SPXFLOW

INSTRUCTION MANUAL

APV DELTA DE3 DN40-100, 1.5”-4”

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 Maintenance Video

APV®

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).

Authorised person for the documentation:
Frank Baumbach

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

November 2017

ppa. Baumbach

Frank Baumbach
Regional Engineering Manager, F&B Components

Content

DE3 - DN 40 - 100 ; 1,5 “- 4” - Ex II -/2G IIB TX RN ATEX 053.71

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 assembbled, 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).

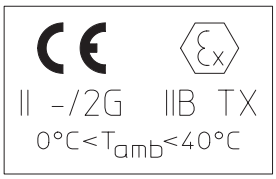
Conductive connection to the pipeline must be provided.
The integration into the internal potential equalisation must be guaranteed!

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 °C < T_{amb} < 40 °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	T6	T5	T4	T3

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

All data (temperature classes) refer to an ambient temperature of 0°C 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.

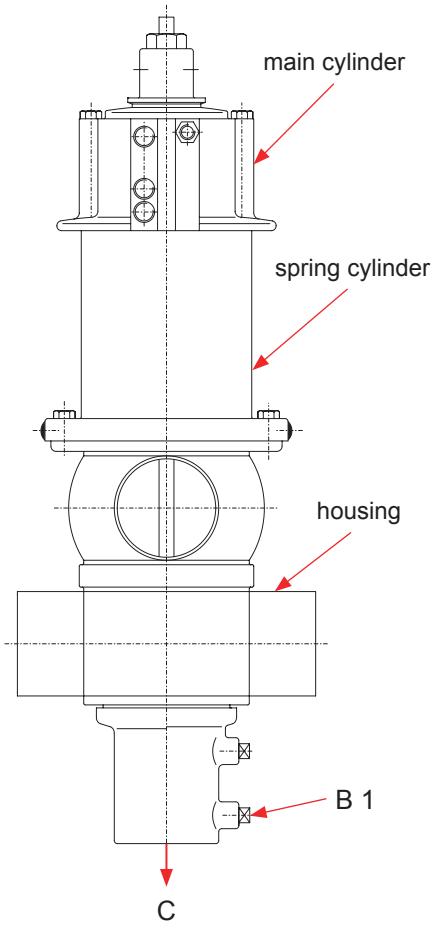
Earthing of the valves must be ensured.

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.

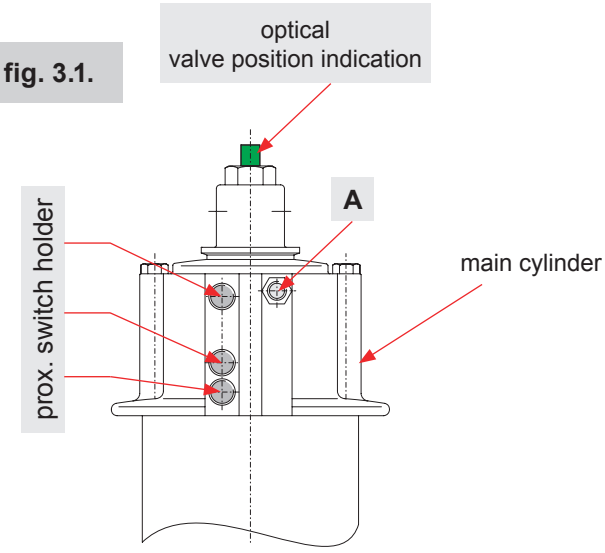
Proximity switches can be installed as valve position indicators. **(fig. 3.1.)**

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

Main cylinder can be maintained.

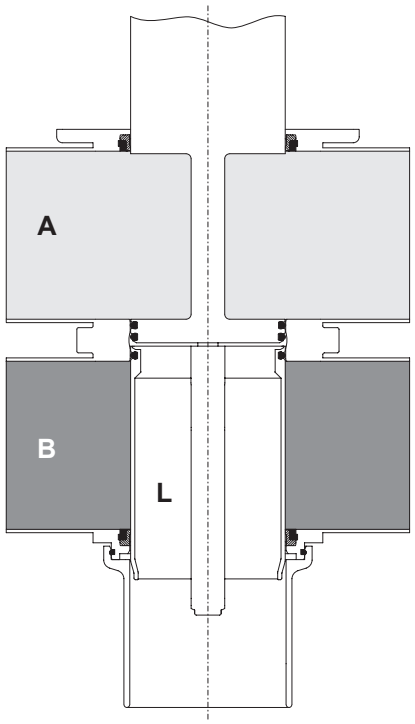
Optical indication of the valve position at the main cylinder.

fig. 3.1.



5. Mode of Operation

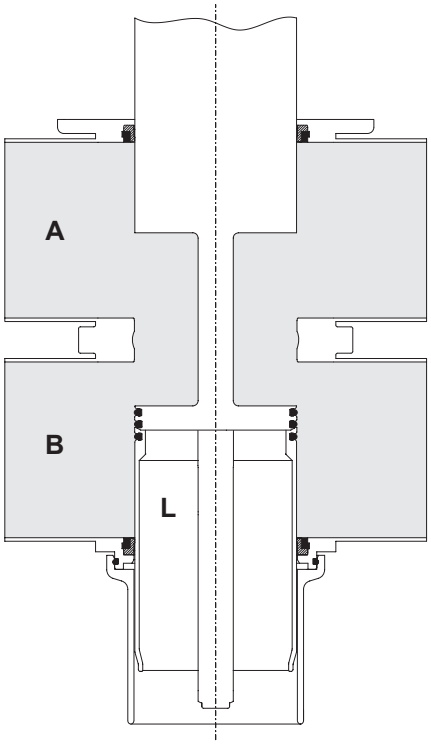
fig. 5.2.



5.2. Valve in "closed" position

The lower and upper valve shafts are closed by spring force and safely separate the different fluids **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. 5.3.

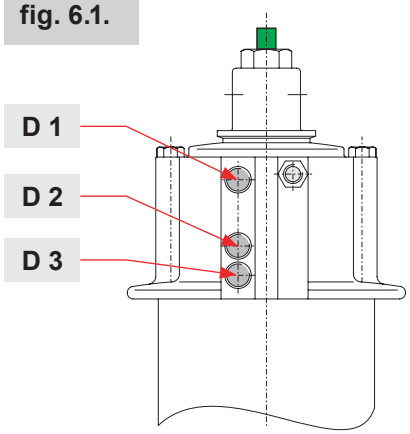


5.3. Valve in "open" position

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

6. Auxiliary Equipment

fig. 6.1.



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

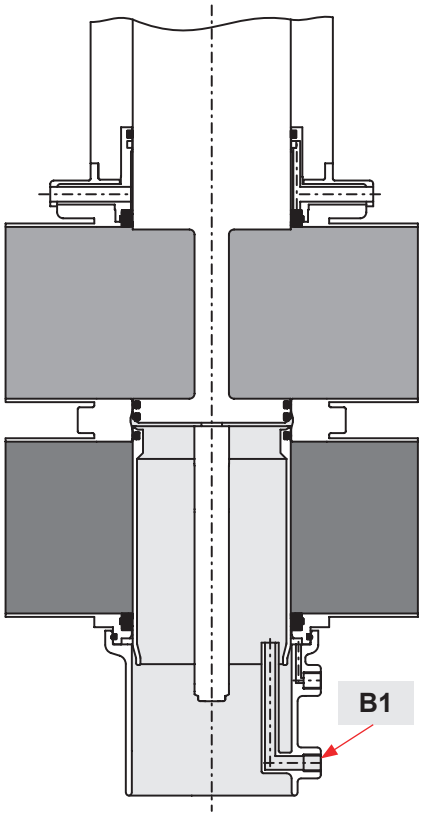
If the customer decides to use valve position indicators other than APV type, we cannot take over any liability for a faultless function.

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):

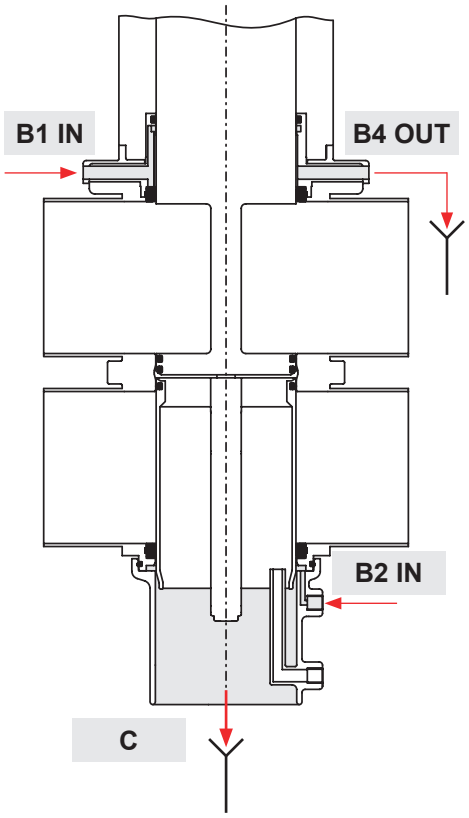
min. 2 bar
max. 5 bar

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.)**.

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.

7.3.1. 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 housing.

7.3.2. Installation of hoses:

upper shaft flushing	identification on spring cylinder
cleaning liquid supply at **B3**	**IN**
cleaning liquid discharge at **B4**	**OUT**
lower shaft flushing	
cleaning liquid supply at **B2** cleaning liquid discharge at **C2**	**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!

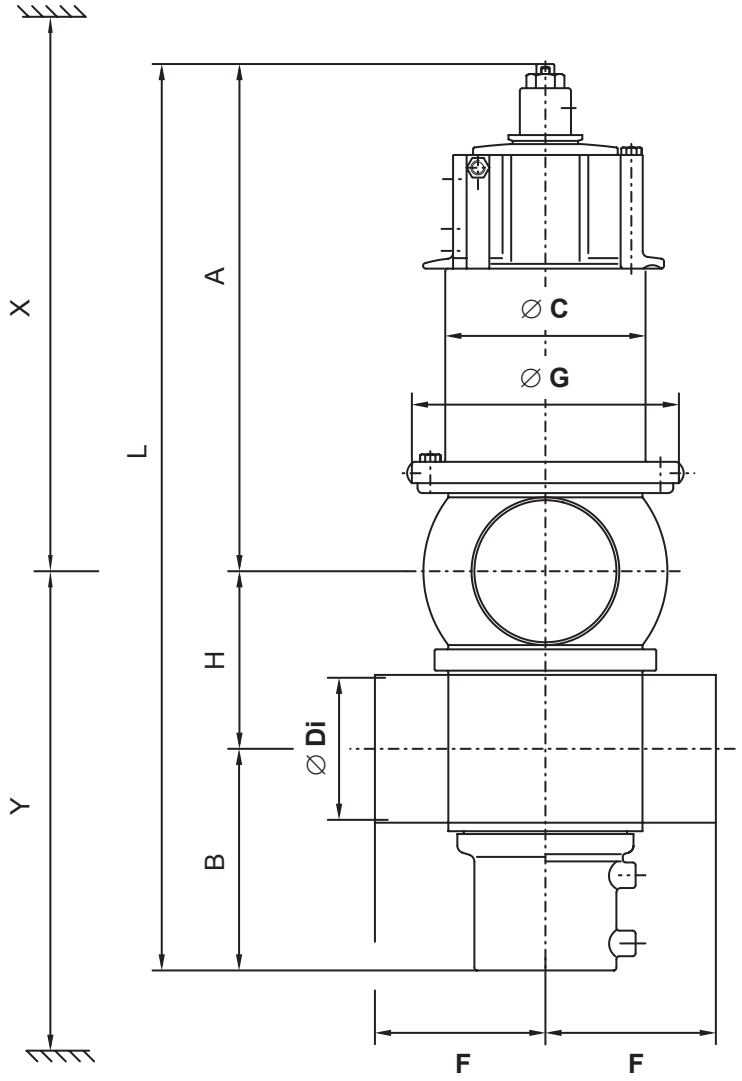
- TIG orbital welding is best!

  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



Dimensions in mm									install. dimension min. in mm		weight in kg
DN	**A**	**B**	**∅ C**	**∅ Di**	**F**	**∅ G**	**H**	**L**	**X**	**Y**	
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. Technical Data

10.1. General data

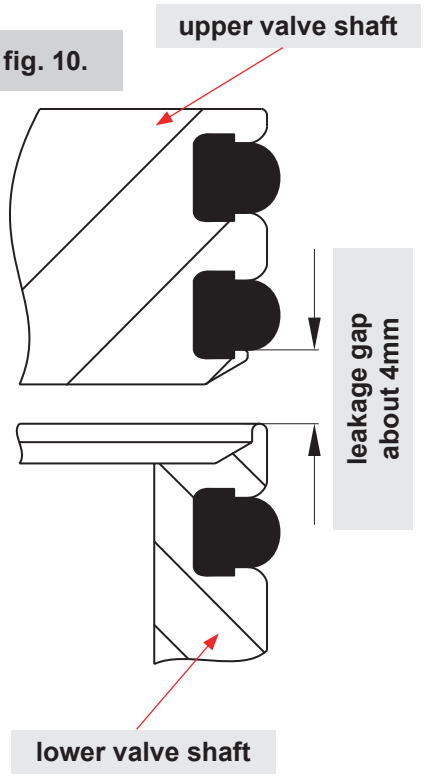
max. line pressure:	10 bar
max. operating temperature:	135°C EPDM, HNBR *FPM
short-term load:	**140°C EPDM, HNBR** *FPM, *(no steam)
tightening torque of stop screw at upper valve shaft:	**25 Nm**
tightening torque of safety nut at upper and lower valve shaft:	**40 Nm**
leakage gap between upper and 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):	**6 x 1 mm**
max. pneumatic air pressure:	**10 bar**
min. pneumatic air pressure:	**6 bar**

Use dry and clean pneumatic air only.

fig. 10.



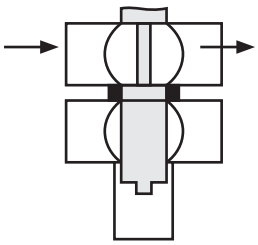
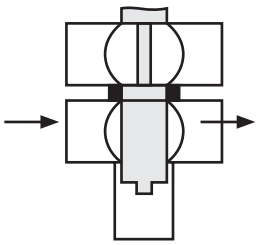
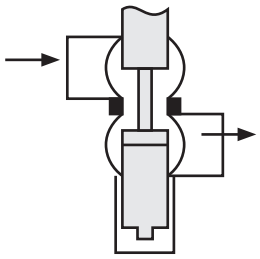
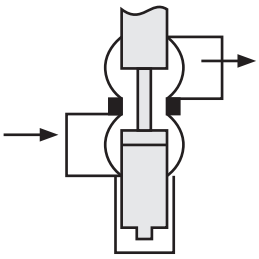
10. Technical Data

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 µm < d ≤ 1,0 µm
  500 of 1,0 µm < d ≤ 5,0 µm
- content of water: quality class 3,
  max. dew point temperature -20 °C
  For installations at lower temperatures or at higher altitudes, additional measures must be considered to reduce the pressure dew point accordingly.
- content of oil: quality class 1,
  max. 0,01 mg/m³

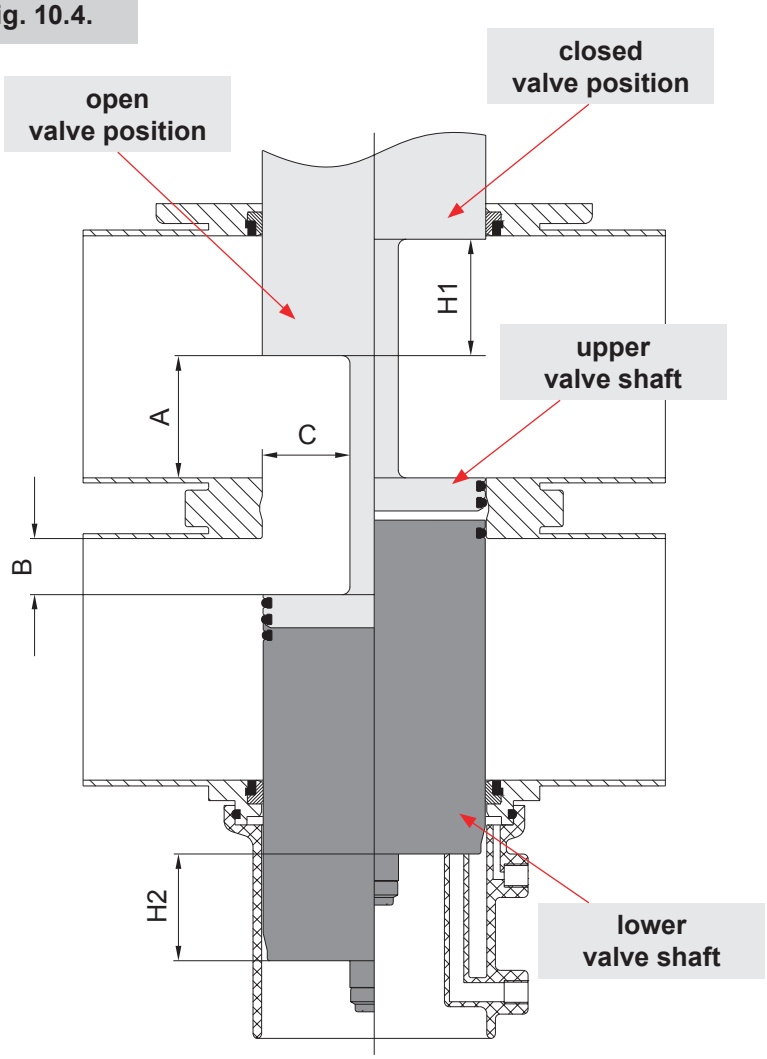
  The oil applied must be compatible with Polyurethane elastomer materials.

10.3.

kvs - values in m³/ 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
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. Technical Data

fig. 10.4.



10.4.	Table for fig. 10.4. / Dimensions in mm					
DN	Inch	A	B	C	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. Technical Data

10.5.		Air consumption actuator at 6 bar pneum. pressure	Closing times in sec.	
		in NL / stroke	hose length	
DN	**Inch**		1 m	10 m
25	1"	0,9	1,5	2,5
40	1,5"	1,1	1,5	2,5
50	2"	1,3	1,5	2,5
65	2,5"	1,3	1,5	2,5
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.

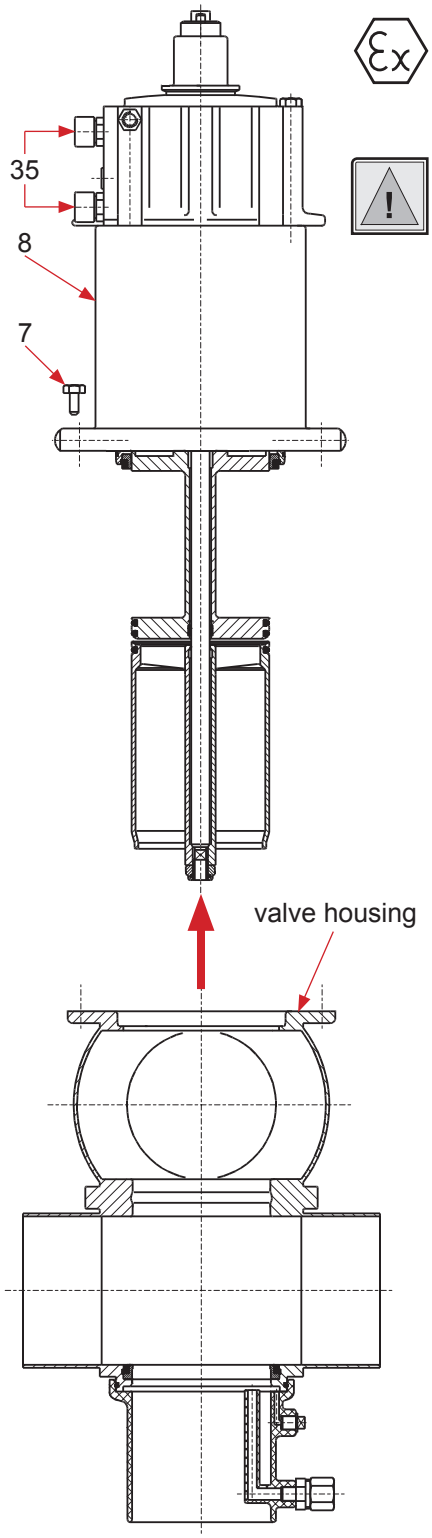
Recommendation for actuator (main cylinder):
APV pneumatic grease:
(25 ml / tube - ref.-No.: 000-70-01-008/93; H164725)

Less suited grease types can influence function and lifetime.

13. Service Instructions

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

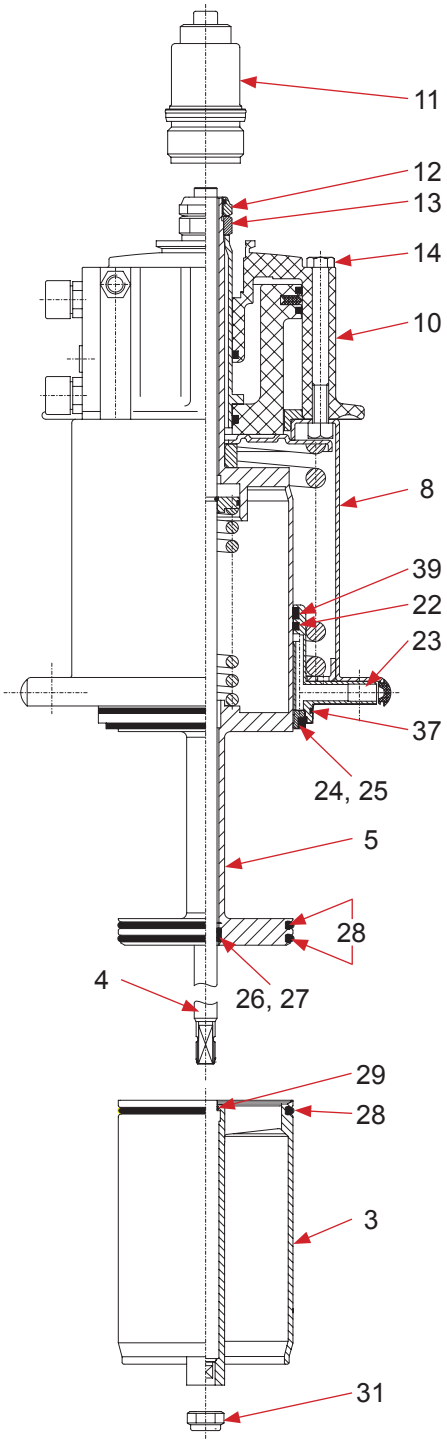


Before start of service the operator has to make sure that an explosive atmosphere does not exist (detection/measurement of potential concentration of hazardous substances). Alternatively, use spark-resistant tools!

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. Service Instructions

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. Service Instructions

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.

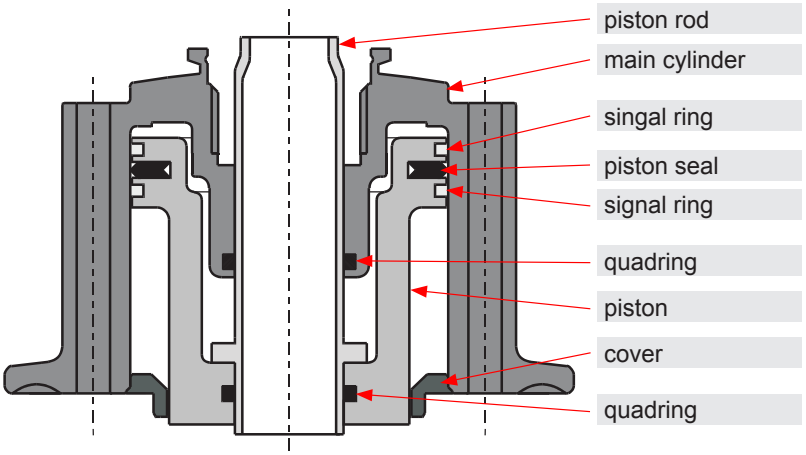
13.3.2. Installation of seals and assembly of main cylinder

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**.



13. Service Instructions

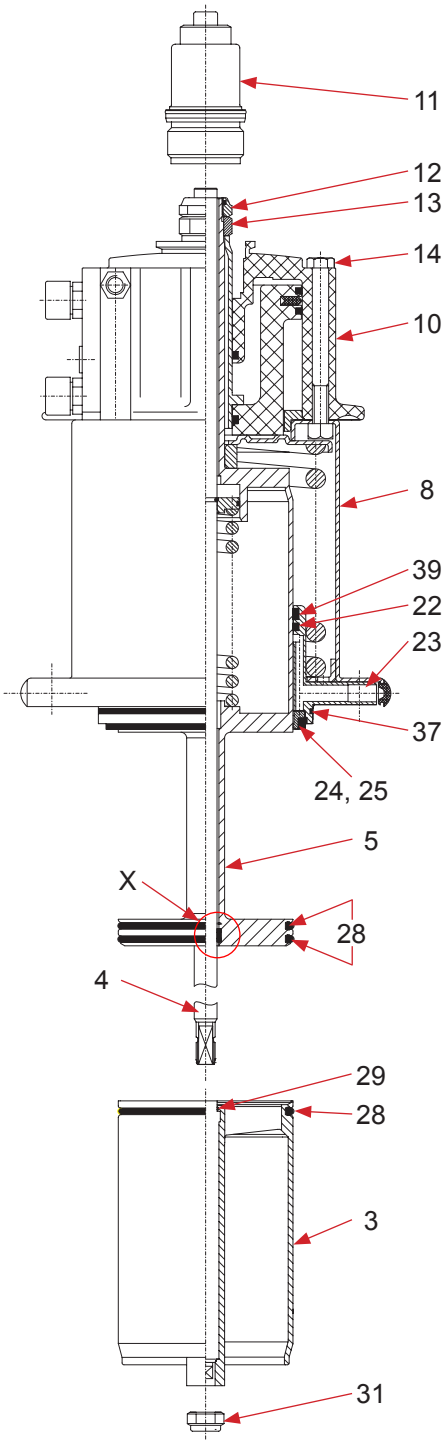
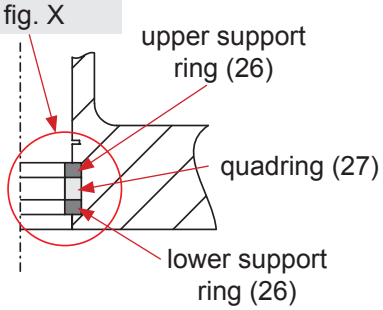


fig. X



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

All seals and guides can be serviced.
Attention: See to all seals and bearing surfaces in the product area being carefully greased before their assembly.
(see lubrication chart: RN 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. Service Instructions

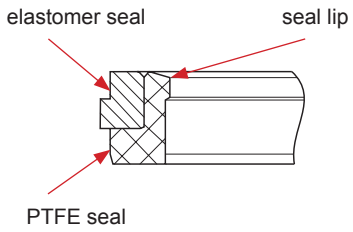
13.5. Installation of valve insert

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.

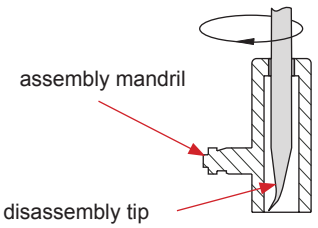
14. Disassembly and Assembly Tool

(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.

fig. 1

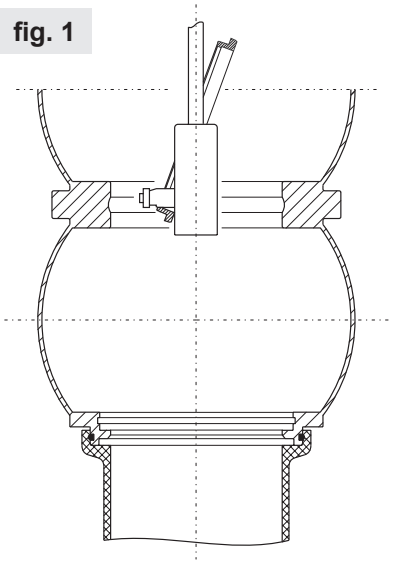


fig. 2

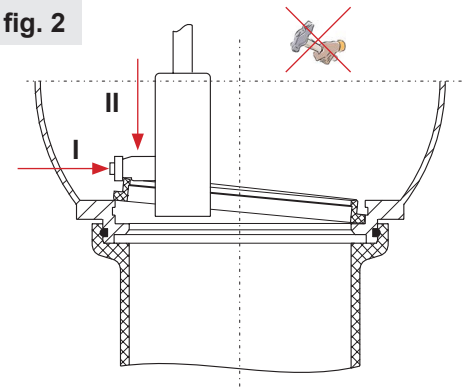


fig. 3

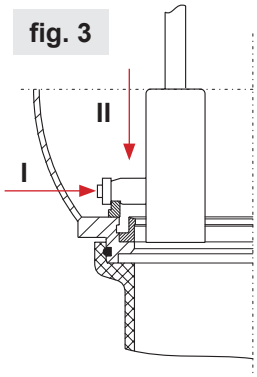
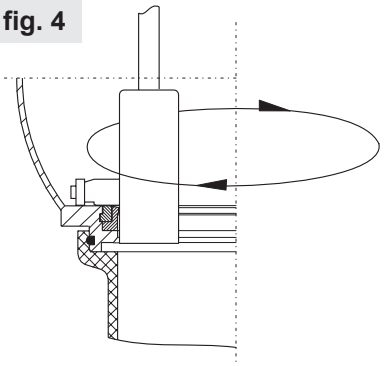
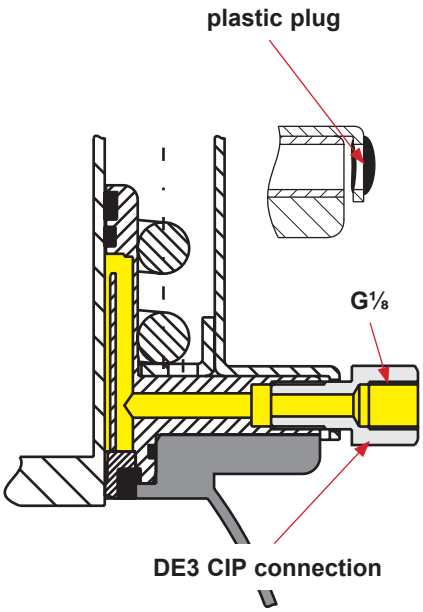


fig. 4



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

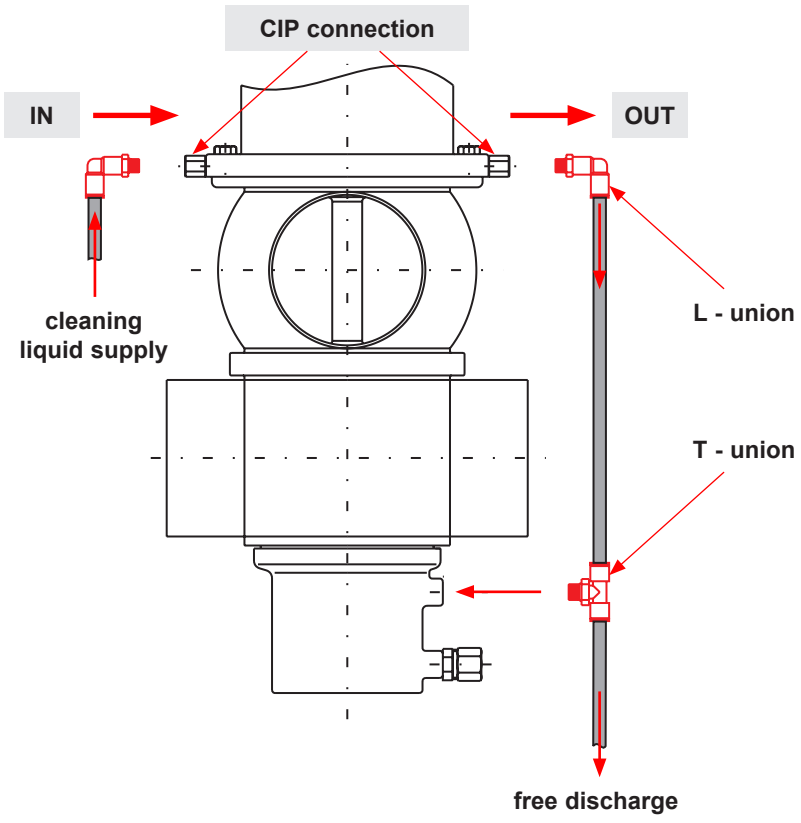
15.1. Assembly of shaft flushing

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

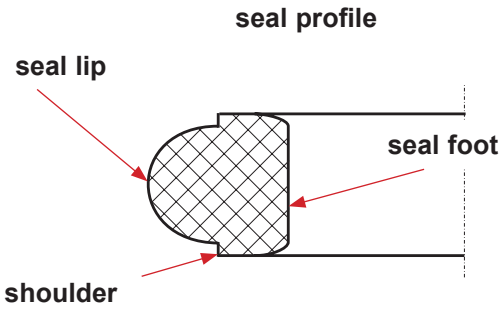
Connect the supply hose for cleaning liquids by means of the L-union.
Identification: IN

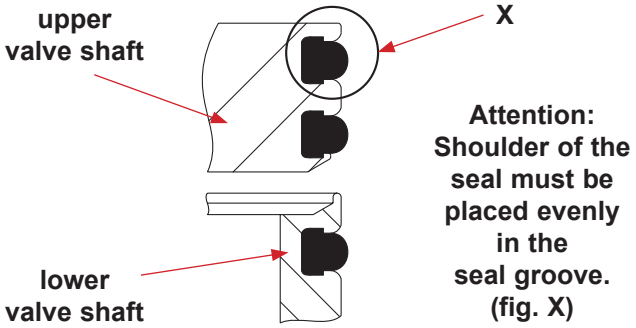
Connect the discharge hose for cleaning liquids by means of the L-union.
Identification: OUT

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

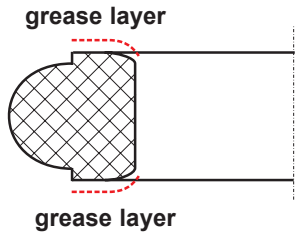


16. Service Instructions
for the installation of seat seals

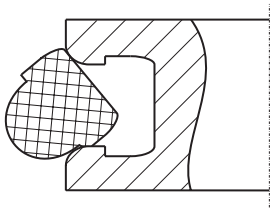




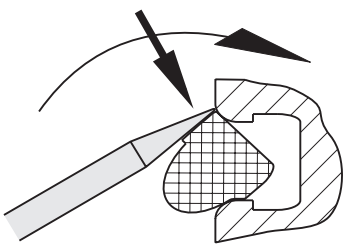
1. Provide the seal shoulder with a thin layer of grease.



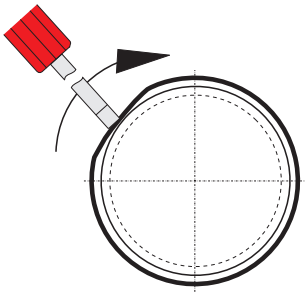
2. Insert the seat seal into the valve shaft; see to an even inclined position of the seal.



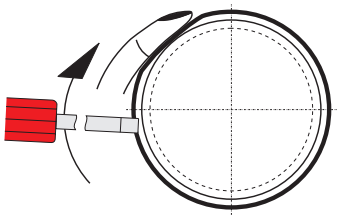
3. Press the seal circumferentially into the groove by means of an assembly tool (use screw driver with round edges). Place the assembly tool at the upper seal shoulder. To get an even fit of the seal, proceed step by step:



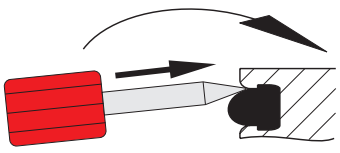
3.1. Press a short piece part of the seal into the groove.



3.2. Fix the seal - already pressed in - 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

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

Datum:	01/13	13.10.14			
Name:	Peters	Trytko			
Geprüft:					

Datum:					
Name:					
Geprüft:					

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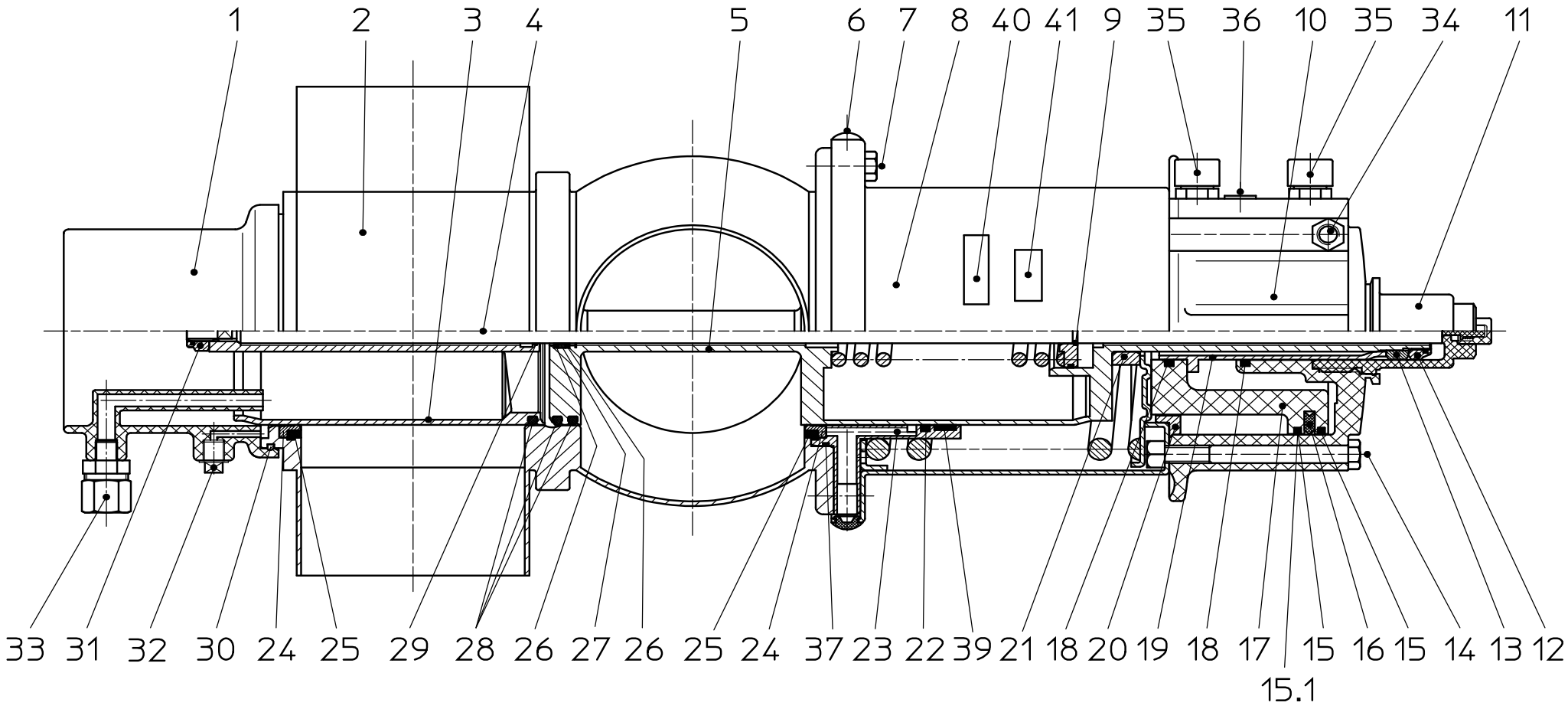

Ersatzteilliste / Schmierplan: spare parts list / lubrication plan

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

Datum:	01/13	13.10.14		
Name:	Peters	Trytko		
Geprüft:				

Datum:				
Name:				
Geprüft:				

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RN ATEX 053.71

pos. item	Menge quantity	Beschreibung description	Material material	DN25 WS-Nr. ref.-no.	1" WS-Nr. ref.-no.	DN40 WS-Nr. ref.-no.	1,5" WS-Nr. ref.-no.	DN50 WS-Nr. ref.-no.	2" WS-Nr. ref.-no.
1	1	Ablaufrohr Drainpipe	PP GF 30	----- -----		09-40-114/93 H168321			
2	1	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
	1	Gehäuse DE32 1+2+3S Housing	1.4404	----- -----		16-67-376/47 H170247	16-67-401/47 H170252	16-67-426/47 H170248	16-67-451/47 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
	1	Gehäuse DE34 1+2+3+4S Housing	1.4404	----- -----		16-69-376/47 H168999	16-69-401/47 H169001	16-69-426/47 H169000	16-69-451/47 H169002
3	1	Schaft unten Lower valve shaft	1.4404	----- -----		16-21-377/42 H169046		16-21-427/42 H169047	
4	1	Zugstange Guide rod	1.4404	----- -----		16-24-398/42 H169069		16-24-448/42 H169068	
5	1	Schaft oben Upper valve shaft	1.4404	----- -----		16-21-376/42 H169032		16-21-426/42 H169033	
6	2	Blindstopfen Blind plug	PVC	----- -----		08-74-030/93 H200514			
7	4	Skt. Schraube Hex. Screw	A2-70	----- -----		65-01-089/15 H120284			
8	1	Federzylinder Spring actuator	1.4301	----- -----		16-30-250/12 H168223			
9	1	Sprengring Retainer ring	1.4310	----- -----		08-39-083/13 H14883			
10	1	Hauptzylinder Main actuator	Vestamid	----- -----		16-30-244/93 H168555			
11	1	Anschlagschraube Stop sleeve	Vestamid	----- -----		16-28-704/93 H168553			
12	1	Sicherungsmutter Stop nut	1.4301	----- -----		65-50-137/15 H147640			
13	1	Sicherungsscheibe Lock washer	1.4301	----- -----		67-03-001/15 H147639			

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

Datum:	01/13	13.10.14		
Name:	Peters	Trytko		
Geprüft:				

Datum:				
Name:				
Geprüft:				

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Germany

RN ATEX 053.71

pos. item	Menge quantity	Beschreibung description	Material material	DN25 WS-Nr. ref.-no.	1" WS-Nr. ref.-no.	DN40 WS-Nr. ref.-no.	1,5" WS-Nr. ref.-no.	DN50 WS-Nr. ref.-no.	2" WS-Nr. ref.-no.
14	4	Skt. Schraube Hex. Screw	A2-70	----- -----		65-01-104/15 H172965			
15		Signalring Signal ring	1.4310	----- -----		16-02-020/17 2x H169419			
15.1		Signalring Signal ring	1.4310	----- -----		----- -----			
16	1	Kolben-Dichtung Piston seal	NBR	----- -----		58-01-760/83 H76868			
17	1	Kolben Piston	POM	----- -----		16-29-124/93 H169390			
18	2	Quadring Q4216-N7004 Quadring	NBR	----- -----		58-01-236/83 H148385			
19	1	Kolbenstange Piston shaft	1.4301	----- -----		16-29-130/12 H169391			
20	1	Deckel Hzyl. Cover for main actuator	POM	----- -----		16-24-127/93 H170526		16-24-126/93 H170525	
21	1	Distanzhülse Spacer bush	1.4301	----- -----		16-28-230/12 H168541			
22	1	Quadring Q4230-N7502 Quadring	EPDM	----- -----		58-01-329/63 H150898			
23	1	Schaftlager Shaft bearing	1.4301	----- -----		16-28-371/93 H207879			
24	2	Schaftdichtung Shaft seal	PTFE	----- -----		58-33-016/23 H149620			
25	2	Tellerdichtung Seat seal	EPDM FDA-konform	----- -----		58-33-493/93 H77515			
	2	Tellerdichtung Seat seal	HNBR FDA-konform	----- -----		58-33-493/33 H166678			
	2	Tellerdichtung Seat seal	FPM FDA-konform	----- -----		58-33-493/73 H77514			
26	2	Stützring Support ring	PTFE	----- -----		58-01-048/23 H76309			

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

Datum:	01/13	13.10.14		
Name:	Peters	Trytko		
Geprüft:				

Datum:				
Name:				
Geprüft:				

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SPX FLOW
Germany

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RN ATEX 053.71

pos. item	Menge quantity	Beschreibung description	Material material	DN25 WS-Nr. ref.-no.	1" WS-Nr. ref.-no.	DN40 WS-Nr. ref.-no.	1,5" WS-Nr. ref.-no.	DN50 WS-Nr. ref.-no.	2" WS-Nr. ref.-no.
27	1	Quadring Q4112-N7004 Quadring	NBR	----- -----		58-01-049/93 H76310			
28	3	Sitzdichtung Seat seal	EPDM	----- -----		58-33-132/93 H168192			
	3	Sitzdichtung Seat seal	HNBR	----- -----		58-33-132/33 H171561			
	3	Sitzdichtung Seat seal	FPM	----- -----		58-33-132/73 H171559			
29	1	O-Ring OR12x1 O-ring	EPDM	----- -----		58-06-040/63 H169477			
30	1	O-Ring O-ring	EPDM	----- -----		58-06-295/63 H77039			
31	1	Sicherungsmutter M10x1 Self-locking nut	1.4301	----- -----		65-50-087/15 H118903			
32	1	Entlüftungsstopfen G1/8 Venting plug	PE	----- -----		08-60-005/93 H16218			
33	1	G-Verschraubung Straigh union		----- -----		08-63-003/13 H16388			
34	1	W-Verschraubung G1/8 Angular union		----- -----		08-60-750/93 H208825			
35	2	Initiatorhalterung Mounting block	PA	----- -----		15-33-918/93 H154913			
36	1	Verschlußkappe 11,1x5 Cap	PVC	----- -----		08-05-066/93 H154816			
37	1	O-Ring O-ring	FPM	----- -----		58-06-332/73 H171616			
38									
39	1	Führungsband ATEX PTFE driving band ATEX	PTFE Turcide T51	----- -----		08-39-345/99 H326462			

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

Datum:	01/13	13.10.14		
Name:	Peters	Trytko		
Geprüft:				

Datum:				
Name:				
Geprüft:				

APV
SPX FLOW
Germany

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pos. item	Menge quantity	Beschreibung description	Material material	DN25 WS-Nr. ref.-no.	1" WS-Nr. ref.-no.	DN40 WS-Nr. ref.-no.	1,5" WS-Nr. ref.-no.	DN50 WS-Nr. ref.-no.	2" WS-Nr. ref.-no.
40	1	Typenschild ATEX ATEX label	Kunststoff	08-29-381/93 H329934					
41	1	Typenschild Label	Kunststoff	08-29-288/93 H323606					
	1	Ventileinsatz Valve insert	1.4404/EPDM	----- -----		16-36-382/59 H333299		16-36-432/59 H333300	
	1	Ventileinsatz Valve insert	1.4404/HNBR	----- -----		16-36-382/29		16-36-432/29	
	1	Ventileinsatz Valve insert	1.4404/FPM	----- -----		16-36-382/69		16-36-432/69	
		Pos. 22, 24, 25, 26, 27, 28, 29, 37, 39 nur im kompletten Dichtungssatz erhältlich **Item 22, 24, 25, 26, 27, 28, 29, 37, 39 available as complete seal kits only**							
	1	Dichtungssatz Seal kit	FPM	----- -----		58-36-020/00			
	1	Dichtungssatz Seal kit	EPDM	----- -----		58-36-020/01 H326474			
	1	Dichtungssatz Seal kit	HNBR	----- -----		58-36-020/06			
	1	Anbauteile für den Umbau der Ventile für die obere Schaftspülung Mounting kit for reconstructionof valves for upper shaft flushing		----- -----		34-12-299/99 H201675			

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

Datum:	01/13	13.10.14		
Name:	Peters	Trytko		
Geprüft:				

Datum:				
Name:				
Geprüft:				

APV
SPX FLOW
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RN ATEX 053.71

pos. item	Menge quantity	Beschreibung description	Material material	DN65 WS-Nr. ref.-no.	2,5" WS-Nr. ref.-no.	DN80 WS-Nr. ref.-no.	3" WS-Nr. ref.-no.	DN100 WS-Nr. ref.-no.	4" WS-Nr. ref.-no.
1	1	Ablaufrohr Drainpipe	PP GF 30	09-40-114/93 H168321		09-40-115/93 H168322	09-40-114/93 H168321	09-40-115/93 H168322	
2	1	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 Housing	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
	1	Gehäuse DE33 1+2+3S Housing	1.4404	16-68-476/47 H170259	16-68-501/47 H170264	16-68-526/47 H170260	16-68-551/47 H170265	16-68-626/47 H170261	16-68-651/47 H170266
	1	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
3	1	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	16-21-627/42 H168158	
4	1	Zugstange Guide rod	1.4404	16-24-498/42 H168215	16-24-523/42 H169067	16-24-548/42 H168793	16-24-573/42 H169066	16-24-648/42 H168216	
5	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	16-21-626/42 H168154	
6	2	Blindstopfen Blind plug	PVC	08-74-030/93 H200514					
7	4	Skt. Schraube Hex. Screw	A2-70	65-01-089/15 H120284					
8	1	Federzylinder Spring actuator	1.4301	16-30-250/12 H168223		16-30-251/12 H168222	16-30-250/12 H168223	16-30-251/12 H168222	
9	1	Sprengring Retainer ring	1.4310	08-39-083/13 H14883					
10	1	Hauptzylinder Main actuator	Vestamid	16-30-244/93 H168555		16-30-245/93 H168554	16-30-244/93 H168555	16-30-245/93 H168554	
11	1	Anschlagschraube Stop sleeve	Vestamid	16-28-704/93 H168553					
12	1	Sicherungsmutter Stop nut	1.4301	65-50-137/15 H147640					
13	1	Sicherungsscheibe Lock washer	1.4301	67-03-001/15 H147639					

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

Datum:	01/13	13.10.14		
Name:	Peters	Trytko		
Geprüft:				

Datum:				
Name:				
Geprüft:				

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pos. item	Menge quantity	Beschreibung description	Material material	DN65 WS-Nr. ref.-no.	2,5" WS-Nr. ref.-no.	DN80 WS-Nr. ref.-no.	3" WS-Nr. ref.-no.	DN100 WS-Nr. ref.-no.	4" WS-Nr. ref.-no.
14	4	Skt. Schraube Hex. Screw	A2-70	65-01-104/15 H172965		65-01-100/15 H172966	65-01-104/15 H172965	65-01-100/15 H172966	
15		Signalring Signal ring	1.4310	16-02-020/17 2x H169419		16-02-021/17 H169418	16-02-020/17 2x H169419	16-02-021/17 H169418	
15.1		Signalring Signal ring	1.4310	----- -----		16-02-016/57 H204085	----- -----	16-02-016/57 H204085	
16	1	Kolben-Dichtung Piston seal	NBR	58-01-760/83 H76868		58-01-761/83 H76869	58-01-760/83 H76868	58-01-761/83 H76869	
17	1	Kolben Piston	POM	16-29-124/93 H169390		16-29-125/93 H168348	16-29-124/93 H169390	16-29-125/93 H168348	
18	2	Quadring Q4216-N7004 Quadring	NBR	58-01-236/83 H148385					
19	1	Kolbenstange Piston shaft	1.4301	16-29-130/12 H169391		16-29-131/12 H168332	16-29-130/12 H169391	16-29-131/12 H168332	
20	1	Deckel Hzyl. Cover for main actuator	POM	16-24-124/93 H169389		16-24-125/93 H169346	16-24-124/93 H169389	16-24-125/93 H168346	
21	1	Distanzhülse Spacer bush	1.4301	16-28-230/12 H168541					
22	1	Quadring Q4230-N7502 Quadring	EPDM	58-01-329/63 H150898		58-01-238/63 H148387	58-01-329/63 H150898	58-01-238/63 H148387	
23	1	Schaftlager Shaft bearing	1.4301	16-28-371/12 H207879		16-28-372/12 H207884	16-28-371/12 H207879	16-28-372/12 H207884	
24	2	Schaftdichtung Shaft seal	PTFE	58-33-016/23 H149620		58-33-017/23 H150708	58-33-016/23 H149620	58-33-017/23 H150708	
25	2	Tellerdichtung Seat seal	EPDM FDA-konform	58-33-493/93 H77515		58-33-643/93 H77586	58-33-493/93 H77515	58-33-643/93 H77586	
	2	Tellerdichtung Seat seal	HNBR FDA-konform	58-33-493/33 H166678		58-33-643/33 H166682	58-33-493/33 H166678	58-33-643/33 H166682	
	2	Tellerdichtung Seat seal	FPM FDA-konform	58-33-493/73 H77514		58-33-643/73 H77585	58-33-493/73 H77514	58-33-643/73 H77585	
26	2	Stützring Support ring	PTFE	58-01-048/23 H76309					

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

Datum:	01/13	13.10.14			APV SPX FLOW Germany
Name:	Peters	Trytko			
Geprüft:					
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Geprüft:					

pos. item	Menge quantity	Beschreibung description	Material material	DN65 WS-Nr. ref.-no.	2,5" WS-Nr. ref.-no.	DN80 WS-Nr. ref.-no.	3" WS-Nr. ref.-no.	DN100 WS-Nr. ref.-no.	4" WS-Nr. ref.-no.
27	1	Quadring Quadring Q4112-N7004	NBR	58-01-049/93 H76310					
28	3	Sitzdichtung Seat seal	EPDM	58-33-132/93 H168192		58-33-133/93 H168153	58-33-132/93 H168192	58-33-133/93 H168153	
	3	Sitzdichtung Seat seal	HNBR	58-33-132/33 H171561		58-33-133/33 H171565	58-33-132/33 H171561	58-33-133/33 H171565	
	3	Sitzdichtung Seat seal	FPM	58-33-132/73 H171559		58-33-133/73 H171563	58-33-132/73 H171559	58-33-133/73 H171563	
29	1	O-Ring O-ring OR12x1	EPDM	58-06-040/63 H169477					
30	1	O-Ring O-ring	EPDM	58-06-295/63 H77039		58-06-490/63 H77061	58-06-295/63 H77039	58-06-490/63 H77061	
31	1	Sicherungsmutter Self-locking nut M10x1	1.4301	65-50-087/15 H118903					
32	1	Entlüftungsstopfen Venting plug G1/8	PE	08-60-005/93 H16218					
33	1	G-Verschraubung Straigh union		08-63-003/13 H16388					
34	1	W-Verschraubung Angular union G1/8		08-60-750/93 H208825					
35	2	Initiatorhalterung Mounting block	PA	15-33-918/93 H154913					
36	1	Verschlußkappe Cap 11,1x5	PVC	08-05-066/93 H154816		----- -----	08-05-066/93 H154816	----- -----	
37	1	O-Ring O-ring	FPM	58-06-332/73 H171616		58-06-503/73 H171288	58-09-332/73 H171616	58-06-503/73 H171288	
38									
39	1	Führungsband ATEX PTFE driving band ATEX	PTFE Turcide T51	08-39-345/99 H326462		08-39-346/99 H326463	08-39-345/99 H326462	08-39-346/99 H326463	

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

Datum:	01/13	13.10.14		
Name:	Peters	Trytko		
Geprüft:				

Datum:				
Name:				
Geprüft:				

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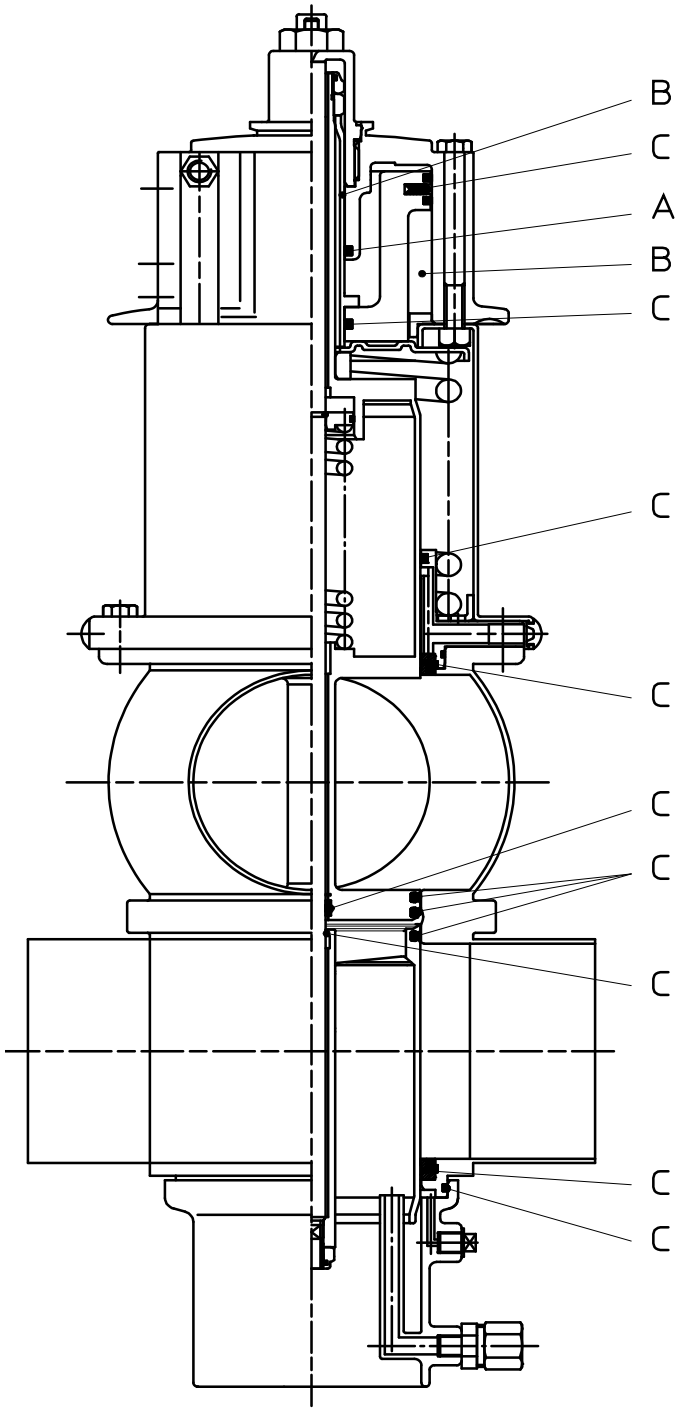
pos. item	Menge quantity	Beschreibung description	Material material	DN65 WS-Nr. ref.-no.	2,5" WS-Nr. ref.-no.	DN80 WS-Nr. ref.-no.	3" WS-Nr. ref.-no.	DN100 WS-Nr. ref.-no.	4" WS-Nr. ref.-no.
40	1	Typenschild ATEX ATEX label	Kunststoff	08-29-381/93 H329934					
41	1	Typenschild Label	Kunststoff	08-29-288/93 H323606					
	1	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	16-36-632/59 H333308	
	1	Ventileinsatz Valve insert	1.4404/HNBR	16-36-482/29	16-36-507/29	16-36-532/29	16-36-557/29	16-36-632/29	
	1	Ventileinsatz Valve insert	1.4404/FPM	16-36-482/69	16-36-507/69	16-36-532/69	16-36-557/69	16-36-632/69	
		Pos. 22, 24, 25, 26, 27, 28, 29, 37, 39 nur im kompletten Dichtungssatz erhältlich **Item 22, 24, 25, 26, 27, 28, 29, 37, 39 available as complete seal kits only**							
	1	Dichtungssatz Seal kit	FPM	58-36-020/00		58-36-021/00	58-36-020/00	58-36-021/00	
	1	Dichtungssatz Seal kit	EPDM	58-36-020/01 H326474		58-36-021/01 H326475	58-36-020/01 H326474	58-36-021/01 H326475	
	1	Dichtungssatz Seal kit	HNBR	58-36-020/06		58-36-021/06	58-36-020/06	58-36-021/06	
	1	Anbauteile für den Umbau der Ventile für die obere Schaftspülung Mounting kit for reconstructionof valves for upper shaft flushing		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.

C- lightly grease seals for installation.

Parts in contact with product:

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

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

Datum:	01/13	13.10.14								
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

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APV DELTA DE3
DN40-100, 1.5”-4”

DOUBLE SEAT VALVE

FOR SPECIFIC ATEX-APPLICATIONS

SPXFLOW

SPX FLOW

Design Center

Gottlieb-Daimler-Straße 13

D-59439 Holzwickede, Germany

P: (+49) (0) 2301-9186-0

F: (+49) (0) 2301-9186-300

SPX FLOW

Production

Stefana Rolbieskiego 2

PL- Bydgoszcz 85-862, Poland

P: (+48) 52 566 76 00

F: (+48) 52 525 99 09

Scan for DE3 Valve Maintenance Video

ISSUED 02/2018 - Translation of original manual