



# Filter Housing

Model: AFS-01

## Operating Manual

0010178\_A1  
Version Rev A



ABNOX AG  
Langackerstrasse 25  
CH-6330 Cham  
Telefon: +41 (0)41 780 40 55  
Telefax: +41 (0)41 780 40 50  
[info@abnox.com](mailto:info@abnox.com)  
<http://www.abnox.com>

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# 1 Introduction

## 1.1 General Information

Please read the Operating Manual carefully. It contains important information on the function principle and safety instructions for a safe use and start of operation of our product “Filter Housing” (AFS). Above that, it provides instructions for the mechanical inspection.

Make sure that every person who works with the product has sufficient training and is familiar with the Operating Manual before starting to work. The same applies when the person has already worked with the same or a similar product in the past.

## 1.2 Scope of Delivery

Included in the scope of delivery for our product “Filter Housing” (AFS) is the actual filter system, the operating manual and a 150 [mm] PA hose for attaching to the venting screw, see also Figure 1.



Figure 1 – Scope of delivery for product “Filter Housing” (AFS)

## 1.3 Target Group of the Operating Manual

- Operating personnel
- Maintenance personnel

## 1.4 Structure of the Operating Manual

It describes the following phases of the produce life cycle:

- Transport
- Description of the produce
- Start of operation
- Service and maintenance
- Taking out of service
- Spare parts / accessories

## 1.5 Warranty and Liability

According to the conditions laid down by the German Engineering Federation (VDMA), ABNOX AG has a guarantee of 12 months under normal European operating conditions on its own parts (wear-and-tear parts are excluded); or according to the conditions of the manufacturer.

This guarantee can only be granted by ABNOX AG, if:

- the user has thorough knowledge of the content of this operating manual;
- the user follows the instructions and notes contained in this operating manual;
- the user does not rebuild or make changes on parts of the pressured device without prior consent of ABNOX AG.

## 1.6 Copyright

We reserve the copyright for this operating manual. This operating manual is exclusively designated for the operator and his personnel.

Any copying – also only in part – or processing, or distribution or other use is strictly prohibited.

## 1.7 Warnings

Symbols are used indicate dangerous situations and specific behavior. These symbols are also used in this operating manual. All warning, danger and information symbols describe situations which can be harmful to persons, material or environment if rules are not followed.

The operating manual uses the following signs and symbols for dangers.



### **WARNING**

This symbol warns against a potentially dangerous situation which can result in death or severe injuries, if you do not take the required precautions.



### **CAUTION**

This symbol warns against a potentially dangerous situation which can result in lighter injuries, if you do not take the required precautions.  
This signal work is also used for warnings against material damages.



### **IMPORTANT**

Indicates tips for usage and other particularly useful information.  
**No** dangerous situation.

## 2 Safety

### 2.1 General Information

The construction of this device is according to the latest technology and is absolutely reliable. The individual components as well as the complete device are continuously checked by our quality management team.

### 2.2 Basic Safety Instructions

Basic conditions for a safe handling and a failure-free operation of the pressured device are:



#### CAUTION

##### **Hazards from incorrect use**

It is the customer's responsibility that **all relevant safety measures** are followed.

The pressured device will only be used for the designated purpose.

No changes will be made at the pressured device. The customer carries the sole responsibility for consequences resulting from failure to observe this guideline. Please contact ABNOX AG for any desired modifications.

Make sure that the pressured device is always in a safe operational condition. Checks for proper function or damages have to be performed by specialists on a regular basis. Dismounting will only be made by authorized personnel and while using the operating manual. If requested, we will also offer trainings on the device in order to teach your personnel the required knowledge.

Disconnect the device from compressed air / current for all maintenance tasks. All lines and hoses have to be pressure-less.

Check all lines, hoses and screwed joints regularly for leakages and apparent damages! Repair damages immediately!

Always make sure that the actual workstation and the device are clean and clearly arrange; and this is routinely checked.

Please observe the guiding rules and regulations for accident prevention at the workplace.

### 2.3 Dangers from Using the Pressured Device

The construction of this pressured device is according to the latest technology and is absolutely reliable. However, there may be dangers for the user or third parties or other physical assets, if not used correctly.



#### WARNING

##### **Hazard from incorrect use**

Use device only for the designated purpose and in a safe and operational condition. Immediately correct failures which can adversely affect safety and security.



#### CAUTION

##### **Hazard from residual energy**

Please instruct the operating personnel on the respective measures to be taken against the occurrence of mechanical, hydraulic, pneumatic and electric / electronic residual energies.

## 2.4 Correct Use



### CAUTION

The main purpose of *Filter Housing (AFS-01)* is to hold back contaminations in a lubricant in order to protect subsequent process components against these. The Filter Housing AFS-01 is capable of a maximum operating pressure of 200 bar and an operating temperature from +4C° to +50C°.

Any other use will be regarded as incorrect. The manufacturer cannot be made liable for damages resulting from incorrect use.

Also, the operating personnel has to be familiar with the contents of all included manuals (operating and assembling manuals):

## 2.5 Incorrect Use



### CAUTION

***Danger from incorrect use.***

***No other use than the designated!***

***The operator is liable for damages from incorrect use. He bears the sole risk!***

- Operating the Filter Housing AFS-01 with an operating pressure of more than 200 bar.
- Operating the Filter Housing with insufficient knowledge on operation and maintenance.
- Making changes, extensions or alterations on the pressured device that may hamper its safety without the prior consent of *ABNOX AG*.
- Using unsuitable materials (which do not fall under the material approval for pressured devices according to Article 15) or unsuitable spare parts which do not comply with EN 4413 and EN 60204.
- Handling the Filter Housing while energized.
- The built-in sealings and gaskets of the device are unstable against polar solvents (e.g. acetone, MEK, ethyl acetate), low-molecular organic acids (formic acid and acidic acid), glycol-based brake fluids, ammonia gas, amines, alkalis and superheated steam. The use of the above-mentioned media and self-curing adhesives can cause malfunctions, damages to material or even the destruction of the device.
- Use in explosive areas according to directive 2014/34/EU.
- Any other than the designated use, or system changes, or manipulations will lead to a loss of warranty/guarantee and also CE conformity

## 2.6 Required Qualification of Personnel and Personal Protective Equipment



### CAUTION

***Danger from incorrect use.***

- This pressured device can become a hazard if operated by untrained personnel or not used for the designated purpose.
- In all phases of life, work will only be performed by trained and specialized personnel.
- The operator company is responsible for clearly assigning the responsibility of the personnel in all phases of life!
- The operator company is also responsible for providing the required personal protective equipment (e.g. goggles, safety shoes according to workplace safety regulations) which will be worn

Task	Instructed personnel	Personnel with technical qualification	Specialist	Supervisor
Packaging and transport	X	-	-	-
Installation and start of operation		X		-
Operation	X			-
Service, maintenance and troubleshooting	-	X		-
Taking out of service and disposal	-	X		-
Assigning personnel				X

Table 1 – Qualification of Personnel



## 3 Transport

### 3.1 Packaging

The pressured device will be prepared by *ABNOX AG* for a transport to the first destination.

The type of packaging depends on the individual mode of shipping. If not separately contracted, the packaging is in accordance with the rules and regulations of *ABNOX AG*. This rule is in accordance with the Federal Association for Packaging HPE.

The packing unit will not be exposed to any additional strain. Packaging and contents will be protected against any kind of humidity. The temperature for transport and storage will strictly range between  $-20^{\circ}\text{C}$  and  $+40^{\circ}\text{C}$ .

### 3.2 Transport and Damages in Transport

The actual transport of the pressured device and its individual parts requires special care in order to prevent damages from external forceful impact or careless on- and off-loading. Depending on the mode of transportation, suitable transport and load securing has to be selected. The device will be aligned and leveled by appropriate fastening elements.

The following will be observed when the receiving checks reveal damages in transport:

- Contact the carrier (carrier, train etc.)
- Write a protocol of damages
- Contact the supplier

## 4 Description of Product

The following chapter provides information on the functions of the Filter Housing (AFS).

### CAUTION

#### **Hazard from incorrect use**



The built-in sealings and gaskets of the device are unstable against polar solvents (e.g. acetone, MEK, ethyl acetate), low-molecular organic acids (formic acid and acetic acid), glycol-based brake fluids, ammonia gas, amines, alkalis and superheated steam. The use of the above-mentioned media and self-curing adhesives can cause malfunctions, damages to material or even the destruction of the device.

### 4.1 General Information

The primary purpose of the *Filter Housing (AFS)* is to hold back contaminations in a lubricant in order to protect subsequent process components against these.

After replacing a filter cartridge, the device can be vented through the integrated venting screw.

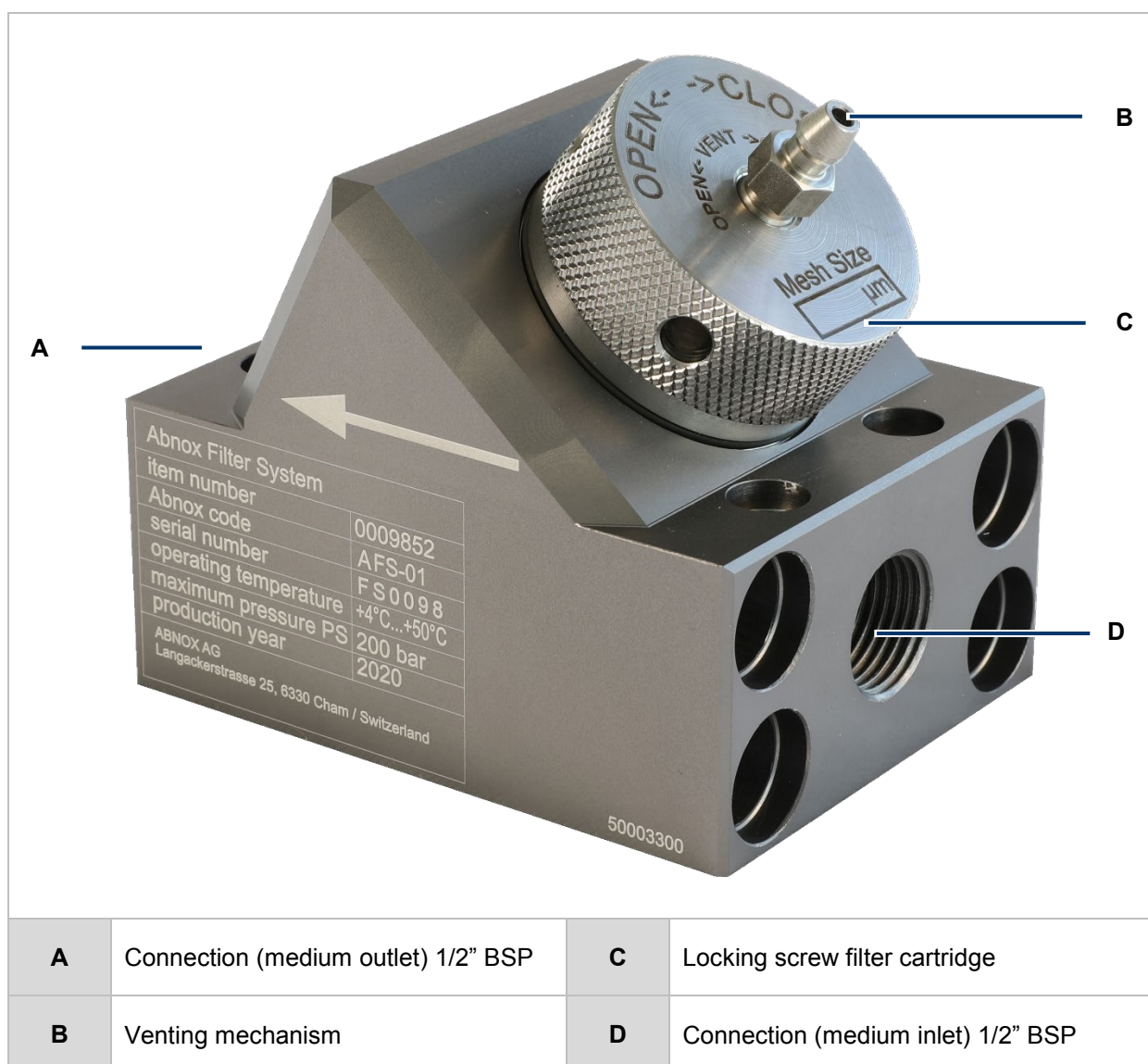


Figure 2 – Structure of the *Filter Housing*

## 4.2 Type Label

The type label is located on the side of the device with the following information:

	Article number:	0009852
	Model:	AFS-01
	Serial number:	FS0098
	Operating temp.:	+4°C ... +50°C
	Max. pressure PS:	200 bar
	Year of production:	2018
ABNOX AG Langackerstrasse25 CH-6330 Cham		

Figure 3 – Information of the type label

## 4.3 Performance Characteristics

- Robust design of filter cartridge for large differential pressures.
- Integrated venting screw for venting the device after replacing a filter cartridge



### WARNING

#### **Hazard from incorrect use**

Death, severe injuries or major material damages can occur, if you do not take the required precautions.



### WARNUNG

#### **Hazard from incorrect use**

If an operating pressure is applied to the AFS which is higher than the allowed operating pressure, the operator is responsible for taking the necessary measures to limit the pressure.

Also, for safety reasons, the assigned personnel have to be informed about the consequences of an excessive pressure.

The below Table 2 gives you an overview of the allowed operating conditions, respectively the limits of use for the AFS.

Feature	Min		Type	Max
Hydraulic Values				
Allowed operating pressure	0	-	200	[bar]
Test pressure	-	300	-	[bar]
Other Values				
Allowed operating temperature	4	25	50	[°C]
Weight		1.9		[kg]
Protection type		IP 67		
Dimensions L x W x H	102 x 79 x 90			[mm]
Medium-touching Parts of the AFS				
Housing	1.3547	Aluminum anodized		
Locking screw	1.4021	Chrome steel		
Flange sleeve	1.4021	Chrome steel		
Sealings	FKM			
Venting screw	V2A			

Table 2 – Operating conditions and limits of use

## 5 Start of Operation

### 5.1 Installation



#### IMPORTANT

Make sure you are working on a flat surface when installing the pressured device onto the base board!



#### CAUTION

##### ***Danger from ejected medium (fluid) under high pressure***

Wear suitable protective equipment, such as goggles, safety gloves and safety shoes.

The AFS will be mounted with four M6 screws which are part of the delivery.

1. Insert the screws (M6) into the provided through-bores and screw to the base board (see figure 4).
- ▶ Tighten the fastening screws (M6) with a torque moment of 9.6 [Nm].
2. Use the provided threaded holes (1/2" BSP) on the face for the hydraulic connection.
- ▶ Please refer to figure 5 for the respective dimensions when mounting the AFS.

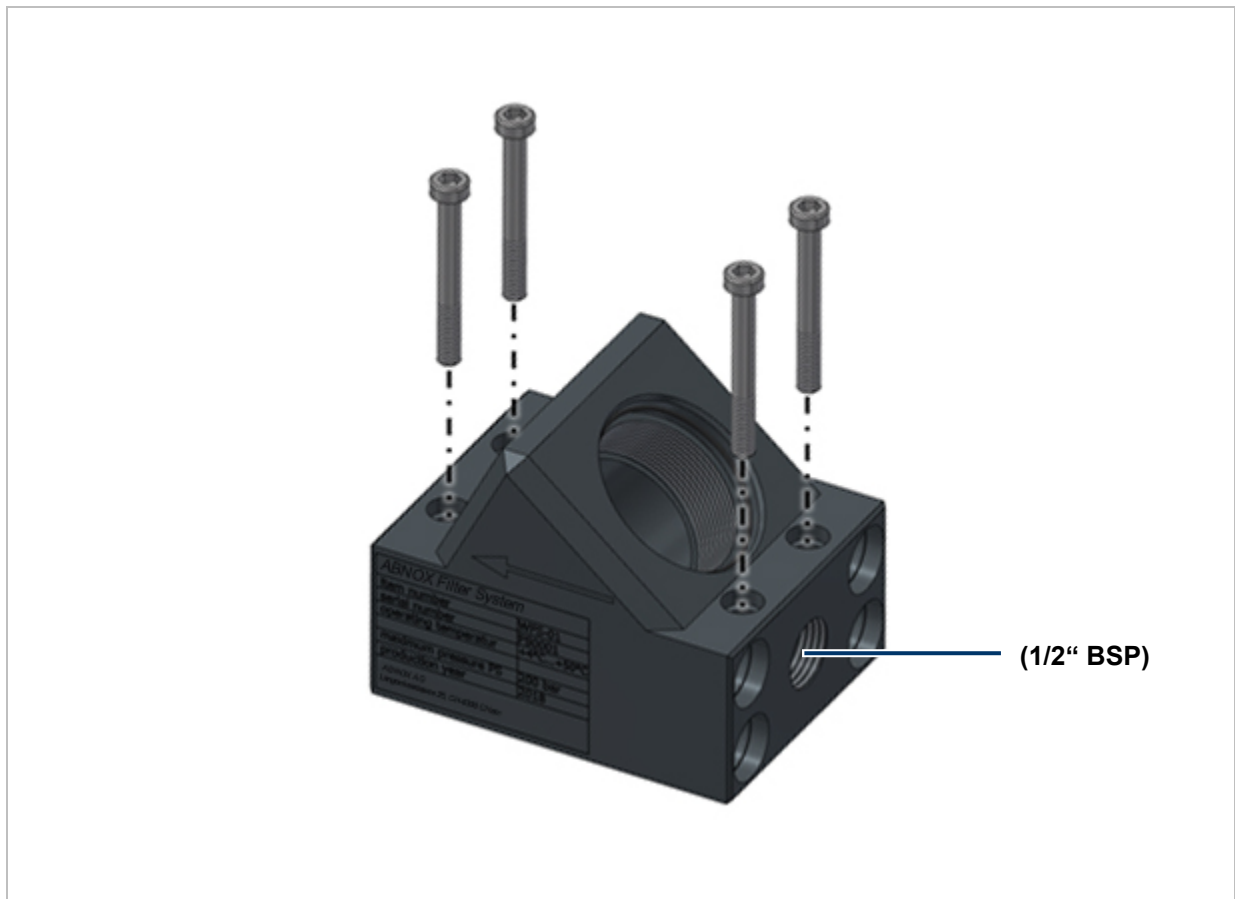


Figure 4 – Mounting the AFS on a flat base board



#### CAUTION

##### ***Hazard from unsuitable attachments***

Using unsuitable materials (which do not fall under the material approval for pressured devices according to Article 15) or unsuitable spare parts which do not comply with EN 4413 and EN 60204.

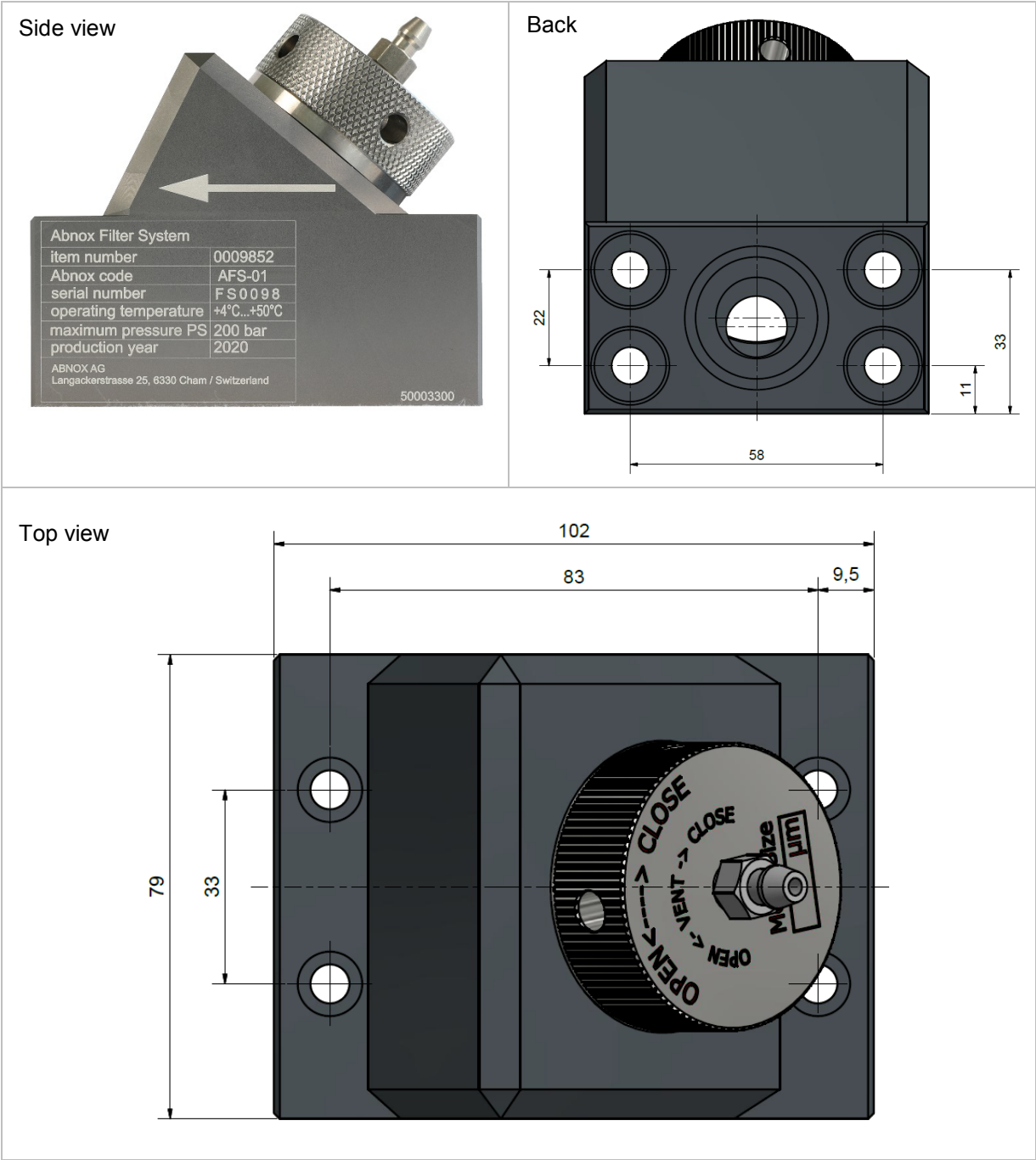


Figure 5 – Dimensions of the AFS

## 5.2 Fastening by Flanging to other ABNOX Products



### CAUTION

Prior to any work, remove pressure from hydraulic, pneumatic and electric system, and secure against unauthorized operation.  
Wear personal protective equipment, particularly goggles and gloves.



### INFORMATION

Make sure that you keep the direction of flow when flanging to other ABNOX products. The direction flow is indicated by direction markings and must be kept.

#### Take the following steps for connecting the modules:

1. Insert four threaded rods through the first module
2. Attach two centering sleeves and the O-ring
3. Connect next module
4. Attach two centering sleeves and the O-ring again
5. Continue until all modules are connected (make sure you keep the correct sequence of all modules when connecting)
6. Attach four times M8 cylindrical nut with Allen and tighten (24 N m)

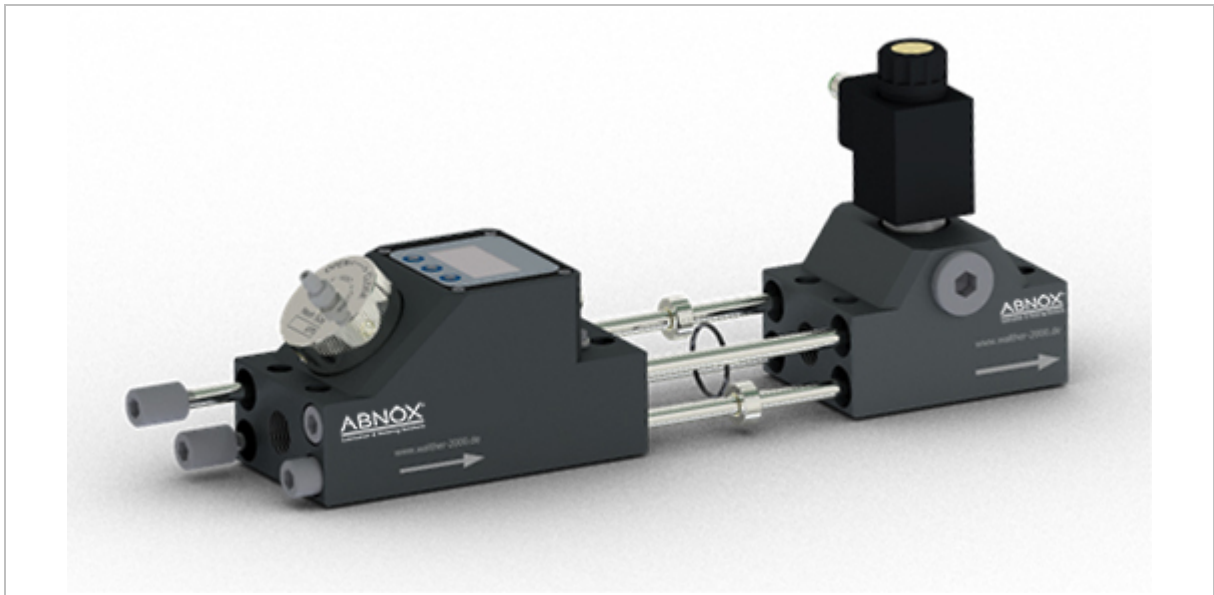


Figure 6 – Application example



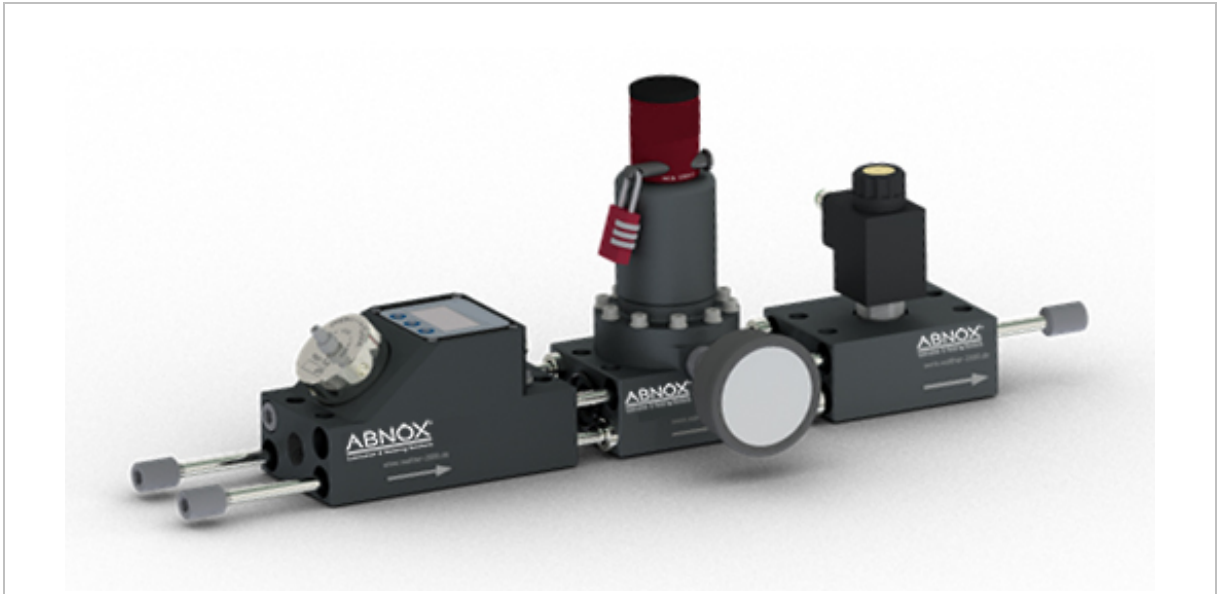


Figure 7 – Application example 2

**IMPORTANT**

Please refer to the Installation Instructions of the Module Connector Set “MVS-BA-10” for further information on the module connector set.



## 5.3 Replacing / Inserting the Filter Insert



### CAUTION!

For inserting / replacing a filter insert, the fluid system has to be **turned off** and **de-pressured**.

Secure against accidental switch-on.



### CAUTION

***Danger from ejected medium (fluid) under high pressure***

Wear suitable protective equipment, such as goggles, safety gloves and safety shoes.

### Replacing the Filter Insert

Take the following steps for inserting a new or replacing a soiled filter insert into the "Filter Housing" (AFS); see Figure 8.



Figure 8 – Inserting / replacing the filter insert

1. Make sure that the system pressure is turned off and that the system is completely relieved from pressure!
- ▶ The venting screw ② is integrated in the locking screw ①.



### CAUTION

When opening the venting screw ②, fluid can be abruptly discharged from its venting opening and may cause severe injuries on eyes or skin!

If the venting screw ② is turned out too far, it could be shot out by the applied system pressure which can cause severe injuries.

Only open the venting screw by ½ a turn.

2. Open the venting screw ② by ½ a turn for relieving the remaining pressure from the AFS.  
Use a wrench with spanner gap 10.
3. Use a hose for draining any discharged fluid.  
Use the provided hose which comes as a part of the delivery.  
Simply attach the hose to the venting screw.
4. Completely unscrew the locking screw ① from the housing of the AFS.  
Usually you can do this manually without any special tools.

**ATTENTION:** The filter insert ③ can only be pulled in axial direction from the AFS housing.  
The filter insert ③ is not screwed in!

5. Remove the soiled filter insert ③ from the AFS.
6. Remove remaining, soiled fluid from the filter insert chamber ④.
7. Slightly grease the sealing ring of the new filter insert (e.g. with petrolatum).  
▶ This will make the next replacement a lot easier.
8. Insert filter insert ③.  
No tools are required for locking the locking screw ①!
9. Lock the AFS housing with the locking screw ① and hand-tighten it (5 [Nm]).
10. Slightly increase the system pressure for venting the AFS.  
▶ The fluid-air mix will now discharge through the still open venting screw ②.
11. Use the hose for draining.  
You can use the hose which came with the delivery and put it on the venting screw.
12. As soon as no more air is discharged from the venting screw ②, you can lock it with an open-end wrench width 10 (10,0 [Nm]).

## 6 Service and Maintenance

### 6.1 General Information



#### CAUTION

Prior to all repair or maintenance work on the device, depressurize all supply lines and disconnect from device.

The pressured device is a high-precision machine which will not fail if treated correctly and will operated almost maintenance-free.

Make sure that you always use clean and filtered material for processing.

Depending on the individual operating conditions and the different application media, you will need a comparably low amount of service and maintenance.

### 6.2 Routine Tasks

The maintenance intervals stated below are valid for single-shift operation of the equipment. In case of multiple-shift or very intensive operation, maintenance intervals must be shortened accordingly. Also consider other influences on maintenance need, such as dirty environment, or degraded air supply quality.

WHEN	WHAT	HOW	WHO
Weekly	Check filter unit for tightness	Visual	Experts from operator
Depending on service life	Check filter for soiling		

Table 3 – Routine tasks

### 6.3 Troubleshooting



#### IMPORTANT

First check if all supply lines are properly connected and functioning.

In case of serious problems that cannot be resolved, please contact the *ABNOX AG* customer service.

### 6.4 Customer Service / Support



ABNOX AG  
Langackerstrasse 25  
CH-6330 Cham  
Telefon: +41 (0)41 780 40 55  
Telefax: +41 (0)41 780 40 50  
[info@abnox.com](mailto:info@abnox.com)  
<http://www.abnox.com>

## 7 Taking out of Service

**CAUTION**

Follow the operating and maintenance instructions when performing the below mentioned tasks!

### 7.1 Short Interruption

For a short interruption, such as overnight or over a weekend, turn off the pressured device. When not in use, the pressure is not supplied with pressure or current.

### 7.2 Long-term Interruption

Ensure the following for longer shutdown of the pressured device:

- No pressure in the system.
- No pressure on material lines

### 7.3 Shutdown of Pressured Device

**CAUTION**

Hazard of accident and hazard for environment. Do not spill medium. The medium and all parts of the device will be properly disposed of (hazardous waste).

Observe the following for a shutdown of the device:

- No pressure in the system (check displays).
- No pressure in material lines.
- No current supply on pressured device.
- Properly dispose of medium

## 8 Spare Parts

EN

### IMPORTANT



#### ***Only use original spare parts from the manufacturer!***

Wrong or defective spare parts from other manufacturers can damage the device. If other than original spare parts of the manufacturer will be used, all obligations from the manufacturer or his sales partners, such as guarantees, service contracts etc. will be **forfeited** without further notice.

The below table shows you all available spare parts for this product series.


Figure	Model	Article Number	Description
	AZF-150-01	0009855	Filter insert 150 [µm] mesh size
	AZF-300-01	0009856	Filter insert 300 [µm] mesh size
	AZF-500-01	0009857	Filter insert 500 [µm] mesh size

Table 4 – Spare parts

**BA-Number: 0010178\_A1**