

## APV DELTA RUF3

CHECK VALVE

FORM NO.: H170781 REVISION: UK-5

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





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| <b>RUF3 - DIN &amp; Inch design</b> | <b>RN 01.102</b> |



## 1. General Terms

This instruction manual has to be read carefully and observed by the competent operating and maintenance personnel.

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

Descriptions and data given herein are subject to technical changes.

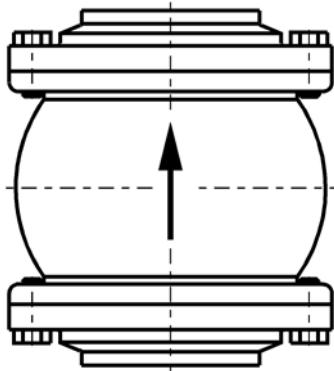
## 2. Safety Instructions



### DANGER!

- Before any maintenance of the valve, the line system must be depressurized and discharged if possible.
- Carefully observe the assembly instructions for a safe maintenance of the valve.

## 3. Mode of Operation



- The RUF3 valve is used at spots at which the reflux into the pipelines is to be prevented.
- Through its hygienic design, the valve is used mainly in the beverage industry.
- The valve opens by the pressure of the liquid against the spring-loaded valve disc. The closing process is initiated by the preloaded spring when the liquid flow into the flow direction stops.

**Authorizations and External Approvals:**  
3-A Sanitary Standards, Inc.

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## 4. Installation

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- The RUF3 valve can be installed in optional position. The flow direction must be in the direction of arrows.
- To provide for a complete discharge of the valve, the vertical installation position is to be aimed at (ball-shape housing). Horizontal installation position is not recommended.
- The valve can be welded directly into the pipeline as it deals with an intermediate flange design.
- **Attention!** Observe welding instructions.

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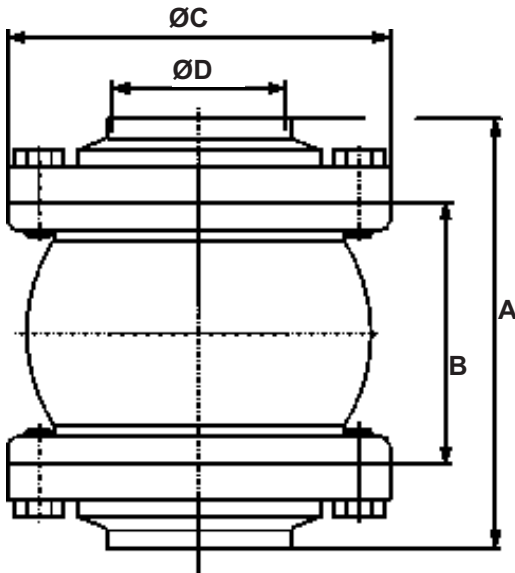
### 4.1 Welding Instructions

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#### RUF3

- Before welding, the flanges must be dismantled from the valve housing, just tacking or adjustment of the valves should be carried out with fixed welding flanges.
- Welding may 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 effected in such a way that deformation strain cannot be transferred from the outside to the valve body.
- The preparation of the weld seam up to 3 mm wall thickness must be carried out in butt manner as a square butt joint without air. (Consider shrinkage!)
- TIG orbital welding should be aimed at!
- 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 settle in the valve and cause damage.
- Any damage resulting from the nonobservance of these welding instructions is not subject to our guarantee.

## 5. Dimensions and Weights



| Dimensions in mm |     |     |     |      | Weight in kg |
|------------------|-----|-----|-----|------|--------------|
| DN               | A   | B   | Ø C | Ø D  | G            |
| 25               | 99  | 51  | 83  | 26   | 2,2          |
| 40               | 111 | 63  | 100 | 38   | 2,9          |
| 50               | 123 | 75  | 110 | 50   | 3,5          |
| 65               | 140 | 92  | 127 | 66   | 4,2          |
| 80               | 155 | 107 | 142 | 81   | 5,3          |
| 100              | 174 | 126 | 162 | 100  | 6,6          |
| 125              | 209 | 155 | 202 | 125  | 9,8          |
| 150              | 234 | 180 | 228 | 150  | 11,5         |
| inch             |     |     |     |      |              |
| 1"               | 99  | 51  | 83  | 22,2 | 2,2          |
| 1,5"             | 111 | 63  | 100 | 34,9 | 2,9          |
| 2"               | 123 | 75  | 110 | 47,6 | 3,5          |
| 2,5"             | 140 | 92  | 127 | 60,3 | 4,2          |
| 3"               | 146 | 98  | 134 | 72,9 | 5,3          |
| 4"               | 174 | 126 | 162 | 97,6 | 6,6          |

## 6. Technical Data

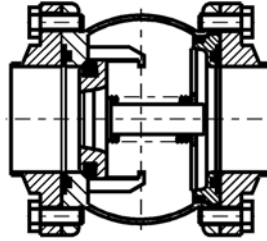
- max. line pressure **10 bar**
- max. operating temperature **135° C EPDM, HNBR, \*VMQ, \*FPM**
- short-term load **140° C EPDM, HNBR \*VMQ, \*FPM**  
**\*(no steam)**

## 6. Technical Data

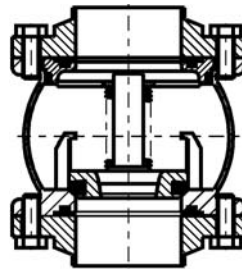
Horizontal installation position is **not** recommended!



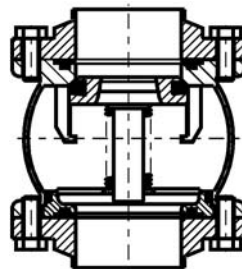
| Installation position | min. response pressure in ( bar ) |
|-----------------------|-----------------------------------|
|-----------------------|-----------------------------------|



0,025



0,040



0,015

| nominal dimension |      | kvs values in (m <sup>3</sup> /h) |
|-------------------|------|-----------------------------------|
| DN                | inch |                                   |
| 25                | 1"   | 14                                |
| 40                | 1,5" | 27                                |
| 50                | 2"   | 55                                |
| 65                | 2,5" | 107                               |
|                   | 3"   | 125                               |
| 80                |      | 166                               |
| 100               | 4"   | 260                               |
| 125               |      | 328                               |
| 150               |      | 466                               |



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## 7. Materials

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|  |   |  |
|--|---|--|
| Housing, shaft, flanges,<br>shaft bearings | : | <b>1.4571, 1.4404<br/>(DIN EN 10088)</b> |
| Screws                                     | : | <b>1.4301 (DIN EN 10088)</b>             |
| Seals standard design                      | : | <b>EPDM</b>                              |
| options                                    | : | <b>VMQ, FPM, HNBR</b>                    |

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## 8. Maintenance

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- The maintenance intervals depend on the corresponding application and are to be determined by the operator himself carrying out temporary checks.
- Replacement of seals according to service instructions.
- **All seals must be provided with a thin layer of grease before their installation.**

### Recommendation:

APV assembly grease for **EPDM, FPM** and **HNBR**

(750 g / tin - ref.-No. 00070-01-019/03; H147382)

(60 g / tube - ref.-No. 00070-01-018/93; H147381)

or

APV assembly grease for **VMQ**

(600 g / tin - ref.-No. 000 70-01-017/93; H147380)

(60 g / tube - ref.-No. 000 70-07-016/93; H147379)

- !!! Do not use grease containing mineral oil for EPDM seals !!!**  
**!!! Do not use Silicone-based grease for VMQ seals !!!**

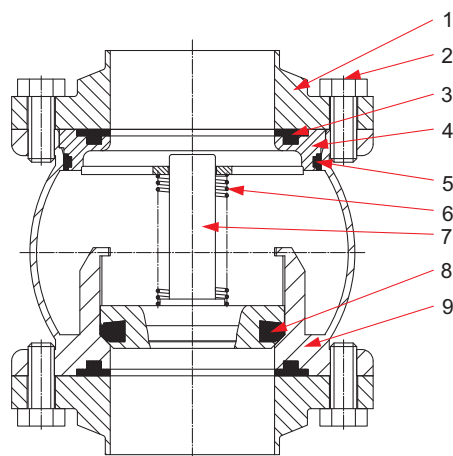
- Assembly of the valve according to service instructions.

## 9. Service Instructions

The item numbers refer to the spare parts drawings (DIN design: RN 01.102; inch design: RN 01.103).

### 9.1 Disassembly from the pipe system

- a. Shut off the line pressure. Discharge the line, if possible.
- b. Remove the flange screws (2).
- c. Take the non-return valve off the flanges (1).



### 9.2 Dismantling of wear parts

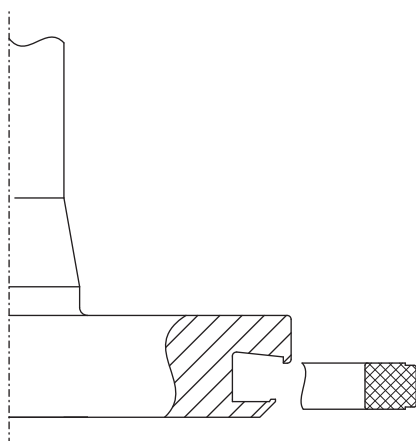
- a. Take off the flange seals (3).
- b. Remove the shaft bearing (4) from the housing body. For this purpose, the shaft bearing must be pressed out via the flange by a spanner.
- c. Remove the housing seals (5).
- d. Take off the pressure spring (6).
- e. Lift the valve shaft (7) out of the housing body in inclined position.
- f. Prick into the seat seal (8) by a peaked object (e.g. screw driver) and pull it off.

### 9.3 Installation of seals and assembly of the valve

- a. Press the slightly greased seat seal (8) at four spots, the wide side to the front, into the groove. At the four projecting loops the seal must be guided into the groove by a thin, blunt screw driver. Work alternately at all four loops to get an even fit of the seal. Finally, the seal is smoothed by strong pressing, e.g. by means of the handle of the screw driver and vented between the groove edge and the seal inner side down to the groove bottom by means of the blade of a thin screw driver.

Check the correct fit of the seal after the installation.

- b. Place the valve shaft (7) in the housing body and put the pressure spring (6) on the shaft rod.
- c. Insert the slightly greased housing seal (5) into the groove of the shaft bearing (4).



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## 9. Service Instructions

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- d. Press the shaft bearing (4) flush to the flange into the housing body (9).
- e. Press the slightly greased flange seals (3) into the outside flange grooves.
- f. Push the complete valve body into the pipeline between the mating flanges (1) and tighten it by the hexagon nuts (2).

**! Observe the flow direction !**

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## 10. Troube Shooting

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The item numbers refer to the spare parts drawing.  
Failure removal see chapter 9. Service Instructions.

The valve does not close:

Replace the seat seal (8).

Leakage between housing and mating flange:

Check flange seal (3) and/or housing seal (5).  
Replace the defective seal.

Valve does not operate perfectly:

Check the soft running of the shaft, replace damaged parts.

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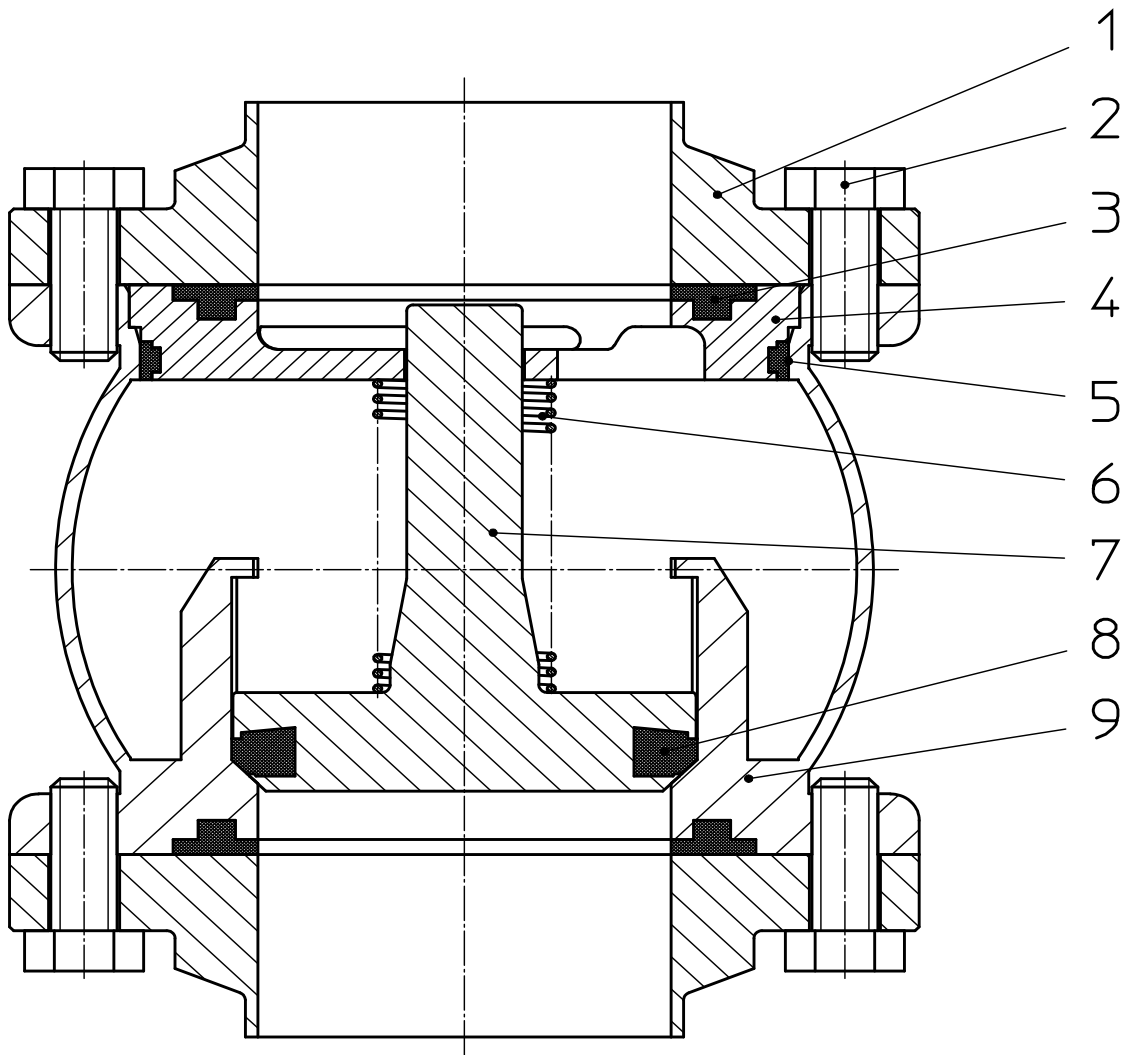
## 11. Spare Parts Lists

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(see annex)



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|          |          |          |  |  |  |  |  |  |  |  |
|----------|----------|----------|--|--|--|--|--|--|--|--|
| Datum:   | 20.03.13 | 14.07.16 |  |  |  |  |  |  |  |  |
| Name:    | Trytko   | Trytko   |  |  |  |  |  |  |  |  |
| Geprüft: |          |          |  |  |  |  |  |  |  |  |

Ersatzteilliste: spare parts list

**Rückschlagventil RUF3 12S DN25-150 1-4 Zoll**  
**Non-return valve RUF3 12S DN25-150 1-4 Zoll**



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**RN 01.102**

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Ersatzteilliste: spare parts list

**Rückschlagventil RUF3 12S DN25-150 1-4 Zoll**  
**Non-return valve RUF3 12S DN25-150 1-4 Zoll**

| pos.<br>item | Menge<br>quantity | Beschreibung<br>description      | Material            | DN25                           |                         | 1"                      |                        | 1,5"                   |                    | DN50 |  | 2" |
|--------------|-------------------|----------------------------------|---------------------|--------------------------------|-------------------------|-------------------------|------------------------|------------------------|--------------------|------|--|----|
|              |                   |                                  |                     | 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            | 2                 | Flansch FG1<br>Flange FG1        | 1.4404              | 09-51-277/42<br>H18722         | 09-51-314/42<br>H18732  | 09-51-414/42<br>H18751  | 09-51-427/42<br>H18761 | 09-51-464/42<br>H18768 |                    |      |  |    |
| 2            |                   | Skt. Schraube<br>Hex. Screw      | A2-70               | 65-01-083/15<br>8xM8x20 H78776 |                         |                         |                        |                        |                    |      |  |    |
| 3            | 2                 | Dichtung FGN1<br>Seal FGN1       | EPDM<br>FDA-konform | 58-32-277/93<br>H77280         | 58-32-377/93<br>H77292  | 58-32-427/93<br>H77303  |                        |                        |                    |      |  |    |
|              | 2                 | Dichtung FGN1<br>Seal FGN1       | FPM<br>FDA-konform  | 58-32-277/73<br>H77279         | 58-32-377/73<br>H77291  | 58-32-427/73<br>H77302  |                        |                        |                    |      |  |    |
|              | 2                 | Dichtung FGN1<br>Seal FGN1       | HNBR<br>FDA-konform | 58-32-277/33<br>H172130        | 58-32-377/33<br>H172131 | 58-32-427/33<br>H172132 |                        |                        |                    |      |  |    |
|              | 2                 | Dichtung FGN1<br>Seal FGN1       | VMQ<br>FDA-konform  | 58-32-277/13<br>H77278         | 58-32-377/13<br>H77290  | 58-32-427/13<br>H77301  |                        |                        |                    |      |  |    |
| 4            | 1                 | Schaftlager<br>Bearing           | 1.4404              | 15-28-299/42<br>H147493        | 15-28-399/42<br>H147494 | 15-28-449/42<br>H147495 |                        |                        |                    |      |  |    |
| 5            | 1                 | Dichtung Gehäuse<br>Housing seal | EPDM<br>FDA-konform | 58-33-292/93<br>H77439         | 58-33-392/93<br>H77464  | 58-33-442/93<br>H77488  |                        |                        |                    |      |  |    |
|              | 1                 | Dichtung Gehäuse<br>Housing seal | FPM<br>FDA-konform  | 58-33-292/73<br>H77438         | 58-33-392/73<br>H77463  | 58-33-442/73<br>H77487  |                        |                        |                    |      |  |    |
| 6            | 1                 | Dichtung Gehäuse<br>Housing seal | HNBR<br>FDA-konform | 58-33-292/33<br>H170017        | 58-33-392/33<br>H170018 | 58-33-442/33<br>H168714 |                        |                        |                    |      |  |    |
|              | 1                 | Druckfeder<br>Pressure spring    | 1.4310              | 60-06-490/33<br>H146253        | 60-06-491/33<br>H152252 | 60-06-492/33<br>H152253 |                        |                        |                    |      |  |    |
| 7            | 1                 | Schaft<br>Shaft                  | 1.4404              | 15-25-295/42<br>H146279        | 15-25-395/42<br>H146727 | 15-25-445/42<br>H146798 |                        |                        |                    |      |  |    |
| 8            | 1                 | Sitzdichtung<br>Seat seal        | EPDM<br>FDA-konform | 58-01-269/93<br>H76505         | 58-01-370/93<br>H76586  | 58-01-420/93<br>H76636  |                        |                        |                    |      |  |    |
|              | 1                 | Sitzdichtung<br>Seat seal        | FPM<br>FDA-konform  | 58-01-269/73<br>H76504         | 58-01-370/73<br>H76585  | 58-01-420/73<br>H76635  |                        |                        |                    |      |  |    |
| 9            | 1                 | Sitzdichtung<br>Seat seal        | HNBR<br>FDA-konform | 58-01-269/33<br>H174699        | 58-01-370/33<br>H173242 | 58-01-420/33<br>H173245 |                        |                        |                    |      |  |    |
|              | 1                 | Sitzdichtung<br>Seat seal        | VMQ<br>FDA-konform  | 58-01-269/13<br>H76503         | 58-01-370/13<br>H76584  | 58-01-420/13<br>H76633  |                        |                        |                    |      |  |    |



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**RN 01.102**



Ersatzteilliste: spare parts list

**Rückschlagventil RUF3 12S DN25-150 1-4 Zoll**  
**Non-return valve RUF3 12S DN25-150 1-4 Zoll**

|          |          |          |
|----------|----------|----------|
| Datum:   | 20.03.13 | 14.07.16 |
| Name:    | Trytko   | Trytko   |
| Geprüft: |          |          |
| Datum:   |          |          |
| Name:    |          |          |
| Geprüft: |          |          |

|                                 |                        |                        |                        |                        |
|---------------------------------|------------------------|------------------------|------------------------|------------------------|
| 3"                              |                        | DN80                   | DN100                  | 4"                     |
| WS-Nr. ref.-no.                 | WS-Nr. ref.-no.        | WS-Nr. ref.-no.        | WS-Nr. ref.-no.        | WS-Nr. ref.-no.        |
| 09-51-719/42<br>H205919         | 09-51-527/42<br>H18801 | 09-51-627/42<br>H18824 | 09-51-664/42<br>H18831 | 09-51-664/42<br>H18831 |
| 65-01-083/15<br>16xM8x20 H78776 |                        |                        |                        |                        |



| pos. item | Menge quantity | Beschreibung description         | Material            | DN65                           | 2,5"                    | 3"                      | DN80                            | DN100                   | 4"                     |
|-----------|----------------|----------------------------------|---------------------|--------------------------------|-------------------------|-------------------------|---------------------------------|-------------------------|------------------------|
|           |                |                                  |                     | 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         | 2              | Flansch FG1<br>Flange FG1        | 1.4404              | 09-51-477/42<br>H18782         | 09-51-514/42<br>H18791  | 09-51-719/42<br>H205919 | 09-51-527/42<br>H18801          | 09-51-627/42<br>H18824  | 09-51-664/42<br>H18831 |
| 2         |                | Skt. Schraube<br>Hex. Screw      | A2-70               | 65-01-083/15<br>8xM8x20 H78776 |                         |                         | 65-01-083/15<br>16xM8x20 H78776 |                         |                        |
| 3         | 2              | Dichtung FGN1<br>Seal FGN1       | EPDM<br>FDA-konform | 58-32-477/93<br>H77314         | 58-32-527/93<br>H77325  | 58-32-527/93<br>H77339  |                                 | 58-32-627/93<br>H77339  |                        |
|           | 2              | Dichtung FGN1<br>Seal FGN1       | FPM<br>FDA-konform  | 58-32-477/73<br>H77313         | 58-32-527/73<br>H77324  | 58-32-527/73<br>H77338  |                                 | 58-32-627/73<br>H77338  |                        |
|           | 2              | Dichtung FGN1<br>Seal FGN1       | HNBR<br>FDA-konform | 58-32-477/33<br>H172133        | 58-32-527/33<br>H172134 | 58-32-527/33<br>H172135 |                                 | 58-32-627/33<br>H172135 |                        |
|           | 2              | Dichtung FGN1<br>Seal FGN1       | VMQ<br>FDA-konform  | 58-32-477/13<br>H77312         | 58-32-527/13<br>H77323  | 58-32-527/13<br>H77337  |                                 | 58-32-627/13<br>H77337  |                        |
| 4         | 1              | Schaftlager<br>Bearing           | 1.4404              | 15-28-499/42<br>H140404        | 15-28-549/42<br>H147498 | 15-28-649/42<br>H147499 |                                 | 15-28-649/42<br>H147499 |                        |
| 5         | 1              | Dichtung Gehäuse<br>Housing seal | EPDM<br>FDA-konform | 58-33-492/93<br>H77512         | 58-33-542/93<br>H77543  | 58-33-642/93<br>H77583  |                                 | 58-33-642/93<br>H77583  |                        |
|           | 1              | Dichtung Gehäuse<br>Housing seal | FPM<br>FDA-konform  | 58-33-492/73<br>H77511         | 58-33-542/73<br>H77542  | 58-33-642/73<br>H77582  |                                 | 58-33-642/73<br>H77582  |                        |
|           | 1              | Dichtung Gehäuse<br>Housing seal | HNBR<br>FDA-konform | 58-33-492/33<br>H168759        | 58-33-542/33<br>H170075 | 58-33-642/33<br>H170074 |                                 | 58-33-642/33<br>H170074 |                        |
| 6         | 1              | Druckfeder<br>Pressure spring    | 1.4310              | 60-06493/33<br>H143562         | 60-06-495/33<br>H152255 | 60-06-496/33<br>H152256 |                                 | 60-06-496/33<br>H152256 |                        |
| 7         | 1              | Schaft<br>Shaft                  | 1.4404              | 15-25-495/42<br>H142293        | 15-25-545/42<br>H146904 | 15-25-645/42<br>H146964 |                                 | 15-25-645/42<br>H146964 |                        |
| 8         | 1              | Sitzdichtung<br>Seat seal        | EPDM<br>FDA-konform | 58-01-469/93<br>H76692         | 58-01-519/93<br>H76723  | 58-01-619/93<br>H76804  |                                 | 58-01-619/93<br>H76804  |                        |
|           | 1              | Sitzdichtung<br>Seat seal        | FPM<br>FDA-konform  | 58-01-469/73<br>H76691         | 58-01-519/73<br>H76722  | 58-01-619/73<br>H76803  |                                 | 58-01-619/73<br>H76803  |                        |
|           | 1              | Sitzdichtung<br>Seat seal        | HNBR<br>FDA-konform | 58-01-469/33<br>H202374        | 58-01-519/33<br>H202375 | 58-01-619/33<br>H173246 |                                 | 58-01-619/33<br>H173246 |                        |
|           | 1              | Sitzdichtung<br>Seat seal        | VMQ<br>FDA-konform  | 58-01-469/13<br>H76690         | 58-01-519/13<br>H76721  | 58-01-619/13<br>H76802  |                                 | 58-01-619/13<br>H76802  |                        |









# APV DELTA RUF3

CHECK VALVE

# SPXFLOW

## SPX FLOW

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SPX FLOW reserves the right to incorporate the latest design and material changes without notice or obligation.

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For more information visit [www.spxflow.com](http://www.spxflow.com).

ISSUED 09/2017 - Translation of Original Manual

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