

## APV DELTA AP1/APT1

ASEPTIC PROCESS VALVE

FORM NO.: H317551 REVISION: GB-1

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





We,

**DESIGN CENTER/MANUFACTURER:** SPX Flow Technology Germany GmbH  
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**AUTHORIZED REPRESENTATIVE:** SPX Flow Europe Ltd.  
(for UKCA) Building A, Compass House, Manor Royal  
Crawley, RH10 9PY

declare under our sole responsibility that the

**APV double seal and double seat valves** of the series  
SD4, SDT4, SDU4, SDMS4, SDMSU4, SDTMS4, SWcip4, DSV, DA4, DA4 DPF, D4 SL, DU4  
SL, DT4 SL, DP4 SL, D4, DA3, DA3SLD, DE3, DEU3, DET3, DKR2, DKRT2, DKRH2

**APV butterfly valves** of the series SV1, SVS1F, SV2, SVS2F, SVL, SVSL, SVE, SVSE

**APV ball valves** of the series BLV1

**APV single seat, diaphragm and spring loaded valves** of the series  
S2, SW4, SWhp4, SW4DPF, SWmini4, SWT4, SWS4, MF4, MS4, MSP4, AP/T1, CPV, RG4,  
RG4DPF, RGMS4, RGE4, RGE4DPF, RGEMS4, PR2, PRD2, SI2, UF/R3, UF/R4, VRA/H

and the valve manifolds installed thereof

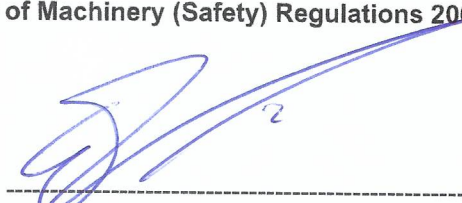
**meet the requirements of the Machinery Directive 2006/42/EC**  
& EN ISO 12100-2010, DIN EN ISO 14159-2008-07, DIN EN 1672-2-2009-07.

Holzwickede, November 2022

  
Dr.-Ing. Behdad Ariatabar, Design Center Lead - Valves

**meet the requirements of the Supply of Machinery (Safety) Regulations 2008 No. 1597**  
& BS harmonized standards.

Crawley, November 2022

  
Ewout Roozendaal, Director Global Pricing



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AP1, APT1 - actuated design

RN 01.064.8

AP1, APT1 - manual design

RN 01.064.8-1



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## 1. General Terms

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This instruction manual must be read carefully by the competent operating and maintenance personnel.  
We point out that we will not accept any liability for damage or malfunctions resulting from the non-compliance with this operating manual.  
Descriptions and data given herein are subject to technical changes.

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## 2. Safety Instructions

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### Danger!

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

- Separate electric and pneumatic connections.
- **Depressurize** and, if possible, discharge the line and cleaning system before any maintenance work!
- Observe Service Instructions to ensure safe maintenance of the valve.
- Seal connections which are not used with a plug!
- Ensure the safe discharge of the cleaning liquids!
- **Do not touch the open valve.**
- Do not open the actuator by force! It is under spring tension!



### Attention!

Valve design NC: Relieve the valve insert by controlling the actuator before releasing the clamp!

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## 3. Intended Use

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The intended use as field of application of the AP valve is the shut-off of line sections.  
Arbitrary, constructive changes at the valve will influence safety as well as the intended functionality of the valve and are not permissible.

### Authorizations and External Approvals

To view the certifications for this and other innovative SPX FLOW products, visit  
<https://www.spxflow.com/en/apv/about-us/certifications/>

## 4. Mode of Operation

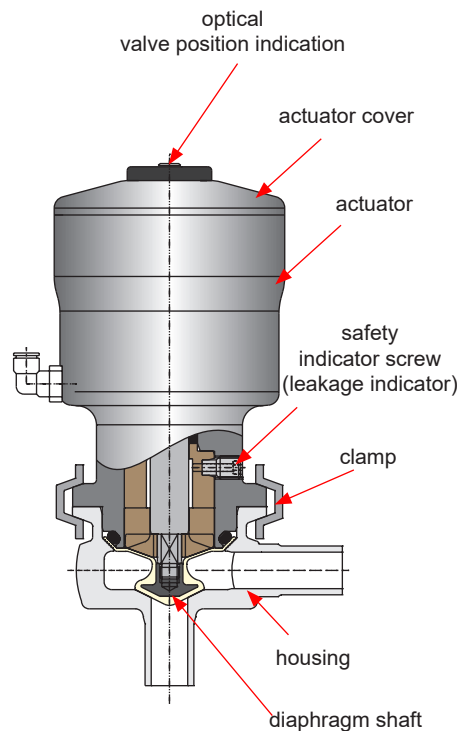
### 4.1 General terms

Due to its construction and mode of operation as well as the use of high-quality stainless steel and the corresponding seal materials, the aseptic process valve APV DELTA AP1 can be used in the food and beverage as well as in the pharmaceutical and chemical industries.

The function of the valve is to shut off line sections.

The diaphragm valves offer optimum protection of the product in hygienic and aseptic applications.

Product safety is provided by the hermetic separation of the product chamber from the environment (atmosphere) by a flexible diaphragm shaft.



- Different variants are available:
  - Type: AP1 - NC (FS) (NC = normally closed; air-to-raise, spring-to-lower)
  - Type: AP1 - NO (FH) (NO = normally open; air-to-lower, spring-to-raise)
  - Type: AP1 - AA (LL) (AA = air/air actuator)
  - Type: AP1 - M (H) (M = manual operation)
- Operation by pneumatic stroke actuator with air connection, reset by spring force.
- The cleaning of the inner area of the valve is undertaken during CIP cleaning of the line system.
- Leakages at the diaphragm are indicated at the safety indicator screw at the leakage drain.
- Maintainable actuator.
- Optical valve position indicator on the actuator cover.
- The pneumatic actuator can be equipped with an electric position switch (proximity switch) to indicate the current valve position.
- The valve diaphragm shaft is made of TFM material.
- Different housing variants (see spare parts drawings) are available.
- **Connections**

Beside the housings with weld ends according to DIN 11850 and ISO 1127 the following connections are available:

  - clamp connection according to DIN 32676
  - clamp connection according to ISO 2852

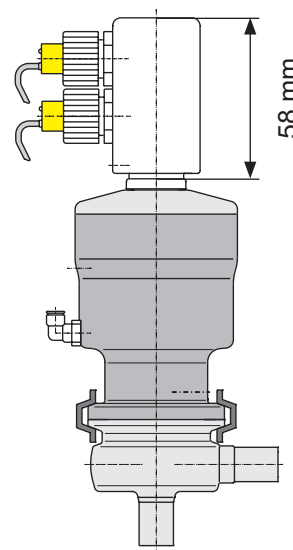
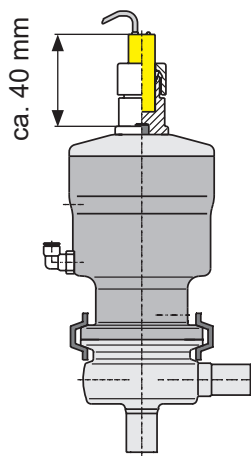
## 5. Auxiliary Equipment

### 5.1 Valve position indication / proximity switch

- The pneumatic actuator is equipped with one or two electric position switches (proximity switches) to indicate the current valve position.

feedback of valve position  
by proximity switch (PSH1)

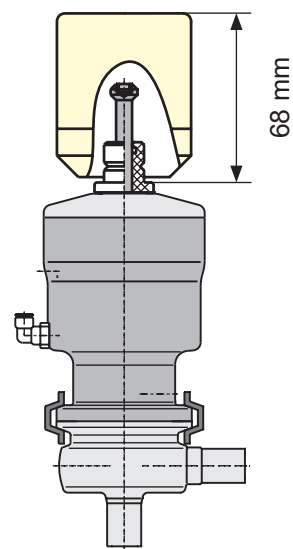
feedback of valve position by  
two proximity switches (PSH2)



### 5.2 Valve position indication / micro switch

- The pneumatic actuator can be equipped with an electric position switch (proximity switch) to indicate the current valve position.

feedback of valve position  
by two micro switches



## 6. Installation

- The installation of the valve must be undertaken in such a manner that fluids can drain off the valve housing and should preferably be provided in vertical position.
- The valve housing can be welded direct into the pipeline (completely dismantable valve insert).

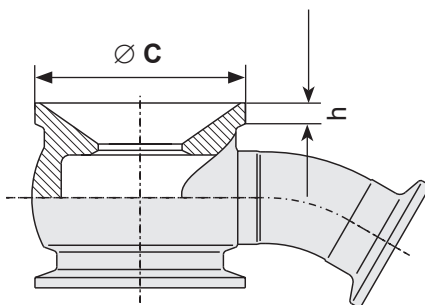
### Attention!

Observe welding instructions.

### 6.1 Welding Instructions Shut-off valve AP/APT

- Before welding of the valve, the valve insert must be dismantled from the housing (see paragraph 11.1.2. - 4.). Careful handling to avoid damage to the parts is necessary.
- To weld APT valves in tanks, the corresponding dimensions for the preparation of the tank bore can be drawn from table 1.
- 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 must be carried out as a square butt joint without air. (Consider shrinkage!)
- TIG orbital welding is best.
- ! After welding of the valve housings or of the mating flanges and after work at the pipelines, the corresponding parts of the installation or pipelines must be cleaned from welding residues and soiling. If these cleaning instructions are not observed, welding residues and dirt particles can damage or destroy the diaphragm shaft.
- 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.

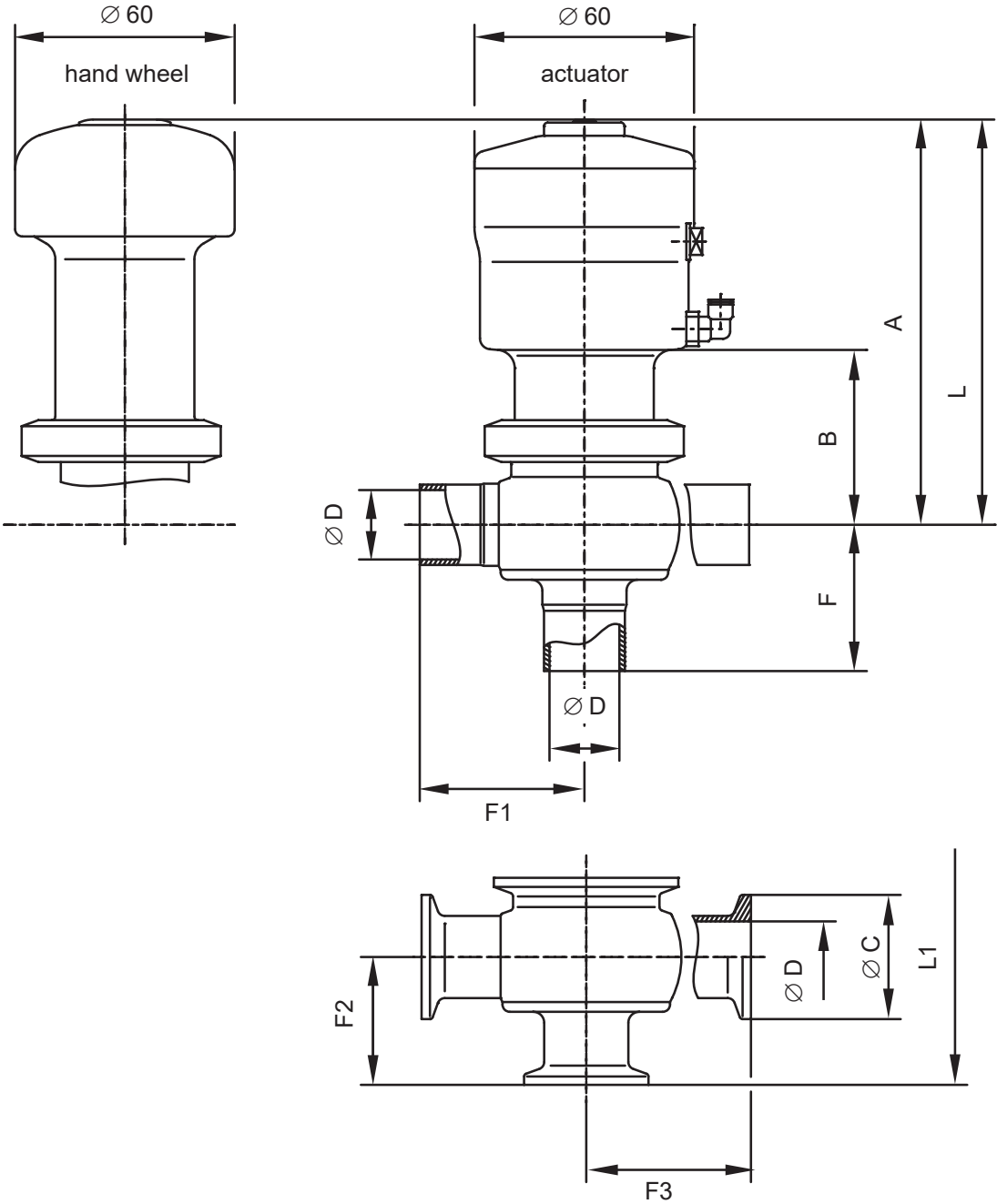
### 6.2 Dimensions in mm for tank bore



| DN | Inch | Ø C -0,1 | h |
|----|------|----------|---|
| 10 | 1/2" | 46       | 3 |
| 15 |      | 46       | 3 |
| 20 |      | 46       | 5 |

7. Dimensions

7.1 Dimensions AP1

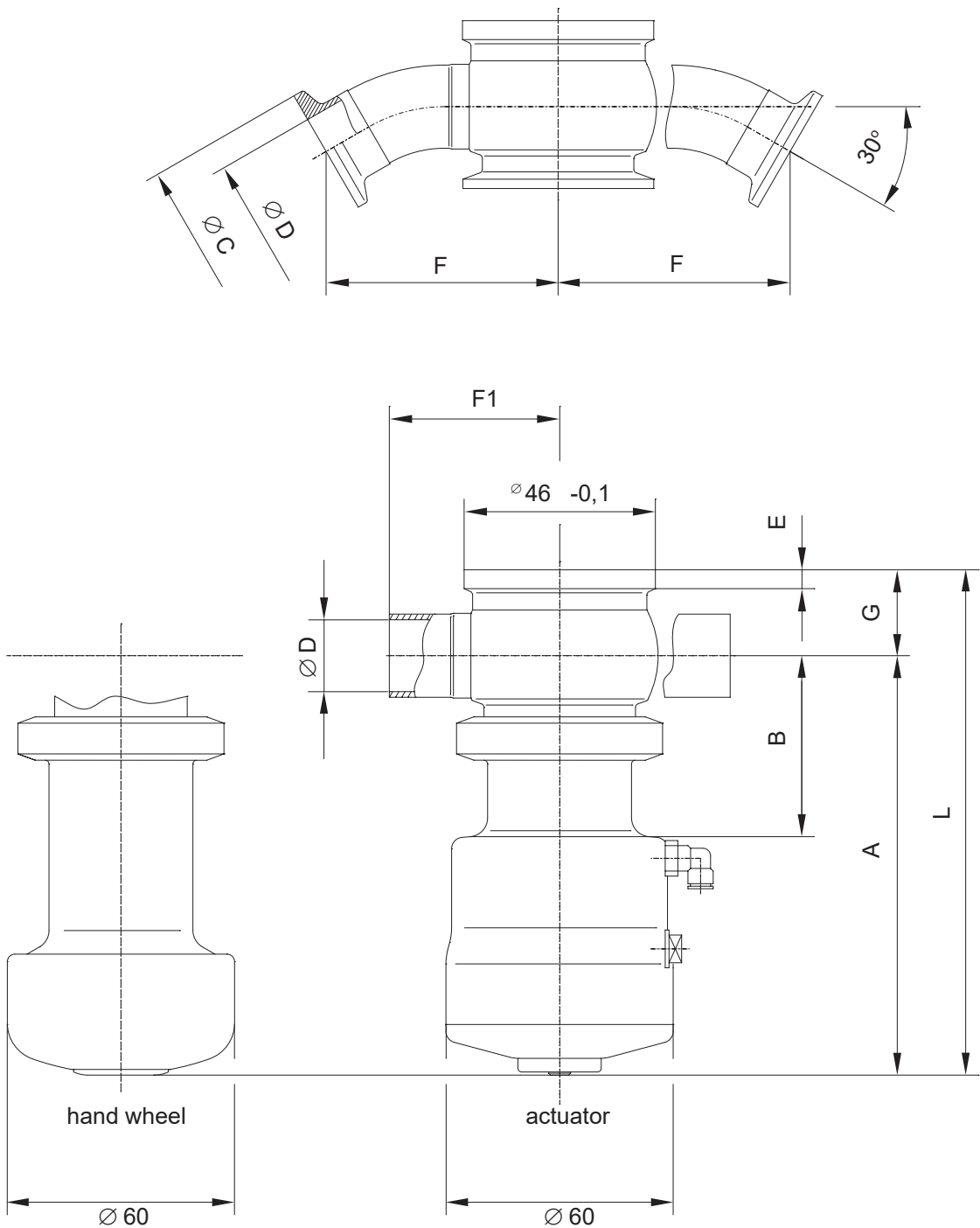


Dimensions in mm

| DN   | $\varnothing D$ | F  | F1 | F2   | F3 | A   | B  | $\varnothing C$ | L   | L1    |
|------|-----------------|----|----|------|----|-----|----|-----------------|-----|-------|
| 1/2" | 9,5             | 30 | 45 | 19,5 | 41 | 105 | 43 | 25              | 135 | 124,5 |
| 10   | 10              | 30 | 45 | 19,5 | 41 | 105 | 43 | 25              | 135 | 124,5 |
| 15   | 16              | 35 | 45 | 30   | 45 | 108 | 46 | 34              | 153 | 138   |
| 20   | 20              | 40 | 45 | 35   | 45 | 110 | 48 | 34              | 155 | 145   |

7. Dimensions

7.2 Dimensions APT1



Dimensions in mm

| DN   | $\varnothing D$ | F    | F1 | A   | B  | $\varnothing C$ | E | G    | L     |
|------|-----------------|------|----|-----|----|-----------------|---|------|-------|
| 1/2" | 9,5             | 53,5 | 45 | 105 | 43 | 25              | 3 | 17,5 | 122,5 |
| 10   | 10              | 53,5 | 45 | 105 | 43 | 25              | 3 | 17,5 | 122,5 |
| 15   | 16              | 63   | 45 | 108 | 46 | 34              | 3 | 18,7 | 123,7 |
| 20   | 20              | 66   | 45 | 110 | 48 | 34              | 5 | 22,8 | 132,8 |

## 7. Weights

### 7.3 Weights in kg

AP1-NC = actuator operated  
AP1-M = manual operation

| DN/Inch | AP1 - NC<br>metal actuator | AP1 - NC<br>plastic actuator |
|---------|----------------------------|------------------------------|
| 10/1/2" | 1,5 kg                     | 0,9 kg                       |
| 15      | 1,6 kg                     | 1,0 kg                       |
| 20      | 1,65 kg                    | 1,05 kg                      |

| DN/Inch | AP1 - M<br>metal actuator | AP1 - M<br>plastic actuator |
|---------|---------------------------|-----------------------------|
| 10/1/2" | 1,2 kg                    | 0,85 kg                     |
| 15      | 1,3 kg                    | 0,95 kg                     |
| 20      | 1,35 kg                   | 1,0 kg                      |

## 8. Technical Data

### 8.1 General terms

line pressure: 10 bar

max. operating temperature: 135 °C

short-term load: 150 °C

air connection (for hose): 4 x 1 mm standard

max. pneumatic air pressure: 10 bar

min. pneumatic air pressure: 6 bar

### 8.2 Specification of compressed air quality

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

**content of solid particles:** **quality class 3**  
max. size of solid particles per m<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. 0,01mg/m<sup>3</sup>

**The oil applied must be compatible with Polyurethane elastomer materials.**

## 8. Technical Data

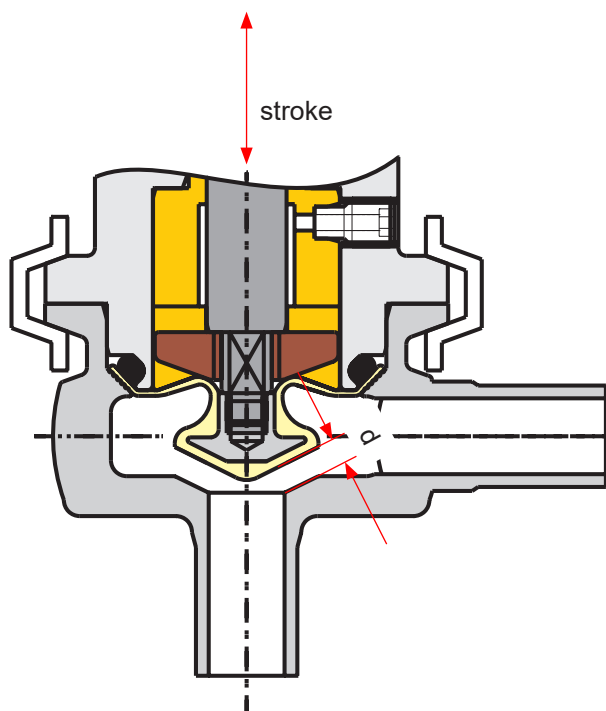
### 8.3 Closing times

closing time in sec. at pneumatic pressure of 6 bar

| DN         | hose length<br>1 m | hose length<br>10 m |
|------------|--------------------|---------------------|
| 10, 15, 20 | 0,1 sec.           | 0,4 sec.            |

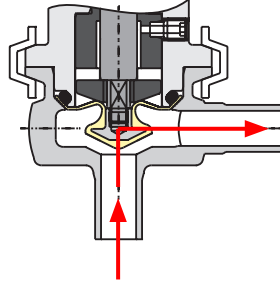
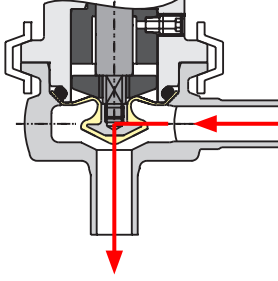
### 8.4 Valve strokes/closing pressure/opening section

| DN | AP1 shut-off valve |                  |                        |
|----|--------------------|------------------|------------------------|
|    | stroke             | closing pressure | opening section<br>(d) |
| 10 | 4 mm               | 10 bar           | Ø 3,6 mm               |
| 15 | 4 mm               | 10 bar           | Ø 3,6 mm               |
| 20 | 4 mm               | 10 bar           | Ø 3,6 mm               |



## 8. Technical Data

### 8.5 Flow values kvs in m³/h

|    |      |  |  |
|----|------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| DN | Inch |                                                                                    |                                                                                     |
| 10 | 1/2" | 2,4 m³/h                                                                           | 2,4 m³/h                                                                            |
| 15 |      | 5,5 m³/h                                                                           | 6,0 m³/h                                                                            |
| 20 |      | 7,0 m³/h                                                                           | 8,0 m³/h                                                                            |

## 9. Materials

### Product-wetted parts

- housing: **1.4404 (316L)**  
(DIN EN 10088)  
**option 1.4435**  
(DIN EN 10088)

### Other parts

- actuator, actuator cover **PPS40**  
**option 1.4301 (304L)**  
(DIN EN 10088)
- piston rod, clamp **1.4301 (304L)**  
(DIN EN 10088)
- proximity switch holder, plug **PA 12 black**

### Seals

- diaphragm shaft **TFM**

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## 10. Maintenance

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- The maintenance intervals depend on the application and should be determined by the operator carrying out temporary checks.
- Tools required:
  - 1 x spanner SW8
  - 1 x spanner SW13
  - 1 x wrench SW12
  - 1 x wrench SW5
  - 1 x wrench SW3
- For the valve service we supply complete seal kits (pl. see spare parts lists). The appropriate seal grease forms part of this scope of supply.
- The replacement of seals is undertaken according to the Service Instructions.
- The disassembly and assembly of the valve is undertaken according to the Service Instructions.
- **All seals must be provided with a thin layer of grease before their installation!!!**

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

**Recommendation:**

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

**Recommendation for screw retention**

Type: Loctite 243 semi-solid  
(50 ml - ref.-No. 00070-01-111/93; H206336)

**Recommendation for piston seal**

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

## 11. Service Instructions

### 11.1. Dismantling from the line system AP1/APT1

1. Shut off line pressure and discharge lines and tanks if possible.

2. **Valve design NC:** Control actuator with air.

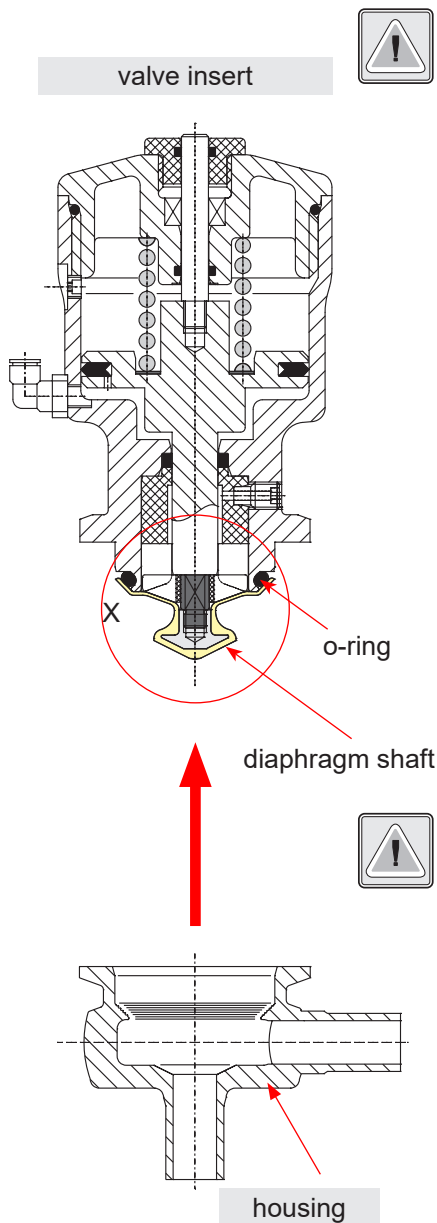
**Do not touch movable parts!**

**Risk of injury.**

**Valve design NO:** For the disassembly from the line system compressed air is not required.

3. Remove the clamp and and lift the complete valve insert including actuator out of the housing.

**Valve design NC:** Cut off compressed air.



### 11.2. Dismantling of product-wetted seal elements

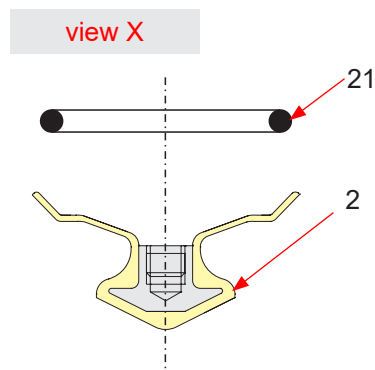
1. Pull the diaphragm shaft (2) from the piston rod (17) and remove the o-ring (21).

**Valve design NO:** Control the actuator with compressed air.

**Do not touch movable valve parts!**

**Risk of injury.**

2. Remove the diaphragm shaft and o-ring.  
Cut off compressed air.



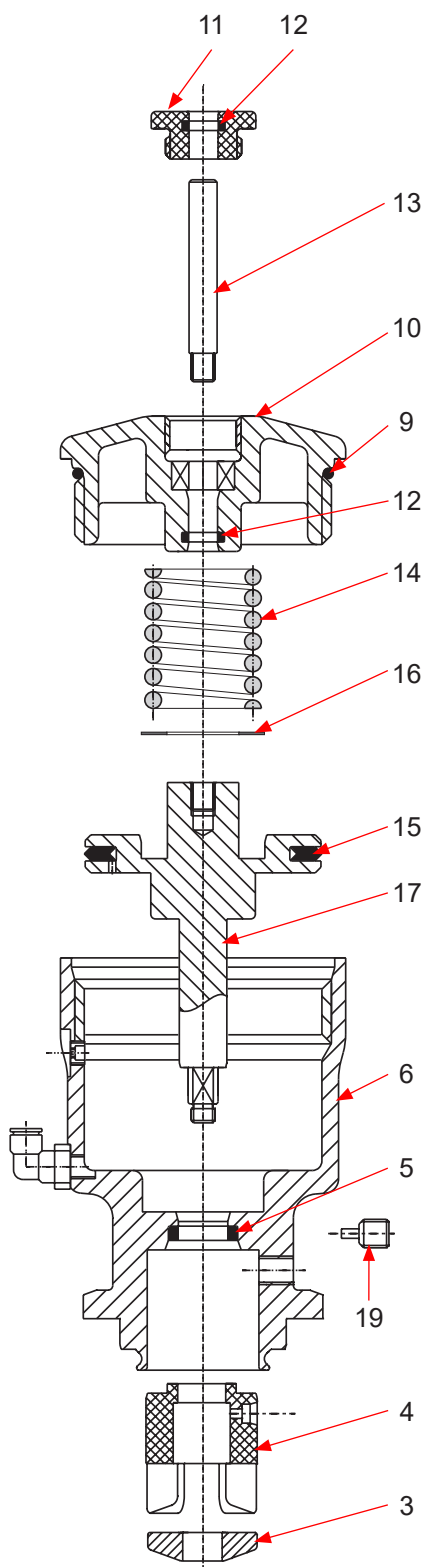
## 11. Service Instructions

### 11.3. Disassembly and maintenance of actuator unit

The item numbers refer to the spare parts drawings  
AP1, APT1: actuated design RN 01.064.8

- **Design with valve position indicator:**  
Remove the cover of the valve position indicator (22).  
Turn off the actuating pin (24) with the wrench SW4.  
Remove the adaptor plug (23) from the actuator cover.
- **Design with proximity switch holder:**  
Remove the proximity switch (26).  
Remove the proximity switch holder (25) from the actuator cover (10). Turn off the indicator pin (13) with a nipper.  
**Attention! Do not damage the indicator pin.**

1. Turn off the thread pin (11) and remove the o-ring (12).
2. Turn the actuator cover (10) with the wrench SW12 off the actuator (6). Remove the o-ring (9) and the o-ring (12).
3. Pull the pressure spring (14), disc (16) and piston rod (17) to the top off the actuator. Remove the piston seal (15) from the piston
4. Turn off the safety indicator screw (19) with the wrench SW3. Remove the fan (3) and diaphragm support (4) to the bottom out of the actuator. Remove the quadding (5).
5. All seals can be serviced.



## 11. Service Instructions

### 11.4. Assembly of actuator unit

The item numbers refer to the spare parts drawings  
**AP1, APT1: actuated design RN 01.064.8**

**! Provide all seals with a thin layer of grease.**

**! Attention! Only for the piston seal must the appropriate pneumatic grease be used (see paragraph 9).**

1. Insert the piston seal (15) in the piston rod (17). Place the disc (16) in the groove of the piston rod. Insert the piston rod with disc from the top into the actuator (6) until it stops. Insert the pressure spring (14).

2. Insert the o-ring (12) and o-ring (9) in the housing cover. Turn the housing cover manually in the lower actuator.

3. Slide the quadding (5) on the stud of the piston rod. Slide the diaphragm support (4) from the bottom into the actuator. During this process, the quadding is guided into the groove of the actuator.

**Attention!** When introducing the diaphragm support in the actuator, observe the bore position for the safety indicator screw (19).

4. Provide the thread of the safety indicator screw (19) with Loctite. Fasten the indicator screw in the thread of the actuator (diaphragm support is fixed by stud of indicator screw).

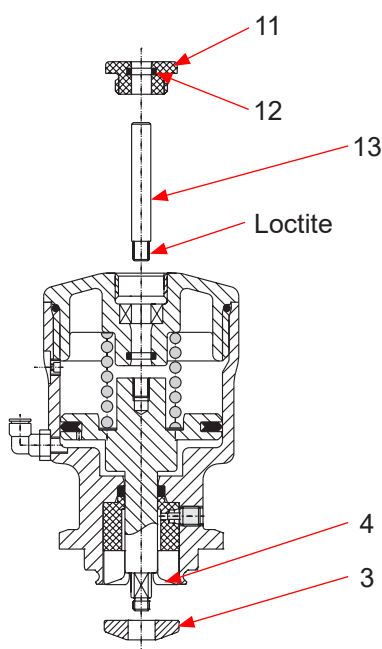
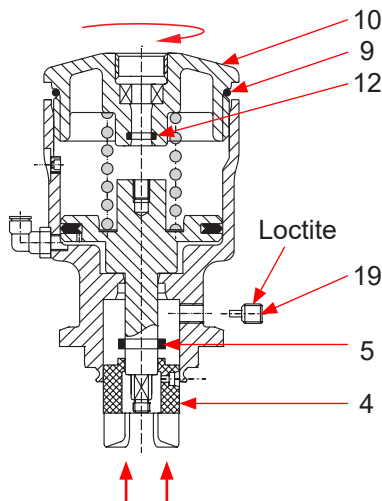
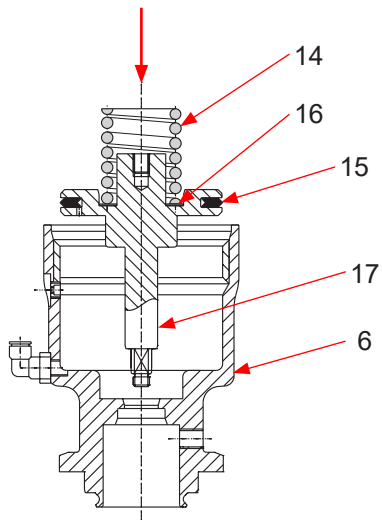
5. Insert the fan (3) in the diaphragm support (4).  
**Attention!** The fan must lock in the diaphragm support.

6. Fasten the actuator cover (10) with a wrench SW12.

7. Provide the thread of the indicator pin (13) with Loctite. Turn the indicator pin manually through the actuator cover in the piston rod and tighten it with a nipper.

**Attention!** The indicator pin must not be damaged.

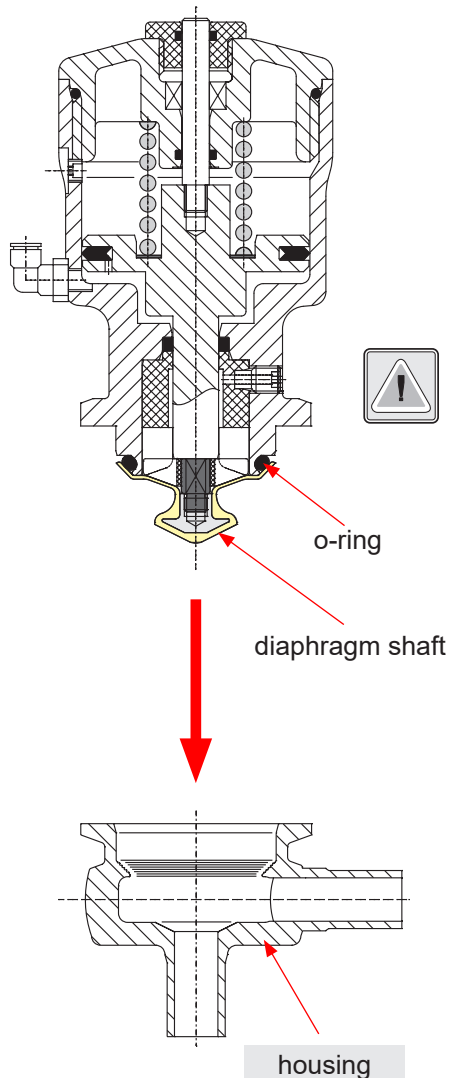
8. Insert the o-ring (12) in the thread plug. Tighten the thread plug.



## 11. Service Instructions

### 11.5. Assembly of product-wetted sealing elements

1. Insert the o-ring (21) in the groove of the actuator. Fasten the diaphragm shaft (2) manually on the thread of the piston rod.



### 11.6. Assembly of valve

1. **Valve design NC:** Control the actuator with compressed air.

**Do not touch movable valve parts!**  
**Risk of injury.**

2. **Attention!** Before placing the valve insert in the housing, clean the inner space of the housing. Use appropriate cleaning agent.
  - Place the valve insert in the housing and fasten it with the clamp.
3. Cut off compressed air.

**Valve design NO:** Compressed air is not required for assembly.

## 12. Trouble Shooting

| Trouble                                                                                             | Remedy                                                                                                       |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Valve does not seal up.<br>Leakage from the safety indicator screw.                                 | Replace o-ring (21) and diaphragm shaft (2).<br>Check line pressure:<br>Adm. line pressure see paragraph 7.1 |
| Leakage between housing and actuator in the clamp area.                                             | Replace o-ring (21) and diaphragm shaft (2).                                                                 |
| Actuator does not work, air escapes permanently in the area of the actuator cover or indicator pin. | Replace piston seal (15), o-ring (9) and o-rings (12).                                                       |
| Compressed air escapes from the safety indicator screw.                                             | Replace quadring (5).                                                                                        |
| Valve position indication from proximity switch is missing or is imprecise.                         | Adjust proximity switch.<br>Plug proximity switch in proximity switch holder until stop.                     |
| Leakage from the drain pipe                                                                         | Remove the drain pipe (1) to check and find out reason.                                                      |

**! If damaged seals are replaced, generally all seals should be renewed. For valve service actions SPX FLOW supplies complete seal kits (see spare parts lists. )**

## 13. 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:

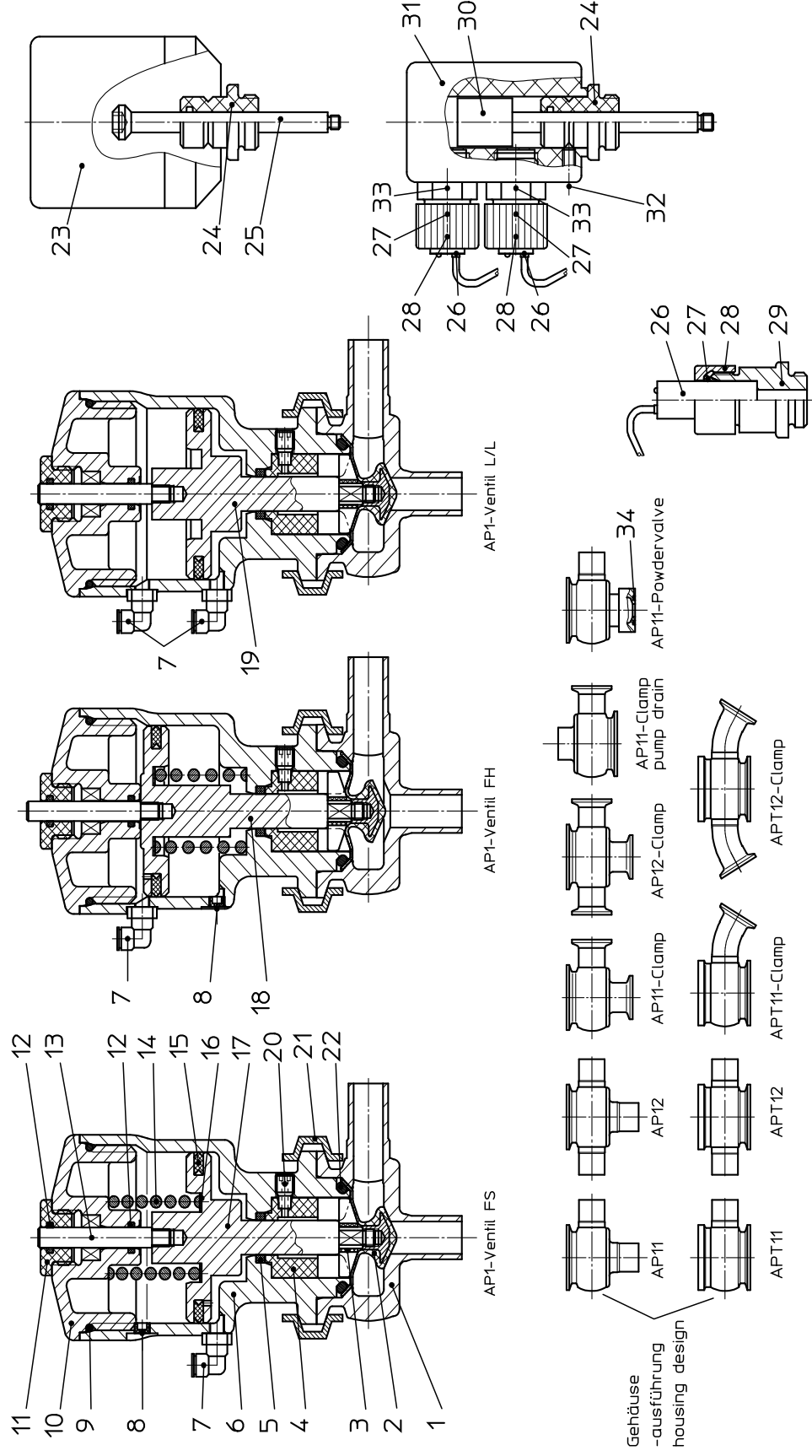
- number of parts required
- reference number
- designation

Data are subject to change.



Ersatzteilliste: spare parts list

Ersatzteilliste: spare parts list

[illegible]

|                                                                      |          |                    |          |                             |                             |                             |                             |                    |                     |  |  |  |
|----------------------------------------------------------------------|----------|--------------------|----------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------|---------------------|--|--|--|
| Ersatzteilliste: spare parts list                                    |          |                    |          |                             |                             |                             |                             |                    |                     |  |  |  |
| AP1, APT1-Ventil FS, FH, L/L, VSM-Microschalter, Initiatorhalter     |          |                    |          |                             |                             |                             |                             |                    |                     |  |  |  |
| AP1, APT1-valve NC, NO, air/air, PSH-microswitch, prox.switch holder |          |                    |          |                             |                             |                             |                             |                    |                     |  |  |  |
| DN 1/2", 10, 15, 20-S und/and Clamp                                  |          |                    |          |                             |                             |                             |                             |                    |                     |  |  |  |
| pos.                                                                 | Menge    | Beschreibung       | Material | DN1/2"                      | DN10                        | DN15                        | DN20                        | pump drain<br>DN10 | powdervolve<br>DN10 |  |  |  |
| item                                                                 | quantity | description        | material | WS-Nr.<br>ref.-no.          | WS-Nr.<br>ref.-no.          | WS-Nr.<br>ref.-no.          | WS-Nr.<br>ref.-no.          | WS-Nr.<br>ref.-no. | WS-Nr.<br>ref.-no.  |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4404   | 000 39-41-223/42<br>H316880 | 000 39-41-148/42<br>H317691 | 000 39-41-198/42<br>H318121 | 000 39-41-248/42<br>H316882 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4404   | 000 39-42-223/42<br>H316881 | 000 39-42-148/42<br>H317695 | 000 39-42-198/42<br>H318125 | 000 39-42-248/42<br>H316883 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4435   | 318 39-41-223/86<br>H316260 | 318 39-41-148/86<br>H317693 | 318 39-41-198/86<br>H318122 | 318 39-41-248/86<br>H316289 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4435   | 318 39-42-223/86<br>H316261 | 318 39-42-148/86<br>H317697 | 318 39-42-198/86<br>H318123 | 318 39-42-248/86<br>H316291 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4404   |                             |                             |                             |                             |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4404   |                             |                             |                             |                             |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4435   |                             |                             | 318 39-43-198/86<br>H329505 |                             |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4435   |                             |                             |                             |                             |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4404   | 000 39-41-225/42<br>H316884 | 000 39-41-150/42<br>H317692 | 000 39-41-200/42<br>H318126 | 000 39-41-250/42<br>H316886 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4404   | 000 39-42-225/42<br>H316885 | 000 39-42-150/42<br>H317696 | 000 39-42-200/42<br>H318127 | 000 39-42-250/42<br>H316887 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4435   | 318 39-41-225/86<br>H316288 | 318 39-41-150/86<br>H317694 | 318 39-41-200/86<br>H318124 | 318 39-41-250/86<br>H316390 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4435   | 318 39-42-225/86<br>H316290 | 318 39-42-150/86<br>H317698 | 318 39-42-200/86<br>H318128 | 318 39-42-250/86<br>H316391 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4404   | 000 39-43-225/42<br>H316888 | 000 39-43-150/42<br>H317723 | 000 39-43-200/42<br>H318131 | 000 39-43-250/42<br>H317396 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4404   | 000 39-44-225/42<br>H316889 | 000 39-44-150/42<br>H317725 | 000 39-44-200/42<br>H318132 | 000 39-44-250/42<br>H317398 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4435   | 318 39-43-225/86<br>H316392 | 318 39-43-150/86<br>H317724 | 318 39-43-200/86<br>H318129 | 318 39-43-250/86<br>H316292 |                    |                     |  |  |  |
|                                                                      | 1        | Gehäuse<br>Housing | 1.4435   | 318 39-44-225/86<br>H316393 | 318 39-44-150/86<br>H317726 | 318 39-44-200/86<br>H318130 | 318 39-44-250/86<br>H316293 |                    |                     |  |  |  |

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Ersatzteilliste: spare parts list

AP1, APT1-Ventil FS, FH, L/L, VSM-Microschalter, Initiatorhalter  
AP1, APT1-valve NC, NO, air/air, PSH-microswitch, prox.switch holder  
DN 1/2", 10, 15, 20-S und/and Clamp

|                                                                      |                   |                                                                   |           |                         |                         |                         |                         |                             |                     |        |
|----------------------------------------------------------------------|-------------------|-------------------------------------------------------------------|-----------|-------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|---------------------|--------|
| Ersatzteilliste: spare parts list                                    |                   |                                                                   |           |                         |                         |                         |                         |                             |                     |        |
| AP1, APT1-Ventil FS, FH, L/L, VSM-Microschalter, Initiatorhalter     |                   |                                                                   |           |                         |                         |                         |                         |                             |                     |        |
| AP1, APT1-valve NC, NO, air/air, PSH-microswitch, prox.switch holder |                   |                                                                   |           |                         |                         |                         |                         |                             |                     |        |
| DN 1/2" , 10, 15, 20-S und/and Clamp                                 |                   |                                                                   |           |                         |                         |                         |                         |                             |                     |        |
| pos.<br>item                                                         | Menge<br>quantity | Beschreibung<br>description                                       | Material  | DN1/2"                  | DN10                    | DN15                    | DN20                    | pump drain<br>DN10          | powdervolve<br>DN10 |        |
|                                                                      |                   |                                                                   |           |                         |                         |                         |                         |                             |                     |        |
| 1                                                                    | 1                 | Gehäuse<br>Housing                                                | 1.4404    | WS-Nr.<br>ref.-no.      | WS-Nr.<br>ref.-no.      | WS-Nr.<br>ref.-no.      | WS-Nr.<br>ref.-no.      | WS-Nr.<br>ref.-no.          | WS-Nr.<br>ref.-no.  |        |
|                                                                      |                   | AP11 1S<br>matt/finish                                            |           |                         |                         |                         |                         |                             |                     |        |
|                                                                      |                   | Gehäuse<br>Housing                                                |           |                         |                         |                         |                         |                             |                     | 1.4435 |
|                                                                      |                   | AP11 1S<br>handpoliert/manually polish.                           |           |                         |                         |                         |                         |                             |                     |        |
| 1                                                                    | 1                 | Gehäuse<br>Housing                                                | 1.4404    |                         |                         |                         |                         |                             |                     |        |
|                                                                      |                   | AP11 1Clamp<br>metallblank/bright metal fin.                      |           |                         |                         |                         |                         |                             |                     |        |
| 1                                                                    | 1                 | Gehäuse<br>Housing                                                | 1.4435    |                         |                         |                         |                         | 318 39-41-149/86<br>H317786 |                     |        |
|                                                                      |                   | AP11 1Clamp<br>handpoliert/manually polish.                       |           |                         |                         |                         |                         |                             |                     |        |
| 2                                                                    | 1                 | Membranschaft<br>Diaphragm shaft                                  | TFM 1705  | 39-22-980/22<br>H316239 | 39-22-982/22<br>H318047 | 39-22-983/22<br>H316240 | 39-22-986/22<br>H317787 |                             |                     |        |
| 3                                                                    | 1                 | Stern AP10-20<br>Star AP10-20                                     | PPS 40    |                         |                         | 08-48-501/93<br>H316237 |                         |                             |                     |        |
| 4                                                                    | 1                 | Membranunterstützung<br>Membrane support                          | PPS 40    |                         |                         | 08-48-500/93<br>H316238 |                         |                             |                     |        |
| 5                                                                    | 1                 | Quadring<br>Quadring                                              | FKM       |                         |                         | 58-01-796/73<br>H316246 |                         |                             |                     |        |
| 6                                                                    | 1                 | Steuerkopf unten<br>Actuator lower                                | 1.4301    |                         |                         | 15-31-086/13<br>H316875 |                         |                             |                     |        |
|                                                                      | 1                 | Steuerkopf unten<br>Actuator lower                                | 1.4301    |                         |                         | 15-31-086/12<br>H316269 |                         |                             |                     |        |
|                                                                      | 1                 | Steuerkopf unten<br>Actuator lower                                | PPS 40    |                         |                         | 15-31-086/93<br>H317393 |                         |                             |                     |        |
| 7                                                                    | 1                 | Luftanschluss<br>Air-Connecting                                   |           |                         |                         | 08-63-102/93<br>H316242 |                         |                             |                     |        |
| 8                                                                    | 1                 | Filternippel für AP10-20 kurz<br>Filter nipple for AP 10-20 short |           |                         |                         | 08-74-061/93<br>H316603 |                         |                             |                     |        |
| 9                                                                    | 1                 | O-Ring<br>O-ring                                                  | FKM (FPM) |                         |                         | 58-06-215/73<br>H316245 |                         |                             |                     |        |
| 10                                                                   | 1                 | Steuerkopfdeckel<br>Actuator cover                                | 1.4301    |                         |                         | 08-43-054/13<br>H316874 |                         |                             |                     |        |
|                                                                      | 1                 | Steuerkopfdeckel<br>Actuator cover                                | 1.4301    |                         |                         | 08-43-054/12<br>H316270 |                         |                             |                     |        |

Ersatzteilliste: spare parts list

**AP1, APT1-Ventil FS, FH, L/L, VSM-Microschalter, Initiatorhalter**  
**AP1, APT1-valve NC, NO, air/air, PSH-microswitch, prox.switch holder**  
**DN 1/2", 10, 15, 20-S und/and Clamp**

|          |          |  |  |
|----------|----------|--|--|
| Datum:   | 07.01.13 |  |  |
| Name:    | Trytko   |  |  |
| Geprüft: |          |  |  |

**APV**  
SPX FLOW  
Germany

[illegible]

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Ersatzteilliste: spare parts list

|          |  |  |  |  |
|----------|--|--|--|--|
| Geprüft: |  |  |  |  |
| Datum:   |  |  |  |  |
| Name:    |  |  |  |  |

|               |  |  |  |  |  |
|---------------|--|--|--|--|--|
| Datum:        |  |  |  |  |  |
| Name:         |  |  |  |  |  |
| Geprüft:      |  |  |  |  |  |
| Blatt 6 von 6 |  |  |  |  |  |
| RN 01.064.8   |  |  |  |  |  |

|                    |                    |                           |                            |
|--------------------|--------------------|---------------------------|----------------------------|
| DN15               | DN20               | <b>pump drain</b><br>DN10 | <b>powdervolve</b><br>DN10 |
| WS-Nr.<br>ref.-no. | WS-Nr.<br>ref.-no. | WS-Nr.<br>ref.-no.        | WS-Nr.<br>ref.-no.         |

| train | powdervolve |
|-------|-------------|
| 0     | DN10        |
| Nr.   | WS-Nr.      |
| no.   | ref.-no.    |

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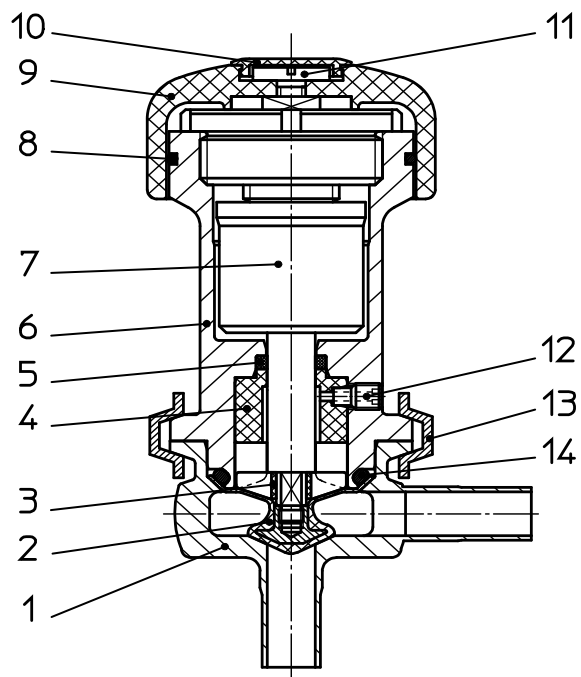
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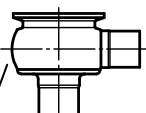
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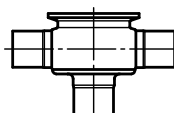
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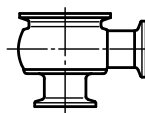
Gehäuseausführung  
housing design



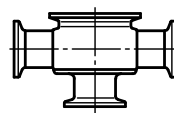
AP11



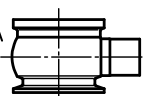
AP12



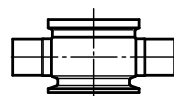
AP11-Clamp



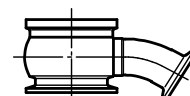
AP12-Clamp



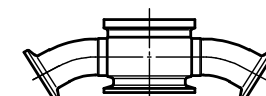
APT11



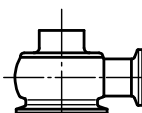
APT12



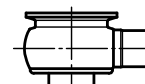
APT11-Clamp



APT12-Clamp



AP11-Clamp  
pump drain



15  
AP11-Powderv valve

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|          |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Datum:   | 15.01.13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Name:    | Trytko   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Geprüft: |          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Ersatzteilliste: spare parts list  
**AP1, APT1-Ventil Handantrieb**  
**AP1, APT1-valve manual handle**  
**DN 1/2", 10, 15, 20 -S und / and -Clamp**



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Blatt 1 von 4

**RN 01.064.8-1**

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**Ersatzteilliste: spare parts list**

## AP1, APT1-Ventil Handantrieb

## AP1, APT1-valve manual handle

**DN 1 1/2", 10, 15, 20 -S und / and -Clamp**

Ersatzteilliste: spare parts list

APV  
SPX FLOW  
Germany

Datum:  
Name:  
Geprüft:

15.01.13  
  
Trytko

Blatt 2 von 4

RN01.064.8-1

pos.

Menge

Beschreibung

Description

Material

DN1/2"

WS-Nr.  
ref.-no.

DN10

WS-Nr.  
ref.-no.

DN15

WS-Nr.  
ref.-no.

DN20

WS-Nr.  
ref.-no.

pump drain  
DN10

powdervolve  
DN10

1

Gehäuse  
Housing

AP11 1+2S  
metallblank/bright metal fin.

material

1.4404

000 39-41-223/42  
H316880

000 39-41-148/42  
H317691

000 39-41-198/42  
H318121

000 39-41-248/42  
H316882

1

Gehäuse  
Housing

AP12 1+2+3S  
metallblank/bright metal fin.

material

1.4404

000 39-42-223/42  
H316881

000 39-42-148/42  
H317695

000 39-42-198/42  
H318125

000 39-42-248/42  
H316883

1

Gehäuse  
Housing

AP11 1+2S  
handpoliert/manually polish.

material

1.4435

318 39-41-223/86  
H316260

318 39-41-148/86  
H317693

318 39-41-198/86  
H318122

318 39-41-248/86  
H316289

1

Gehäuse  
Housing

AP12 1+2+3S  
handpoliert/manually polish.

material

1.4435

318 39-42-223/86  
H316261

318 39-42-148/86  
H317697

318 39-42-198/86  
H318123

318 39-42-248/86  
H316291

1

Gehäuse  
Housing

APT11 1+2S  
metallblank/bright metal fin.

material

1.4404

1

Gehäuse  
Housing

APT12 1+2+3S  
metallblank/bright metal fin.

material

1.4404

1

Gehäuse  
Housing

APT11 1+2S  
handpoliert/manually polish.

material

1.4435

318 39-43-198/86  
H329505

1

Gehäuse  
Housing

APT12 1+2+3S  
handpoliert/manually polish.

material

1.4435

1

Gehäuse  
Housing

AP11 1+2 Clamp  
metallblank/bright metal fin.

material

1.4404

000 39-41-225/42  
H316884

000 39-41-150/42  
H317692

000 39-41-200/42  
H318126

000 39-41-250/42  
H316886

1

Gehäuse  
Housing

AP12 1+2+3 Clamp  
metallblank/bright metal fin.

material

1.4404

000 39-42-225/42  
H316885

000 39-42-150/42  
H317696

000 39-42-200/42  
H318127

000 39-42-250/42  
H316887

1

Gehäuse  
Housing

AP11 1+2 Clamp  
handpoliert/manually polish.

material

1.4435

318 39-41-225/86  
H316288

318 39-41-150/86  
H317694

318 39-41-200/86  
H318124

318 39-41-250/86  
H316390

1

Gehäuse  
Housing

AP12 1+2+3 Clamp  
handpoliert/manually polish.

material

1.4435

318 39-42-225/86  
H316290

318 39-42-150/86  
H317698

318 39-42-200/86  
H318128

318 39-42-250/86  
H316391

1

Gehäuse  
Housing

APT11 1+2 Clamp  
metallblank/bright metal fin.

material

1.4404

000 39-43-225/42  
H316888

000 39-43-150/42  
H317723

000 39-43-200/42  
H318131

000 39-43-250/42  
H317396

1

Gehäuse  
Housing

APT12 1+2+3 Clamp  
metallblank/bright metal fin.

material

1.4404

000 39-44-225/42  
H316889

000 39-44-150/42  
H317725

000 39-44-200/42  
H318132

000 39-44-250/42  
H317398

1

Gehäuse  
Housing

APT11 1+2 Clamp  
handpoliert/manually polish.

material

1.4435

318 39-43-225/86  
H316392

318 39-43-150/86  
H317724

318 39-43-200/86  
H318129

318 39-43-250/86  
H316292

1

Gehäuse  
Housing

APT12 1+2+3 Clamp  
handpoliert/manually polish.

material

1.4435

318 39-44-225/86  
H316393

318 39-44-150/86  
H317726

318 39-44-200/86  
H318130

318 39-44-250/86  
H316293

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Ersatzteilliste: spare parts list

AP1, APT1-Ventil Handantrieb  
AP1, APT1-valve manual handle  
DN 1/2", 10, 15, 20 -S und / and -Clamp

| Ersatzteilliste: spare parts list                                                                         |      |                   |                                                                            |           |                         |                            |                            |                            |                                          |                                           | 15.01.13 |  |  |  |        |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------|------|-------------------|----------------------------------------------------------------------------|-----------|-------------------------|----------------------------|----------------------------|----------------------------|------------------------------------------|-------------------------------------------|----------|--|--|--|--------|--|--|--|----------------------------------------------------------------------------------|--|--|--|
| AP1, APT1-Ventil Handantrieb<br>AP1, APT1-valve manual handle<br>DN 1/2" , 10, 15, 20 -S und / and -Clamp |      |                   |                                                                            |           |                         |                            |                            |                            |                                          |                                           | Datum:   |  |  |  | Trytko |  |  |  |                                                                                  |  |  |  |
|                                                                                                           |      |                   |                                                                            |           |                         |                            |                            |                            |                                          |                                           | Name:    |  |  |  |        |  |  |  |                                                                                  |  |  |  |
|                                                                                                           |      |                   |                                                                            |           |                         |                            |                            |                            |                                          |                                           | Geprüft: |  |  |  |        |  |  |  |                                                                                  |  |  |  |
|                                                                                                           |      |                   |                                                                            |           |                         |                            |                            |                            |                                          |                                           | Datum:   |  |  |  |        |  |  |  | Blatt 3 von 4                                                                    |  |  |  |
|                                                                                                           |      |                   |                                                                            |           |                         |                            |                            |                            |                                          |                                           | Name:    |  |  |  |        |  |  |  | RN01.064.8-1                                                                     |  |  |  |
|                                                                                                           |      |                   |                                                                            |           |                         |                            |                            |                            |                                          |                                           | Geprüft: |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| pos.                                                                                                      | item | Menge<br>Quantity | Beschreibung<br>description                                                | Material  | DN1/2"                  | DN10<br>WS-Nr.<br>ref.-no. | DN15<br>WS-Nr.<br>ref.-no. | DN20<br>WS-Nr.<br>ref.-no. | pump drain<br>DN10<br>WS-Nr.<br>ref.-no. | powdervolve<br>DN10<br>WS-Nr.<br>ref.-no. |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
|                                                                                                           |      | 1                 | Gehäuse<br>Housing<br>AP11 1S<br>matt/finish                               | 1.4404    |                         |                            |                            |                            |                                          | 000 39-41-900/47<br>H320004               |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
|                                                                                                           |      | 1                 | Gehäuse<br>Housing<br>AP11 1S<br>handpoliert/manually polish.              | 1.4435    |                         |                            |                            |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
|                                                                                                           |      | 1                 | Gehäuse<br>Housing<br>AP11 1Clamp<br>metallblank/bright metal fin.         | 1.4404    |                         |                            |                            |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
|                                                                                                           |      | 1                 | Gehäuse<br>Housing<br>AP11 1Clamp<br>handpoliert/manually polish.          | 1.4435    |                         |                            |                            |                            | 318 39-41-149/86<br>H317786              |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 2                                                                                                         |      | 1                 | Membranschaft<br>Diaphragm shaft                                           | TFM 1705  | 39-22-980/22<br>H316239 |                            | 39-22-982/22<br>H318047    | 39-22-983/22<br>H316240    | 39-22-986/22<br>H317787                  |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 3                                                                                                         |      | 1                 | Stern AP10-20<br>Star AP10-20                                              | PPS 40    |                         |                            | 08-48-501/93<br>H316237    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 4                                                                                                         |      | 1                 | Membranunterstützung<br>Membrane support                                   | PPS 40    |                         |                            | 08-48-500/93<br>H316238    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 5                                                                                                         |      | 1                 | Quadring<br>Quadring<br>QRAR 4111A-V7002                                   | FKM       |                         |                            | 58-01-796/73<br>H316246    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 6                                                                                                         |      | 1                 | Steuerkopf unten<br>Actuator lower<br>handpoliert /<br>manually polished   | 1.4301    |                         |                            | 15-31-085/13<br>H316873    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
|                                                                                                           |      | 1                 | Steuerkopf unten<br>Actuator lower<br>metallblank /<br>bright metal finish | 1.4301    |                         |                            | 15-31-085/12<br>H316257    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
|                                                                                                           |      | 1                 | Steuerkopf unten<br>Actuator lower                                         | PPS 40    |                         |                            | 15-31-085/93<br>H317395    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 7                                                                                                         |      | 1                 | Kolbenstange<br>Piston rod                                                 | 1.4301    |                         |                            | 15-23-965/12<br>H316254    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 8                                                                                                         |      | 1                 | O-Ring<br>O-ring<br>ø47,6 x 2,4                                            | FKM (FPM) |                         |                            | 58-06-215/73<br>H316245    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 9                                                                                                         |      | 1                 | Handrad<br>Hand wheel                                                      | PPS 40    |                         |                            | 08-43-050/93<br>H316250    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 10                                                                                                        |      | 1                 | Abdeckstopfen<br>Plug                                                      | PE-LLD    |                         |                            | 08-74-046/93<br>H316286    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |
| 11                                                                                                        |      | 1                 | Flachkopfschraube<br>Pan head screw<br>M5 x 12                             | 1.4301    |                         |                            | 65-04-327/13<br>H316805    |                            |                                          |                                           |          |  |  |  |        |  |  |  |                                                                                  |  |  |  |

[illegible]



# APV DELTA AP1/APT1

ASEPTIC PROCESS VALVE



## SPX FLOW

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ISSUED 10/2018 - Translation of Original Manual

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