# Installation and operation instructions

EN-US


## ProPure TWS

- SPTWS25
- SPTWS30
- SPTWS50
- SPTWS100
- SPTWS125
- SPTWS160
- SPTWS250
- SPTWS450
- SPTWS500
- SPTWS600
- SPTWS1000
- SPTWS1500

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**08-563**

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# 1. General

## 1.1 Contact

| Manufacturer | Service and tools |
|---|---|
| SULLIVAN PALATEK AIR COMPRESSORS<br>1201 West US Highway 20<br>Michigan City, Indiana 46360<br>Phone: 219.874.2497<br>Fax: 219.809.0203<br>info@palatek.com<br>www.sullivan-palatek.com | SULLIVAN PALATEK AIR COMPRESSORS<br>1201 West US Highway 20<br>Michigan City, Indiana 46360<br>Phone: 219.874.2497<br>Fax: 219.809.0203<br>info@palatek.com<br>www.sullivan-palatek.com |

## 1.2 Installation information and operating manual

| INFORMATION | Copyright protection |
|---|---|
|  | The content of this installation and operating manual, in the form of text, images, photos, drawings, diagrams, and other illustrations, is copyright protected by the manufacturer. This applies in particular to copies, translations, microfilm versions, and saving and processing this document in electronic systems. |

| Publication date | Revision version | Reason for change | Scope of change |
|---|---|---|---|
| 05/08/24 | 00_00 | New document | New document |

This installation and operating manual, referred to in the following as the manual, must be legible and must be stored near the product at all times.

The manual must be included if the product is sold or handed over to another party.

| NOTE | Observe the manual! |
|---|---|
|  | This manual contains all basic information required to safely operate the product, and operators must read the manual before carrying out all work. Otherwise hazards could occur for personnel or materials, and functional or operating disruptions could occur. |

## 1.3 Additional valid documents

This manual describes all steps required to install and operate the ProPure TWS.

Further information on installing and operating accessories is provided in the following installation and operating manuals:

- ZL Drain 31
- ZL Drain 32 V

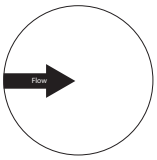
## 1.4 Explanation of symbols and pictograms used

The symbols and pictograms used in the following indicate important and safety-related information that must be observed in handling the product and to ensure safe and optimal operation.

### 1.4.1 In documentation

| Symbol/pictogram | Description/explanation |
|---|---|
|  | General hazard symbol (danger, warning, caution) |
|  | Pressurized system |
|  | Observe the installation and operating manual |
|  | General instructions |
|  | Use FFP 3 respirator |
|  | Wear safety shoes |
|  | Wear protective gloves (liquid-resistant) |
|  | Wear hearing protection |
|  | Wear safety glasses with side protection (goggles) |
|  | General information |

## 1.4.2 On the device

| Symbol/pictogram | Description/explanation |
|---|---|
|  | **General hazard symbol (danger, warning, caution)**<br>(This symbol is indicated on the type plate and maintenance sticker) |
|  | **Observe the installation and operating manual**<br>(This symbol is only indicated on the type plate) |
|  | **Maintenance sticker**<br>This sticker contains a stylized illustration indicating that the user manual must be read before completing maintenance work and that the product must be depressurized before maintenance work. |
|  | **Stamp water separator insert**<br>(This stamp is on the base of the water separator insert and indicates the direction of flow. |

## 1.5 Intended use

**ProPure TWS and Accessories**

The ProPure TWS , also referred to in the following document as the separator, serves to separate drops of liquid and solid particles in pressurized gas systems.

Any other use besides that described in this manual is deemed improper and poses a risk to personnel and the environment.

- Only use the separator and accessories within the operating parameters and agreed delivery conditions indicated in the technical data.
- Only use the separator and accessories in a pipeline system designed to handle the technical data indicated, with appropriate connections, pipe diameters and installation space.
- Only use the separator and accessories to process fluid group 2 compressed gases free from aggressive and corrosive components in accordance with Pressure Directive 2014/68/EU.
- Only use the separator and accessories in non-explosive areas.
- Only use the separator and accessories in areas not exposed to direct sunlight or heat sources and in areas not in danger of frost.
- Only combine the separator and accessories with recommended products indicated in the manual from **Sullivan Palatek**.

Before using the separator, the operator must ensure that all conditions and requirements for the intended use have been fulfilled.

The separator is designed only for stationary use in a commercial or industrial area. All work described for mounting, installation, operating, removal and disposal may only be carried out by qualified professional technicians.

## 1.6 Foreseeable misuse

If the separator or accessories are used in a manner other than as described in the “Proper use” chapter, this is considered foreseeable misuse. Foreseeable misuse includes using the product in a manner not intended by the manufacturer or suppliers, but which may occur due to foreseeable human behavior.

Foreseeable misuse includes:

- Completing modifications of all kinds, in particular changing the design or process technology, since this may result in personal injury and property damage as well as functional and operating disruptions.
- Disabling or failing to use available or recommended safety equipment.
- Using compressed gases for preparation that are not included in fluid group 2 in accordance with DGRL 2014/68/EU or contain aggressive components. In case of doubt, complete a gas / condensate analysis.

This list does not claim to be exhaustive, since it is not possible to indicate all possible misuses in advance. If the operator knows of misuses of the separator or accessories that are not listed here, the manufacturer must be informed of these promptly.

## 1.7 Warranty and liability

The operator and user must take the proper use into consideration. The operator shall be solely responsible for any action not described here and any use going beyond that described as proper use.

All warranty shall be voided, if the separator is used improperly, for a purpose other than the intended or is operated outside the limits specified in the technical data. In such cases, the manufacturer shall also reject any liability for damages.

Improper operation includes:

- Technically inappropriate installation, commissioning, maintenance or operation
- Use of defective components
- Failure to observe the safety-relevant information, usage steps and instructions included in this manual
- Completing modifications of any kind, in particular design or process technology changes to the product
- Use of third-party spare parts or accessories that have not been approved by the manufacturer in completing maintenance and repair work
- Failure to observe maintenance and inspection intervals

## 1.8 Target audience and personnel

This manual is directed towards the following professional technicians assigned to work on the separator or accessories.

| INFORMATION | Personnel requirements |
|---|---|
|  | Personnel may not complete any work on or with the separator or accessories if they are under the influence of drugs, medications, alcohol or other substances that could impair their awareness. |

| Professional technicians - Transport and storage |
|---|
| Transportation and storage technicians are personnel whose training, professional experience and qualifications have given them all the skills necessary to safely complete any actions associated with transportation, to recognize potential hazards independently and take measures to prevent those hazards.<br>These skills include, in particular, experience in handling hoists, forklifts and lifting equipment and devices as well as an understanding of regional applicable laws, standards and directives related to transportation and storage. |

| Compressed gas technology technicians |
|---|
| Compressed gas technology technicians are personnel whose training, professional experience and qualifications have given them all the skills necessary to safely complete any actions associated with compressed gases and pressurized systems, to recognize potential hazards independently and take measures to prevent those hazards.<br>These skills include, in particular, experience in handling measurement, control and regulation technology as well as an understanding of regional applicable laws, standards and directives related to compressed gas technology. |

## 1.9 Responsibilities of the operator

The responsible operator must ensure the following to avoid accidents, faults and environmental impacts:

- Check before all actions whether this manual matches the product.
- Ensure the product is used, maintained, and repaired properly.
- Ensure that all applicable legal specifications, safety provisions and accident prevention regulations are complied with.
- Ensure that all specifications and operating instructions for safe work and instructions for how to respond to accidents and fires are accessible at the work site to personnel at all times.
- Ensure the product is used with recommended and functional safety equipment and that this equipment has not been deactivated.
- Ensure all assembly, installation and maintenance work is only carried out by qualified professional technicians.
- Ensure the recommended personal protective equipment is available and is used.
- Ensure suitable technical safety measures are taken to ensure the permitted operating parameters are not exceeded and are met.

# 2. Safety information

## 2.1 General information

Safety information warns of hazards related to handling the product. In the instructions, warning information is stated before the steps that could pose a hazard to personnel or the surrounding area.

This safety and warning information must always be observed to avoid accidents, personal injury and property damage, and operational disruptions.

**Structure of the safety information**

**Content of the safety information structured according to the SAFE principle:**

S - Safety symbol and signal word
A - Type and source of danger
F - Possible consequences for failure to observe the hazard in the order of severity
E - Measures to avoid the hazard

**Structure of the safety information:**

| SIGNAL WORD | Type and source of danger! |
|---|---|
|  Safety indications | Possible consequences if the hazard is not observed |
| | • Measures to avoid the hazard |

**Signal words according to ISO 3864 and ANSI Z.535.6**

| | |
|---|---|
| **DANGER** | **Imminent danger**<br>Consequences of non-compliance: Death or severe personal injury |
| **WARNING** | **Imminent danger**<br>Consequences of non-compliance: Death or severe personal injury are possible |
| **CAUTION** | **Potential danger**<br>Consequences of non-compliance: injury and/or damage to property |
| **NOTICE** | **Additional notes, tips and hints**<br>Consequences of non-compliance: Disadvantages in operation and during handling and maintenance.<br>No hazard to personnel or safe operation. |

## 2.2 Safety instructions

Always observe the safety and warning information provided to avoid accidents, personal injury and property damage, and operational disruptions.

The personal protective equipment indicated in the safety information must be selected by the operator based on the system parameters and properties and must be provided.

| DANGER | **Operating outside of permitted limit values!** |
|---|---|
|  | Operating the product outside of the permitted limit values and parameters and prohibited modifications and changes pose the risk of death or a hazard of severe injuries. |
| | • Observe the limit values, operating parameters and maintenance intervals and set-up and ambient conditions indicated on the type plate and in the manual to ensure safe operation of the product.<br>• Check whether operating parameters are changed or restricted through the use of accessories.<br>• Only use the product according to its intended use. |

| DANGER | **Pressurized system!** |
|---|---|
|  | The risk of death or severe injuries exists in case of contact with fast or sudden exiting compressed air or due to bursting system parts. |
| | • Only work on the system when it is depressurized and secure the system against unintended restart.<br>• Set up a safety zone around the system when carrying out any assembly, installation, maintenance and repair work.<br>• Before pressurizing the system, check and tighten all pipe connections.<br>• Pressurize the system slowly.<br>• Avoid pressure surges and high pressure differentials.<br>• Install all pipelines without mechanical tension. Avoid vibrations occurring in the pipeline network by using vibration dampers.<br>• Carefully observe the installation and operating instructions in this manual.<br>• Carefully observe inspection and maintenance intervals.<br>• Permanently install inlet and outlet lines.<br>• Do not make modifications on the product. |

| DANGER | **Use of incorrect replacement parts, accessories or installation materials!** |
|---|---|
|  | The use of incorrect replacement parts, accessories or installation material or operating and auxiliary materials may result in death or severe injuries. This may also cause functional or operating disruptions or material damage. |
| | • Only use undamaged original parts, auxiliary and operating materials for all installation and maintenance work as indicated by the manufacturer.<br>• Only use fittings and connection elements permitted for the specific application and suitable tools in proper condition.<br>• Only use cleaned pipelines free from dirt and corrosion. |

| WARNING | **Failure to use personal protective equipment!** |
|---|---|
|  | The failure to use personal protective equipment or the use of defective personal protective equipment may result in accidents or injuries while working on the product. |
| | • Wear personal protective equipment recommended for the specific task in proper condition when completing any work on the product.<br>• Regularly check personal protective equipment for proper function and replace damaged parts promptly. |

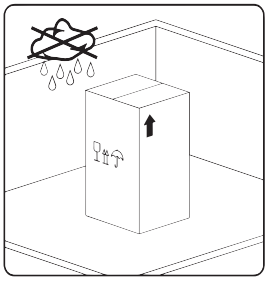
| WARNING | **Insufficient qualification!** |
|---|---|
|  | If personnel have insufficient qualifications, this may result in accidents, personal injury and property damage as well as operating disruptions while working on the product. |
| | All work on the product may only be carried out by sufficiently qualified professional technicians. |

# 3. Transport and storage

| WARNING | **Insufficient qualification!** |
|---|---|
|  | If personnel have insufficient qualifications, this may result in accidents, personal injury and property damage as well as operating disruptions while working on the product. |
| | The work on the product described in the following may only be carried out by transportation and storage technicians and must be documented. |

| CAUTION | **Improper transportation or storage!** |
|---|---|
|  | Improper transportation or storage may result in personal injury or property damage. |
| | • Always wear gloves when working with packaging materials.<br>• Use personal protective equipment, check it regularly for proper function and replace damaged parts promptly.<br>• The product must only be transported and stored by transportation and storage technicians.<br>• Handle the packaging and product carefully.<br>• Package all parts with suitable materials in a shock-resistant manner.<br>• Transport and handle packaging according to the label (observe hoist attachment points and center of gravity, keep alignment vertical, do not throw, etc.)<br>• Use proper, functional transportation equipment and hoists.<br>• Observe permitted transportation and storage parameters.<br>• Do not store the product exposed to direct sunlight and heat sources. |

| NOTICE | **Handling packaging materials!** |
|---|---|
|  | The improper disposal of packaging materials may result in environmental damage. |
| | • The packaging material is recyclable.<br>• Dispose of packaging materials in accordance with the regional laws, directives and guidelines of the country of use. |

| NOTICE | **Transportation and storage notices!** |
|---|---|
|  | The product must<br>• be stored in the original packaging in a closed, dry, and frost-free room. The ambient conditions, transportation and storage parameters may not exceed or fall below the information in the Technical Data chapter.<br>• Even when packaged, protect the device against the elements.<br>• While in storage, secure the device so that it cannot topple over or fall, and protect it against vibration. |

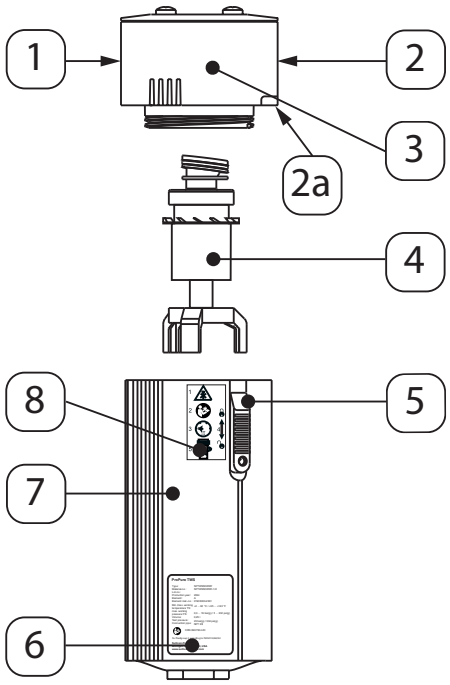
# 4. Product information

## 4.1 Product description

ProPure TWS are used to separate drops of liquid and solid particles in compressed gas pressurized systems.
The condensate collected during separation can be drained manually or automatically.

## 4.2 Product overview

The separator consists of the following components:



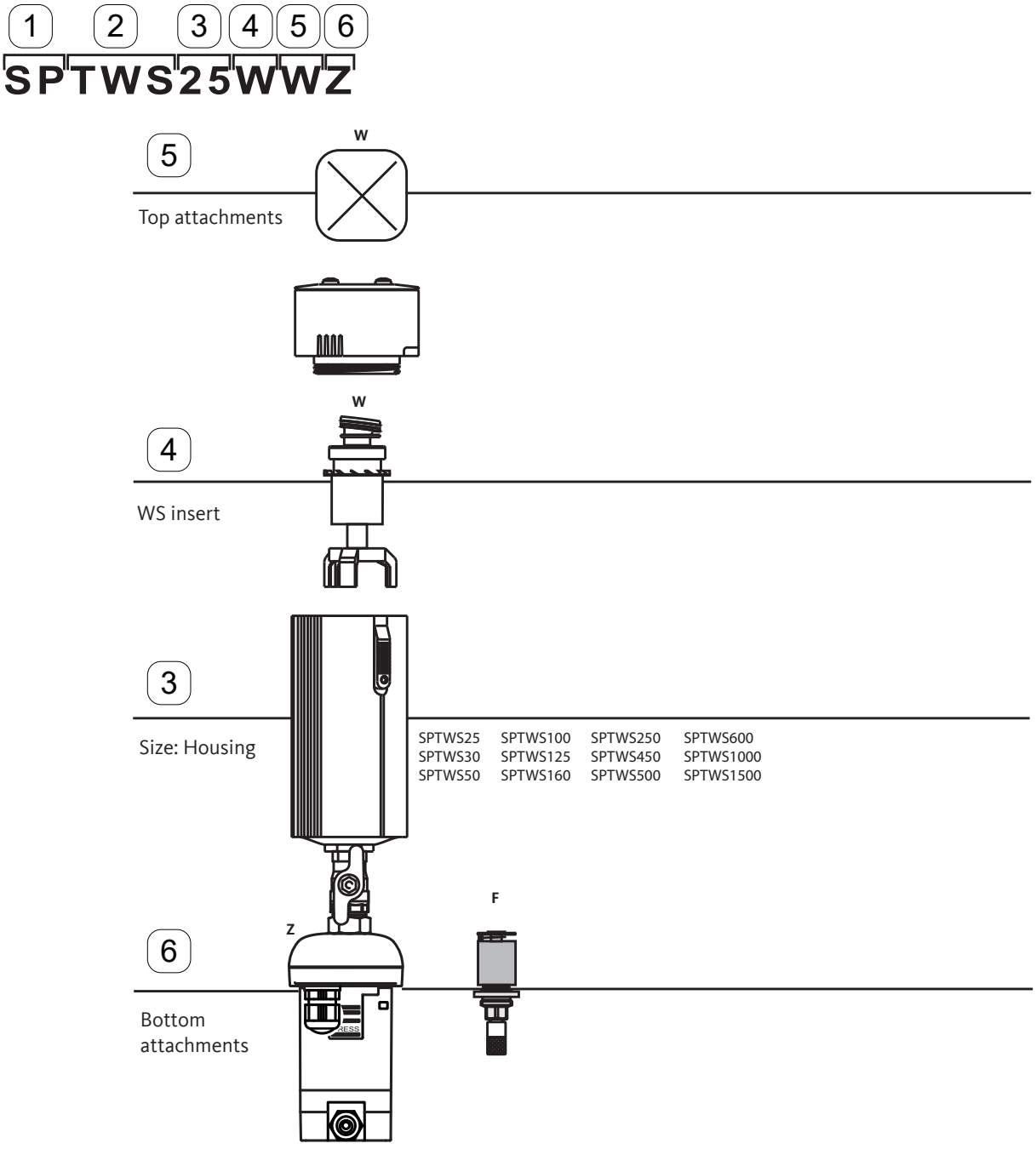

| Position no. | Explanation / description |
|---|---|
| [1] | Inlet on the separator head, |
| [2] | Outlet on the separator head also designated with 2a |
| [3] | Housing head |
| [4] | Water separator insert (WS insert) |
| [5] | Safety runner with locking screw |
| [6] | Name plate |
| [7] | Housing body |
| [8] | Maintenance sticker |

## 4.3 Product identification

The product designation is indicated on the type plate and consists of numbers and an abbreviation. Each abbreviation stands for a separator component and is divided into the following categories:

**[1]** = Prefix
**[2]** = Model
**[3]** = Size: Housing
**[4]** = WS insert
**[5]** = Top attachments
**[6]** = Bottom attachments

The following section explains the product designation using the example **"SPTWS25WWZ"**:



| Top attachments | | |
|---|---|---|
| Position no. | Abbreviation | Designation |
| **[5]** | W | No display device |

| Water separator inserts | | |
|---|---|---|
| Position no. | Abbreviation | Designation |
| **[4]** | W | Water separator |

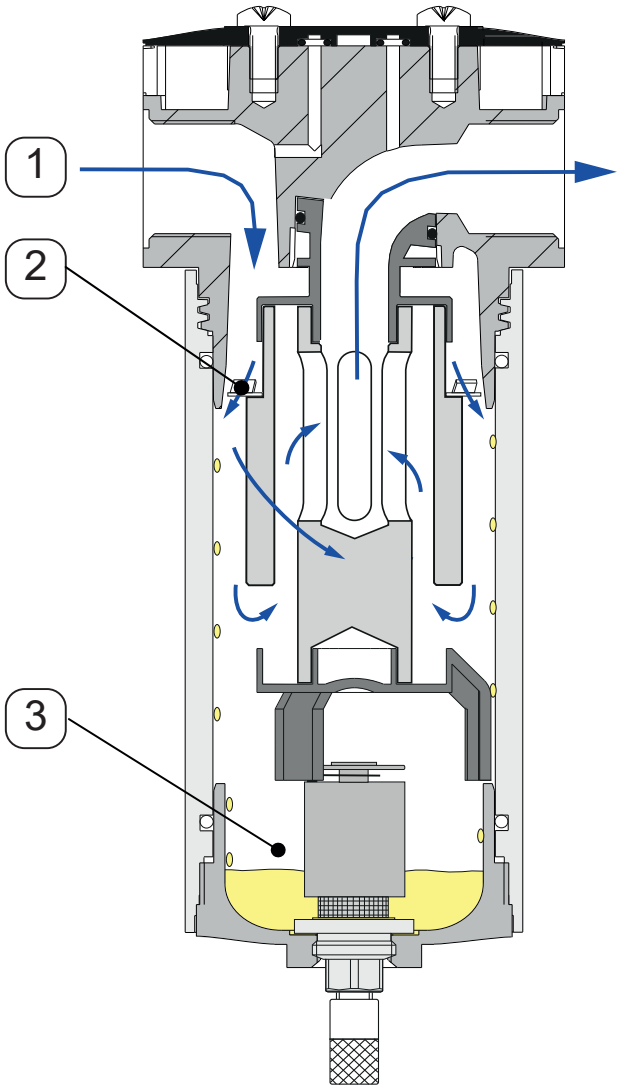
| Position no. | Size | Designation |
|---|---|---|
| **[3]** | 25 | Size Housing |
| | 30 | |
| | 50 | |
| | 100 | |
| | 125 | |
| | 160 | |
| | 250 | |
| | 450 | |
| | 500 | |
| | 600 | |
| | 1000 | |
| | 1500 | |

| Bottom attachments | | |
|---|---|---|
| Position no. | Abbreviation | Designation |
| **[6]** | Z | ZL Drain 31 / 32 V |
| | F | Float drain, open when depressurized (NO - normally open) |

## 4.4 Functional description

### 4.4.1 Water separation

The compressed gas enters the inlet on the separator head **[1]** and passes into the water separator. A specially formed swirl insert **[2]** makes the compressed gas rotate quickly. The centrifugal forces generated press the condensate particles against the housing wall. Gravity causes the condensate particles to flow down into the collector chamber **[3]**, from which they are drained.

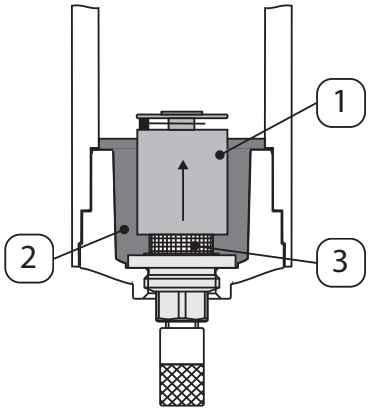
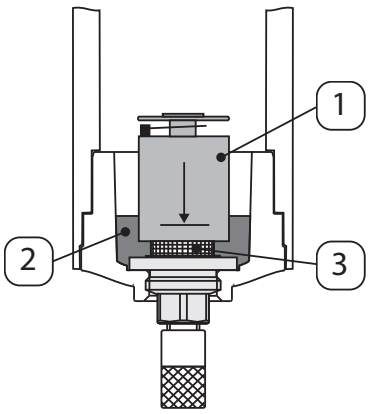


## 4.4.2 Condensate drainage through the float drain

Float drains are mechanical automatic condensate drains whose closing mechanism is triggered by the buoyancy of a float body **[1]**. When the condensate **[2]** in the container raises above a certain level, the buoyant lift of the float body **[1]** opens the outlet channel **[3]** for the condensate. The float closes again when the condensate **[1]** drops below a certain level: A small amount of condensate remains in the container.

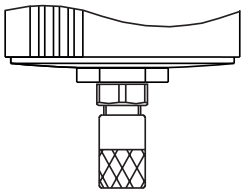
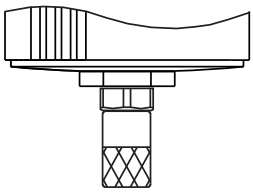
Two different float drains are used to drain the condensate:

- Open when depressurized ([NO] normally open) - at an operating pressure ≤ 0.5 bar(ü) the float drain opens
- Closed when depressurized ([NC] normally closed) - the float drain is closed even at an operating pressure of 0 bar(ü)

| Float drain opens | Float drain closes |
|---|---|
|  |  |

Both types of float drain are delivered in the position ››Automatic drainage‹‹. The knurled-head screw is screwed down to the stop.

To test the drainage function or release pressure to the separator to complete maintenance, the float drain can be set to the position ››mechanically open‹‹. To do so, unscrew the knurled-head screw counterclockwise (left-hand turn) to stop.

| Automatic drain | Mechanically open |
|---|---|
|  |  |

| INFORMATION | Condensate discharge! |
|---|---|
|  | Condensate discharge is dependent on the product combination and may vary. |

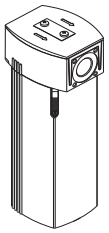
**For further information on possible product combinations see “4.3 Product identification” on page 14.**

### 4.4.3 Condensate discharge by ZL Drain

Condensate may also be discharged via the automatic ZL Drain steam trap.
Further information is provided in the ZL Drain installation and operating manual.

## 4.5 Scope of delivery

The following table shows the scope of delivery for the separator.

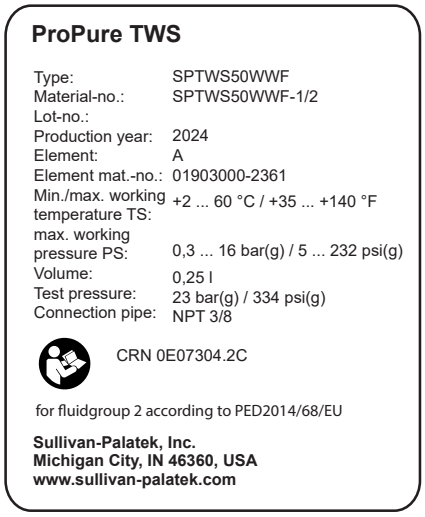
| Image | Description/explanation |
|---|---|
|  | Separator |
|  | Installation and operation instructions |

| INFORMATION | **Possible product combinations!** |
|---|---|
|  | The scope of delivery may vary depending on the product combination. |

**For further information on possible product combinations see “4.3 Product identification” on page 14.**

## 4.6 Name plate

The type plate is located on the housing, and provides identification and operating parameters for the separator. Provide this data for system identification when contacting the manufacturer or supplier.




Example illustration

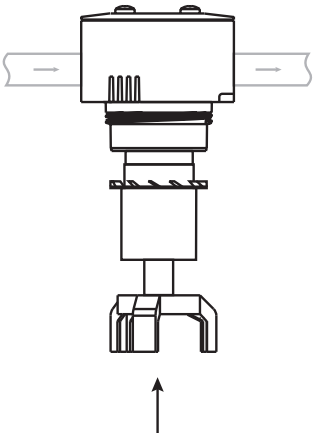
| Position on type plate | Description |
|---|---|
| **Type** | Sales designation |
| **Material-no.** | Material number |
| **Lot-no.** | Lot |
| **Production year** | Year of manufacture |
| **Element** | Water separator insert |
| **Element mat-no.** | Material number water separator insert |
| **Min./max. working temperature TS** | Min./max. working temperature range |
| **max.working pressure PS** | Max. working pressure range |
| **Volume** | Housing volume |
| **Test Pressure** | Test pressure |
| **Connection pipe** | Threaded connections |
| **Fluid group 2** | Fluid group 2 according to PED 2014/68/EU |
| **PED2014/68/EU** | Category in accordance with Pressure Directive 2014/68/EU |

| NOTICE | **Handling the type plate!** |
|---|---|
|  | Do not remove or cover the type plate, and protect it against damage. |

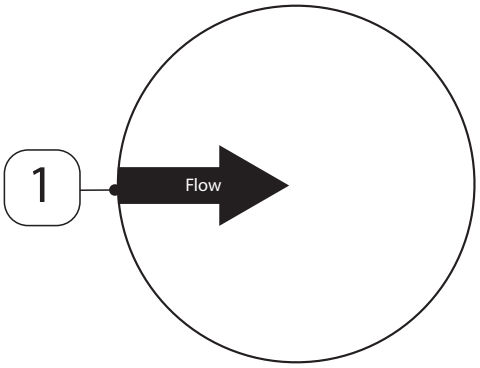
For more information regarding the symbols printed on the type plate, see “1.4 Explanation of symbols and pictograms used” on page 5.

## 4.7 Stamp water separator insert

The WS insert can be identified by a stamp on the element base.



Stamp on the base of the WS insert




Stamp water separator insert
-
View of element base

| Position no. | Explanation / description |
|---|---|
| **[1]** | Direction of flow |

# 5. Technical data

## 5.1 Separator performance data

| ProPure TWS | SPTWS 25 | SPTWS 30 | SPTWS 50 | SPTWS 100 | SPTWS 125 | SPTWS 160 | SPTWS 250 |
|---|---|---|---|---|---|---|---|
| Connection ["] | 3/8 | 1/2 | 1/2 | 3/4 | 1 | 1 | 1 1/2 |
| Volume flow rate at 7bar(g) (101.53 psi(g)) energy-optimized [m³/h]([cfm]) *1 | 46 (27.08) | 46 (27.08) | 130 (76.52) | 195 (114.77) | 195 (114.77) | 325 (191.29) | 545 (320.76) |
| Differential pressure [mbar] ([psi]) saturated | Ø 60 (0.878) | | | | | | |
| Category according to PED 2014/68/EU | - | - | - | - | - | - | - |
| Min./max. operating pressure[bar(g)] ([psi(g)]) | 1,5 ... 16 (21.76 ... 232) | | | | | | |
| Min./max. Operating temperature [°C] ([F°]) | +2 ... +60 (+35.6 ... +140) | | | | | | |
| Load test in accordance with AD2000 | 10000 load changes ≙ pressure differential ≥3.2 bar (46.41 psi) at 16 bar(g) (232 psi(g)) | | | | | | |
| Medium | Compressed gases in fluid group 2 in accordance with PED 2014/68/EU, free from aggressive and corrosive components | | | | | | |
| Weight [kg] ([lbs]) | 0.75 (1.65) | 0.75 (1.65) | 0.85 (1.87) | 1.7 (2.36) | 1.7 (2.36) | 2.1 (4.63) | 4.1 (9.04) |
| Volume [l] ([gal(US)]) | 0.25 (0.066) | 0.25 (0.066) | 0.31 (0.082) | 0.87 (0.23) | 0.87 (0.23) | 1.12 (0.30) | 2.52 (0.67) |

*1 Volume flow rate at 7 bar(g) (101.53 psi(g)) based on +20 °C (+68 °F) and 1 bar (abs) (14.5 psi)

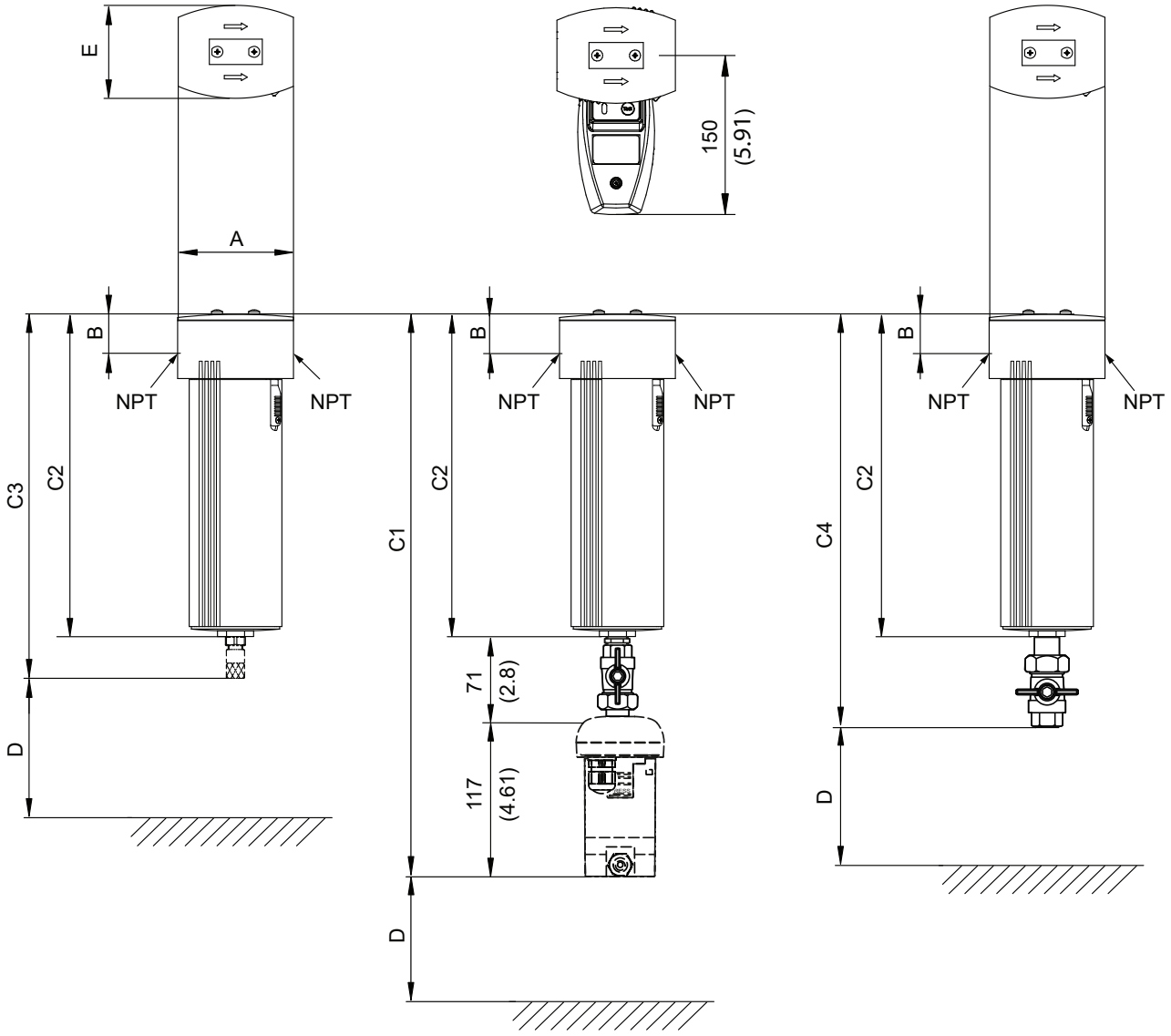
| ProPure TWS | SPTWS 450 | SPTWS 500 | SPTWS 600 | SPTWS 1000 | SPTWS 1500 |
|---|---|---|---|---|---|
| Conexión [pulgada] | 1 1/2 | 2 | 2 | 2 1/2 | 3 |
| Caudal volumétri co 7 bar(g) (101.53 psi(g)) optimizado energéticamente [m³/h] ([cfm]) *1 | 1015 (579.407) | 1015 (579.407) | 1325 (779.87) | 2100 (1236.01) | 3120 (1836.36) |
| Presión diferencial [mbar] ([psi]) saturación por humedad | Ø 60 (0.878) | | | | |
| Categoría según PED 2014/68/UE | I | I | I | II | II |
| Mín./Máx. Presión de servicio [bar(g)] ([psi(g)]) | 1,5 ... 16 (21.76 ... 232) | | | | |
| Mín./Máx. Temperatura de servicio [°C] ([F°]) | +2 ... +60 (+35.6 ... +140) | | | | |
| Prueba de carga según AD2000 | 10000 load changes ≙ pressure differential ≥3.2 bar (46.41 psi) at 16 bar(g) (232 psi(g)) | | | | |
| Medio | Compressed gases in fluid group 2 in accordance with PED 2014/68/EU, free from aggressive and corrosive components | | | | |
| Peso [kg] ([lbs]) | 5.1 (11.24) | 5.1 (11.24) | 6.1 (13.45) | 19.9 (43.87) | 25.9 (57.1) |
| Volumen [l] ([gal(US)]) | 3.40 (0.9) | 3.40 (0.9) | 4.23 (1.12) | 13.9 (3.67) | 19.5 (5.51) |

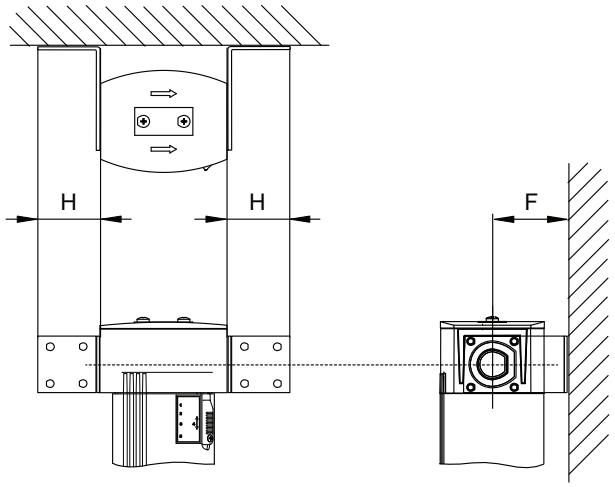
*1 Volume flow rate at 7 bar(g)(101.53 psi(g)) based on +20 °C (+68 °F) and 1 bar (abs) (14.5 psi)

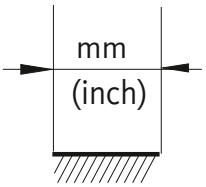
## 5.2 Materials

| Components | Material |
|---|---|
| Housing head (separator head) | SPTWS25 ... SPTWS160: Aluminum (cast), anodized, powder coated<br>SPTWS250 ... SPTWS1500: Aluminum (sand cast), anodized, powder coated |
| Housing body | SPTWS25 ... SPTWS1500: Aluminum (extruded profile), anodized, powder coated |
| Housing lid | Polyamide PA6, 30 % fiberglass reinforced |
| Housing base | SPTWS25 ... SPTWS160: Aluminum (cast), anodized, powder coated<br>SPTWS250 ... SPTWS1500: Aluminum (sand cast), anodized, powder coated |
| M5 screws | Steel, black galvanized |
| Runner | Zinc (cast), seal FKM |
| O-rings | Standard: NBR \| oil-free FKM |
| Float drain | Plastic \| Brass \| NBR |
| Manual drain | Brass |
| Wall bracket | Stainless steel |
| Sticker | PCV soft, poly acrylate adhesive |
| ZL Drain | See ZL Drain installation and operating manual |
| Differential pressure gauge | See differential pressure gauge installation and operating manual |
| Oil check indicator | See oil check indicator installation and operating manual |
| WS insert | Polyamide PA6, 30 % fiberglass reinforced<br>Polyamide PA6 E natural<br>Stainless steel expanded metal |

# 6. Dimensions



| Separator | A | B | C1 | C2 | C3 | C4 | D | E | F | H | WS insert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm (in) | | | | | | | | | | |
| SPTWS 25 | 75 (2.95) | 28 (1.10) | 370 (14.57) | 182 (7.17) | 208 (8.19) | 253 (9.96) | 150 (5.91) | 61 (2.40) | 64.5 (2.54) | 39.5 (1.56) | 06-18 |
| SPTWS 30 | 75 (2.95) | 28 (1.10) | 370 (14.57) | 182 (7.17) | 208 (8.19) | 253 (9.96) | 150 (5.91) | 61 (2.40) | 64.5 (2.54) | 39.5 (1.56) | 06-18 |
| SPTWS 50 | 75 (2.95) | 28 (1.10) | 400 (15.75)) | 212 (8.35) | 238 (9.37) | 283 (11.14) | 150 (5.91) | 61 (2.40) | 64.5 (2.54) | 39.5 (1.56) | 06-21 |
| SPTWS 100 | 100 (3.94) | 33 (1.29) | 470 (18.5) | 282 (11.10) | 308 (12.13) | 353 (13.90) | 150 (5.91) | 81 (3.18) | 63 (2.48) | 45 (1.77) | 08-28 |
| SPTWS 125 | 100 (3.94) | 33 (1.29) | 470 (18.5) | 282 (11.10) | 308 (12.13) | 353 (13.90) | 150 (5.91) | 81 (3.18) | 63 (2.48) | 45 (1.77) | 08-28 |
| SPTWS 160 | 100 (3.94) | 33 (1.29) | 540 (21.26) | 352 (13.86) | 378 (14.88) | 423 (16.65) | 150 (5.91) | 81 (3.18) | 63 (2.48) | 45 (1.77) | 08-35 |
| SPTWS 250 | 146 (5.75) | 47 (1.85) | 551 (21.69) | 363 (14.29) | 382 (15.03) | 434 (17.09) | 200 (7.87) | 119 (4.68) | 78.5 (3.09) | 60 (2.36) | 12-36 |
| SPTWS 450 | 146 (5.75) | 47 (1.85) | 654 (25.75) | 466 (18.35) | 485 (19.09) | 537 (21.14) | 200 (7.87) | 119 (4.68) | 78.5 (3.09) | 60 (2.36) | 12-46 |
| SPTWS 500 | 146 (5.75) | 47 (1.85) | 654 (25.75) | 466 (18.35) | 485 (19.09) | 537 (21.14) | 200 (7.87) | 119 (4.68) | 78.5 (3.09) | 60 (2.36) | 12-46 |
| SPTWS 600 | 146 (5.75) | 47 (1.85) | 751 (29.57) | 563 (22.17) | 582 (22.91) | 634 (24.96) | 200 (5.91) | 119 (4.68) | 78.5 (3.09) | 60 (2.36) | 12-56 |
| SPTWS 1000 | 260 (10.24) | 77 (3.03) | 858 (33.78) | 670 (26.38) | 684 (26.92) | 741 (29.17) | 300 (11.81) | 201 (7.91) | 130 (5.12) | 120 (4.72) | 20-067 |
| SPTWS 1500 | 260 (10.24) | 77 (3.03) | 1082 (42.60) | 894 (35.20) | 908 (35.74) | 965 (37.99) | 300 (11.81) | 201 (7.91) | 130 (5.12) | 120 (4.72) | 20-089 |

# 7. Installation

## 7.1 Warning

| DANGER | **Use of incorrect replacement parts, accessories or installation materials!** |
|---|---|
|  | The use of incorrect replacement parts, accessories or installation material or operating and auxiliary materials may result in death or severe injuries. This may also cause functional or operating disruptions or material damage. |
| | • Only use undamaged original parts, auxiliary and operating materials for all installation and maintenance work as indicated by the manufacturer.<br>• Only use fittings and connection elements permitted for the specific application and suitable tools in proper condition.<br>• Only use pipelines free from dirt, damage and corrosion. |

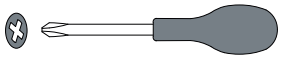
| DANGER | **Pressurized system!** |
|---|---|
|  | The risk of death or severe injuries exists in case of contact with fast or sudden exiting compressed air or due to bursting system parts. |
| | • Only work on the system when it is depressurized and secure the system against unintended restart.<br>• Set up a safety zone around the system when carrying out any assembly, installation, maintenance and repair work.<br>• Before pressurizing the system, check and tighten all pipe connections.<br>• Pressurize the system slowly.<br>• Avoid pressure surges and high pressure differentials.<br>• Install all pipelines without mechanical tension. Avoid vibrations occurring in the pipeline network by using vibration dampers.<br>• Pipelines must be able to support the additional weight of the separator. Additional attachments should be mounted if necessary.<br>• Carefully observe the installation and operating instructions in this manual.<br>• Carefully observe inspection and maintenance intervals.<br>• Permanently install inlet and outlet lines.<br>• Do not make modifications on the product. |

| WARNING | **Insufficient qualification!** |
|---|---|
|  | If personnel have insufficient qualifications, this may result in accidents, personal injury and property damage as well as operating disruptions while working on the product. |
| | All work on the product may only be carried out by sufficiently qualified professional technicians. |

| CAUTION | **Improper installation!** |
|---|---|
|  | Improper installation of the product may result in personal injury, material damage, and operating disruptions. |
| | • The direction of flow for the separator must conform to the direction of flow in the pipeline.<br>• The separator must be mounted vertically in the pipeline. |

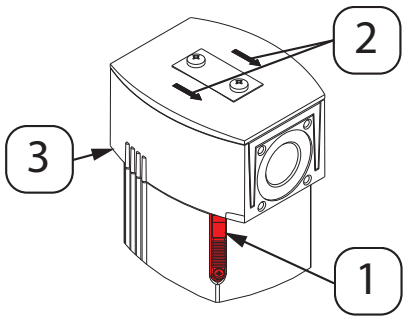
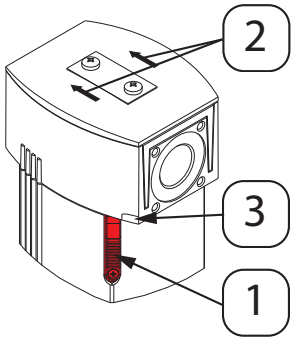
## 7.2 Installation work

The following requirements must be fulfilled to carry out installation work and preparatory work must be completed.

| Preconditions | | |
|---|---|---|
| **Tool** | **Material** | **Protective equipment** |
| • Screwdriver - Philip's head size 2.5 mm  | • Additional installation and operating instructions for accessories used<br>• Sealing material such as PTFE strip (EN 837-2) | • Protective gloves (liquid-resistant)<br>• Safety glasses with side protection (goggles)<br>• Hearing protection<br>• Class FFP 3 respirator<br>• Safety shoes |

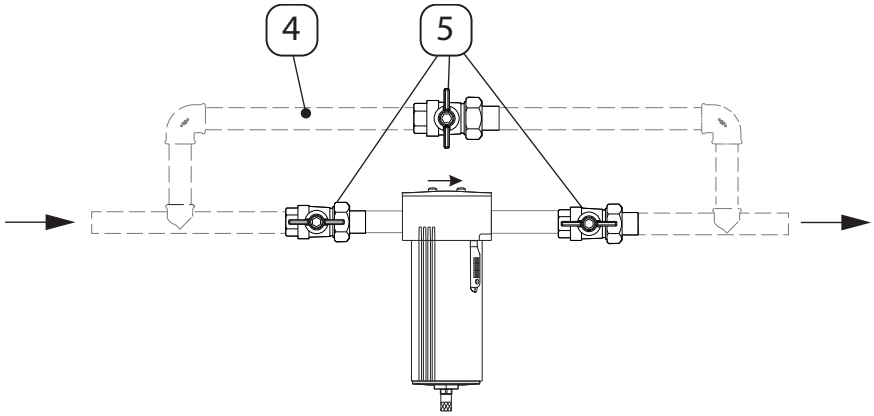
| Preparatory work | |
|---|---|
| 1. | Remove the dust cap from the following threads:<br>• Inlet and outlet on the housing head<br>• Condensate drain on the housing base |
| 2. | Depressurize pipeline system or relevant pipe section. |
| 3. | Observe the separator dimensions and ensure required space for installation.<br>See “6. Dimensions” on page 23. |
| 4. | Pipelines must be able to support the additional weight of the separator. Additional attachments should be mounted if necessary. |
| 5. | Pipelines must be free from contamination and corrosion. Check pipe threads for damage. Defective pipes must be replaced promptly. |
| 6. | Pipelines must be free from mechanical tension and vibration. Compensate for vibrations by using vibration dampers. |
| 7. | Only use fittings suitable for this pressure and temperature range. The pipeline threads must match those on the housing head. |
| 8. | Design the condensate drain such that no compressed gas or condensate can escape into the area around the separator. The drained condensate should be fed into a legally conforming preparation system. |

The direction of flow for the separator must be observed during installation. This must match the direction of flow for the pipeline.

| Direction of flow left » right (factory default) | Direction of flow Right » left |
|---|---|
|  |  |

The housing head and housing body use a double trapezoidal thread. The direction of flow through the separator can be adjusted to that of the pipeline by turning the housing head 180°. The direction of flow is indicated via arrows **[2]** and a raised marking **[3]** on the housing head. This must be aligned as shown. The safety runner **[1]** must always be easily accessible on the front side.

For maintenance and repair work, it is recommended to install a bypass line **[4]** and shut-off valve **[5]**.




1. Attach sealing material, e.g. PTFE band (EN 837-2) to the pipe ends
2. Screw pipe thread into the separator inlet until the connection is solid and sealed
3. Screw pipe thread into the separator outlet until the connection is solid and sealed

After completing assembly work, check to ensure the housing body is screwed in correctly, the safety runner is pushed up and the locking screw is hand-tightened. Complete a leak test to check installation work. For more information, see “9.6 Leak test” on page 39.

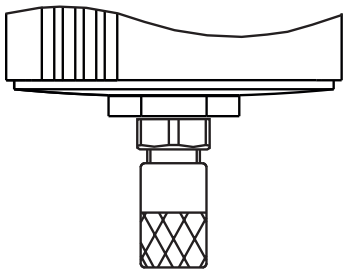
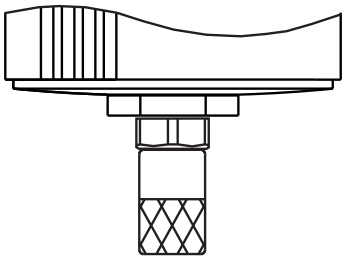
# 8. Commissioning

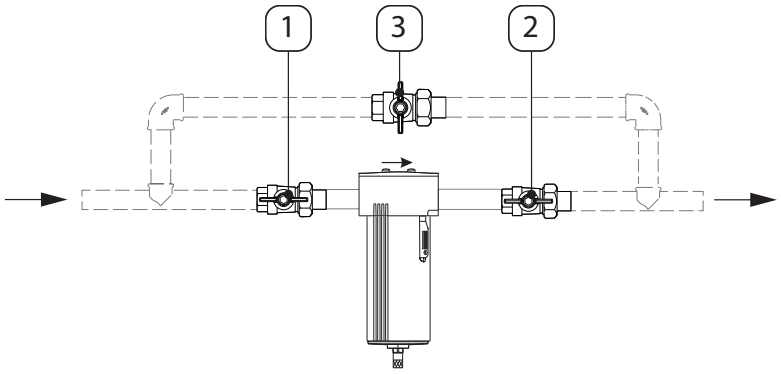
## 8.1 Commissioning work

The following requirements must be fulfilled to carry out commissioning work and preparatory work must be completed.

| Preconditions | | |
|---|---|---|
| **Tool** | **Material** | **Protective equipment** |
| • none | • none | • none |

| Preparatory work | |
|---|---|
| 1. | Completed installation with leak test |

| Picture | | Description |
|---|---|---|
| **Automatic drain** | **Mechanically open** | |
|  |  | 1. Turn the knurled-head screw on the float drain from **>>mechanically open<<** counter-clockwise (left) to **>>automatic drainage<<** |

| Picture | Description |
|---|---|
|  | **2. Slowly** open the shut-off valve **[1]** on the inlet side<br>**3. Slowly** open the shut-off valve **[2]** on the outlet side<br>4. Close the shut-off valve **[3]** on the bypass line |

# 9. Maintenance and servicing

## 9.1 Maintenance schedule

| Maintenance | Interval |
|---|---|
| Cleaning work | At regular intervals, depending on contamination |
| Visual inspection | Weekly |
| Exchange the float drain | Annually |
| Exchange the WS insert | If damaged |
| Leak test | Recommendation: At the end of all installation and maintenance and repair work on the product |

## 9.2 Cleaning

### 9.2.1 Warning

| CAUTION | **Improper cleaning and use of incorrect cleaning agents!** |
|---|---|
|  | Improper cleaning and the use of incorrect cleaning agents could result in slight injuries and health or property damage. |
| | • Never clean the device with a wet cloth.<br>• Do not use abrasive or aggressive cleaning agents or solvents that could damage the external coating (e.g. labels, type plate, corrosion protection, etc.).<br>• Do not clean or operate the device with hard or pointed implements.<br>• Use dusters or damp cotton cloths for exterior cleaning that cannot become statically charged.<br>• Replace illegible product labels (pictograms, designations) promptly. |

| NOTICE | **Local hygiene regulations!** |
|---|---|
|  | In addition to the cleaning information provided, local hygiene regulations may also apply. |

### 9.2.2 Cleaning work

The following requirements must be fulfilled to carry out cleaning work and preparatory work must be completed.

| Preconditions | | |
|---|---|---|
| **Tool** | **Material** | **Protective equipment** |
| • none | • Mild cleaning agent<br>• Cotton or disposable cloth | • Protective gloves (liquid-resistant)<br>• Safety glasses with side protection (goggles)<br>• Hearing protection<br>• Class FFP 3 respirator<br>• Safety shoes |

To clean the separator, use a damp (but not wet) cotton cloth or disposable tissue and a mild conventional detergent or soap.

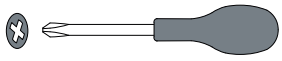
1. Spray the cleaning agent on a new cotton or disposable cloth
2. Rub over the entire component
3. Then dry the device with a clean cloth or let it dry at room temperature.

## 9.3 Visual inspection

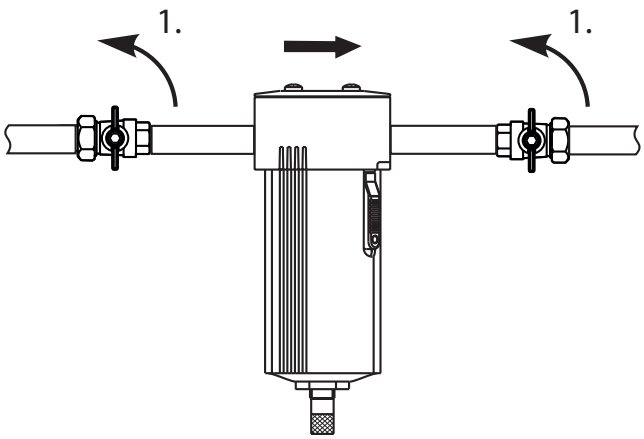
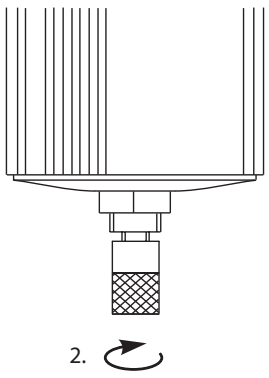
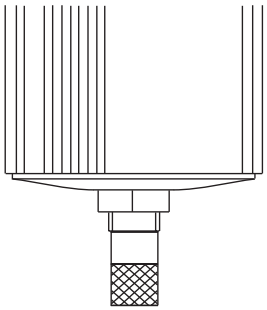
A visual inspection of the separator must be completed to check all components for mechanical damage and corrosion. Damaged components must be exchanged promptly.

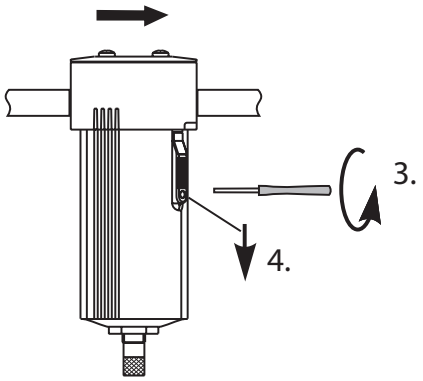
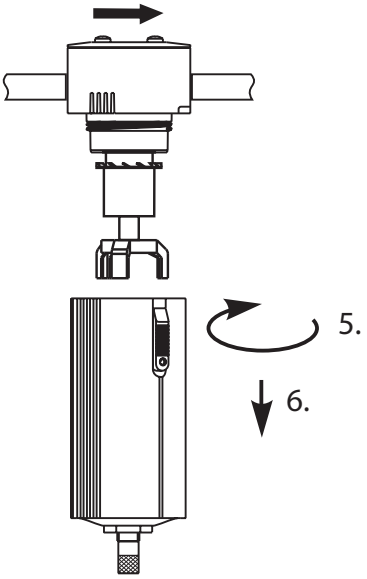
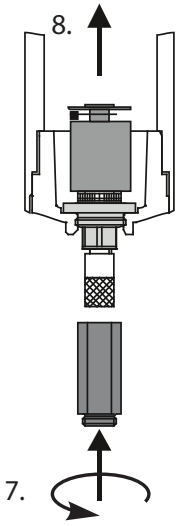
## 9.4 Exchange the float drain

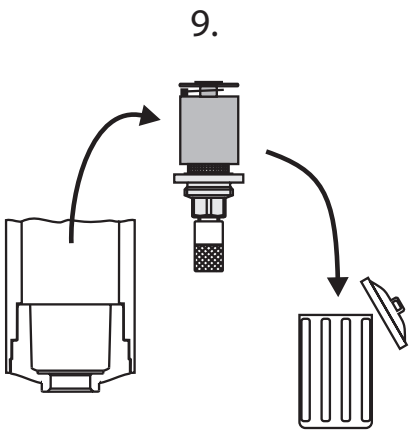
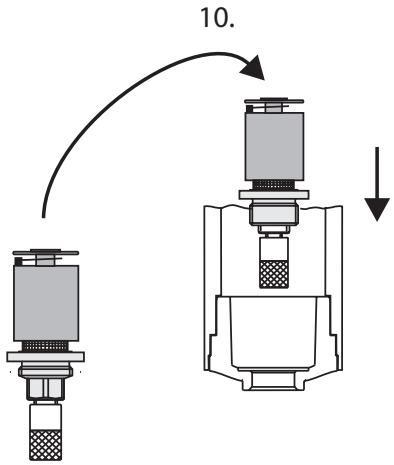
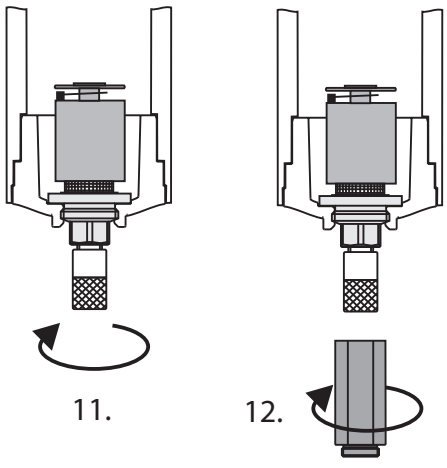
The following requirements must be fulfilled to exchange the float drain and preparatory work must be completed.

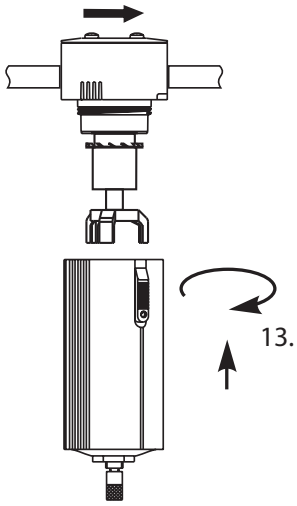
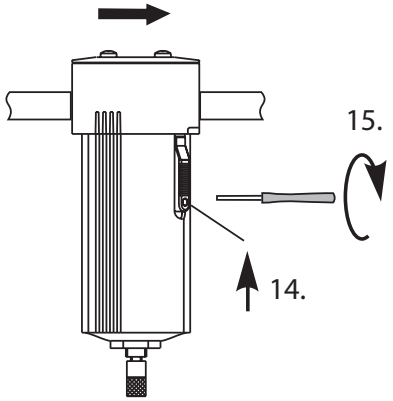
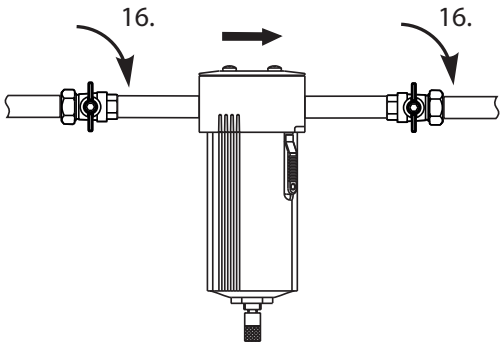
| Preconditions | | |
|---|---|---|
| **Tool** | **Material** | **Protective equipment** |
| • Screwdriver - Philip's head size 2.5 mm  | • New float drain with included adapter | • Protective gloves (liquid-resistant)<br>• Safety glasses with side protection (goggles)<br>• Hearing protection<br>• Class FFP 3 respirator<br>• Safety shoes |

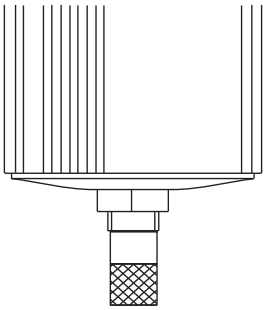
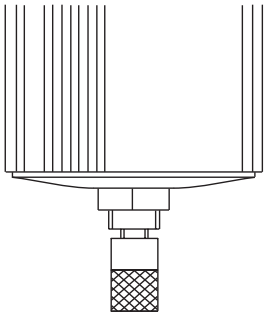
| Preparatory work | |
|---|---|
| 1. | Open any bypass lines |

| Picture | Description |
|---|---|
|  | 1. Close the shut-off valves upstream and downstream of the separator or relevant system section |
|  Automatic drain<br>  Mechanically open | 2. Turn the knurled-head screw on the float drain counter-clockwise (left) from ››**automatic drainage**‹‹ to ››**mechanically open**‹‹ |

| Picture | Description |
|---|---|
|  | 3. Loosen locking screw on the safety runner<br>4. Push the safety runner down |
|  | 5. Unscrew housing body<br>6. Remove housing body by pulling downwards |
|  | Use the adapter included with the float drain with SW13 to unscrew the float drain.<br>7. Turn the float drain with adapter counter-clockwise to unscrew<br>8. Pull the float drain upwards and out of the housing body |

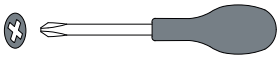
| Picture | Description |
|---|---|
|  | 9. Dispose of the float drain appropriately according to regional regulations<br>**For more information, see “12. Disposal” on page 44.** |
|  | 10. Insert new float drain in the housing body |
|  | 11. Turn the float drain counter-clockwise by hand into the housing body<br>12. Tighten the float drain using the adapter |

| Picture | Description |
|---|---|
|  | 13. Screw housing body back onto housing head<br>**Ensure that the safety slide points forward after installation.** |
|  | 14. Push the safety runner up<br>15. Tighten the locking screw on the safety runner |
|  | 16. Slowly open the shut-off valves upstream and downstream of the separator or relevant system section |

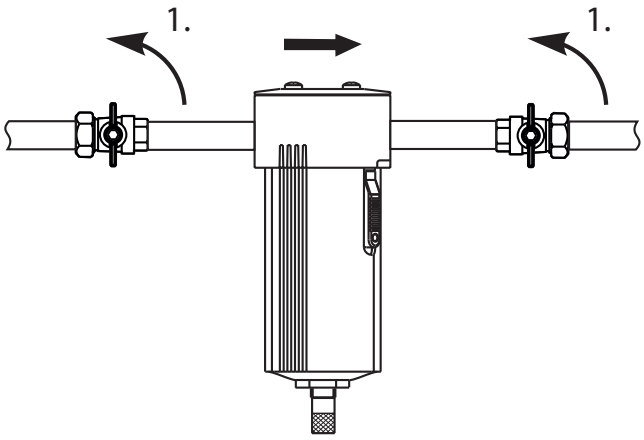
| Picture | Description |
|---|---|
|  Mechanically open  17. Automatic drain | 17. Turn the knurled-head screw on the safety runner counter-clockwise (left) from ››**mechanically open**‹‹ to ››**automatic drainage**‹‹; to do so, unscrew the knurled-head screw to the stop |

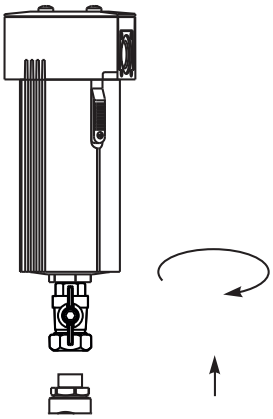
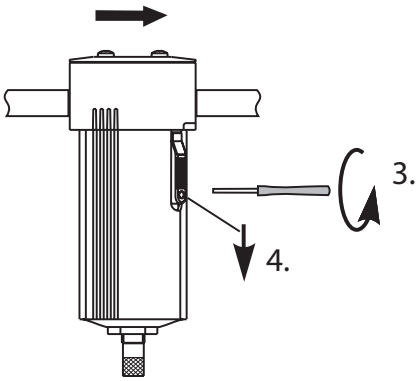
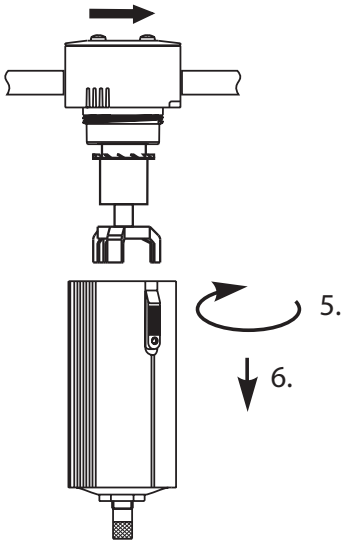
## 9.5 Exchange the water separator insert

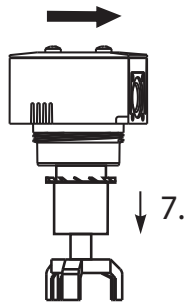
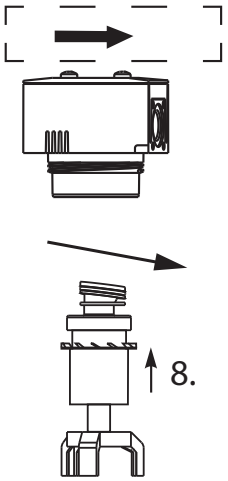
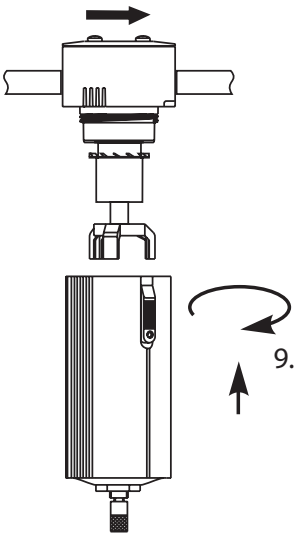
The following requirements must be fulfilled to exchange the water separator insert and preparatory work must be completed.

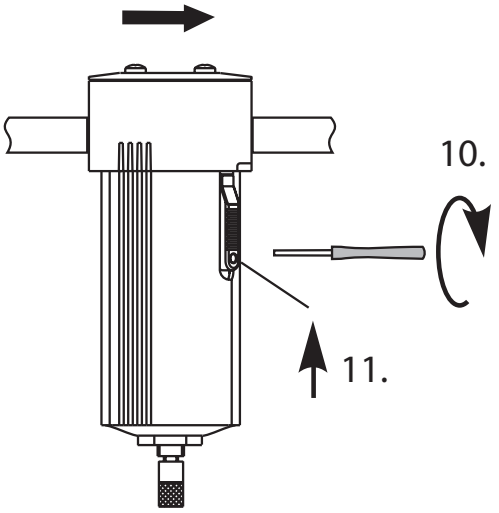
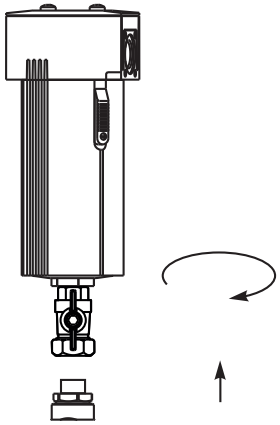
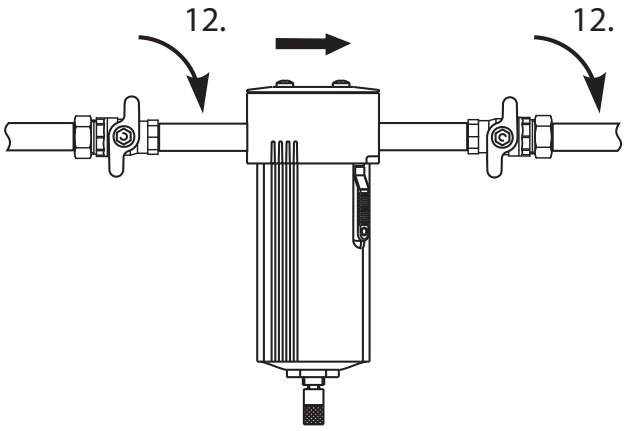
| Preconditions | | |
|---|---|---|
| **Tool** | **Material** | **Protective equipment** |
| • Screwdriver - Philip's head size 2.5 mm  | • new WS insert | • Protective gloves (liquid-resistant)<br>• Safety glasses with side protection (goggles)<br>• Hearing protection<br>• Class FFP 3 respirator<br>• Safety shoes |

| Preparatory work | |
|---|---|
| 1. | Open any bypass lines |

| Picture | Description |
|---|---|
|   | 1. Close the shut-off valves upstream and downstream of the separator or relevant system section and depressurize separator |

| Picture | Description |
|---|---|
|  | 2. If using the ZL Drain , it must be separated from the bottom section of the housing.<br><br>For further information, see the attached installation and operating instructions for the ZL Drain |
|  | 3. Loosen locking screw on the safety runner<br>4. Push the safety runner down |
|  | 5. Unscrew housing body<br>6. Remove housing body by pulling downwards |

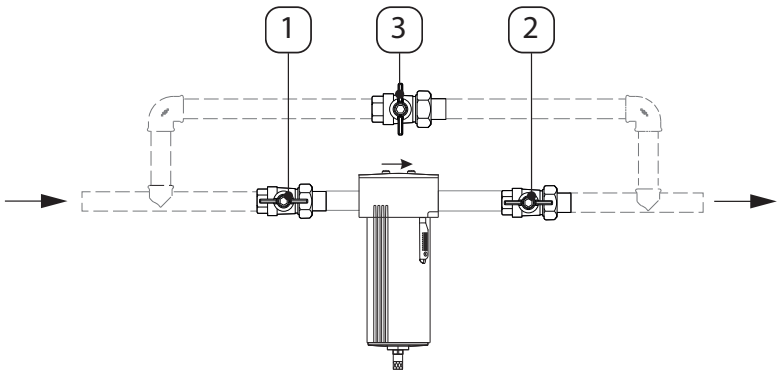
| Picture | Description |
|---|---|
|  | 7. Pull the used WS insert down out of the housing head |
|  | 8. Insert the new WS insert into the housing head. Ensure that the slant on the WS insert points down in the direction of the compressed air outlet. |
|  | 9. Screw housing body onto housing head<br>**Ensure that the safety slide points forward.** |

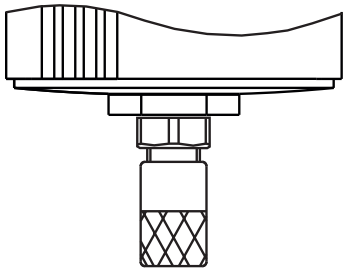
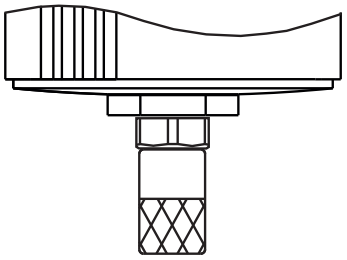
| Picture | Description |
|---|---|
|  | 10. Push the safety runner up<br>11. Tighten the locking screw on the safety runner |
|  | 12. If using the ZL Drain , it must be connected once again.<br><br>For further information, see the attached installation and operating instructions for the ZL Drain |
|  | 13. Slowly open the shut-off valves upstream and downstream of the separator or relevant system section |

## 9.6 Leak test

The leak test is a non-destructive testing method and is used to prove the leak tightness of vacuum and overpressurized systems. The leak test can be completed in different ways. **Sullivan Palatek** does not provide any recommendations. The operator of the compressed gas system is responsible for selecting the testing process, and testing should be completed in accordance with applicable standards and directives (e.g. DIN EN 1779).

# 10. Shutting down

| Picture | Description |
|---|---|
|  | 1. Open the shut-off valve **[3]** of the bypass line (if available)<br>2. Close the shut-off valve **[2]** on the outlet side<br>3. Close the shut-off valve **[1]** on the inlet side |

| Picture | | Description |
|---|---|---|
| Automatic drain | Mechanically open | |
|  |  | 4. Turn the knurled-head screw on the float drain from **>>automatic drainage<<** counterclockwise (left) to **>>mechanically open<<** or press the ZL Drain TEST button until the separator is depressurized |

# 11. Disassembly

## 11.1 Warning

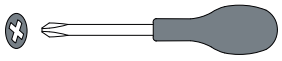
| DANGER | **Use of incorrect accessories, materials or replacement parts!** |
|---|---|
|  | The use of incorrect replacement parts, accessories or installation material or operating and auxiliary materials may result in death or severe injuries. This may also cause functional or operating disruptions or material damage. |
| | • Only use undamaged original parts, auxiliary and operating materials for all disassembly work as indicated by the manufacturer.<br>• Only use fittings and connection elements permitted for the specific application and suitable tools in proper condition. |

| DANGER | **Compressed air** |
|---|---|
|  | The risk of death or severe injuries exists in case of contact with fast or sudden exiting compressed air or due to bursting system parts. |
| | • Only work on the system when it is depressurized and secure the system against unintended restart.<br>• Set up a safety zone around the system when carrying out any assembly, installation, maintenance and repair work.<br>• Before pressurizing the system, check and tighten all pipe connections.<br>• Pressurize the system slowly.<br>• Avoid pressure surges and high pressure differentials.<br>• Install all pipelines without mechanical tension. Avoid vibrations occurring in the pipeline network by using vibration dampers.<br>• Carefully observe the installation and operating instructions in this manual.<br>• Carefully observe inspection and maintenance intervals.<br>• Permanently install inlet and outlet lines.<br>• Do not make modifications on the product. |

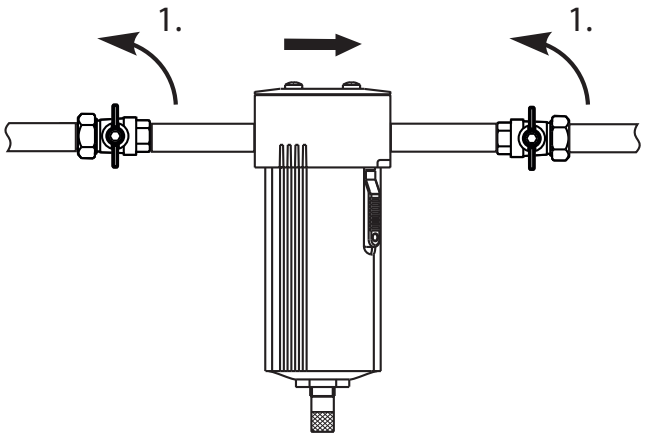
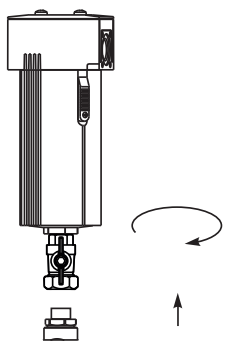
| WARNING | **Insufficient qualification!** |
|---|---|
|  | If personnel have insufficient qualifications, this may result in accidents, personal injury and property damage as well as operating disruptions while working on the product. |
| | The work on the product described in the following may only be carried out by compressed gas technology technicians and must be documented. |

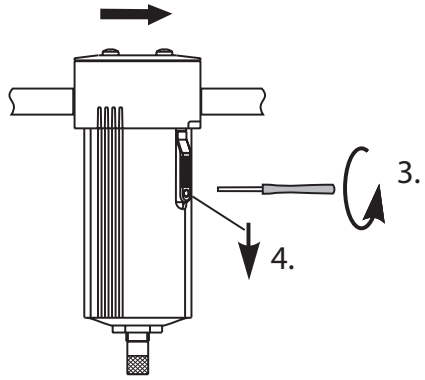
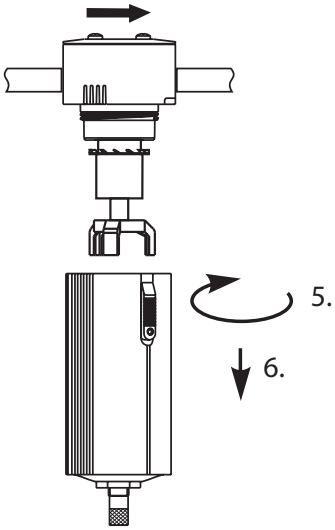
## 11.2 Disassembly work

The following requirements must be fulfilled to carry out disassembly work and preparatory work must be completed.

| Preconditions | | |
|---|---|---|
| **Tool** | **Material** | **Protective equipment** |
| • Screwdriver - Philip's head size 2.5 mm  | • none | • Protective gloves (liquid-resistant)<br>• Safety glasses with side protection (goggles)<br>• Hearing protection<br>• Class FFP 3 respirator<br>• Safety shoes |

| Preparatory work | |
|---|---|
| 1. | Open any bypass lines |

| Picture | Description |
|---|---|
|  | 1. Close the shut-off valves upstream and downstream of the separator of the system section in question, depressurize the separator and secure the system against unintended pressurization |
|  | 2. If using the ZL Drain , it must be separated from the bottom section of the housing<br><br>For further information, see the attached installation and operating instructions for the ZL Drain |

| Picture | Description |
|---|---|
|  | 3. Loosen locking screw on the safety runner<br>4. Push the safety runner down |
|  | 5. Unscrew housing body<br>6. Remove housing body by pulling downwards<br>7. Remove WS insert |

8. Remove the housing head from the pipe and close off the ends of the pipe appropriately
9. Dispose of components properly

# 12. Disposal

## 12.1 Warning

| DANGER | **Use of incorrect accessories, materials or replacement parts!** |
|---|---|
|  | The use of incorrect replacement parts, accessories or installation material or operating and auxiliary materials may result in death or severe injuries. This may also cause functional or operating disruptions or material damage. |
| | • Only use undamaged original parts, auxiliary and operating materials for all disassembly work as indicated by the manufacturer.<br>• Only use fittings and connection elements permitted for the specific application and suitable tools in proper condition. |

| NOTICE | **Improper disposal!** |
|---|---|
|  | Improper disposal of components and assemblies, operating and auxiliary materials and cleaning agents may cause environmental hazards. |
| | • All components and assemblies, operating and auxiliary materials and cleaning agents must be disposed of appropriately and according to regional statutory specifications and provisions.<br>• In case of doubt, consult regional disposal companies before disposal. |

## 12.2 Disposal work

At the end of its service life, the product must be disposed of professionally, e.g. by a professional company. Materials such as glass, plastic, and some chemical compounds can be recycled or reused.

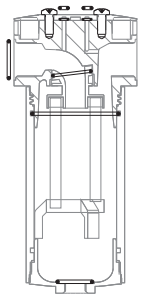
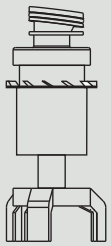
All national and local regulations must be complied with during disposal.

**Used WS insert:**
Do not dispose of as household waste! Dispose of safely and according to the statutory waste disposal regulations.

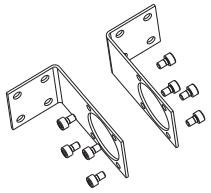
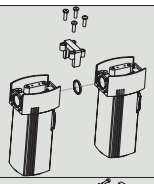
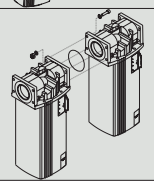
**Used float drain:**
Do not dispose of as household waste! Dispose of safely and according to the statutory waste disposal regulations.

# 13. Spare parts and accessories

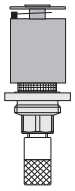
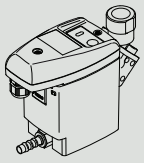
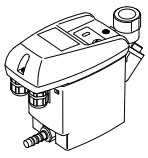
## 13.1 Replacement parts

| Designation | Image | Separate documentation |
|---|---|---|
| O-Ring set for SPTWS25, SPTWS50<br>➞ on demand<br>O-Ring set for SPTWS100, SPTWS160<br>➞ on demand<br>O-Ring set for, SPTWS250, SPTWS500, SPTWS600<br>➞ on demand<br>O-Ring set for SPTWS1000, SPTWS1500<br>➞ on demand |  | Included packing slip |
| WS insert SPTWS25<br>➞ on demand<br>WS insert SPTWS50<br>➞ on demand<br>WS insert SPTWS100<br>➞ on demand<br>WS insert SPTWS160<br>➞ on demand<br>WS insert SPTWS250<br>➞ on demand<br>WS insert SPTWS500<br>➞ on demand<br>WS insert SPTWS600<br>➞ on demand<br>WS insert SPTWS1000<br>➞ on demand<br>WS insert SPTWS1500<br>➞ on demand |  | Included packing slip |

## 13.2 Accessories top attachments

| Designation | Image | Separate documentation |
|---|---|---|
| Wall mount for SPTWS25, SPTWS50<br>→ on demand<br>Wall mount for SPTWS100, SPTWS160<br>→ on demand<br>Wall mount for SPTWS250, SPTWS500, SPTWS600<br>→ on demand<br>Wall mount for SPTWS1000, SPTWS1500<br>→ on demand |  | Not available |
| Connection set for SPTWS25, SPTWS50<br>→ on demand<br>Connection set for SPTWS100, SPTWS160<br>→ on demand<br>Connection set for SPTWS250, SPTWS500, SPTWS600<br>→ on demand<br>Connection set for SPTWS1000, SPTWS1500<br>→ on demand |  <br>  | Included packing slip |

## 13.3 Accessories bottom attachments

| Designation | Image | Separate documentation |
|---|---|---|
| Float drain (open when depressurized)<br>→ on demand<br><br>Float drain (closed when depressurized)<br>→ on demand |  | Included packing slip |
| ZL Drain 31<br>→ on demand |  | enclosed manual |
| ZL Drain 32 V<br>→ on demand |  | enclosed manual |

# 14. Troubleshooting and repair / FAQ

| Symptom(s) | Possible causes | Remedy |
|---|---|---|
| Poor compressed gas quality | Load too high, intermittent load | • Change operating method<br>• Avoid pressure surges<br>• Comply with the specified operating parameters, in particular during start-up |
| | Non-functional condensate drain | • Ensure regular condensate drainage |
| | Incorrectly dimensioned unit | • Dimension separator with indicated operating parameters and exchange if necessary |
| | WS insert installed incorrectly | • Observe the direction of flow / installation direction for the WS insert |
| | O-ring was damaged during installation | • Purchase O-ring set, proceed carefully during installation |
| High pressure differential | Incorrectly dimensioned unit | • Dimension separator with indicated operating parameters and exchange for a larger one if necessary |
| | destroyed WS insert | • Exchange WS insert |
| Condensate in downstream components | Condensate drain defective or functional fault | • Exchange float drain or complete maintenance on ZL Drain |
| Leaks | Aging of seals | • Replace seals during maintenance work |
| | Mechanical damage | • Send in separator for repairs or replace with a new one |

**SULLIVAN PALATEK**

**AIR COMPRESSORS**

1201 West US Highway 20
Michigan City, Indiana 46360
Phone: 219.874.2497
Fax: 219.809.0203
info@palatek.com
www.sullivan-palatek.com