat valve DA3 DN40 - 150 ; 1.5" - 4"

pos. item	Menge Quantity	Beschreibung description	Material	3"		DN80		4"		DN125		DN150
				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	Spritz Anschluss CIP connection	PP GF30 HOSTAC	09-40-114/93 H168321	09-40-115/93 H168322	09-40-115/93 H168322	09-40-118/93 H200320					
2	1	Gehäuse Housing	1.4404	16-61-557/47 H176632	16-61-532/47 H176637	16-61-632/47 H176638	16-61-657/47 H176633	16-61-682/47 H200718	16-61-732/47 H200719			
	1	Gehäuse Housing	1.4404	16-62-557/47 H176643	16-62-532/47 H176648	16-62-632/47 H176649	16-62-657/47 H176644	16-62-682/47 H200785	16-62-732/47 H200780			
	1	Gehäuse Housing	1.4404	16-63-557/47 H176653	16-63-532/47 H176658	16-63-632/47 H176659	16-63-657/47 H176654	16-63-682/47 H200778	16-63-732/47 H200781			
	1	Gehäuse Housing	1.4404	16-64-557/47 H176328	16-64-532/47 H176323	16-64-632/47 H176324	16-64-657/47 H176329	16-64-682/47 H200779	16-64-732/47 H200782			
3	1	Schaft unten Lower valve shaft	1.4404	16-22-568/42 H176374	16-22-543/42 H176379	16-22-668/42 H176381	16-22-965/42 H200422	16-22-966/42 H200423	16-22-966/42 H200423			
4	1	Zugstange Guide rod	1.4404	16-24-567/42 H176397	16-24-542/42 H176398	16-24-642/42 H176399	16-24-692/42 H200438	16-24-742/42 H200437	16-24-742/42 H200437			
5	1	Schaft oben Upper valve shaft	1.4404	16-22-214/42 H149303	16-22-215/42 H149304	16-22-216/42 H147572	16-22-217/42 H150161	16-22-218/42 H150162	16-22-218/42 H150162			
6	1	Ventilsitz mit Spülkammer Valve seat with flushing chamber	1.4404	16-37-569/43 H176348	16-37-544/43 H176349	16-37-644/43 H176350	16-37-080/43 H200441	16-37-081/43 H200439	16-37-081/43 H200439			
7	4	Skt. Schraube Hex. Screw	1.4301	65-01-079/15 M8x14 H78768		65-01-130/15 M10x16 H78806		65-01-130/15 M10x16 H78806				
8	1	Federzylinder Spring actuator	1.4301	16-30-500/17 H323172	16-30-501/17 H323201	16-30-501/17 H323201	16-30-108/17 H150229	16-30-108/17 H150229	16-30-108/17 H150229			
9	1	Hauptzylinder Main actuator	Vestamid	15-31-239/93 H151072	15-31-240/93 H147795	15-31-240/93 H147795	15-31-241/93 H150526	15-31-241/93 H150526	15-31-241/93 H150526			
10	1	Anlüftzylinder Seat lifting device	Vestamid	16-30-225/93 H151130	16-30-226/93 H147794	16-30-226/93 H147794	16-30-227/93 H150525	16-30-227/93 H150525	16-30-227/93 H150525			
11	1	Anschlagschraube Stop sleeve	Vestamid 1.4057	16-28-260/93 H176400		16-28-262/32 H200728		16-28-262/32 H200728				
12	3	W-Verschraubung Angular union	1.4301	08-60-750/93 H208825		08-60-750/93 H208825		08-60-750/93 H208825				
13	2	Initiatorhalterung Mounting block	PA6.6 schwarz	15-33-918/93 H154913		15-33-918/93 H154913		15-33-918/93 H154913				



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Datum: 17.01.13 08.05.13 04.03.14 18.09.14
 Name: Trytko Trytko Trytko Trytko
 Geprüft: Trytko Trytko Trytko Trytko
 Datum: 21.09.16
 Name: C. Keil
 Geprüft: C. Keil C. Keil C. Keil C. Keil

Ersatzteilliste: spare parts list

Doppelsitzventil DA3 DN40 - 150 ; 1.5" - 4"
Double seat valve DA3 DN40 - 150 ; 1.5" - 4"

pos. item	Menge Quantity	Beschreibung description	Material	3"		4"		DN100		DN125		DN150	
				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.		
30	1	Quadring Quadring	EPDM	58-01-329/63 H150898	58-01-238/63 H148387	58-01-238/63 H148387	58-01-238/63 H148387	58-01-238/63 H148387	58-01-238/63 H148387	58-01-238/63 H148387	58-01-238/63 H148387	58-01-238/63 H148387	58-01-238/63 H148387
31	1	O-Ring O-ring	EPDM FDA-konform	OR 9,25x1,78	58-06-029/64 H148388	58-06-029/64 H148388	58-06-029/64 H148388	58-06-029/64 H148388	58-06-029/64 H148388	58-06-029/64 H148388	58-06-029/64 H148388	58-06-029/64 H148388	58-06-029/64 H148388
32	2	Gehäusedichtung Housing seal	EPDM	58-33-542/93 H77543	58-33-542/93 H77543	58-33-542/93 H77543	58-33-542/93 H77543	58-33-542/93 H77543	58-33-542/93 H77543	58-33-542/93 H77543	58-33-542/93 H77543	58-33-542/93 H77543	58-33-542/93 H77543
32	2	Gehäusedichtung Housing seal	FPM	58-33-542/73 H77542	58-33-542/73 H77542	58-33-542/73 H77542	58-33-542/73 H77542	58-33-542/73 H77542	58-33-542/73 H77542	58-33-542/73 H77542	58-33-542/73 H77542	58-33-542/73 H77542	58-33-542/73 H77542
32	2	Gehäusedichtung Housing seal	HNBR	58-33-542/33 H170075	58-33-542/33 H170075	58-33-542/33 H170075	58-33-542/33 H170075	58-33-542/33 H170075	58-33-542/33 H170075	58-33-542/33 H170075	58-33-542/33 H170075	58-33-542/33 H170075	58-33-542/33 H170075
33	2	Tellerdichtung Seat seal	EPDM	58-33-493/93 H77515	58-33-493/93 H77515	58-33-493/93 H77515	58-33-493/93 H77515	58-33-493/93 H77515	58-33-493/93 H77515	58-33-493/93 H77515	58-33-493/93 H77515	58-33-493/93 H77515	58-33-493/93 H77515
33	2	Tellerdichtung Seat seal	FPM	58-33-493/73 H77514	58-33-493/73 H77514	58-33-493/73 H77514	58-33-493/73 H77514	58-33-493/73 H77514	58-33-493/73 H77514	58-33-493/73 H77514	58-33-493/73 H77514	58-33-493/73 H77514	58-33-493/73 H77514
33	2	Tellerdichtung Seat seal	HNBR	58-33-493/33 H166678	58-33-493/33 H166678	58-33-493/33 H166678	58-33-493/33 H166678	58-33-493/33 H166678	58-33-493/33 H166678	58-33-493/33 H166678	58-33-493/33 H166678	58-33-493/33 H166678	58-33-493/33 H166678
33	2	Tellerdichtung Seat seal	VMQ	58-33-493/13 H77513	58-33-493/13 H77513	58-33-493/13 H77513	58-33-493/13 H77513	58-33-493/13 H77513	58-33-493/13 H77513	58-33-493/13 H77513	58-33-493/13 H77513	58-33-493/13 H77513	58-33-493/13 H77513
34	2	Schaftdichtung Shaft seal	PTFE	58-33-016/23 H149620	58-33-016/23 H149620	58-33-016/23 H149620	58-33-016/23 H149620	58-33-016/23 H149620	58-33-016/23 H149620	58-33-016/23 H149620	58-33-016/23 H149620	58-33-016/23 H149620	58-33-016/23 H149620
35	1	Führungsring Guide ring	PTFE 25%Kohle	08-39-080/93 H14880	08-39-080/93 H14880	08-39-080/93 H14880	08-39-080/93 H14880	08-39-080/93 H14880	08-39-080/93 H14880	08-39-080/93 H14880	08-39-080/93 H14880	08-39-080/93 H14880	08-39-080/93 H14880
36	2	Sitzdichtung Seat seal	EPDM	58-33-044/93 H149618	58-33-044/93 H149618	58-33-044/93 H149618	58-33-044/93 H149618	58-33-044/93 H149618	58-33-044/93 H149618	58-33-044/93 H149618	58-33-044/93 H149618	58-33-044/93 H149618	58-33-044/93 H149618
36	2	Sitzdichtung Seat seal	FPM	58-33-044/73 H153316	58-33-044/73 H153316	58-33-044/73 H153316	58-33-044/73 H153316	58-33-044/73 H153316	58-33-044/73 H153316	58-33-044/73 H153316	58-33-044/73 H153316	58-33-044/73 H153316	58-33-044/73 H153316
36	2	Sitzdichtung Seat seal	HNBR	58-33-044/33 H168900	58-33-044/33 H168900	58-33-044/33 H168900	58-33-044/33 H168900	58-33-044/33 H168900	58-33-044/33 H168900	58-33-044/33 H168900	58-33-044/33 H168900	58-33-044/33 H168900	58-33-044/33 H168900
36	2	Sitzdichtung Seat seal	VMQ	58-33-044/13 H153317	58-33-044/13 H153317	58-33-044/13 H153317	58-33-044/13 H153317	58-33-044/13 H153317	58-33-044/13 H153317	58-33-044/13 H153317	58-33-044/13 H153317	58-33-044/13 H153317	58-33-044/13 H153317
37	1	Sitzring Seat ring	1.4404	16-00-190/42 H149397	16-00-190/42 H149397	16-00-190/42 H149397	16-00-190/42 H149397	16-00-190/42 H149397	16-00-190/42 H149397	16-00-190/42 H149397	16-00-190/42 H149397	16-00-190/42 H149397	16-00-190/42 H149397



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RN 01.053.73

Datum: 17.01.13 08.05.13 04.03.14 18.09.14
 Name: Trytko Trytko Trytko Trytko
 Geprüft: Trytko Trytko Trytko Trytko
 Datum: 21.09.16
 Name: C. Keil
 Geprüft: C. Keil C. Keil C. Keil C. Keil

Ersatzteilliste: spare parts list

Doppelsitzventil DA3 DN40 - 150 ; 1.5" - 4"
Double seat valve DA3 DN40 - 150 ; 1.5" - 4"

pos. item	Menge Quantity	Beschreibung description	Material	3"		DN80		4"		DN125		DN150	
				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.		
	1	Mitteldichtung Seal	EPDM FDA-konform	58-33-047/93 H149617	58-33-048/93 H149621	58-33-048/93 H149621	58-33-048/93 H150530	58-33-048/93 H150530	58-33-049/93 H150530	58-33-049/93 H150530	58-33-049/93 H150530	58-33-049/93 H150530	58-33-049/93 H150530
	1	Mitteldichtung Seal	FPM FDA-konform	58-33-047/73 H153324	58-33-048/73 H153322	58-33-048/73 H153322	58-33-048/73 H153939	58-33-048/73 H153939	58-33-049/73 H153939	58-33-049/73 H153939	58-33-049/73 H153939	58-33-049/73 H153939	58-33-049/73 H153939
38	1	Mitteldichtung Seal	HNBR FDA-konform	58-33-047/33 H168903	58-33-048/33 H168904	58-33-048/33 H168904	58-33-048/33 H168905	58-33-048/33 H168905	58-33-049/33 H168905	58-33-049/33 H168905	58-33-049/33 H168905	58-33-049/33 H168905	58-33-049/33 H168905
	1	Mitteldichtung Seal	VMQ FDA-konform	58-33-047/13 H153325	58-33-048/13 H153323	58-33-048/13 H153323	58-33-048/13 H153940	58-33-048/13 H153940	58-33-049/13 H153940	58-33-049/13 H153940	58-33-049/13 H153940	58-33-049/13 H153940	58-33-049/13 H153940
39	1	O-Ring O-ring	EPDM			58-06-040/63 H169477							
40	1	O-Ring O-ring	EPDM FDA-konform	58-06-295/63 69 x3 H77039	58-06-490/63 100x3 H77061	58-06-490/63 100x3 H77061	58-06-655/63 135x3 H77081	58-06-655/63 135x3 H77081	58-06-007/93 G 1/4" H176010	58-06-007/93 G 1/4" H176010	58-06-007/93 G 1/4" H176010	58-06-007/93 G 1/4" H176010	58-06-007/93 G 1/4" H176010
41	1	Verschluß-Stopfen Locking plug	Kunst. schwarz		08-74-014/93 G 1/8" H16507	08-74-014/93 G 1/8" H16507							
42	1	Sechskant Mutter mit Klemmteil Hexagon nut with clamp part	1.4301			65-50-087/15 H118903							
43	1	G-Verschraubung Straight union	PVDF-schwarz / PA6.6		08-63-003/13 G1/8" H16388	08-63-003/13 G1/8" H16388							16-38-200/42 10/8-G1/4" H329696
44	1	Anschlagring Stop ring	POM										08-39-001/93 H314101
	1	CU43-M-DC CU43-M-DC	PA 6.6 GF30 schwarz			08-45-105/93 H320465							
45	1	CU43-M-AS-I-extended CU43-M-AS-I-extended	PA 6.6 GF30 schwarz			08-45-115/93 H320472							
	1	CU43-M-AS-I-standard CU43-M-AS-I-standard	PA 6.6 GF30 schwarz			08-45-255/93 H324678							
46	1	CU4-M-Adapter komplett CU4-M-adapter complete	PA 6.6 GF30 schwarz			08-48-602/93 H320476							
47	1	Luftschlauch Air Hose	PA 12 W			08-75-020/53 H16516							



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RN 01.053.73

Datum: 17.01.13 08.05.13 04.03.14 18.09.14
 Name: Trytko Trytko Trytko Trytko
 Geprüft: Trytko Trytko Trytko Trytko
 Datum: 21.09.16
 Name: C. Keil
 Geprüft:

Weitergabe sowie Vervielfältigung dieser Unterlage, Verwertung und Mitteilung ihres Inhalts nicht gestattet, soweit nicht schriftlich zugestanden.
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auch für Patentierung und Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany

Ersatzteilliste: spare parts list

Doppelsitzventil DA3 Mitteldichtung Version 2 DN40 - 150, 1,5"-4" Double seat valve middle seal version 2 DA3 DN40 - 150, 1,5"-4"

Datum:	10.10.16								
Name:	C.Keil								
Geprüft:									
Datum:									
Name:									
Geprüft:									
		Blatt 1 von 1		RN 01.053.73					



pos. item	Menge quantity	Beschreibung description	Material	40 WS-Nr. ref.-no.	50 WS-Nr. ref.-no.	65 WS-Nr. ref.-no.	80 WS-Nr. ref.-no.	100 WS-Nr. ref.-no.
3	1	DA3 Schaft Unten Version 2 DA3 lower shaft version 2	1.4404	000 16-24-400/42 H328270	000 16-24-450/42 H328271	000 16-24-500/42 H328272	000 16-24-550/42 H328274	000 16-24-675/42 H328276
5	1	DA3 Schaft oben Version 2 DA3 upper shaft version 2	1.4404	-	-	-	000 16-22-546/42 H333592	000 16-22-646/42 H333619
35	1	Führungsbuchse guide ring	PTFE	-	-	-	-	000 08-39-080/93 H14880
38	1	Mitteldichtung Version 2 middle seal version 2	EPDM	-	000 58-33-998/93 H327602	-	-	000 58-33-997/93 H327985
38	1	Mitteldichtung Version 2 middle seal version 2	HNBR	-	000 58-33-998/33 H332652	-	-	000 58-33-997/33 H332649
38	1	Mitteldichtung Version 2 middle seal version 2	FPM	-	000 58-33-998/71 H332653	-	-	000 58-33-997/71 H332648
39	1	O-Ring 12x1 O-ring 12x1	EPDM	-	-	-	-	000 58-06-040/63 H169477

pos. item	Menge quantity	Beschreibung description	Material	1.5" WS-Nr. ref.-no.	2" WS-Nr. ref.-no.	2.5" WS-Nr. ref.-no.	3" WS-Nr. ref.-no.	4" WS-Nr. ref.-no.
3	1	DA3 Schaft Unten Version 2 DA3 lower shaft version 2	1.4404	000 16-24-400/42 H328270	000 16-24-450/42 H328271	000 16-24-525/42 H328273	000 16-24-575/42 H328275	000 16-24-675/42 H328276
5	1	DA3 Schaft oben Version 2 DA3 upper shaft version 2	1.4404	-	-	-	-	000 16-22-646/42 H333619
35	1	Führungsbuchse guide ring	PTFE	-	-	-	-	000 08-39-080/93 H14880
38	1	Mitteldichtung Version 2 middle seal version 2	EPDM	-	000 58-33-998/93 H327602	-	-	000 58-33-997/93 H327985
38	1	Mitteldichtung Version 2 middle seal version 2	HNBR	-	000 58-33-998/33 H332652	-	-	000 58-33-997/93 H327985
38	1	Mitteldichtung Version 2 middle seal version 2	FPM	-	000 58-33-998/71 H332653	-	-	000 58-33-997/71 H332648
39	1	O-Ring 12x1 O-ring 12x1	EPDM	-	-	-	-	000 58-06-040/63 H169477

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 UrnG). Eigentum und alle Rechte, auch für Patentierung und Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany

Ersatzteilliste: spare parts list

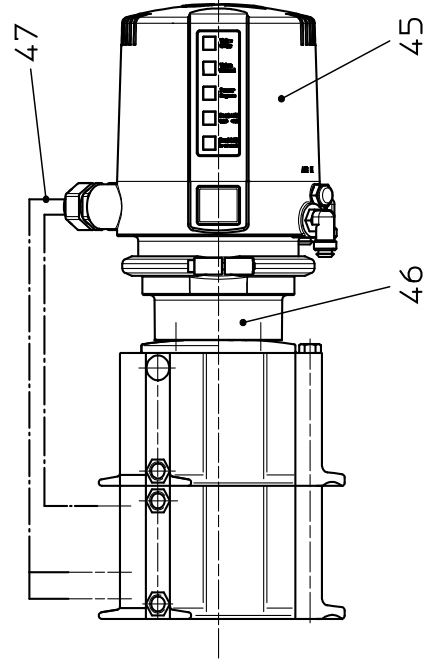
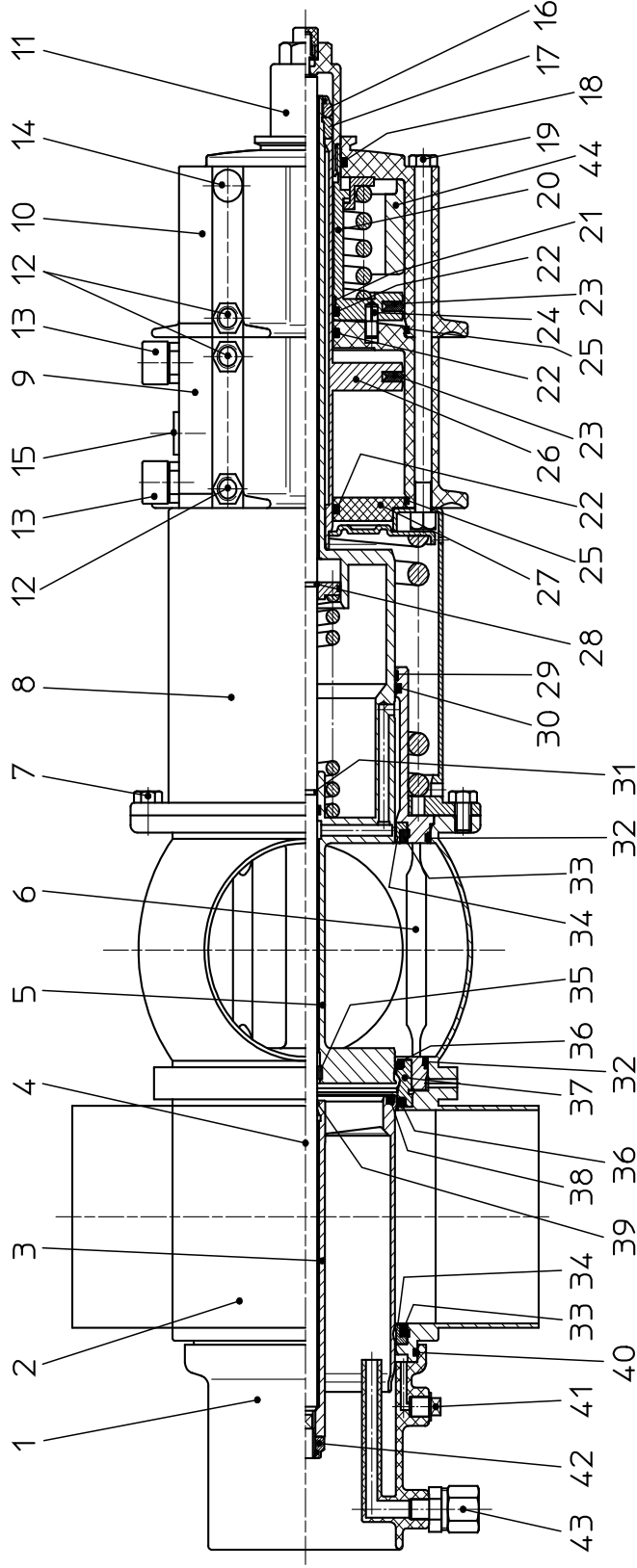
Doppelsitzventil DA3 1.5 - 6 Sh5

Double seat valve DA3 1,5 - 6 Sh5

Datum: 23.01.13 12.03.15
 Name: Trytko Trytko
 Geprüft:

Blatt 1 von 6

RN 01.053.73-2



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 UrnG). Eigentum und alle Rechte, auch für Patenterteilung und Gebrauchsmustererteilung, vorbehalten. SPX FLOW, Germany

Ersatzteilliste: spare parts list

Doppelsitzventil DA3 1.5 - 6 Sh5

Double seat valve DA3 1,5 - 6 Sh5

Datum:	23.01.13	12.03.15
Name:	Trytko	Trytko
Geprüft:		
Datum:		
Name:		
Geprüft:		

Blatt 2 von 6	
RN 01.053.73-2	



pos.	item	Menge	Beschreibung	Material	1,5 Sh5	2 Sh5	2,5 Sh5	3 Sh5	4 Sh5	6 Sh5	
			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	Spritz Anschluss CIP connection	PP GF30 HOSTAC	09-40-114/93 H168321	09-40-114/93 H168322	09-40-115/93 H168322				
	1	1	Gehäuse Housing	1.4404	16-61-408/47 H179065	16-61-458/47 H179066	16-61-508/47 H179067	16-61-558/47 H179068	16-61-658/47 H179069	16-61-808/47	
	1	1	Gehäuse Housing	1.4404	16-62-408/47	16-62-458/47	16-62-508/47	16-62-558/47	16-62-658/47	16-62-808/47	
2	1	1	Gehäuse Housing	1.4404	16-63-408/47	16-63-458/47	16-63-508/47	16-63-558/47	16-63-658/47	16-63-658/47	
	1	1	Gehäuse Housing	1.4404	16-64-408/47 H179408	16-64-458/47 H179410	16-64-508/47 H179411	16-64-558/47 H179412	16-64-658/47 H179413	16-64-808/47 H328628	
3	1	1	Schaft unten Lower valve shaft	1.4404	16-22-193/42 H178877	16-22-194/42 H178878	16-22-195/42 H178879	16-22-196/42 H178880	16-22-197/42 H178881	16-22-039/42 H328631	
4	1	1	Zugstange Guide rod	1.4404	16-24-016/42 H178826	16-24-017/42 H178827	16-24-018/42 H178828	16-24-019/42 H178829	16-24-020/42 H178830	16-24-817/42 H328641	
5	1	1	Schaft oben Upper valve shaft	1.4404	16-22-187/42 H178842	16-22-188/42 H178843	16-22-189/42 H178844	16-22-190/42 H178845	16-22-191/42 H178846	16-22-040/42 H328637	
6	1	1	Ventilsitz mit Spülkammer Valve seat with flushing chamber	1.4404	16-37-059/43 H178937	16-37-060/43 H178942	16-37-494/43 H176347	16-37-062/43 H178948	16-37-063/43 H178950	16-37-064/43 H328638	
7	4	4	Skt. Schraube Hex. Screw	1.4301	65-01-079/15 M8x14 H78768						65-01-130/15 M10x16 H78806
8	1	1	Federzylinder Spring actuator	1.4301	16-30-500/17 H323172	16-30-500/17 H323172	16-30-501/17 H323201	16-30-501/17 H323201	16-30-108/17 H150229	16-30-108/17 H150229	
9	1	1	Hauptzylinder Main actuator	Vestamid	15-31-239/93 H151072	15-31-239/93 H151072	15-31-240/93 H147795	15-31-240/93 H147795	15-31-241/93 H150526	15-31-241/93 H150526	
10	1	1	Anlüftzylinder Seat lifting device	Vestamid	16-30-225/93 H151130	16-30-225/93 H151130	16-30-226/93 H147794	16-30-226/93 H147794	16-30-227/93 H150525	16-30-227/93 H150525	
11	1	1	Anschlagschraube Stop sleeve	Vestamid / 1.4057	16-28-260/93 H176400						16-28-262/32 H200728
12	3	3	W-Verschraubung Angular union	1.4301	08-60-750/93 H208825						08-60-750/93 H208825
13	2	2	Initiatorhalterung Mounting block	PA6.6 schwarz	15-33-918/93 H154913						15-33-918/93 H154913

Ersatzteilliste: spare parts list

Doppelsitzventil DA3 1.5 - 6 Sh5

Double seat valve DA3 1,5 - 6 Sh5

Datum:	23.01.13	12.03.15
Name:	Trytko	Trytko
Geprüft:		

Datum:					
Name:					
Geprüft:					

Blatt 3 von 6					
RN 01.053.73-2					



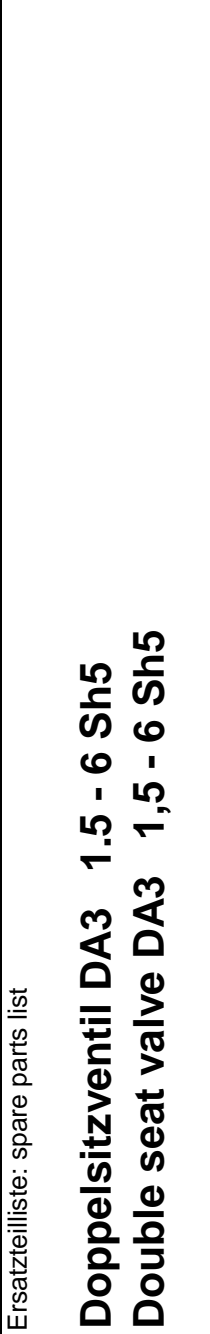
pos. item	Menge quantity	Beschreibung description	Material	1,5 Sh5 WS-Nr. ref.-no.	2 Sh5 WS-Nr. ref.-no.	2,5 Sh5 WS-Nr. ref.-no.	3 Sh5 WS-Nr. ref.-no.	4 Sh5 WS-Nr. ref.-no.	6 Sh5 WS-Nr. ref.-no.
14	1	Entlüftungstopfen Venting plug	PE-Hard/Yellow						
15	1	Verschlußkappe Cap	PVC						
16	1	Sicherungsmutter Stop nut	1.4301						
17	1	Sicherungsscheibe Lock washer	1.4301						
18	1	Quadring Q4221-N7004 36x3,53	NBR						
19	4	Skt. Schraube Hex. Screw	1.4301	65-01-114/15 M8x156 H152060			65-01-115/15 M8x168 H313215H		65-01-157/15 M10x204 H152018
20	1	Kolbenstange Anlützylinder kpl. Piston shaft for seat lifting device cpl.	1.4301	16-29-065/17 H149396			16-29-066/17 H149654		16-29-067/17 H150503
21	1	Führungsband PTFE driving band	Turcite 51			08-39-187/93 H147972			
22	3	Quadring Quadring	NBR			58-01-236/83 H148385			
23	2	Kolbendichtung Piston seal	NBR		58-01-760/83 H76868				58-01-763/83 H76871
24	1	Zylinderkerbstift Cyl. Pin	1.4305			67-15-055/12 H147811			
25	2	O-Ring O-ring	NBR		58-06-372/83 82,22x2,62 H150893				58-06-696/83 154x3 H174262
26	1	Kolben Hauptzylinder Piston for main actuator	1.4301		16-29-070/12 H149389				16-29-072/12 H150291
27	1	Deckel Hzyl. Cover for main actuator	PA12	16-00-208/93 H149351		16-00-207/93 H149350			16-00-211/93 H150918
28	1	Sprengring Retainer ring	1.4310			08-39-083/13 H14883			
29	1	Führungsband PTFE driving band			08-39-198/93 H150892				08-39-185/93 H152006

Ersatzteilliste: spare parts list

Doppelsitzventil DA3 1.5 - 6 Sh5

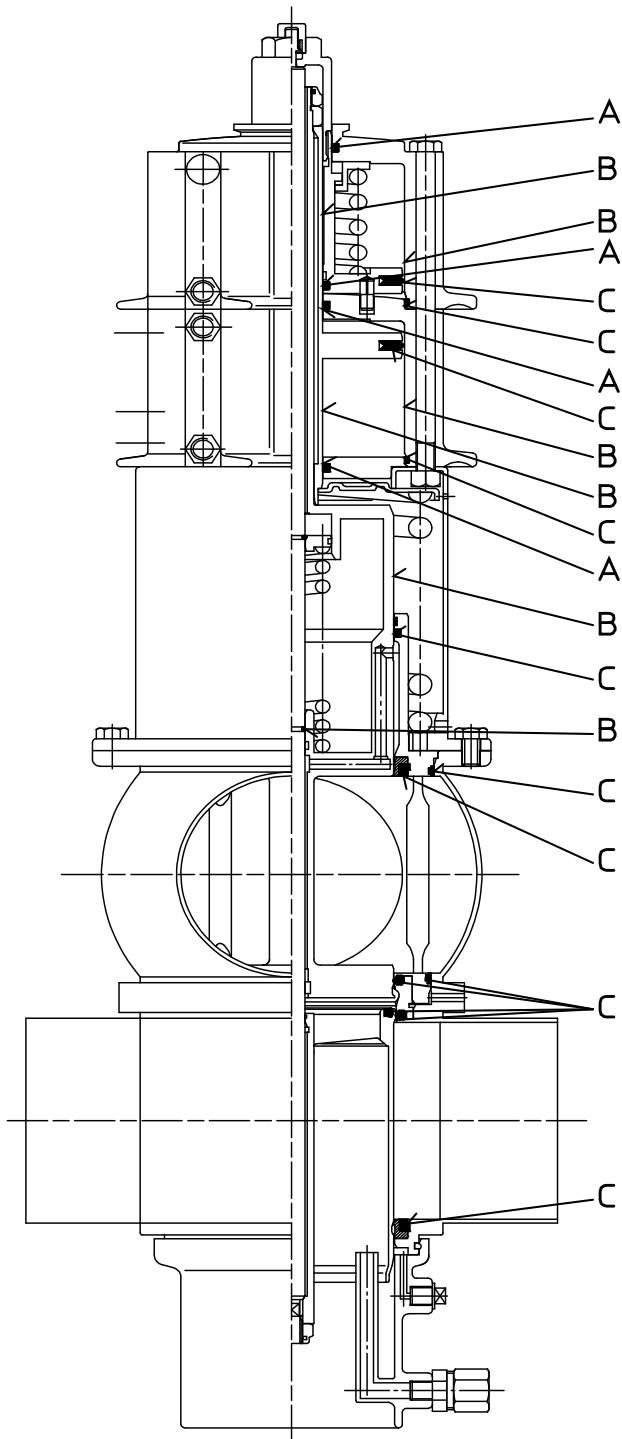
Double seat valve DA3 1,5 - 6 Sh5

Datum:	23.01.13	12.03.15
Name:	Trytko	Trytko
Geprüft:		
Datum:		
Name:		
Geprüft:		
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RN 01.053.73-2		



pos. item	Menge quantity	Beschreibung description	Material	1,5 Sh5 WS-Nr. ref.-no.	2 Sh5 WS-Nr. ref.-no.	2,5 Sh5 WS-Nr. ref.-no.	3 Sh5 WS-Nr. ref.-no.	4 Sh5 WS-Nr. ref.-no.	6 Sh5 WS-Nr. ref.-no.
38	1	Mitteldichtung Seal	EPDM FDA-konform	58-33-047/93 H149617	58-33-047/73 H153324	58-33-048/93 H149621	58-33-048/93 H153322	58-33-049/93 H150530	58-33-049/93 H153939
	1	Mitteldichtung Seal	FPM FDA-konform	58-33-047/33 H168903	58-33-047/13 H153325	58-33-048/33 H168904	58-33-048/13 H153323	58-33-049/13 H168905	58-33-049/13 H153940
39	1	O-Ring O-ring	EPDM	58-06-040/63 H169477					
40	1	O-Ring O-ring	EPDM FDA-konform	58-06-295/63 69 x3 H77039			58-06-490/63 100x3 H77061	58-06-655/63 135x3 H77081	
41	1	Verschluss-Stopfen Locking plug	Kunst. schwarz	08-74-014/93 G 1/8" H16507				08-74-007/93 G 1/4" H176010	
42	1	Sechskant Mutter m. Klemmteil Hexagon nut with clamp part	1.4301	65-50-087/15 H118903					
43	1	G-Verschraubung Straight union	PVDF-schwarz / PA6.6	08-63-003/13 G 1/8" H16388				08-63-006/13 G 1/4" H176011	
44	1	Anschlagring Stop ring	POM					08-39-001/93 H314101	
	1	CU43-M-DC CU43-M-DC	PA 6.6 GF30 schwarz	08-45-105/93 H320465					
45	1	CU43-M-AS-I-extended CU43-M-AS-I-extended	PA 6.6 GF30 schwarz	08-45-115/93 H320472					
	1	CU43-M-AS-I-standard CU43-M-AS-I-standard	PA 6.6 GF30 schwarz	08-45-255/93 H324678					
46	1	CU4-M-Adapter komplett CU4-M-adapter complete	PA 6.6 GF30 schwarz	08-48-602/93 H320476					
47	1	Luftschlauch Air Hose	PA 12 "W	08-75-020/53 H16516					

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

for VMQ.
Klüber UH1 84-201
0,6 kg can ref.-No.: 70-01-017/93
60 g tube ref.-No.: 70-01-016/93.

CAUTION!

Avoid grease residues in product area.

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

Datum:	17.01.13																		
Name:	Trytko																		
Geprüft:																			

Ersatzteilliste: spare parts list

DA3 Lubrication Chart

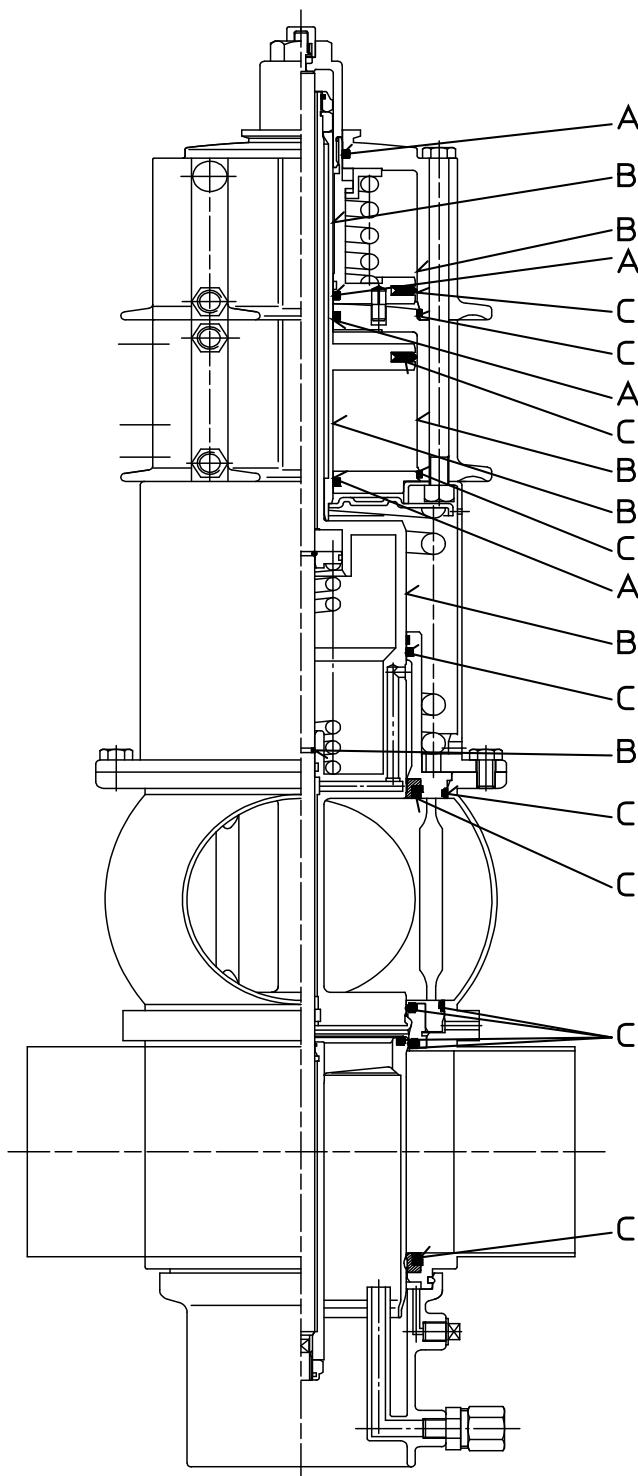


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Blatt 1 von 1

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

Für VMQ
Klüber UH1 84-201
0,6 kg Dose WS-Nr.: 70-01-017/93
60 g Tube WS-Nr.: 70-01-016/93.

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:	17.01.13																		
Name:	Trytko																		
Geprüft:																			

Ersatzteilliste: spare parts list

DA3 Schmierplan



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Germany

Blatt 1 von 1

RN 260.064-1

APV DELTA DA3+

DOUBLE SEAT MIX PROOF 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 DA3+ Valve
Maintenance Video

