

# APV DELTA DE3 DN40-100, 1.5"-<u>4"</u>

DOUBLE SEAT VALVE

SAFETY AGAINST EXPLOSION - FOR SPECIFIC ATEX-APPLICATIONS

FORM NO.: H333331 REVISION: UK-1-ATEX

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



Scan for DE3 Valve









# 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 seat valves of the series DE3 ATEX design with reduced operating leakage

in the nominal diameters DN 40 - 100, 1,5" - 4"

meet the requirements of:

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

Directive on the Protection against Explosion 2014/34/EU ATEX (superseding 94/9/EC) for Equipment Category -/2G IIB TX

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

The conformity of the valves is guaranteed.

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

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November 2017

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Regional Engineering Manager, F&B Components

Laumback

>APV<sup>®</sup>





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# 1. General Terms

This instruction manual applies for DELTA DE3 double seat valves in the nominal dimensions DN 40-100, 1,5"-4" for use in specific ATEX applications (according to Directive 2014/34/EU).

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

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

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

Descriptions and data given herein are subject to technical changes.

#### 1.1. Symbols



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



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

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

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

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





# 2. Safety Instructions



#### Danger!

If the valve is used for flammable liquids, it must be observed that every operation of the valve is combined with an operating leakage of about 0.5 ml.

The operator shall consider these conditions in his considerations and classifications of explosive environments.

- Regular maintenance including the replacement of all seals and bearing bushes must be scheduled in order to prevent leakages and discharge of liquids.
- Connections which are not used must be sealed by a plug.
- Safe discharge of the corresponding flushid liquids must be provided!
- Before any maintenance work the line system must be depressurized and drained if possible.
- Separate all electric and pneumatic connections.
- Observe the following Service Instructions to ensure safe maintenance of the valve.

#### Danger!

Welded actuators are preloaded by spring force.



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

Actuators which are no longer used or defective must be diposed in professional manner.

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

Please address to your local SPX FLOW representative.





# 2. Safety Instructions

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

The following aspects must be observed:

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



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



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



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



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



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

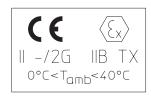


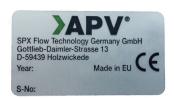


# 3. Identification of valves, Temperature classes, Responsibilities

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

#### ATEX - identification:





- Equipment group II

- Equipment category outside 2G

inside no equipment

- Explosion subcategroy IIB

Ambient temperature for the operation  $0 \, ^{\circ}\text{C} < \text{T}_{\text{amb}} < 40 \, ^{\circ}\text{C}$ 

- Temperature classes TX (according to table 3.2)

#### 3.2. Temperature classes and permissible temperatures

Media temperature	≤ 75 °C	≤ 95 °C	≤ 130 °C	up to 140 °C = Tmax.
Safety addition	+ 5 °C	+ 5 °C	+ 5 °C	+ 5 °C
Temperature class	Т6	T5	T4	Т3

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

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





# 3. Identification of valves, Temperature classes, Responsibilities

#### 3.3. Responsibilites

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

# 4. Intended Use

The intended use as field of application of the double seat valves is the shut-off of line sections, especially in beverage and food installations.

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

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

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

The user will bear the full risk.



#### Attention!

Improper use of the valve leads to:

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



#### Warning!

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

Earthing of the valves must be ensured.

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 Evaluations:**

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

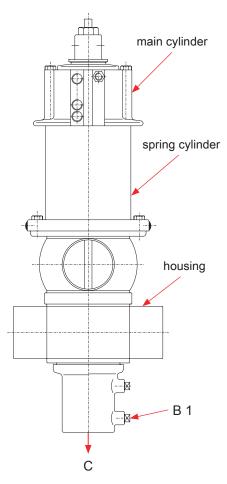
https://www.spxflow.com/en/apv/about-us/certifications





# 5. Mode of Operation

#### DE3 double seat valve



#### 5.1. 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.

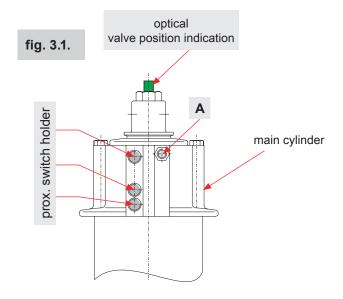
Arising leakages at the seat seals are discharged at **(C)** in depressurized state.

Proximity switches can be installed as valve position indicators. (fig. 3.1.)

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.

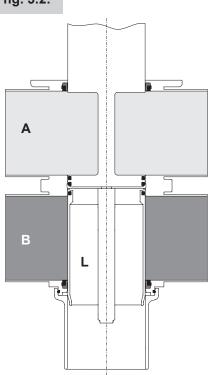






# 5. Mode of Operation

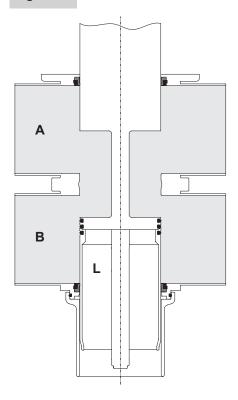
# fig. 5.2.



# 5.2. Valve in "closed" position

The lower and upper valve shafts are closed by spring force and safely separate the different fluids  $\bf A$  and  $\bf B$ . The leakage chamber  $\bf L$  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. 5.3.



# 5.3. Valve in "open" position

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





# 6. Auxiliary Equipment

# fig. 6.1. D 1 D 2 D 3

# 6.1. Valve position indication

Proximity switches to signal the limit positions of the valve shafts can be installed at the main cylinder if required (fig. 6.1.)

D1 = valve position "closed"

**D2** = valve position "open" (only with DN 40 - 50, 1.5" - 2")

**D3** = valve position "open" (only with DN 65 - 100, 2.5" - 4")

The use of valve position indicators which are approved for the application in explosive atmospheres is compulsory.



We recommend to use our APV standard types for ATEX:

operating distance: 5 mm / diameter: 11 mm

Cable length: 2 m

Approval according to: KEMA 02 ATEX 1090X

ref.-No. 000 86-01-127/93; H130435

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

The use and operation of valve position indicators shall be evaluated by the operator of the installation!





# 7. Cleaning

Cleaning DELTA DE3 valves, one has to distinguish between three areas:

# fig. 7.2. 7.1. The flow areas

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

# 7.2. The lekage chamber (fig. 7.2.)

The cleaning of the leakage chamber is undertaken by CIP spraying. CIP cleaning connection (B1).

CIP must generally be undertaken!

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 perfect cleaning of the whole leakage chamber.

Under normal conditions 15 valves DN 40 - 100, 1,5" - 4" via one spray distribution line DN 25.

# 7.2.1. Cleaning recommendation on intervals and spraying liquids under normal operating conditions and with common CIP liquids.

cleaning step	CIP cycle
pre-flushing	3 x 10 sec.
caustic flushing 80 °C	3 x 10 sec.
intermediate flushing	2 x 10 sec.
acid flushing	3 x 10 sec.
subsequent flushing	2 x 10 sec.

Depending on the pressure ratio, cleaning temperatures and the degree of soiling, different cycles must be adjusted for the individual application.

The comptability of the individual cleaning processes and liquids with the respective seal materials must be verified.

#### 7.2.2. Flushing quantities

per CIP cycle: DN 40 - 100, 1,5" - 4" about 1,2 ltr/10 s

## 7.2.3. Cleaning pressure at

CIP cleaning connection (B1): min. 2 bar max. 5 bar

Double Seat Valve DELTA DE3-ATEX Instruction manual: UK - rev.1





# 7. Cleaning

# 7.3. 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. 7.3.).

# 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.

# 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 1,2 ltr. / 10 s

cleaning period: 30 s

interval: 1x / day (e.g. milk)

depending on product and

operating frequency: 1x / week (e.g. beer)

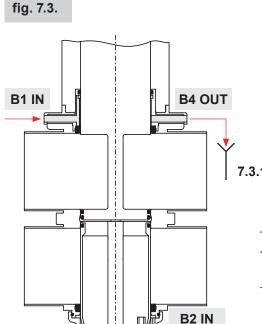
The free discharge of cleaning liquids must be ensured.

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

# 7.3.2. Installation of hoses:

housing.

upper shaft flushing	identification on spring cylinder
cleaning liquid supply at B3	IN
cleaning liquid discharge at <b>B4</b>	OUT
lower shaft flushing	
cleaning liquid supply at <b>B2</b> cleaning liquid discharge at <b>C2</b>	at drain pipe









# 8. Installation

#### 8.1. 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).



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

- Attention: Observe welding instructions.
- Heights of installation and dismantling (see chapter 9).

# 8.2. 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 13.1.). 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).
- 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.

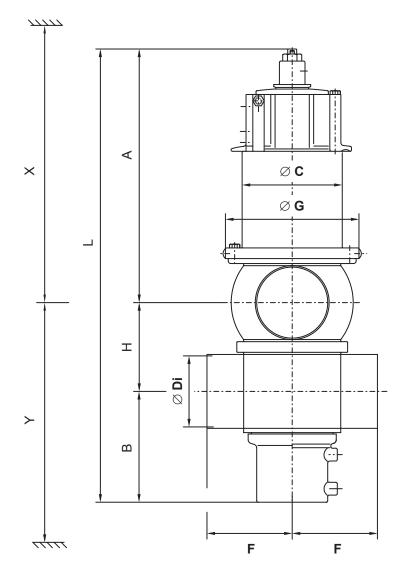
If these cleaning instructions are not observed, welding residues and dirt particles can settle in the valve and cause damage.

- 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.





# 9. Dimensions / Weights



Dimensio	Dimensions in mm									imension n mm	weight in kg
DN	Α	В	ØC	Ø Di	F	ØG	Н	L	Х	Υ	
40	311	120	114,3	38	100	163	63	494	559	200	10,1
50	317	126	114,3	50	100	163	75	518	579	218	10,2
65	325	134	114,3	66	100	163	91	550	599	242	10,4
80	347	146,5	141	81	120	188	106	599,5	680	274	14,6
100	357	156	141	100	120	188	125	638	710	303	15,5
Inch											
1,5"	312	119	114,3	35,1	100	163	63	494	559	197	10,1
2"	318	125	114,3	47,8	100	163	75	518	579	216	10,2
2,5"	322	131	114,3	60,3	100	163	85	538	599	233	10,4
3"	328	137	114,3	72,9	100	163	97	562	626	251	10,5
4"	358	155	141	97,6	120	188	125	638	710	301	15,5





#### 10.1. General data

max. line pressure: 10 bar

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: 25 Nm

tightening torque of safety nut

at upper and lower valve shaft: 40 Nm

leakage gap between

upper and lower valve shaft: ca. 4 mm

fig. 10.

(check after stop screw having been screwed in)

cleaning connection for hose

DN 40 - 100, 1,5" - 4": **8 x 1 mm** 

ambient temperature: 0 - 40 °C

air connection (for hose):

max. pneumatic air pressure:

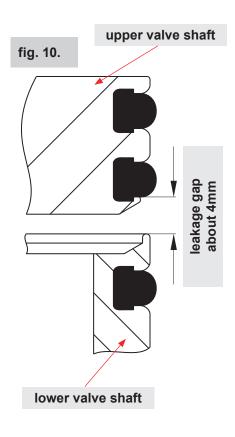
min. pneumatic air pressure:

6 x 1 mm

10 bar

6 bar

Use dry and clean pneumatic air only.







## 10.2. 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 0,5  $\mu$ m < d ≤ 1,0  $\mu$ m 500 of 1,0  $\mu$ m < d ≤ 5,0  $\mu$ m

- content of water: quality class 3,

max. dew point temperature -20 °C For installations at lower temperatures or at higher altitudes, additional

measures must be considered to reduce the pressure dew point accordingly.

- content of oil: quality class 1,

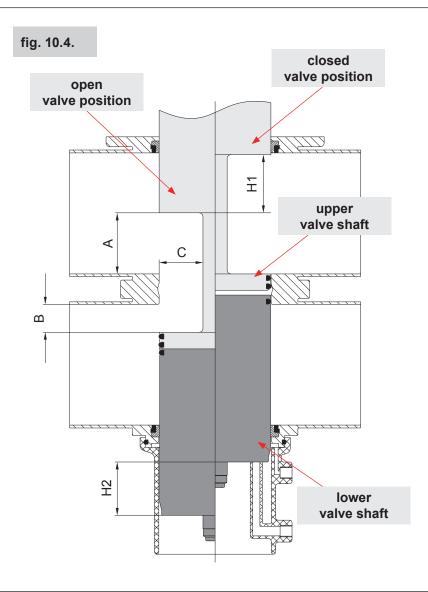
max. 0,01 mg/m<sup>3</sup>

The oil applied must be compatible with Polyurethane elastomer materials.

10.3.		kvs - values in m³/ h				
		<b>—</b>		<b>→</b>		
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		
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		







10.4.	Table for fig. 10.4. / Dimensions in mm						
DN	Inch	Α	В	С	stroke H1 upper shaft	stroke H1 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	





10.5.		Air consumption actuator at 6 bar pneum. pressure	Closing in se	
		in NL / stroke	hose I	ength
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
80	3"	2,3	3,0	4,0
100	4"	2,3	3,0	4,0

# 11. Materials

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

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

Seals:

Standard: EPDM/ PTFE Option: HNBR/ PTFE

Actuator: PA 12 GF 30

Shaft bearing: stainless steel

Drain pipe: PP GF30





# 12. Maintenance

Scan for DE3 Valve Maintenance Video



Valve maintenance for seals	Remark
standard load 1-shift-operation	1 x annually up to 30.000* cycles p.a. 1 x semi-annually above 30.000 cycles p.a.
hot operation temperature 80°C - 120°C	1 x semi-annually

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



Valve maintenance for spring cylinder	Remark
visual inspection check spring for damage	1 x annually during seal maintenance
replacement interval of spring	in case of damage or after 250.000** cycles

\*\* complies with about 6 years in 1-shift-operation and 10 - 15 cycles per hour.

- Compressed air is not required to dismantle the valve.



Required tools:

- 1x spanner SW13

- 2x spanner SW17

- 2x spanner SW24

- disassembly and assembly support for the lower shaft seal ref.-No. 000 51-13-100/17; H171889



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

 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.





# 12. Maintenance

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; H 147382) (60 g /tube - ref.-No. 000-70-01-018/93; H 147381)

! 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.



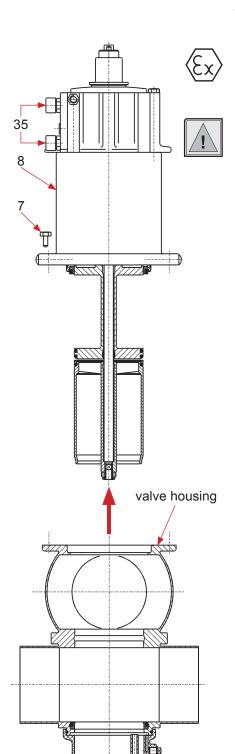


The item numbers refer to the spare parts drawings. DE3 - DN40 - 100 ; 1,5 "- 4" - Ex II -/2G IIB TX RN ATEX 053.71

## 13.1. Dismantling from the piping system

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

- **1.** Shut off the line pressure 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.
- 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.

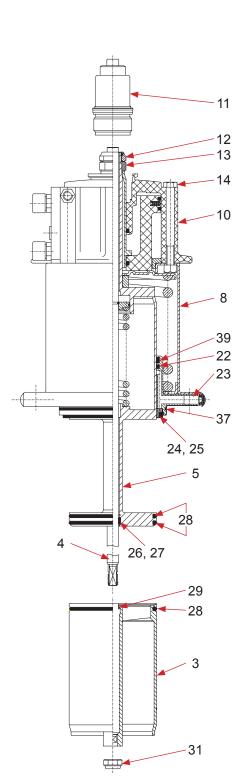






## 13.2. Dismantling of product-wetted seals (service)

- 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 13.3).
- 8. Dismantling of seals from the upper shaft (5). Stick a peaked object into the upper and middle seat seal (28) and pull them out of the groove. Afterwards, lift the two supporting rings (26) and the quadring (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 guide band (39), quadring (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.







#### 13.3. Maintenance of main cylinder

Dismantle the actuator, main cylinder (10) and spring cylinder (8) from the valve insert as described in 13.2 1.-7.

#### 13.3.1. 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 quadring in the piston and in the main cylinder.
- 5. Remove the piston seal.
- **6.** Clean the main cylinder, cover, piston rod and piston.

## 13.3.2. Installation of seals and assembly of main cylinder

1. Slightly grease the quadrings and piston seal.

Attention! Use appropriate pneumatic grease.

See that all seals and contact surfaces of the main cylinder are greased properly!

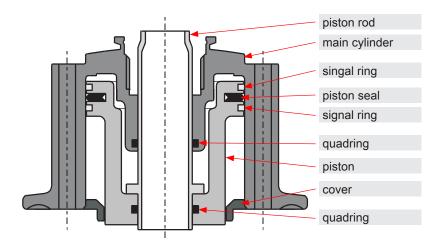
(see lubrication chart: RN ATEX 053.71, page 10)

- Recommendation for actuator (main cylinder):

APV pneumatic grease

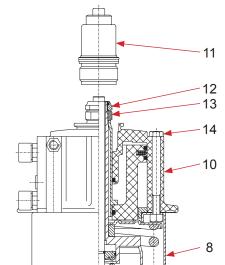
25 ml tube - ref.-No. 000 70-01-008/93

- 2. Insert the quadrings and the piston seal.
- **3.** Assembly to be undertaken in reverse order to the procedure described in **13.3.1**.









22

23

24, 25

5

29

28

31

#### Installation of product-wetted seals and assembly of valve 13.4.

All seals and guides can be serviced.

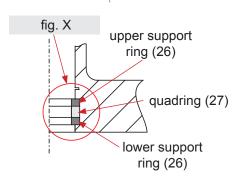
Attention: See to all seals and bearing surfaces in the product area being carefully greased before their assembly.

(see lubrication chart: RN ATEX 053.71, page 10)

- 1. Install the lower shaft seal (24, 25) in the lower housing flanges (see page 25).
- 2. Install the guide band (39), quadring (22) and o-ring (37) in the shaft bearing (23).
- 3. Afterwards insert the first supporting ring (26), then the quadring (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). 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.
- **8.** Push in the guide rod (5) from the top until it stops.
- **9.** Fasten the stop screw (11) until stop. Tightening torque: Md = 25 Nm
- **10.** Slide the lower valve shaft (3) on the guide rod. Fasten the valve shaft with the safety nut (31). Tightening torque: Md = 40 Nm
- 11. Attention: Check the leakage gap (4 mm) between the upper and lower valve shaft (see page 14).







#### 13.5. Installation of valve insert

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

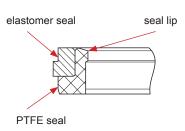




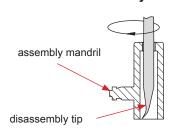
# 14. Disassembly and Assembly Tool

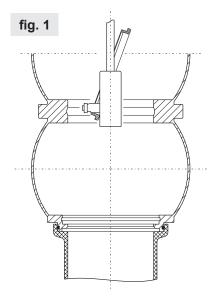
(for lower shaft seal, pos. 24, 25)

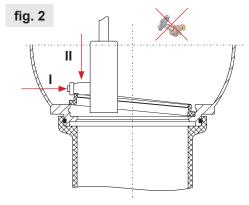
#### seal 24, 25



## **Assembly tool**









#### Attention!

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

#### Alternatively, use spark-resistant tools!

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

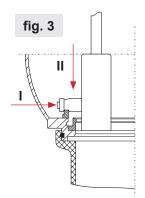
Do not damage the seal lip of the PTFE seal during assembly. To prevent injuries, the disassembly point, if not used, must be covered by the assembly mandril.

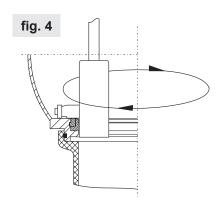
## 1. Assembly of the PTFE seal (fig. 1, 2)

- 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 ring (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.

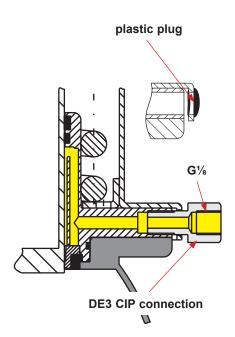








# 15. Special Accessories - Shaft Flushing



The valve is prepared for the shaft flushing. The required CIP connection is available as accessory.

CIP - connection - order number: H208286

## 15.1. Assembly of shaft flushing

- Remove the plastic plug.
- Screw the CIP connection into the shaft bearing. (seal with Teflon band).

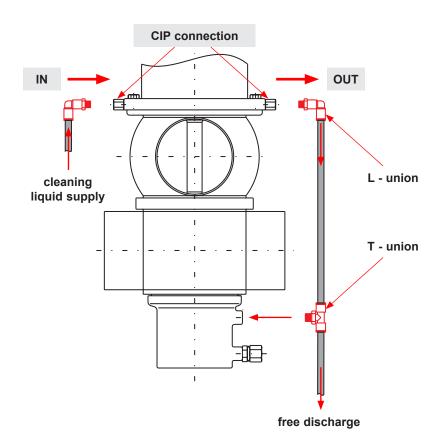
Connect the supply hose for cleaning liquids by means of the L-union.

Identification: IN

Connect the discharge hose for cleaning liquids by means of the L-union.

**Identification: OUT** 

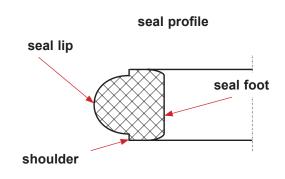
- Screw the T-union into the drain pipe and hose it.
- Check the passage of the cleaning liquid.



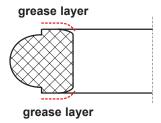




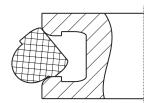
# 16. Service Instructions for the installation of seat seals



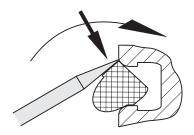
 Provide the seal shoulder with a thin layer of grease.

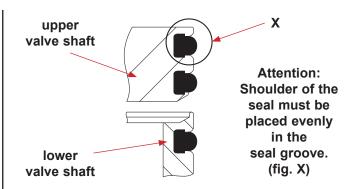


2. Insert the seat seal into the valve shaft; see to an even inclined position of the seal.

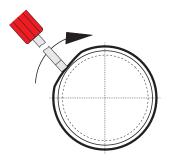


3. Press the seal circumferentially into the groove by means of an assembly tool (use screw driver with round edges). Place the assembly tool at the upper seal shoulder. To get an even fit of the seal, proceed step by step:

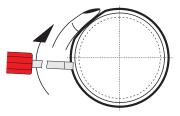




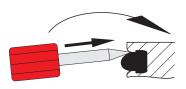
**3.1.** Press a short piece part of the seal into the groove.



**3.2.** Fix the seal - already pressed in - with 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.







# 17. Detection of seal damage

Failure	Remedy
Leakage at upper housing flange	Replace upper shaft seal (24, 25).
Leakage at the 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).



When damaged seals are changed, generally all seals should be replaced. For valve service actions SPX FLOW supplies complete APV seal kits (see spare parts lists).





# 18. 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.

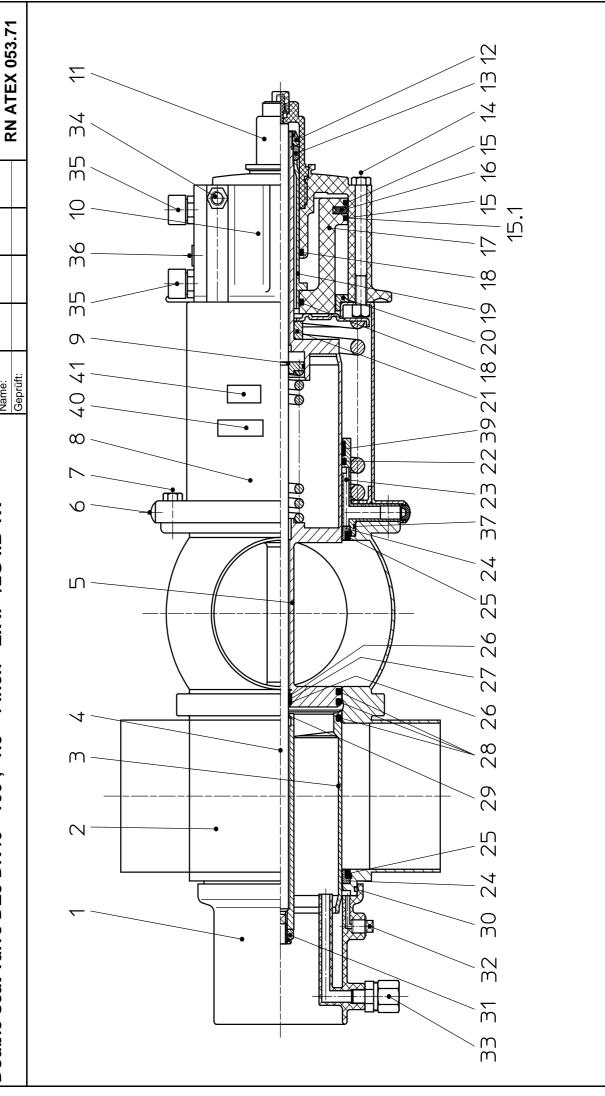
subject to change

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Ersatzteilliste / Schmierplan: spare parts list / lubrication plan

Double seat valve DE3 DN40 - 100; 1.5 - 4 inch - Ex II -/2G IIB TX Doppelsitzventil DE3 DN40 - 100; 1.5 - 4 zoll - Ex II -/2G IIB TX

01/13   13.10.14	rs Trytko	SPX FLOW	Germany	Blatt 1 von 10	DN ATEV 062 74	
01/13	Peters					
Datum:	Name:	Geprüft:		Datum:	Name:	



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Erse	tztei	Ersatzteilliste / Schmierplan: spare parts list / lubrication plan	n plan			Datum: (	01/13 13.10.14		/ V D//
							Peters Trytko		AL
<u>۵</u>	ga	Doppelsitzventil DE3 DN40 - 100: 1.5 - 4 zoll - Ex II -/2G IIB TX	5 - 4 zoll -	Ex II -/2G IIB	X	Geprüft:		$\overline{\mathbf{I}}$	SPX FLOW Germany
2	2	Double cost walve DE2 DN40 - 100 ·	4 K 4 inch	2C/ = ^3	YT all 5c/	Datum:		Blatt	2 von 10
3	<u> </u>	ie seat valve DLS DIMO - 100 ,		- LA = 720	<u> </u>	Name: Geprüft:		R	RN ATEX 053.71
pos.	Э	Beschreibung	Material	DN25	-	DN40	1,5"	DN50	2 "2
item	eug Juer	ocitici interest	material	WS-Nr.	WS-Nr.	WS-Nr.	WS-Nr.	WS-Nr.	WS-Nr.
5	M		וומנכוומו	refno.	refno.	refno.	refno.	refno.	refno.
_	~	Ablaufrohr Drainpipe	PP GF 30	1 1			.09-40- H168	09-40-114/93 H168321	
	_	Gehäuse DE31 1+2S Housing	1.4404	: :		16-66-376/47 H170237	16-66-401/47 H170242	16-66-426/47 H170238	16-66-451/47 H170243
	7	Gehäuse	1 4404	1		16-67-376/47	16-67-401/47	16-67-426/47	16-67-451/47
c	-			:		H170247	H170252	H170248	H170253
1	~	Gehäuse DE33 1+2+3S Housing	1.4404	; ;		16-68-376/47 H170257	16-68-401/47 H170262	16-68-426/47 H170258	16-68-451/47 H170263
	~	Gehäuse DE34 1±2±3±4S	1 4404	;		16-69-376/47	16-69-401/47	16-69-426/47	16-69-451/47
	-	Housing	+0++	-		H168999	H169001	H169000	H169002
3	1	Schaft unten Lower valve shaft	1.4404	1 1		16-21- H16	16-21-377/42 H169046	76.2 H	16-21-427/42 H169047
4	~	Zugstange Guide rod	1.4404			16-24- H16	16-24-398/42 H169069	16-2 H	16-24-448/42 H169068
2	~	Schaft oben Upper valve shaft	1.4404			16-21- H16	16-21-376/42 H169032	16-2 H	16-21-426/42 H169033
9	2	Blindstopfen Blind plug	PVC	: :			08-74-0 H200	08-74-030/93 H200514	
_	4	Skt. Schraube Hex Screw	A2-70	: :			65-01-1 H120	65-01-089/15 H120284	
∞	_	Federzylinder Spring actuator	1.4301				16-30-	16-30-250/12 H168223	
o	~	Sprengring Retainer ring	1.4310	1			08-39-	08-39-083/13 H14883	
10	_	Hauptzylinder Main actuator	Vestamid	1 1			16-30-) H168	16-30-244/93 H168555	
11	1	Anschlagschraube Stop sleeve	Vestamid	1 1			.16-28 H168	16-28-704/93 H168553	
12	1	Sicherungsmutter Stop nut	1.4301	: :			.65-50 H147	65-50-137/15 H147640	
13	_	Sicherungsscheibe Lock washer	1.4301	1 1			67-03- H14 <sup>-</sup>	67-03-001/15 H147639	

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Gebra	uchsmu	Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany							
Erse	ıtztei	Ersatzteilliste / Schmierplan: spare parts list / lubrication plan	n plan			Datum:	01/13 13.10.14		A DV
							Peters Trytko		AL
<u>۵</u>	boe	Doppelsitzventil DE3 DN40 - 100; 1.5 - 4 zoll - Ex II -/2G IIB TX	.5 - 4 zoll - l	Ex II -/2G IIB	X	Geprüft:			SPX FLOW Germany
2	2	Double seat walve DE3 DN40 - 100 -	1 5 - 1 inch		TX all 50	Datum:		Blatt	3 von 10
3		ie seat valve DES DIMO ,		. LA = 720	<u>&lt;</u>	Name: Geprüft:		RN	RN ATEX 053.71
pos.	ə	Beschreibung	Material	DN25		DN40	1,5"	DNS0	2"
item	Meng Jusub	description	material	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.
14	4	Skt. Schraube Hex. Screw	A2-70		- :: ::		65-01- H172	65-01-104/15 H172965	-
15		Signalring Signal ring	1.4310				16-02-1 2x H10	16-02-020/17 2x H169419	
15.1		Signalring Signal ring	1.4310						
16	~	Kolben-Dichtung Piston seal	NBR	1 1			58-01- H76	58-01-760/83 H76868	
17	~	Kolben Piston	POM	1 1			16-29- H169	16-29-124/93 H169390	
18	2	Quadring Q4216-N7004 Quadring	NBR	1 1			58-01-; H148	58-01-236/83 H148385	
19	_	Kolbenstange Piston shaft	1.4301	1 1			16-29- H169	16-29-130/12 H169391	
20	_	Deckel Hzyl. Cover for main actuator	MOM	: :		16-24 H17	16-24-127/93 H170526		16-24-126/93 H170525
21	~	Distanzhülse Spacer bush	1.4301	1 1			16-28-; H168	16-28-230/12 H168541	
22	~	Quadring Q4230-N7502 Quadring	MOAЭ	1 1			58-01-; H15(	58-01-329/63 H150898	
23	~	Schaftlager Shaft bearing	1.4301	1 1			16-28-; H20	16-28-371/93 H207879	
24	2	Schaftdichtung Shaft seal	PTFE	1 1			58-33-0 H149	58-33-016/23 H149620	
	2	Tellerdichtung Seat seal	EPDM FDA-konform	1 1			-58-33 124	58-33-493/93 H77515	
25	2	Tellerdichtung Seat seal	HNBR FDA-konform	: :			58-33- H160	58-33-493/33 H166678	
	2	Tellerdichtung Seat seal	FPM FDA-konform	: :			-58-33- H77	58-33-493/73 H77514	
26	2	Stützring Support ring	PTFE	: :			58-01- H76	58-01-048/23 H76309	

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	APV	SPX FLOW Germany		RN ATEX 053.71	2"	WS-Nr.															
-	<u> </u>		Blatt 4	RN A:	DN50	WS-Nr.	)/93 C	:/93 2	2/33 1	2/73 9	7	9/63 9	7/15 3	7/93 3	3/13	7/93 5	3,93	7/93 6	2/73 6		
- 1	13 13.10.14 ers Trytko				1,5"	WS-Nr.	58-01-049/93 H76310	58-33-132/93 H168192	58-33-132/33 H171561	58-33-132/73 H171559	58-06-040/63 H169477	58-06-295/63 H77039	65-50-087/15 H118903	08-60-005/93 H16218	08-63-003/13 H16388	08-60-750/93 H208825	15-33-918/93 H154913	08-05-066/93 H154816	58-06-332/73 H171616		
-	Datum: 01/13 Name: Peters	Geprüft:	Datum:	Name: Geprüft:	DN40	WS-Nr.															
		×	<b>&gt;</b> L	< _	-	WS-Nr.															
		x II -/2G IIB TX			DN25	WS-Nr.															
	plan plan	5 - 4 zoll - E	1 F 1 inch	4 - 13 - 13	Material	material	NBR	EPDM	HNBR	FPM	EPDM	EPDM	1.4301	PE			PA	PVC	FPM		
, Germany	Ersatzteilliste / Schmierplan: spare parts list / lubrication plan	Doppelsitzventil DE3 DN40 - 100: 1.5 - 4 zoll - Ex II -/20	Double cost valve DE3 DNII0 - 100 + 1 E - 1 inch - Ev II	, DN + 0 - 100 ,	ibung	tion	Q4112-N7004				OR12x1		M10x1	G1/8		G1/8		11,1x5			
Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany	e / Schmierplan: spar	itzventil DE3 [	SAC Oxley teos	seal vaive DE.	Beschreibung	description	Quadring Quadring	Sitzdichtung Seat seal	Sitzdichtung Seat seal	Sitzdichtung Seat seal	O-Ring O-ring	O-Ring O-ring	Sicherungsmutter Self-locking nut	Entlüftungsstopfen Venting plug	G-Verschraubung Straigh union	W-Verschraubung Angular union	Initiatorhalterung Mounting block	Verschlußkappe Cap	O-Ring O-ring		
Susuastere	zteillist	spels	2	ב ב	e Yti	yeng Neng	)	s Se	s S S	s Se	← ♀ ♀	← ♀ ♀	_ S S	1 Ve	_ ত ফু	1 An	2 MC	1 Vers Cap	_ 0 0		į
Geniau	Ersat	Dog		Š	pos.	item	27		28		29	30	31	32	33	34	35	36	37	38	

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Ersatzteilliste / Schmierplan: spare parts list / Iubrication |

l Genic		gang, volucinary	-			-			
Ers:	atzteilliste / nnelsit:	Ersatzteilliste / Schmierplan: spare parts list / lubrication plan	ı plan <b>5 - 4 7011 -</b>	Ex II -/2G IIB	×	Datum: Carlo	01/13 13.10.14 Peters Trytko	^ 	SPX FLOW Germany
2 6			2 + 20H	Ev = 756	71 GII 26	Datum:		Blatt	5 von 10
2	uble se	sat valve DES DIN40 - 100 ;	I.3 - 4 IIICI	1 - EX II <i>-12</i> G	VI QII	Name: Geprüft:		RN	RN ATEX 053.71
pos.	ə	Beschreibung	Material	DN25	1	DN40	1,5"	DN50	2"
item	Meng	description	material	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.
40	Typer 1 ATEX	Typenschild ATEX ATEX label	Kunststoff			.08-29 H32	08-29-381/93 H329934		
4	Typen Label	Typenschild Label	Kunststoff			.08-29 H32	08-29-288/93 H323606		
	Ventil Valve	Ventileinsatz Valve insert	1.4404/EPDM			16-36- H33	16-36-382/59 H333299	16-36- H33	16-36-432/59 H3333300
	Ventil Valve	Ventileinsatz Valve insert	1.4404/HNBR			16-36	16-36-382/29	16-36	16-36-432/29
	Ventil Valve	Ventileinsatz Valve insert	1.4404/FPM			16-36	16-36-382/69	16-36	16-36-432/69
	Pos.	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	npletten Dichtur s complete seal	igssatz erhältlich kits only					
	1 Dichtung Seal kit	Dichtungssatz Seal kit	FPM				58-36	58-36-020/00	
	1 Dichtung Seal kit	Dichtungssatz Seal kit	EPDM				58-36- H32	58-36-020/01 H326474	
	1 Dichtung Seal kit	Dichtungssatz Seal kit	HNBR	: :			58-36	58-36-020/06	
	Anbai obere Moun upper	Anbauteile für den Umbau der Ventile für die obere Schaftspülung Mounting kit for reconstructionof valves for upper shaft flushing		1 1			34-12 <sup>.</sup> H20	34-12-299/99 H201675	

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Gebra	nchsmus	Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany							
Ersa	ıtzteil	Ersatzteilliste / Schmierplan: spare parts list / lubrication plan	n plan				01/13 13.10.14		VQ V
							Peters Trytko		AL
8	9 <b>d</b> d	Doppelsitzventil DE3 DN40 - 100; 1.5 - 4 zoll - Ex II -/20	.5 - 4 zoll -	Ex II -/2G IIB TX	X	Geprüft:		<u></u>	SPX FLOW Germany
2	2	Double seat yalve DE3 DN40 - 100 ·	1 5 - 4 inch - Ev II	בירו -/3C/-    ×∃ - י	TX all 50/	Datum:		Blatt	6 von 10
3	2	e seat valve DES Disto - 100,	- - -		<u> </u>	Name: Geprüft:		A R	RN ATEX 053.71
pos.	ə	Beschreibung	Material	DN65	2,5"	DN80	3.	DN100	4"
<u>;</u>	gue ant	Contintion	motorial	WS-Nr.	WS-Nr.	WS-Nr.	WS-Nr.	WS-Nr.	WS-Nr.
פֿב	₽W		וומופוומו	refno.	refno.	refno.	refno.	refno.	refno.
1	1	Ablaufrohr Drainpipe	0E 30	09-40-114/93 H168321	9-40-114/93 H168321	09-40-115/93 H168322	09-40-11 <i>4</i> /93 H168321	09-40 H16	09-40-115/93 H168322
	_	Gehäuse DE31 1+2S Housing	1.4404	16-66-476/47 H170239	16-66-501/47 H170244	16-66-526/47 H170240	16-66-551/47 H170245	16-66-626/47 H170241	16-66-651/47 H170246
	1	Gehäuse DE32 1+2+3S	1.4404	16-67-476/47 H170249	16-67-501/47 H170254	16-67-526/47 H170250	16-67-551/47 H170255	16-67-626/47 H170251	16-67-651/47 H170256
7				16-68-476/47	16-68-501/47	16-68-526/47	16-68-551/47	16-68-626/47	16-68-651/47
	_	DE33 1+2+3S Housing	1.4404	H170259	H170264	H170260	H170265	H170261	H170266
	-	Gehäuse DE34 1+2+3+4S Housing	1.4404	16-69-476/47 H168183	16-69-501/47 H169003	16-69-526/47 H168772	16-69-551/47 H169004	16-69-626/47 H168170	16-69-651/47 H169005
က	_	Schaft unten Lower valve shaft	1.4404	16-21-477/42 H168188	16-21-502/42 H169048	16-21-527/42 H168778	16-21-552/42 H169049	16-21 H16	16-21-627/42 H168158
4	-	Zugstange	1.4404	16-24-498/42	16-24-523/42	16-24-548/42	16-24-573/42	16-24	16-24-648/42
		Guide rod		H168215	H169067	H168793	H169066	H16	H168216
2	1	Schaft oben Upper valve shaft	1.4404	16-21-476/42 H168193	16-21-501/42 H169034	16-21-526/42 H168776	16-24-551/42 H169035	16-21 H16	16-21-626/42 H168154
9	2	Blindstopfen Blind plug	DΛd			-74- H20	08-74-030/93 H200514		
7	4	Skt. Schraube Hex. Screw	A2-70			65-01- H12	65-01-089/15 H120284		
∞	_	Federzylinder Spring actuator	1.4301	16-30- H16	16-30-250/12 H168223	16-30-251/12 H168222	16-30-250/12 H168223	16-30 H16	16-30-251/12 H168222
0	_	Sprengring Retainer ring	1.4310			08-39- H1	08-39-083/13 H14883		
10	_	Hauptzylinder Main actuator	Vestamid	16-30- H16	16-30-244/93 H168555	16-30-245/93 H168554	16-30-244/93 H168555	16-30 H16	16-30-245/93 H168554
11		Anschlagschraube Stop sleeve	Vestamid			16-28- H16	16-28-704/93 H168553		
12	1	Sicherungsmutter Stop nut	1.4301			65-50- H14	65-50-137/15 H147640		
13	1	Sicherungsscheibe Lock washer	1.4301			67-03- H14	67-03-001/15 H147639		

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Ersatzteilliste / Schmierplan: spare parts list / Iubrication

Gebrau	ichsmu:	Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany				-		-	
Ersa	tztei	Ersatzteilliste / Schmierplan: spare parts list / lubrication plan	plan plan				`		<b>ADV</b>
						Name:	Peters I rytko		WO II Xas
20	dd	Doppelsitzventil DE3 DN40 - 100; 1.	1.5 - 4 zoll - Ex II -/2	Ex II -/2G IIB TX	×	deplait.			Germany
٥	qn	Double seat valve DE3 DN40 - 100	: 1.5 - 4 inch - Ex II		-/2G IIB TX	Datum:		Blatt	7 von 10
) 						Name: Geprüft:		RN A	RN ATEX 053.71
sod.	9 Vji	Beschreibung	Material	59NQ	2,5"	DN80	3"	DN100	4"
item	guəl Jusu	description	material	WS-Nr.	WS-Nr.	WS-Nr.	WS-Nr.	WS-Nr.	WS-Nr.
	M			retno.	retno.	retno.	retno.	retno.	retno.
14	4	Skt. Schraube Hex. Screw	A2-70	65-01- H17	65-01-104/15 H172965	65-01-100/15 H172966	65-01-104/15 H172965	65-01-100/15 H172966	00/15 966
15		Signalring Signal ring	1.4310	16-02- 2x H1	16-02-020/17 2x H169419	16-02-021/17 H169418	16-02-020/17 2x H169419	16-02-021/17 H169418	21/17 418
15.1		Signalring	1 4310	1		16-02-016/57		16-02-016/57	16/57
- -		Signal ring	2	1		H204085		H204085	085
16	_	Kolben-Dichtung Piston seal	NBR	58-01- H76	58-01-760/83 H76868	58-01-761/83 H76869	58-01-760/83 H76868	58-01-761/83 H76869	61/83 169
17	7	Kolben	MOd	16-29-	16-29-124/93	16-29-125/93	16-29-124/93	16-29-125/93	25/93
-	-	Piston		H16	H169390	H168348	H169390	H168348	348
18	7	Quadring Quadring	NBR			58-01· H14	58-01-236/83 H148385		
19	1	Kolbenstange Dieton ehaft	1.4301	16-29- H16	16-29-130/12 H169391	16-29-131/12 H168332	16-29-130/12 H169391	16-29-131/12 H168332	31/12
		Dooks Day		76.24	11103331	16 24 425/02	16.00.40.40.00	16 24 425/03	75/02
20	_	Deckel nzyl. Cover for main actuator	POM	-15-24- H16	o-z4-1z4/93 H169389	16-24-125/93 H169346	16-24-124/93 H169389	16-24-125/3 H168346	25/93 346
21	_	Distanzhülse Spacer bush	1.4301			16-28· H16	16-28-230/12 H168541		
22	7	Quadring	MODE	58-01-	58-01-329/63	58-01-238/63	58-01-329/63	58-01-238/63	38/63
77	-		ואס מיס	H15	H150898	H148387	H150898	H148387	387
23	_	Schaftlager	1.4301	16-28-	16-28-371/12	16-28-372/12	16-28-371/12	16-28-372/12	72/12
		Shart bearing		H20	HZU/8/9	HZU/884	HZU/8/9	HZU/884	884
24	7	Schattdichtung	PTFE	58-33-	58-33-016/23	58-33-017/23	58-33-016/23	58-33-017/23	17/23
		Tellerdichtung	MOGI	H14	H149620 58-33-403/03	F8-33-6/3/03	F8-33-403/03	01)00/06 88-33-6/3/03	/ 06
	7	Seat seal	FDA-konform	72H	H77515	H77586	H77515	05-0-00 H77586	15/33
36	c	Tellerdichtung	HNBR	58-33-	58-33-493/33	58-33-643/33	58-33-493/33	58-33-643/33	43/33
67	٧	Seat seal	FDA-konform	H16	H166678	H166682	H166678	H166682	682
	7	Tellerdichtung	FPM .	58-33-	58-33-493/73	58-33-643/73	58-33-493/73	58-33-643/73	43/73
		Seat seal	FDA-kontorm	HY	H77514	H77585	H77514	H77585	85
26	7	Stützring Support ring	PTFE			58-01 H76	58-01-048/23 H76309		

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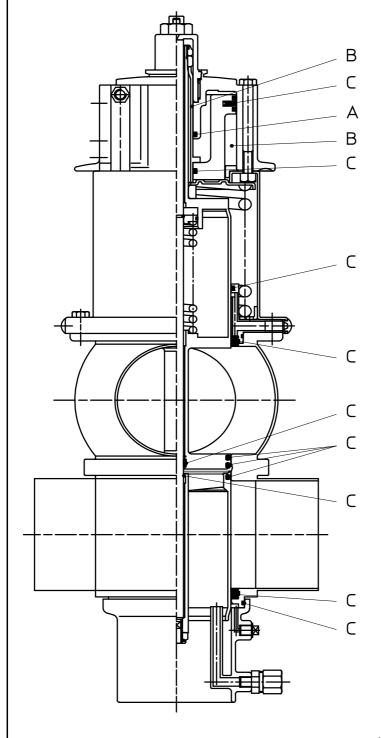
Gebra	nchsmus	Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany							
Ersa	tzteil	Ersatzteilliste / Schmierplan: spare parts list / lubrication plan	n plan				`		A DV
_							Peters Trytko		7 1 7
Do	pdd	Doppelsitzventil DE3 DN40 - 100; 1.5 - 4 zoll - Ex II -/2G IIB TX	5 - 4 zoll - l	Ex II -/2G IIB	X	Geprüft:			SPX FLOW Germany
2	<u> </u>	Double seat valve DF3 DN40 - 100 · 15 - 4 inch - Fy II	15-4 inch	- Fx II -/2G	-/2G IIR TX	Datum:		Blatt	8 von 10
	2		)  -			Name: Geprüft:		RN /	RN ATEX 053.71
pos.	ə	Beschreibung	Material	DN65	2,5"	DN80	3"	DN100	4"
item	Meng dnant	description	material	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.
27	-	Quadring Q4112-N7004 Quadring	NBR				58-01-049/93 H76310		
	3	Sitzdichtung Seat seal	EPDM	58-33- H16	58-33-132/93 H168192	58-33-133/93 H168153	58-33-132/93 H168192	58-33-133/93 H168153	33/93 153
28	3	Sitzdichtung Seat seal	HNBR	58-33- H17	58-33-132/33 H171561	58-33-133/33 H171565	58-33-132/33 H171561	58-33-133/33 H171565	33/33 565
	3	Sitzdichtung Seat seal	FPM	58-33- H17	58-33-132/73 H171559	58-33-133/73 H171563	58-33-132/73 H171559	58-33-133/73 H171563	33/73 563
29	1	O-Ring OR12x1 O-ring	EPDM			58-06- H16	58-06-040/63 H169477		
30	1	O-Ring O-ring	EPDM	-90-85 -H77	58-06-295/63 H77039	58-06-490/63 H77061	58-06-295/63 H77039	58-06-490/63 H77061	190/63 161
31	1	Sicherungsmutter Self-locking nut	1.4301			65-50 H11	65-50-087/15 H118903		
32	1	Entlüftungsstopfen G1/8 Venting plug	PE			.08-60 H16	08-60-005/93 H16218		
33	1	G-Verschraubung Straigh union				08-63- H16	08-63-003/13 H16388		
34	1	W-Verschraubung G1/8 Angular union				.08-60 H20	08-60-750/93 H208825		
35	2	Initiatorhalterung Mounting block	РА			15-33. H15	15-33-918/93 H154913		
36	1	Verschlußkappe 11,1x5 Cap	PVC	08-05- H15	08-05-066/93 H154816		08-05-066/93 H154816		
37	1	O-Ring O-ring	FPM	58-06- H17	58-06-332/73 H171616	58-06-503/73 H171288	58-09-332/73 H171616	58-06-503/73 H171288	i03/73 288
38									
39	1	Führungsband ATEX PTFE driving band ATEX	PTFE Turcide T51	.08-39- H32	08-39-345/99 H326462	08-39-346/99 H326463	08-39-345/99 H326462	08-39-346/99 H326463	346/99 1463

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Ersatzteilliste / Schmierplan: spare parts list / Iubrication

Geb	rauchsm	Gebrauchsmustereintragung, vorbehalten. SPX FLOW, Germany				•	ŀ		
<u>Б</u>	atzte	Ersatzteilliste / Schmierplan: spare parts list / lubrication plan	plan plan				`		<b>VDV</b>
							Peters Trytko		
<u>ŏ</u>	ddc	Doppelsitzventil DE3 DN40 - 100; 1.5 - 4 zoll - Ex II -/2G IIB TX	5 - 4 zoll -	Ex II -/2G IIB	X	Gepruit:	_ - - 		SPX FLOW Germany
<u> </u>	q	Double seat valve DE3 DN40 - 100 · 1.5 - 4 inch - Fx II	1.5 - 4 inch		-/2G IIB TX	Datum:		Blatt	9 von 10
<u> </u>	2					Name: Geprüft:		A X	RN ATEX 053.71
pos.	ə	Beschreibung	Material	DN65	2,5"	DN80	3"	DN100	4"
item	Meng	description	material	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.	WS-Nr. refno.
40		Typenschild ATEX ATEX label	Kunststoff			08-29- H32	08-29-381/93 H329934		
41	1	Typenschild Label	Kunststoff			.08-29 H32	08-29-288/93 H323606		
	~	Ventileinsatz Valve insert	1.4404/EPDM	16-36-482/59 H333302	16-36-507/59 H333301	16-36-532/59 H333304	16-36-557/59 H333303	16-36- H33	16-36-632/59 H333308
	_		1.4404/HNBR	16-36-482/29	16-36-507/29	16-36-532/29	16-36-557/29	16-36-	16-36-632/29
	7		1.4404/FPM	16-36-482/69	16-36-507/69	16-36-532/69	16-36-557/69	16-36-	16-36-632/69
		Pos. 22, 24, 25, 26, 27, 28, 29, 37, 39 nur im kompletten Dichtungssatz erhältlich ltem 22, 24, 25, 26, 27, 28, 29, 37, 39 available as complete seal kits only	npletten Dichtur is complete seal	igssatz erhältlich kits only					
	_	Dichtungssatz Seal kit	FPM	-98-38-	58-36-020/00	58-36-021/00	58-36-020/00	-98-36-	58-36-021/00
		Dichtungssatz Seal kit	EPDM	-98-36- H32	58-36-020/01 H326474	58-36-021/01 H326475	58-36-020/01 H326474	58-36-021/01 H326475	5-36-021/01 H326475
	7	Dichtungssatz Seal kit	HNBR	-98-39	58-36-020/06	58-36-021/06	58-36-020/06	-98-39	58-36-021/06
	-	Anbauteile für den Umbau der Ventile für die obere Schaftspülung Mounting kit for reconstructionof valves for upper shaft flushing				34-12: H20	34-12-299/99 H201675		

# Schmierplan / Lubrication plan



## 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

# 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.
- 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.

# C A U T I O N !

Avoid grease residues in product area.

Grease all screws and threads

before installation.

Recommendation: Klüber GreaseUH1 84-201

Name: Peters Trytko Geprüft:	ľ	Datum:	01/13	13.10.14				
Geprüft:	5	Name:	Peters	Trytko				
	•	Geprüft:						

Ersatzteilliste / Schmierplan: spare parts list / lubrication plan

Doppelsitzventil DE3 DN40 - 100 ; 1.5 - 4 zoll - Ex II -/2G IIB TX Double seat valve DE3 DN40 - 100 ; 1.5 - 4 inch - Ex II -/2G IIB TX

**>**APV

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**RN ATEX 053.71** 

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# APV DELTA DE3 DN40-100, 1.5"-4"

DOUBLE SEAT VALVE



FOR SPECIFIC ATEX-APPLICATIONS



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