

## APV DELTA DA3+ DN40-100, 1.5"-4"

DOUBLE SEAT VALVE

SAFETY AGAINST EXPLOSION - FOR SPECIFIC ATEX-APPLICATIONS



FORM NO.: H331524 REVISION: UK-0-ATEX

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



Scan for DA3+ Valve  
Maintenance Video







## EU Declaration of Conformity for Valves and Valve Manifolds

SPX Flow Technology Germany GmbH  
Gottlieb-Daimler-Str. 13, D-59439 Holzwickede  
herewith declares that the

**APV double seat valves of the series DA3+ ATEX design**  
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:  
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November 2017

  
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<b>DA3+ - DN40 - 100 ; 1,5 " - 4" - Ex II -/2G IIB TX</b>	<b>RN ATEX 053.73</b>



## 1. General Terms

This instruction manual applies for DELTA DA3 plus 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 4.0 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 cleaning liquids must be ensured!
- 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 disposed 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!

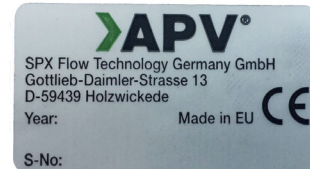
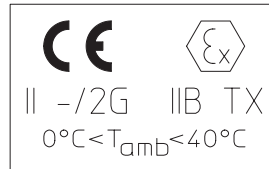


The APV CU2, CU3 and CU4 Control Units are not suited for use in ATEX environments!

## 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 subcategory    IIB

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

- Temperature classes TX (according to table 3.2)

### 3.2. Temperature classes and permissible temperatures

Media temperature	$\leq 75\text{ }^{\circ}\text{C}$	$\leq 95\text{ }^{\circ}\text{C}$	$\leq 130\text{ }^{\circ}\text{C}$	up to 140 °C = T <sub>max</sub> .
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.

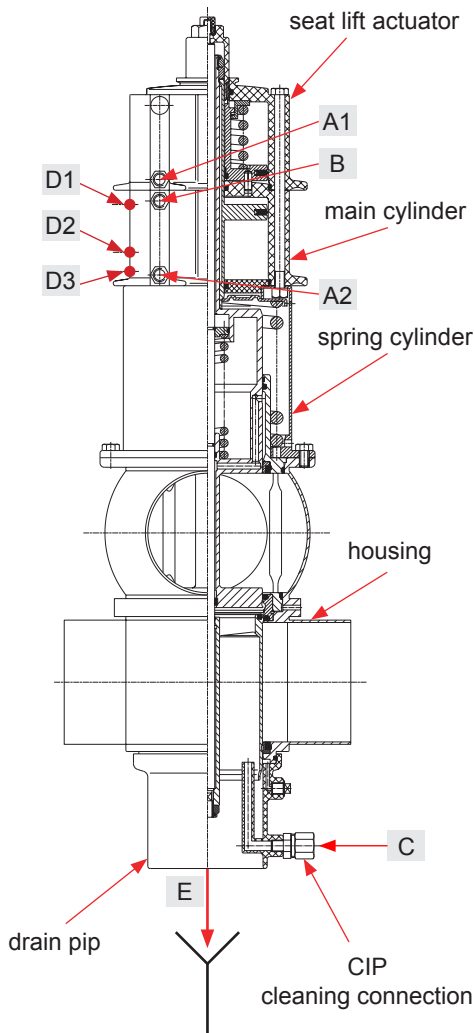
Arbitrary, constructive changes at the valve will influence safety as well as the intended functionality of the valve and are not permissible.

#### **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

DA3 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 DA3 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.

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

Proximity switches can be installed as valve position indicators.

**D1** = valve position "closed"

**D2** = valve position "open" (DN 40, 1,5" only)

**D3** = valve position "open" (DN 50 to 150, 2" - 4")

Maintainable actuator (see page 22)

An optical indication of the valve position is installed at the actuator.

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

**B** = valve open



Cleaning of the leakage chamber is undertaken via the cleaning connection **(C)**.

Cleaning of the seat and shaft seal areas is realized by operation of the air connections:

**A1** = lifting of lower shaft



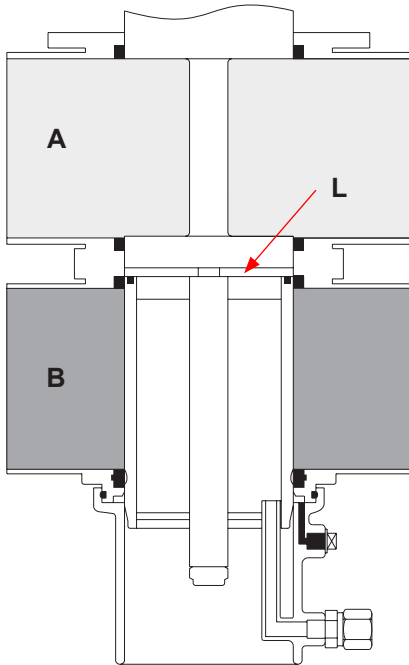
**A2** = lifting of upper shaft



Reset by spring force.

## 5. Mode of Operation

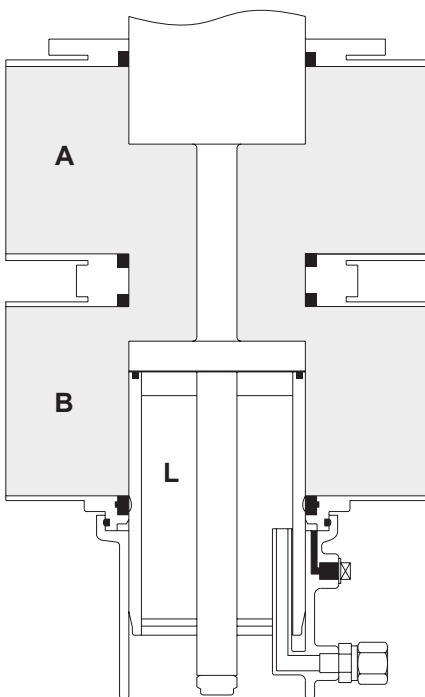
fig. 5.2.



### 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.

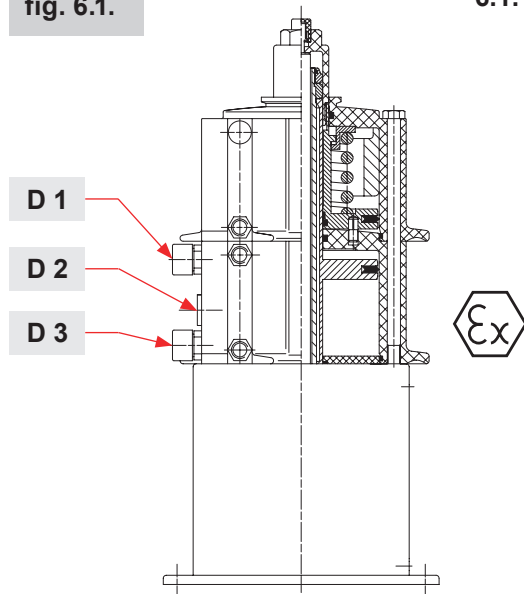


### 5.3. Valve in “open” position

By control of the actuator, the upper valve shaft is pressed against the seal of the lower valve shaft. Thus, the leakage chamber **L** is closed against the product chamber. Then the two valve shafts move downwards into the open position. A connection between the two pipelines **A** and **B** is produced.

## 6. Auxiliary Equipment

fig. 6.1.



### 6.1. Valve position indication

Proximity switches to signal the limit position of the valve shafts can be installed at the actuator if requested (**fig. 6.1.**)

**D1** = valve position "closed"

**D2** = valve position "open" (DN 40 - 50, 1,5" - 2" only)

**D3** = valve position "open" (DN 65 - 100, 2,5" - 4" only)

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 different valve position indicators, 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 the DELTA DA3+ valve, one has to distinguish between three areas:**

### 7.1. The flow areas

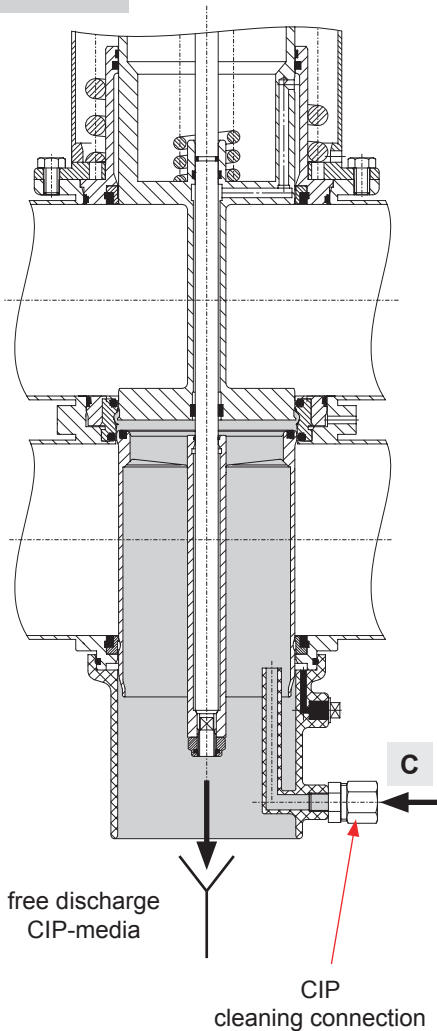
The upper and lower passages are cleaned by the passing cleaning liquid during the cleaning of the connected pipelines.

### 7.2. The seal surfaces

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

## 7. Cleaning

fig. 7.3.



### 7.3. The leakage chamber (fig. 7.3.)

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

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

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

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

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

cleaning step	seat lifting	CIP cycle
pre-flushing		3 x 10 sec.
caustic flushing 80° C	3 x 5 sec.	3 x 10 sec.
intermediate flushing	2 x 5 sec.	2 x 10 sec.
acid flushing	3 x 5 sec.	3 x 10 sec.
subsequent flushing	2 x 5 sec.	2 x 10 sec.

The lifting cycles refer to a cleaning pressure of  $p = 2 - 5$  bar.

Depending on the degree and constituents of soiling, cleaning liquids, cycles and processes must be adjusted for the individual application.

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

#### 7.4.1 Flushing quantities:

per CIP cycle DN 40 - 100, 1,5" - 4"

about 1,2 ltr /10 s

#### 7.4.2. Cleaning pressure at CIP cleaning connection (C):

min. 2 bar.  
max. 5 bar.

## 7. Cleaning

fig. 7.6.

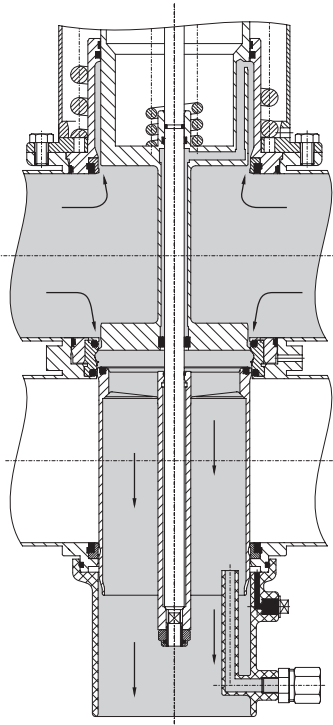
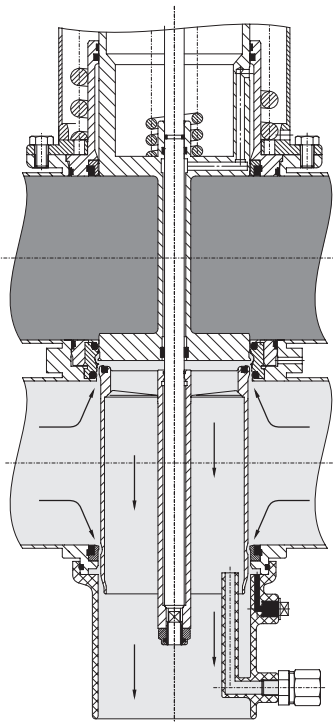
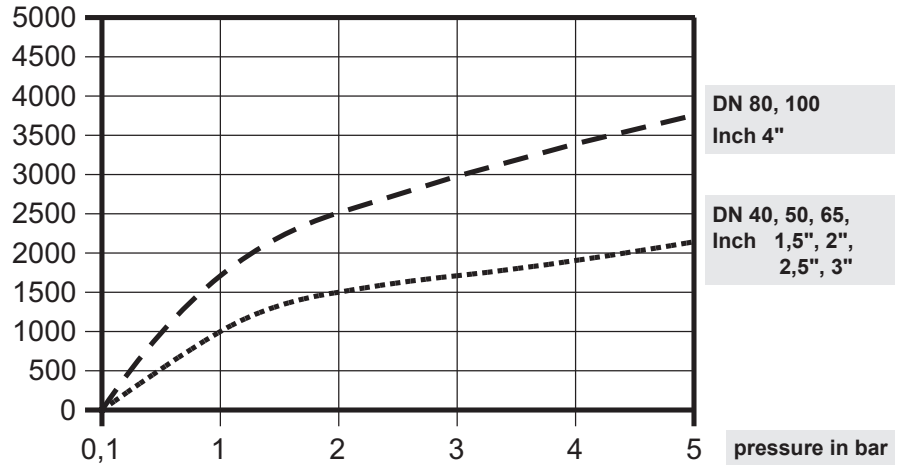


fig. 7.7.



### 7.5. Flushing quantity in ml per lifting cycle / 5 sec.



### 7.6. Cleaning of upper area (fig. 7.6.)

The upper valve shaft is lifted via the connection

A2 = 

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

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

The lifting stroke is limited by a metallic stop.

### 7.7. Cleaning of lower area (fig. 7.7.)

The lower valve shaft is lifted via the connection

A1 = 

lower seat seal into the leakage chamber and cleans this area. The cleaning liquid is drained off to the bottom in depressurized state.

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

The lifting stroke is limited by a metallic stop.



## 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 page 20, 13.1**).

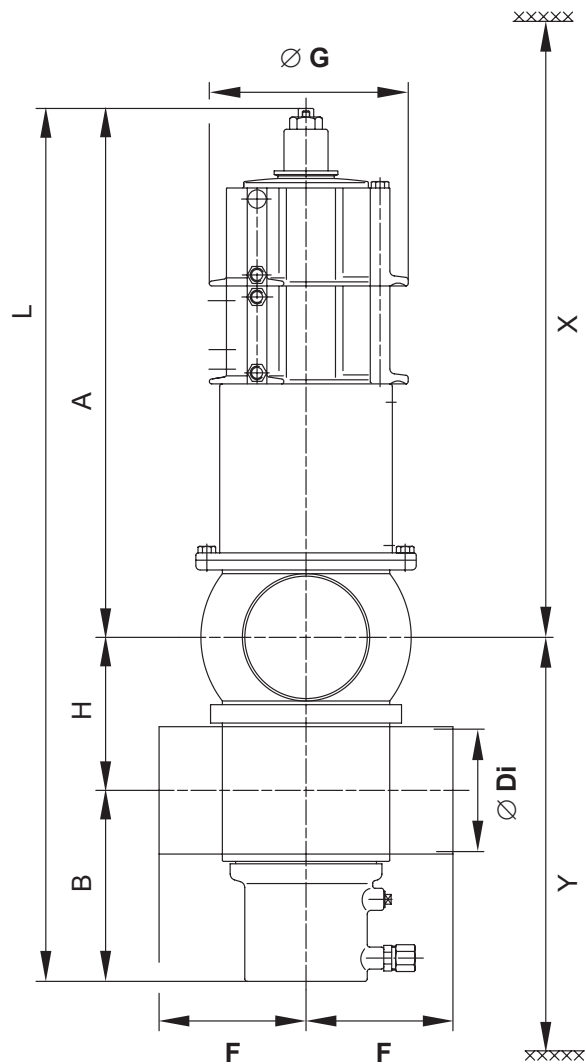
It is not necessary to remove the lower shaft seal as it can be destroyed during dismantling.

- Welding should only be carried out by certified welders (DIN EN ISO 9606-1). Seam quality DIN EN ISO 5817.
- The welding of the valve housings must be undertaken in such a way that the valve body is not deformed..
- The preparation of the weld seam up to 3 mm thickness must be carried out as a square butt joint without air. Consider shrinkage!
- TIG orbital welding is best!

After welding of the valve housing or of the mating flanges and after work at the pipelines, the corresponding parts of the installation and pipelines must be cleaned from welding residues and soiling before operation of the valves to avoid damage to the valves and seals. If these cleaning instructions are not observed, welding residues and dirt particles can settle in the valve and cause damage.

- Any damage resulting from the non-observance of these welding instructions is not subject to our guarantee.
- Welding directives for aseptic applications shall be drawn from the AWS/ANSI Directives and EHEDG Guidelines.

## 9. Dimensions / Weights



Dimensions in mm								inst. dimensions min. in mm	Weight in kg	
DN	A	B	∅ Di	F	∅ G	H	L	X	Y	
40	378	120	38	100	163	63	561	660	200	13,7
50	384	126	50	100	163	75	585	680	218	13,8
65	392	134	66	100	163	91	617	700	242	14,0
80	419	146,5	81	120	188	106	671,5	790	274	19,2
100	429	156	100	120	188	125	710	820	303	20,3
Inch										
1,5"	379	119	35,1	100	163	63	561	660	197	13,7
2"	385	125	47,8	100	163	75	585	680	216	13,8
2,5"	389	131	60,3	100	163	85	605	700	233	14,0
3"	395	137	72,1	100	163	97	629	790	251	14,2
4"	430	155	97,6	120	188	125	710	820	301	20,3

## 10. Technical Data

### 10.1. General data

max. line pressure:	10 bar
max. operating temperature:	135°C EPDM, HNBR *VMQ, *FPM
<b>short-term load:</b>	<b>140°C EPDM, HNBR</b> *VMQ, *FPM, *(no steam)
Tightening torque for stop screw (11) at upper valve shaft:	<b>15 Nm</b>
Tightening torque for safety nuts (42, 16) at upper and lower valve shaft:	<b>40 Nm</b>
Cleaning connection (for hose) DN 40 - 100, 1,5" - 4":	<b>8 x 1 mm</b>
Ambient temperature:	<b>0 - 40 °C</b>
Air connection (for hose):	<b>6 x 1 mm</b>
max. pneumatic air pressure:	<b>10 bar</b>
min. pneumatic air pressure:	<b>6 bar</b>

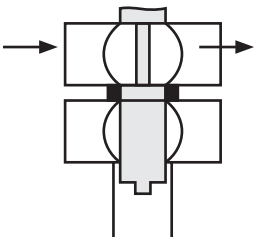
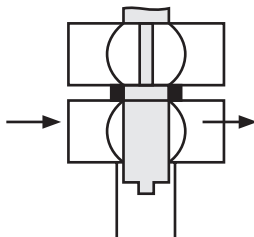
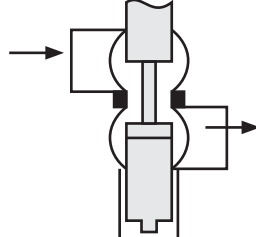
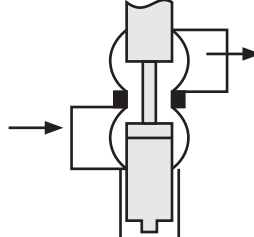
Use dry and clean air, only.

### 10.2. Compressed air quality

- Compressed air quality: quality class acc. to ISO 8573-1
- content of solid particles: quality class 3,  
max. size of solid particles per m<sup>3</sup>  
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/m<sup>3</sup>

The oil applied must be compatible with Polyurethane elastomer materials.

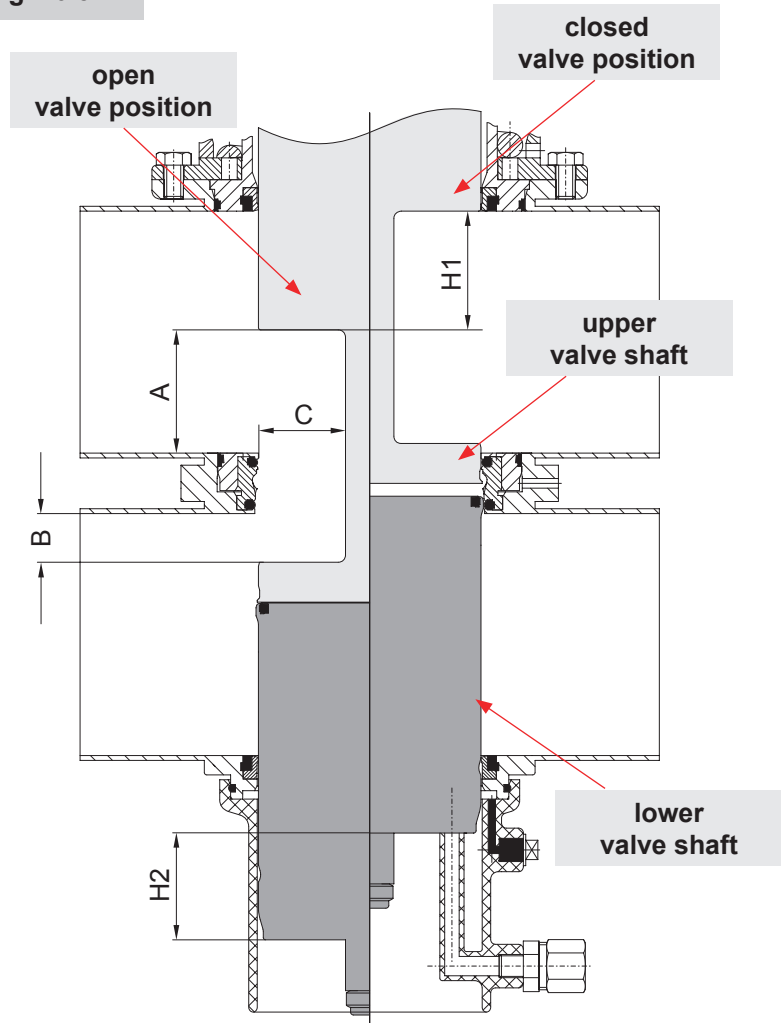
## 10. Technical Data

10.3.	Kvs - value in m <sup>3</sup> / 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

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

## 10. Technical Data

fig. 10.5.



10.5. Table to fig. 10.5. / Dimensions in mm						
DN	Inch	A	B	C	stroke H1 upper shaft	stroke H1 lower shaft
40	1,5"	6	3	21,2	32	26
50	2"	11	10	21,2	39	33
	2,5"	15	16	21,2	45	39
65		21	16	21,2	45	39
	3"	27	16	21,2	45	39
80		31	21	36,2	50	44
100	4"	50	21	36,2	50	44

## 11. Materials

Product-wetted parts:	<b>1.4571, 1.4404</b> (DIN EN 10088)
Other parts:	<b>1.4301</b> (DIN EN 10088)
Seals:	
Standard design:	<b>EPDM/ PTFE</b>
Option:	<b>HNBR/ PTFE</b> <b>FPM/ PTFE</b> <b>VMQ/ PTFE</b>
Actuator:	<b>PA 12 GF 30</b>
Drain pipe:	<b>PP GF30</b>

## 12. Maintenance

Valve maintenance for seals	Remark
standard load 1-shift-operation	<b>1 x annually up to 30.000* cycles p.a.</b> <b>1 x semi-annually above 30.000 cycles p.a.</b>
hot operation temperature 80°C - 120°C	<b>1 x semi-annually</b>
<b>* complies with about 1 year in 1-shift-operation and 10 - 15 cycles per hour.</b>	

Valve maintenance for spring cylinder	Remark
visual inspection check spring for damage	<b>1 x annually during seal maintenance</b>
replacement interval of spring	<b>in case of damage of coating or after 200.000** cycles</b>
<b>** complies with about 6 years in 1-shift-operation and 10 - 15 cycles per hour</b>	

## 12. Maintenance

Scan for DA3+ Valve  
Maintenance Video



- For the dismantling of the valve, compressed air is not required.

Required tools:

- 1x wrench SW13
- 2x wrench SW17
- 2x wrench SW24
- disassembly and assembly tool for the lower shaft seal ref.-No. 000 51-13-100/17; H171889



- 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!
- Replacement of seals according to Service Instructions. Customer stock keeping of spare seals is recommended. For valve service actions we supply complete seal kits including seal grease (see spare parts lists).
- To simplify the installation of the middle seal, the following assembly tools are available.

**Assembly tool for middle seal (see page 26, 15.)**

DN	Inch	Designation	Reference number
40 50 65	1,5" 2" 2,5" 3"	DA3 - 62	000 51 - 13 - 210/17 H207310
80 100	4"	DA3 - 92	000 51 - 13 - 211/17 H207311

- The valve must not be cleaned with products containing abrasive or polishing material. Especially the valve shaft must not, under any circumstances, be cleaned with such agents. Damage of the valve shaft can lead to leakages.

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## 12. Maintenance

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- Assembly of valve according to Service Instructions.
- **Provide all seals with a thin layer of grease before their installation (see lubrication chart).**

**Attention!**

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

**Recommendation:****APV assembly grease for EPDM, HNBR, FPM**

(0,75 kg/tin - ref.-No. 000 70-01-019/93; H147382)

(60 g/tube - ref.-No. 000 70-01-018/93; H147381)

**APV assembly grease for VMQ**

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

(60 g/tub - ref.-No. 000 70-01-016/93; H147379)

**Recommendation for actuator (main cylinder)****APV pneumatic grease**

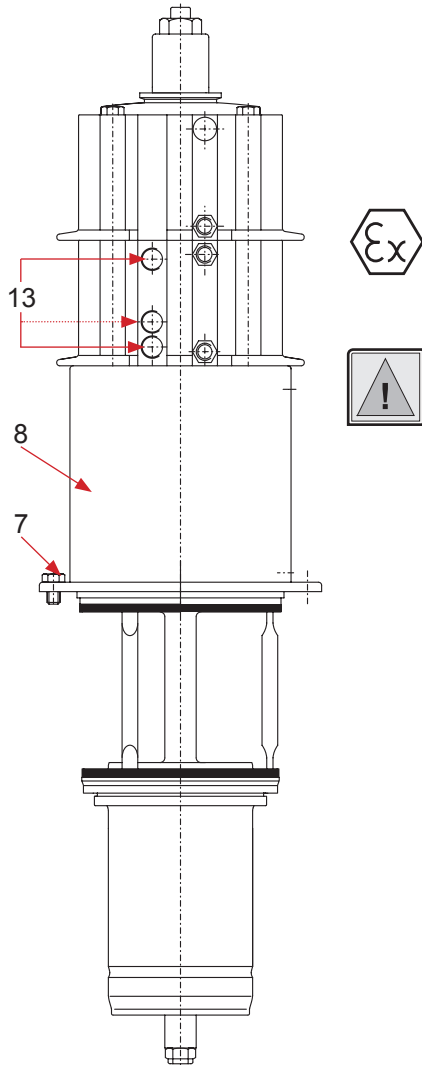
(25 ml / tube - ref.-No. 000-70-01-008/93; H164725)

Less suited grease types can influence function and lifetime.



## 13. Service Instructions

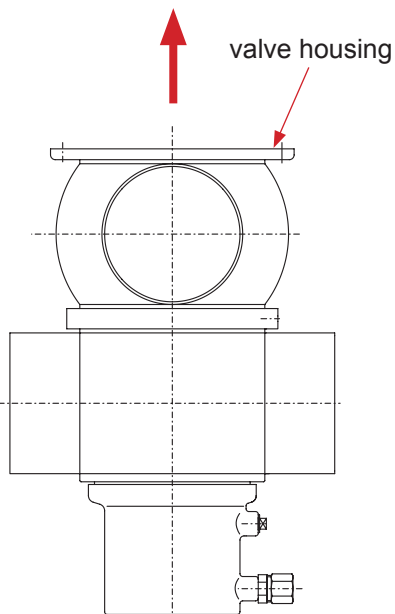
The item numbers refer to the spare parts drawing  
**DA3 - DN40 - 100 ; 1,5 “- 4” - Ex II -/2G IIB TX**  
**RN ATEX 053.73**



### 13.1. Dismantling from the line system

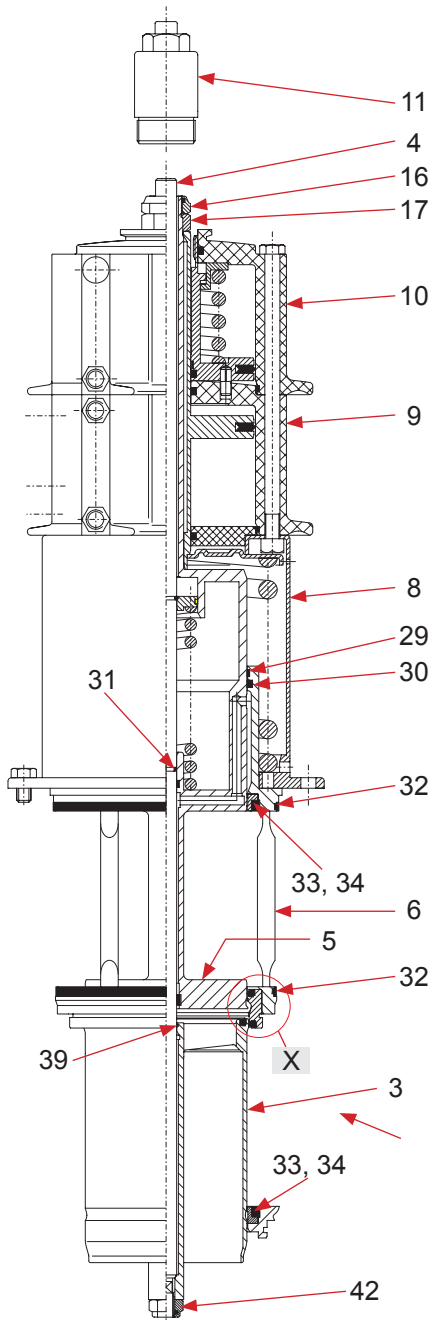
Before start of service the operator has to make sure that an explosive atmosphere does not exist (detection/measurement of potential concentration of hazardous substances).  
 Alternatively, use spark-resistant tools!

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

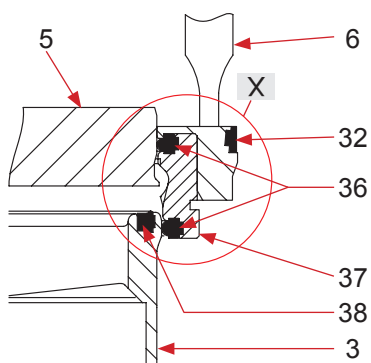


## 13. Service Instructions

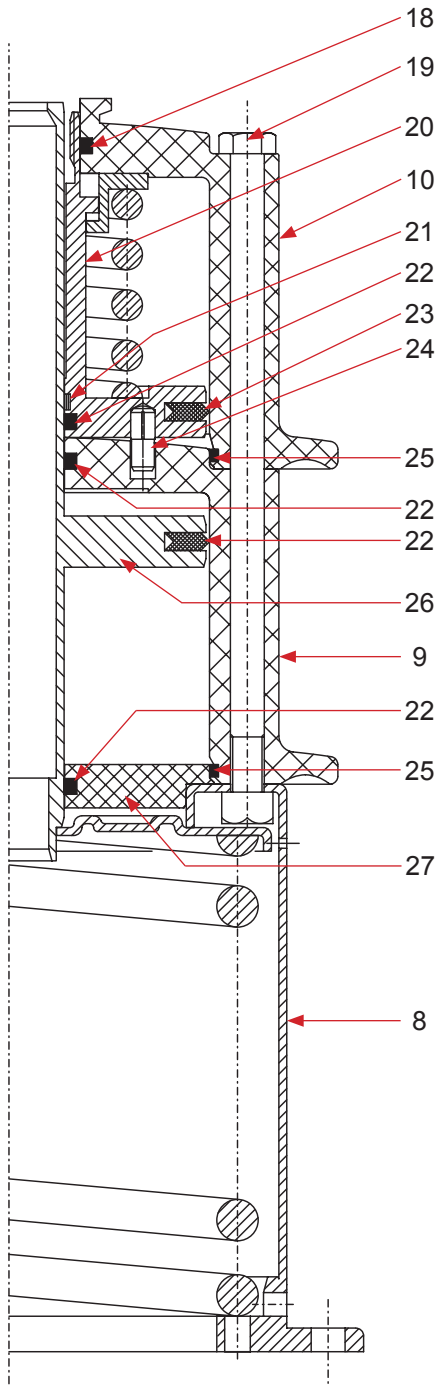
### 13.2. Dismantling of product-wetted parts (service)



1. Remove the lower and upper housing seal (32) from the valve seat (6).
2. Release the lower safety nut (42). Holding the lower shaft (3) with a wrench SW17 prevents it from turning.
3. After removal of the nut (42), pull the lower shaft (3) off the guide rod (4).
4. **Dismantling of seals from lower shaft (3)**  
Take a pointed tool to stick into the middle seal (38) and to pull it out of the groove. Take the o-ring (39) out of the groove.
5. Unscrew the stop screw (11).
6. Lift the guide rod (4) out to the top and remove the o-ring (31).
7. Remove the safety nut (16). By holding the safety disc (17) with a wrench SW24 it is prevented from turning. Remove the safety disc.
8. Lift off the spring cylinder (8) with main cylinder (9) and seat lift cylinder (10). (Service of main and seat lift cylinder, see 13.3).
9. Press the upper valve shaft (5) with seat ring (37) to the bottom out of the valve seat (6).
10. Slide the seat ring (37) over the compensating piston of the upper valve shaft.
11. Remove the seat seals (36) from the groove. (see fig. X)
12. **Dismantling of upper shaft seal (33, 34)**  
Take a peaked object to stick into the seat seal (33) and pull it out of the valve seat. Afterwards, remove the PTFE seal (34).
13. **Dismantling of lower shaft seal (33, 34) from the housing**  
Take the metal point of the disassembly tool to stick into the seat seal (33) and pull it off to the top. Afterwards, remove the PTFE seal (34) to the top through the housing by means of the mandril of the assembly tool.
14. Remove the quadrant (30) and guide band (29) from the groove of the valve seat (6).



## 13. Service Instructions



### 13.3. Maintenance of main cylinder

The actuator (seat lift cylinder (10), main cylinder (9) and spring cylinder (8) must be dismantled from the valve insert as described in 13.2. 1.-8.

- Remove the hex. screws (19).

Lift the seat lift cylinder with main cylinder from the spring cylinder.

#### 13.3.1. Dismantling of seals and disassembly of the seat lift and main cylinder

1. Lift the seat lift cylinder (10) from the main cylinder (9). Push the piston rod (20) out of the seat lift cylinder..
2. Remove the piston seal (23), quadrings (18, 22), guide band (21) and o-ring (25).
3. Clean the seat lift cylinder and the piston rod.
4. Press the piston of the main cylinder (26) with cover (27) out of the main cylinder. Slide the cover from the piston.
5. Remove the quadrings (22), o-ring (25) and piston seal (23).
6. Clean the main cylinder, cover and piston.

#### 13.3.2. Installation of seals and assembly of the seat lift and main cylinder

1. Slightly grease all seals.

**Attention!**

See to all seals and bearing surfaces in the seat lift cylinder and main cylinder being greased sufficiently!  
(see lubrication chart: RN ATEX 053.73, page 12)

Use appropriate pneumatic grease.

**Recommendation for the actuator (main cylinder):**

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

2. Insert the seals into their corresponding grooves.
3. Insert the piston rod (20) in the seat lift actuator.
4. Slide the piston of the main cylinder (26) into the main cylinder until it stops.
5. Slide the cover (27) over the piston (26). Press the cover into the main cylinder.
6. Place the seat lift cylinder on the main cylinder: The cylindrical dowel pin (24) must engage in the bore of the housing of the main cylinder.
7. Place the main cylinder with the seat lift cylinder on the spring cylinder (8).
8. Insert the hexagon screws (19) and tighten them crosswise.



The spring cylinder (8) is preloaded by spring force.  
**Opening of the spring cylinders is strictly forbidden.**  
**Danger to life!**

## 13. Service Instructions

### 13.4. Installation of product-wetted seals and Assembly of the valve

All seals and guide parts can be maintained.

**Attention:** See to all seals and bearing surfaces in the product area being slightly greased before their installation (see lubrication chart: RN ATEX 053.73, page 12).

1. Install the lower shaft seal (33, 34) in the lower housing flange (see page 25).
2. Place the quading (30) and the guide band (29) in the valve seat (6).
3. Install the upper shaft seal (33, 34) in the valve seat. Insert the PTFE ring (34), at first. Then press the elastomer ring (33), the wide side to the front, into the groove between PTFE seal and valve seat.

4. Install the upper and lower housing seals (32).
5. Press the upper and lower seat seal (36) into the seat ring (37).

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

6. Slide the seat ring (37) from the top over the compensating piston of the upper valve shaft (5).
7. Slide the valve seat (6) over the compensating piston of the upper valve shaft (5) in the same way.
8. Insert the upper valve shaft (5) with seat ring (37) and valve seat (6) through the actuator until it stops.
9. Fasten the valve shaft with safety disc (17) and safety nut (16). Holding the safety disc with a wrench SW24 prevents the safety nut from turning. **Tightening torque:  $M_d = 40 \text{ Nm}$**

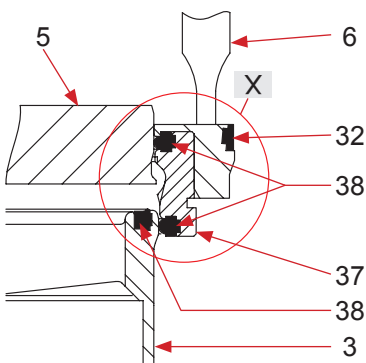
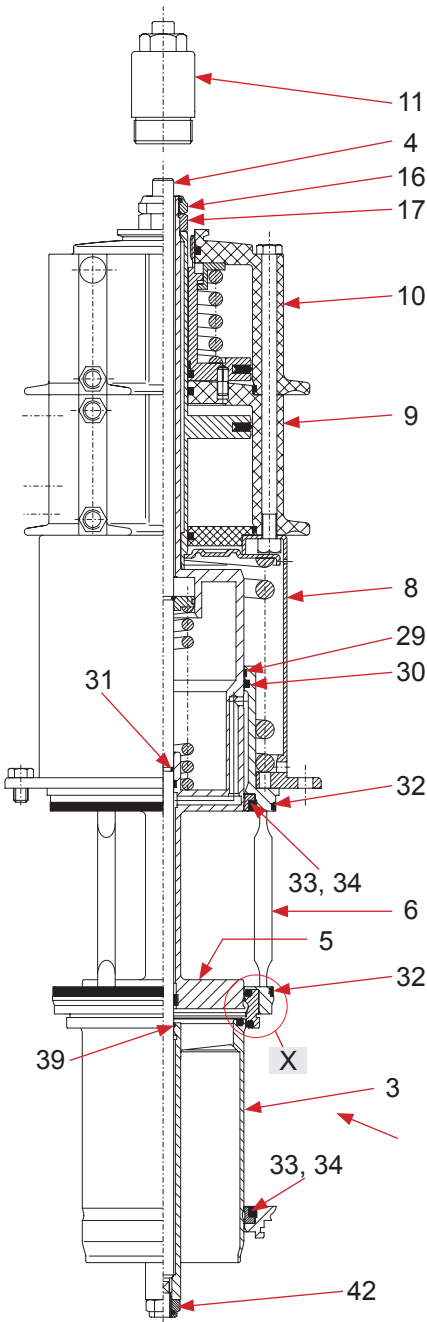
10. Insert the middle seal (38) into the lower shaft (3) by means of the assembly tool (see page 26).

**Assembly without assembly tool:**

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

11. Insert the o-ring (39) in the lower valve shaft.

12. Install the o-ring (31) on the guide rod (4).



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## 13. Service Instructions

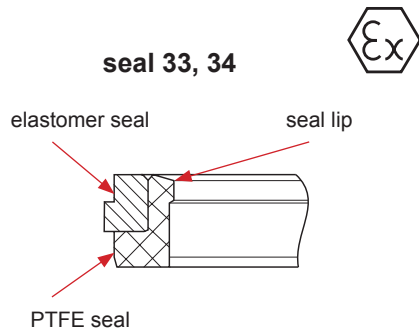
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13. Slide in the guide rod from the top through the actuator until it stops.
14. Slide the lower valve shaft on the guide rod and fasten it with the safety nut (42).  
**Tightening torque Md = 40 Nm**  
**Attention!** Check the position of the lower seat seal (36) (section X).
15. Screw in the stop screw (11) until it stops.  
**Tightening torque: Md = 15 Nm**

### 13.5. Installation of the valve insert

1. Carefully place the valve insert in the valve housing until the screw stops.
2. Remove the stop screw and carefully press the valve insert into the housing.
3. Enter screws (7) and tighten them crosswise.
4. Install the pneumatic air and cleaning lines.  
**upper air connection A1:** lifting of lower shaft  
**medium air connection B:** valve open  
**lower air connection A2:** lifting of upper shaft
5. Installation of valve position indication.  
Release nut and push the proximity switches into the sleeve until they stop.
6. Fix the proximity switches with the nut. (ATEX proximity switches)
7. The spray connection (1) can be disassembled from the housing (2) by levering it by means of a wide screw driver.

## 14. Disassembly and Assembly Tool (for lower shaft seal, pos. 33, 34)



### 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 disassembly and assembly of the lower shaft seal a universal tool (ref.-No. 000 51-13-100/17) can be used. The use of this tool is especially recommended for valves of the small series (DN 40-65, 1,5"-3"), as access to the lower shaft seal from the top is not possible as a result of the narrow seat.

### Attention:

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

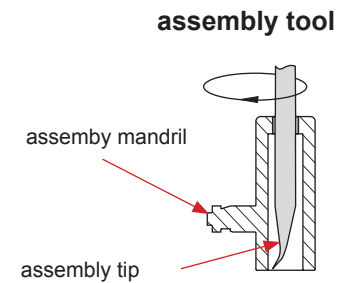
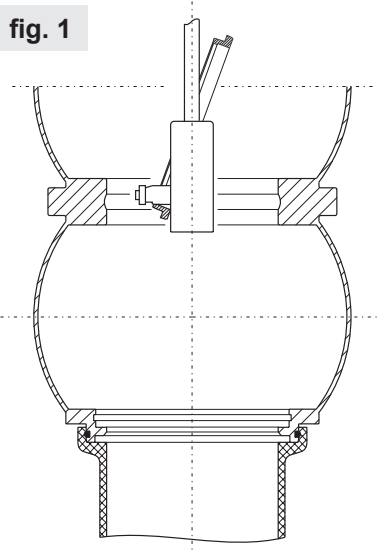


fig. 1



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

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

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

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

fig. 2

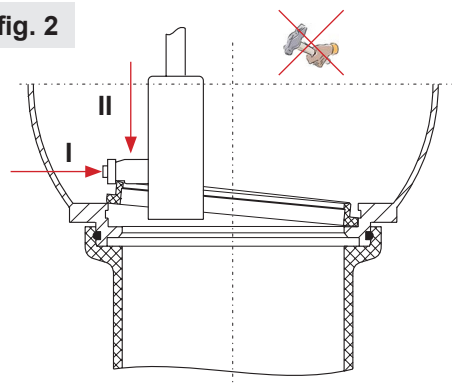


fig. 3

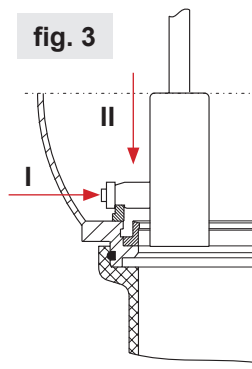
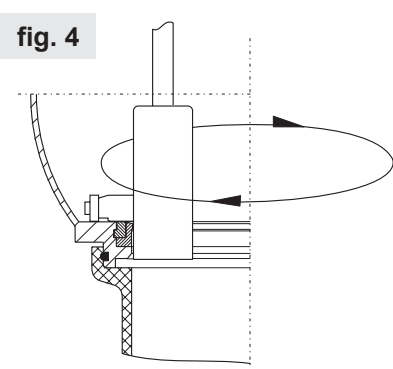
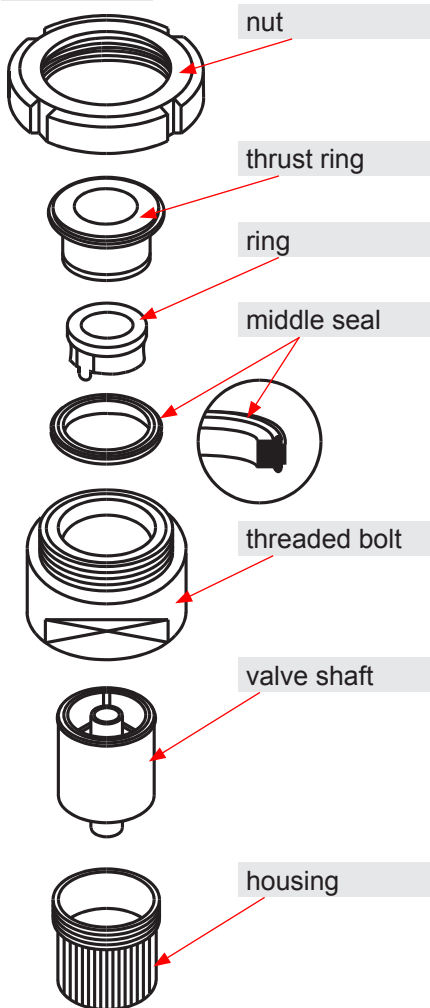


fig. 4



## 15. Assembly Tool for Middle Seal

fig. 15.1.



### 15.1. The assembly tool consists of:

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

### Installation of the middle seal in the valve shaft (fig. 15.1.)

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

### Check the even fit of the middle seal.

DN	Inch	Designation	Reference number
40 50 65	1,5" 2" 2,5" 3"	DA3 - 62	000 51 - 13 - 210/17 H207310
80 100	4"	DA3 - 92	000 51 - 13 - 211/17 H207311

## 16. Trouble Shooting

Failure	Remedy
Leakage at the upper housing flange	Replace upper housing seal (32).
Leakage from the leakage bore between the connecting ports	Replace lower housing seal (32) and seat seals (36).
Leakage from the bore of the spring cylinder (8)	Replace upper shaft seal (33, 34) and seals in flushing chamber (29, 30).
Liquids from the drain pipe	To be able to make a detailed diagnosis, remove the drain pipe (1).
<b>Valve closed and pressure in the upper housing</b>	
Leakage at the inner side of the lower valve shaft (3)	Replace upper seat seal (36).
Leakage at the inner tube of the lower valve shaft (3)	Replace upper shaft seal (33, 34).
<b>Valve closed and pressure in the lower housing</b>	
Leakage at the inner side of the lower valve shaft (3)	Replace lower seat seal (36).
Leakage at the outer side of the lower valve shaft (3)	Replace lower shaft seal (33, 34).
<b>Open valve position</b>	
Leakage from the leakage chamber of the lower valve shaft	Replace middle seal (38).
<p><b>!</b> When damaged seals are changed, generally all seals should be replaced. For valve service actions we supply complete seal kits (see spare parts lists).</p>	



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## 17. Spare Parts Lists and Lubrication Chart

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

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

- number of required parts
- reference number
- designation

Data are subject to change.



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Ersatzteilliste: spare parts list

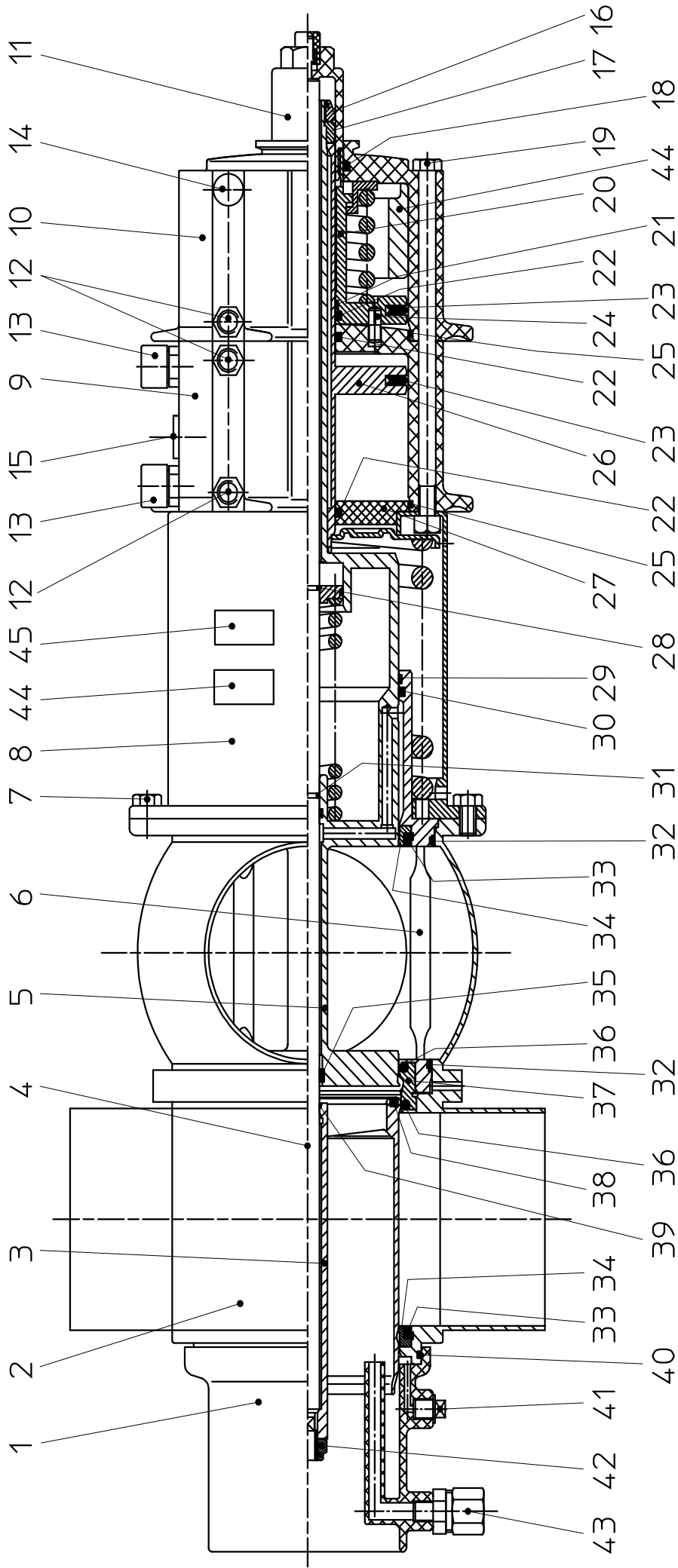
**Doppelsitzventil DA3 DN40 - 100 ; 1.5 " - 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5 " - 4" - Ex II -/2G IIB TX**

Datum:	06.02.13	12.03.14	18.09.14
Name:	Peters	Trytko	Trytko
Geprüft:			
Datum:			
Name:			
Geprüft:			

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 Germany

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**RN ATEX 053.73**



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Ersatzteilliste: spare parts list

**Doppelsitzventil DA3 DN40 - 100 ; 1.5 " - 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5 " - 4" - Ex II -/2G IIB TX**

pos. item	Menge Quantity	Beschreibung description	Material	DN40	1,5"	DN50	2"	DN65	2,5"	Datum:		Blatt		
										WS-Nr. ref.-no.	ref.-no.	WS-Nr. ref.-no.	ref.-no.	12.03.14 Trytko
1	1	Spritz Anschluss CIP connection	PP GF30 HOSTAC											
1	1	Gehäuse Housing	1.4404	16-61-382/47 H176634	16-61-407/47 H176629	16-61-432/47 H176635	16-61-457/47 H176630	16-61-482/47 H176636	16-61-507/47 H176631					
1	1	Gehäuse Housing	1.4404	16-62-382/47 H176645	16-62-407/47 H176640	16-62-432/47 H176646	16-62-457/47 H176641	16-62-482/47 H176647	16-62-507/47 H176642					
2	1	Gehäuse Housing	1.4404	16-63-382/47 H176655	16-63-407/47 H176650	16-63-432/47 H176656	16-63-457/47 H176651	16-63-482/47 H176657	16-63-507/47 H176652					
1	1	Gehäuse Housing	1.4404	16-64-382/47 H176320	16-64-407/47 H176325	16-64-432/47 H176321	16-64-457/47 H176326	16-64-482/47 H176322	16-64-507/47 H176327					
3	1	Schaft unten Lower valve shaft	1.4404	16-22-393/42 H176351		16-22-443/42 H176356		16-22-493/42 H176368	16-22-518/42 H176363					
4	1	Zugstange Guide rod	1.4404	16-24-392/42 H176393		16-24-442/42 H176394		16-24-492/42 H176396	16-24-517/42 H176395					
5	1	Schaft oben Upper valve shaft	1.4404	16-22-210/42 H149299		16-22-211/42 H149300		16-22-213/42 H149302	16-22-212/42 H149301					
6	1	Ventilsitz mit Spülkammer Valve seat with flushing chamber	1.4404	16-37-394/43 H176344		16-37-444/43 H176345		16-37-494/43 H176347	16-37-519/43 H176346					
7	4	Skt. Schraube Hex. Screw	1.4301	DIN EN 24017- M8x14-A2-70		65-01-079/15 H78768								
8	1	Federzylinder Spring actuator	1.4301			16-30-500/17 H323172								
9	1	Hauptzylinder Main actuator	Vestamid			15-31-239/93 H151072								
10	1	Anlüftzylinder Seat lifting device	Vestamid			16-30-225/93 H151130								
11	1	Anschlagschraube Stop sleeve	Vestamid			16-28-260/93 H176400								
12	3	W-Verschraubung Angular union	1.4301	G1/8" 6x1		08-60-750/93 H208825								
13	2	Initiatorhalterung Mounting block	PA6.6 schwarz			15-33-918/93 H154913								



RN ATEX 053.73



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Ersatzteilliste: spare parts list

**Doppelsitzventil DA3 DN40 - 100 ; 1.5 " - 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5 " - 4" - Ex II -/2G IIB TX**

pos. item	quantity	Beschreibung description	Material	DN40	1,5"	DN50	2"	DN65	2,5"	Date: 06.02.13		12.03.14		18.09.14		
										WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	Peters	Trytko	Trytko
30	1	Quading Quading	EPDM													
31	1	O-Ring OR 9,25x1,78	EPDM FDA-konform													
32	2	Gehäusedichtung Housing seal	EPDM FDA-konform													
	2	Gehäusedichtung Housing seal	FPM FDA-konform													
33	2	Gehäusedichtung Housing seal	HNBR FDA-konform													
	2	Tellerdichtung Seat seal	EPDM FDA-konform													
34	2	Tellerdichtung Seat seal	FPM FDA-konform													
	2	Tellerdichtung Seat seal	HNBR FDA-konform													
35	2	Tellerdichtung Seat seal	VMQ FDA-konform													
	2	Schaftdichtung Shaft seal	PTFE													
36	1	Führungsring Guide ring	PTFE 25%Kohle													
	2	Sitzdichtung Seat seal	EPDM FDA-konform													
37	2	Sitzdichtung Seat seal	FPM FDA-konform													
	2	Sitzdichtung Seat seal	HNBR FDA-konform													
38	2	Sitzdichtung Seat seal	VMQ FDA-konform													
	1	Sitzring Seat ring	1.4404													

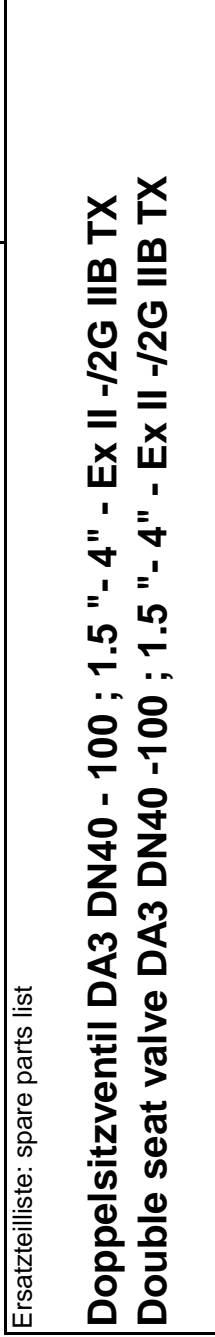


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**RN ATEX 053.73**

Ersatzteilliste: spare parts list

**Doppelsitzventil DA3 DN40 - 100 ; 1.5 "- 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5 "- 4" - Ex II -/2G IIB TX**

Datum:	06.02.13	12.03.14	18.09.14
Name:	Peters	Trytko	Trytko
Geprüft:			
Datum:			
Name:			
Geprüft:			
Blatt 5 von 12		RN ATEX 053.73	



pos.	item	Menge	Beschreibung	description	Material	DN40	1,5"	DN50	2"	DN65	2,5"
					material	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
		1	Mitteldichtung		EPDM			58-33-047/93			
			Seal		FDA-konform			H149617			
		1	Mitteldichtung		FPM			58-33-047/73			
			Seal		FDA-konform			H153324			
38		1	Mitteldichtung		HNBR			58-33-047/33			
			Seal		FDA-konform			H168903			
		1	Mitteldichtung		VMQ			58-33-047/13			
			Seal		FDA-konform			H153325			
39		1	O-Ring	OR 12x1	EPDM			58-06-040/63			
			O-ring					H169477			
40		1	O-Ring		EPDM			58-06-295/63			
			O-ring		FDA-konform			69 x3 H77039			
41		1	Verschluß-Stopfen	G 1/8"	Kunst. schwarz			08-74-014/93			
			Locking plug					H16507			
42		1	Sechskant Mutter m. Klemnteil	M10x1	1.4301			65-50-087/15			
			Hexagon nut with clamp part					H118903			
43		1	G-Verschraubung		PVDF-schwarz			08-63-003/13			
			Straight union					H16388			
44		1	Typenschild ATEX		Kunststoff			08-29-381/93			
			ATEX label					H329934			
45		1	Typenschild		Kunststoff			08-29-288/93			
			Label					H323606			
		1	Ventileinsatz		EPDM	16-36-394/59		16-36-444/59		16-36-494/59	16-36-519/59
			Valve insert			H176402		H176403		H176405	H176404
		1	Ventileinsatz		FPM	16-36-394/69		16-36-444/69		16-36-494/69	16-36-519/69
			Valve insert			H201818		H200979		H207260	H200978
		1	Ventileinsatz		HNBR	16-36-394/29		16-36-444/29		16-36-494/29	16-36-519/29
			Valve insert			H201779		H202157		H204846	H200295
		1	Ventileinsatz		VMQ	16-36-394/61		16-36-444/61		16-36-494/61	16-36-519/61
			Valve insert			H207519		H179716		H321273	H179603

Ersatzteilliste: spare parts list

**Doppelsitzventil DA3 DN40 - 100 ; 1.5" - 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5" - 4" - Ex II -/2G IIB TX**

Date: 06.02.13 12.03.14 18.09.14										
Name: Peters		Trytko	Trytko							
Geprüft:										
Blatt 6 von 12										
<b>RN ATEX 053.73</b>										
pos. item	Menge quantity	Beschreibung description	Material	DN40	1,5"	DN50	2"	DN65	2,5"	
				WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	
<b>Pos. 29, 30, 31, 32, 33, 34, 36, 38, 39 nur im kompletten Dichtungssatz erhältlich</b> <b>Item 29, 30, 31, 32, 33, 34, 36, 38, 39 available as complete seal kits only</b>										
	1	Dichtungssatz Seal kit	FPM							
	1	Dichtungssatz Seal kit	EPDM							
	1	Dichtungssatz Seal kit	VMQ							
	1	Dichtungssatz Seal kit	HNBR							






Ersatzteilliste: spare parts list

**Doppelsitzventil DA3 DN40 - 100 ; 1.5" - 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5" - 4" - Ex II -/2G IIB TX**

Datum:	06.02.13	12.03.14	18.09.14
Name:	Peters	Trytko	Trytko
Geprüft:			
Datum:			
Name:			
Geprüft:			

		Blatt	7	von	12
		RN ATEX 053.73			


pos. item	Menge	Beschreibung	Material	3"	DN80	DN100	4"
		description	material	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
1	1	Spritz Anschluss CIP connection	PP GF30 HOSTAC	09-40-114/93 H168321	09-40-115/93 H168322		
2	1	Gehäuse Housing	1.4404	16-61-557/47 H176632	16-61-532/47 H176637	16-61-632/47 H176638	16-61-657/47 H176633
	1	Gehäuse Housing	1.4404	16-62-557/47 H176643	16-62-532/47 H176648	16-62-632/47 H176649	16-62-657/47 H176644
	1	Gehäuse Housing	1.4404	16-63-557/47 H176653	16-63-532/47 H176658	16-63-632/47 H176659	16-63-657/47 H176654
	1	Gehäuse Housing	1.4404	16-64-557/47 H176328	16-64-532/47 H176323	16-64-632/47 H176324	16-64-657/47 H176329
3	1	Schaft unten Lower valve shaft	1.4404	16-22-568/42 H176374	16-22-543/42 H176379	16-22-668/42 H176381	
4	1	Zugstange Guide rod	1.4404	16-24-567/42 H176397	16-24-542/42 H176398	16-24-642/42 H176399	
5	1	Schaft oben Upper valve shaft	1.4404	16-22-214/42 H149303	16-22-215/42 H149304	16-22-216/42 H147572	
6	1	Ventilsitz mit Spülkammer Valve seat with flushing chamber	1.4404	16-37-569/43 H176348	16-37-544/43 H176349	16-37-644/43 H176350	
7	4	Skt. Schraube Hex. Screw	1.4301	65-01-079/15 M8x14 H78768			
8	1	Federzylinder Spring actuator	1.4301	16-30-500/17 H323172	16-30-501/17 H323201		
9	1	Hauptzylinder Main actuator	Vestamid	15-31-239/93 H151072	15-31-240/93 H147795		
10	1	Anlüftzylinder Seat lifting device	Vestamid	16-30-225/93 H151130	16-30-226/93 H147794		
11	1	Anschlagschraube Stop sleeve	Vestamid 1.4057	16-28-260/93 H176400			
12	3	W-Verschraubung Angular union	1.4301	08-60-750/93 H208825			
13	2	Initiatorhalterung Mounting block	PA6.6 schwarz	15-33-918/93 H154913			

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Ersatzteilliste: spare parts list

**Doppelsitzventil DA3 DN40 - 100 ; 1.5" - 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5" - 4" - Ex II -/2G IIB TX**

Datum:	06.02.13	12.03.14	18.09.14
Name:	Peters	Tytko	Tytko
Geprüft:			
Datum:			
Name:			
Geprüft:			

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<b>RN ATEX 053.73</b>				

pos.	Menge	Beschreibung	Material	3"	DN80	DN100	4"
item	quantity	description	material	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.
14	1	Entlüftungstopfen Venting plug	PE-Hard/Yellow				
15	1	Verschlußkappe Cap	PVC	08-05-066/93 H154816			
16	1	Sicherungsmutter Stop nut	1.4301		65-50-137/15 H147640		
17	1	Sicherungsscheibe Lock washer	1.4301		67-03-001/15 H147639		
18	1	Quadrang Quadrang	NBR		58-01-237/83 H148386		
19	4	Skt. Schraube Hex. Screw	1.4301	65-01-114/15 M8x156 H152060	65-01-115/15 M8x168 H313215		
20	1	Kolbenstange Anliftzylinder kpl. Piston shaft for seat lifting device cpl.	1.4301	16-29-065/17 H149396	16-29-066/17 H149654		
21	1	Führungsband PTFE driving band	Turcite 51		08-39-187/93 H147972		
22	3	Quadrang Quadrang	NBR		58-01-236/83 H148385		
23	2	Kolbendichtung Piston seal	NBR	58-01-760/83 H76868	58-01-761/83 H76869		
24	1	Zylinderkerbstift Cyl. Pin	1.4305		67-15-055/12 H147811		
25	2	O-Ring O-ring	NBR	58-06-372/83 82,22x2,62 H150893	58-06-493/83 101,27x2,62 H148389		
26	1	Kolben Hauptzylinder Piston for main actuator	1.4301	16-29-070/12 H149389	16-29-071/12 H147594		
27	1	Deckel Hauptzylinder Cover for main actuator	PA12	16-00-207/93 H149350	16-00-210/93 H147750		
28	1	Sprengring Retainer ring	1.4310		08-39-083/13 H14883		
29	1	Führungsband PTFE driving band	Turcite 51	08-39-198/93 H150892	08-39-188/93 H147973		

Ersatzteilliste: spare parts list

**Doppelsitzventil DA3 DN40 - 100 ; 1.5 " - 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5 " - 4" - Ex II -/2G IIB TX**

pos. item		Beschreibung description		Material	3"	DN80	DN100	4"	Datum: 06.02.13 12.03.14 18.09.14	
Menge quantity					WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.	Name: Peters	Trytko
					58-01-329/63 H150898	58-01-238/63 H148387			Name: Geprüft:	Trytko
30	1	Quadrang Quadrang	Q4230-N7502	EPDM	58-01-329/63 H150898	58-01-238/63 H148387			Datum:	
31	1	O-Ring O-ring	OR 9,25x1,78	EPDM FDA-konform		58-06-029/64 H148388			Name:	
32	2	Gehäusedichtung Housing seal		EPDM	58-33-542/93 H77543	58-33-642/93 H77583			Geprüft:	
	2	Gehäusedichtung Housing seal		FPM FDA-konform	58-33-542/73 H77542	58-33-642/73 H77582				
	2	Gehäusedichtung Housing seal		HNBR FDA-konform	58-33-542/33 H170075	58-33-642/33 H170074				
	2	Tellerdichtung Seat seal		EPDM FDA-konform	58-33-493/93 H77515	58-33-643/93 H77586				
33	2	Tellerdichtung Seat seal		FPM FDA-konform	58-33-493/73 H77514	58-33-643/73 H77585				
	2	Tellerdichtung Seat seal		HNBR FDA-konform	58-33-493/33 H166678	58-33-643/33 H166682				
34	2	Tellerdichtung Seat seal		VMQ FDA-konform	58-33-493/13 H77513	58-33-643/13 H77584				
	2	Schaftdichtung Shaft seal		PTFE	58-33-016/23 H149620	58-33-017/23 H150708				
35	1	Führungsring Guide ring		PTFE 25%Kohle		08-39-080/93 H14880				
	2	Sitzdichtung Seat seal		EPDM FDA-konform	58-33-044/93 H149618	58-33-045/93 H149619				
	2	Sitzdichtung Seat seal		FPM FDA-konform	58-33-044/73 H153316	58-33-045/73 H153318				
36	2	Sitzdichtung Seat seal		HNBR FDA-konform	58-33-044/33 H168900	58-33-045/33 H168901				
	2	Sitzdichtung Seat seal		VMQ FDA-konform	58-33-044/13 H153317	58-33-045/13 H153319				
37	1	Sitzring Seat ring		1.4404	16-00-190/42 H149397	16-00-191/42 H148255				



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**RN ATEX 053.73**

Ersatzteilliste: spare parts list

**Doppelsitzventil DA3 DN40 - 100 ; 1.5 " - 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5 " - 4" - Ex II -/2G IIB TX**

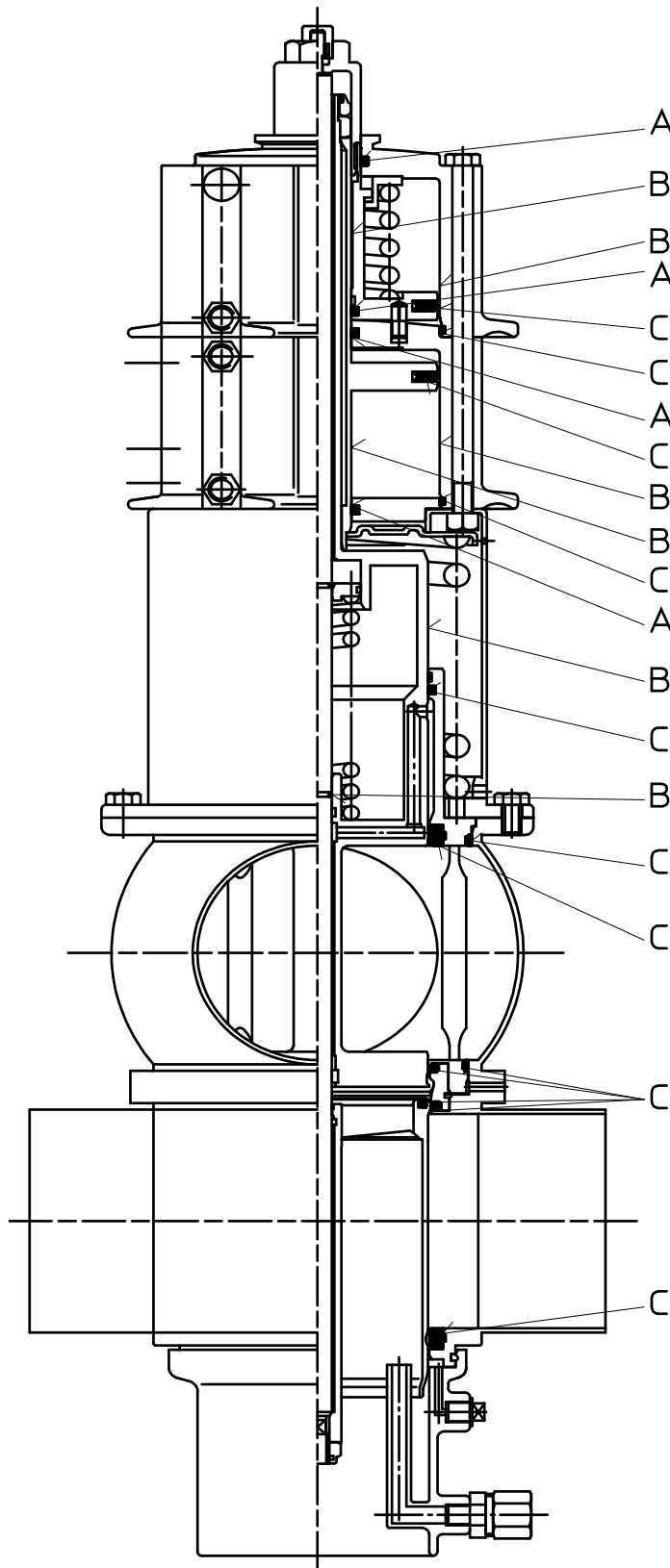
		Datum: 06.02.13 12.03.14 18.09.14					
		Name: Peters	Trytko	Trytko			
		Geprüft:					
		Datum:			Blatt 10 von 12		
		Name:			RN ATEX 053.73		
		Geprüft:					
		DN100	DN80	4"			
		WS-Nr. ref.-no.	WS-Nr. ref.-no.	WS-Nr. ref.-no.			
		58-33-048/93 H149621					
		58-33-048/73 H153322					
		58-33-048/33 H168904					
		58-33-048/13 H153323					
		58-06-040/63 H169477					
		58-06-490/63 100x3 H77061					
		08-74-014/93 G 1/8" H16507					
		65-50-087/15 H118903					
		08-63-003/13 G1/8" H16388					
		08-29-381/93 H329934					
		08-29-288/93 H323606					
		16-36-569/59 H176406	16-36-544/59 H176407	16-36-644/59 H176408			
		16-36-569/69 H205659	16-36-544/69 H180818	16-36-644/69 H206984			
		16-36-569/29 H201115	16-36-544/29 H204847	16-36-644/29 H202592			
		16-36-569/61 H179715	16-36-544/61 H207015	16-36-644/61			
pos.	item	Menge	Beschreibung	Material	3"	DN80	4"
		1	Mitteldichtung	EPDM FDA-konform	58-33-047/93 H149617		
		1	Mitteldichtung	FPM FDA-konform	58-33-047/73 H153324		
38		1	Mitteldichtung	HNBR FDA-konform	58-33-047/33 H168903		
		1	Mitteldichtung	VMQ FDA-konform	58-33-047/13 H153325		
39		1	O-Ring	EPDM			
		1	O-ring				
40		1	O-Ring	EPDM	58-06-295/63 69 x3 H77039		
		1	O-ring				
41		1	Verschluß-Stopfen	Kunst. schwarz			
		1	Locking plug				
42		1	Sechskant Mutter mit Klemmteil	1.4301			
		1	Hexagon nut with clamp part				
43		1	G-Verschraubung	PVDF-schwarz / PA6.6			
		1	Straight union				
44		1	Typenschild ATEX	Kunststoff			
		1	ATEX label				
45		1	Typenschild	Kunststoff			
		1	Label				
		1	Ventileinsatz	EPDM	16-36-569/59 H176406	16-36-544/59 H176407	16-36-644/59 H176408
		1	Valve insert				
		1	Ventileinsatz	FPM	16-36-569/69 H205659	16-36-544/69 H180818	16-36-644/69 H206984
		1	Valve insert				
		1	Ventileinsatz	HNBR	16-36-569/29 H201115	16-36-544/29 H204847	16-36-644/29 H202592
		1	Valve insert				
		1	Ventileinsatz	VMQ	16-36-569/61 H179715	16-36-544/61 H207015	16-36-644/61
		1	Valve insert				







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

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

## A C H T U N G !

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

## Actuator parts:

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

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

## Parts in contact with product:

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

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

## C A U T I O N !

Avoid grease residues in product area.  
Grease all screws and threads before installation.  
Recommendation: Klüber Grease UH1 84-201

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Datum:	06.02.13	12.03.14									
Name:	Peters	Trytko									
Geprüft:											

Ersatzteilliste: spare parts list

**Doppelsitzventil DA3 DN40 - 100 ; 1.5 " - 4" - Ex II -/2G IIB TX**  
**Double seat valve DA3 DN40 -100 ; 1.5 " - 4" - Ex II -/2G IIB TX**

**APV**

SPX FLOW  
Germany

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**RN ATEX 053.73**

APV DELTA DA3+  
DN40-100, 1.5"-4"

DOUBLE SEAT VALVE



FOR SPECIFIC ATEX-APPLICATIONS

**SPXFLOW**

**SPX FLOW**

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Scan for DA3+ Valve  
Maintenance Video

