



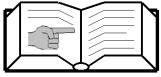
**Parker Hannifin Manufacturing  
Netherlands (Filtration) B.V.**

# **EAPF 1**

**Ecological ATEX Pressure Filter**

**-OPERATION AND MAINTENANCE INSTRUCTIONS-  
-SPARE PARTS-**





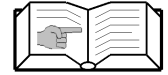
# EAPF 1

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**EAPF 1**

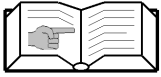
## Operation and Maintenance Instructions

72.09.195.66 rev.B

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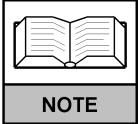
**1. PREFACE**

This operation manual is intended to acquaint the user with the structure, maintenance and safe use of the EAPF filter. The manual provides instruction for operation and maintenance personnel. Through correct use and maintenance the system can be kept in trouble-free, effective and economic working condition over its entire life span. These operating and maintenance instructions shall be complemented with relevant instructions set forth in local acts and statutes, and in requirements by local authorities.



# EAPF 1

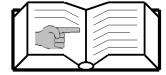
## 2. TO THE USER



**Before attempting to install, use or maintain the filter you should acquaint yourself with the contents of this manual paying special attention to Chapter 3, “SAFETY INSTRUCTIONS”.**

- This manual shall always be kept readily available.
- The EAPF filter may only be used and serviced by properly trained personnel that know how the device works.
- When ordering spare parts or making arrangements for maintenance, always quote the name of the device and its serial number as indicated on the type plate.
- Any parts replaced for maintenance or repair purposes shall be original Parker Hannifin spare parts.
- The manufacturer reserves the right to change the device or its operation and maintenance instructions without prior notice.
- This operation and maintenance manual may not be copied, displayed in public, or given to a third party.

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## 3. SAFETY INSTRUCTIONS

### 3.1. Instruction symbols

The following safety instruction symbols are used in this manual.

#### PERSONAL SAFETY RISK



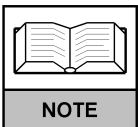
Neglect of safety precaution may cause serious injury or death.

#### EQUIPMENT OR ENVIRONMENT RISK

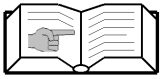


Incorrect use or maintenance of the device may cause danger to environment or the device itself

#### READ OPERATION AND MAINTENANCE INSTRUCTIONS



Prior to operating the device you shall read and fully understand the operation and maintenance instructions.



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## 3.2. Operator safety instructions



The operator shall acquaint himself with the manuals provided by the manufacturer and act according to the instructions they contain. You shall read and fully understand all warnings and safety instructions contained in this manual.

The system shall not be operated if:

- User's or maintainer's training in the operation of the system is insufficient.
- System is not in working order due to unfinished maintenance work or some other reason.
- Safety system is out of order.
- Operator or maintainer is tired, sick, or intoxicated.



Always use personal safety equipment required in the work environment or by law, such as safety goggles, earmuffs, hard hat, protective gloves, safety boots, and other necessary safety equipment.



Always have a first-aid kit at hand. Check its contents regularly and complement as necessary.



Before taking the system into use, make sure that it will not cause any danger to people or the environment. Safety systems may never be bypassed or removed in order to make work easier. Keep warning labels clean and replace them if unintelligible.



Danger of burns. The outer surfaces of the device may come very hot during operation. Do not touch the device without proper protective equipment.



Danger of slipping. Keep the maintenance area clean of oils or other substances that may cause slipping.

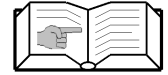


Poisoning or allergy risk. None of the fluids used in the device may be swallowed. Avoid skin contact with fluid.

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**Risk of fire. Smoking, naked flames, or sparks near the system cause a risk of fire.**



**Always have a fire extinguisher at hand and keep it properly serviced.**



**In case of fire:**

- Call for help
- Try to extinguish the fire with a fire extinguisher.
- Try to prevent the fire from spreading.

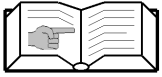


**Always aim to protect the environment. Observe the local environment laws when disposing of filters, hoses, fuel, oils, or other waste material.**

**All detected leaks should be remedied without delay.**

## 4. TECHNICAL SPECIFICATIONS

Operating pressure (min-max):	0 - 690 bar
Nominal flow:	120 l/min
By-pass valve's opening pressure	For product setting see product code on nameplate
Operating temperature (min-max):	For product setting see product code on nameplate
Material:	Duplex Stainless Steel with Stanal coating
Weight:	Length 1: 13kg. , Length 2: 17kg.
Volume:	Length 1: 0.27 L, Length 2: 0.48 L
Dimensions (Diameter x H):	Length 1: Ø98 mm. x 202 mm. Length 2: Ø98 mm. x 312 mm.
Filtering grade:	For product setting see product code on nameplate
Inlet / Outlet:	For product setting see product code on nameplate
Drain port:	M26x1,5
Vent port:	M16x1,5
Indicator port:	¾-16 UNF-2A

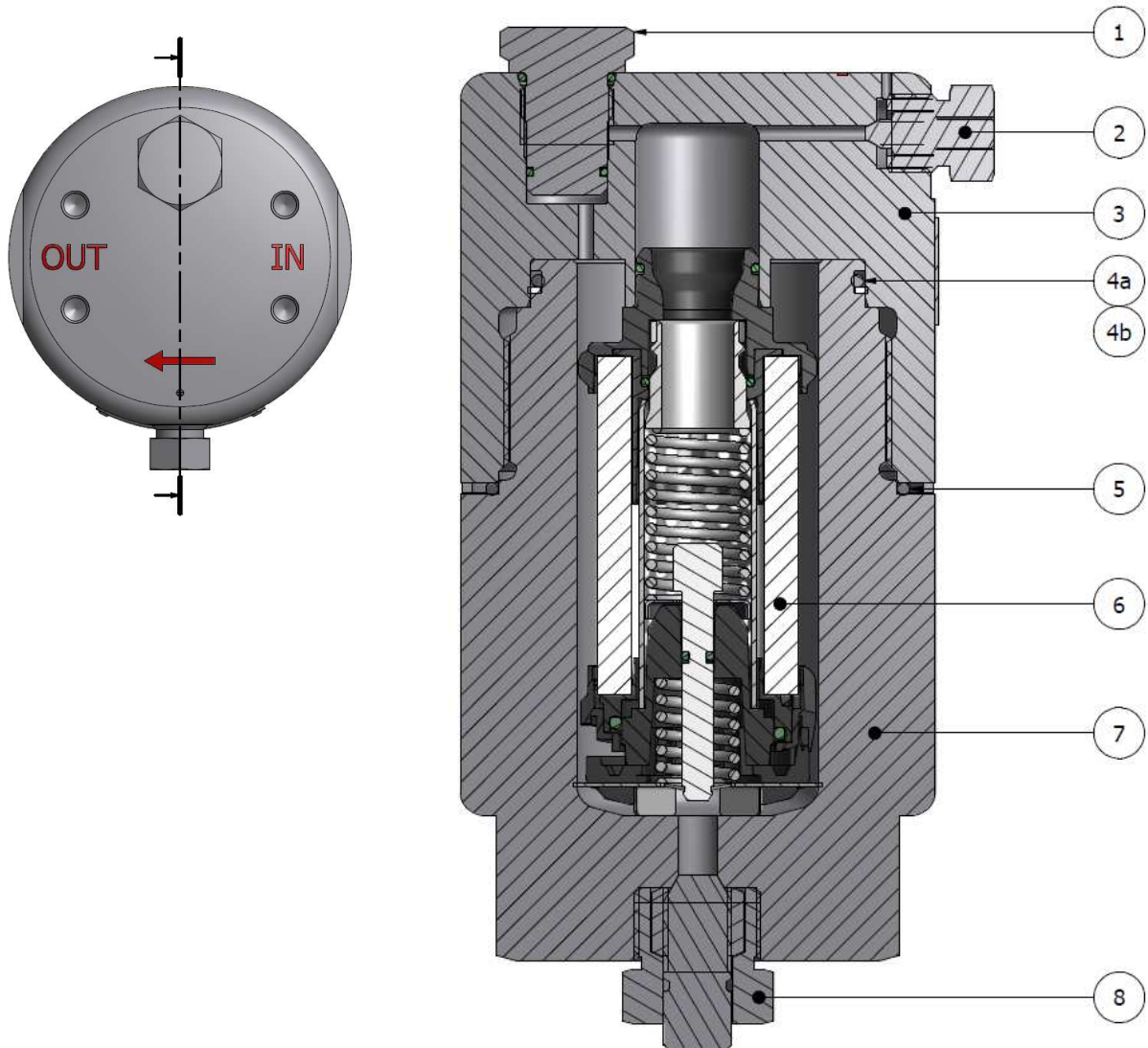


# EAPF 1

Operation and Maintenance Instructions

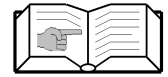
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## 5. MAIN COMPONENTS



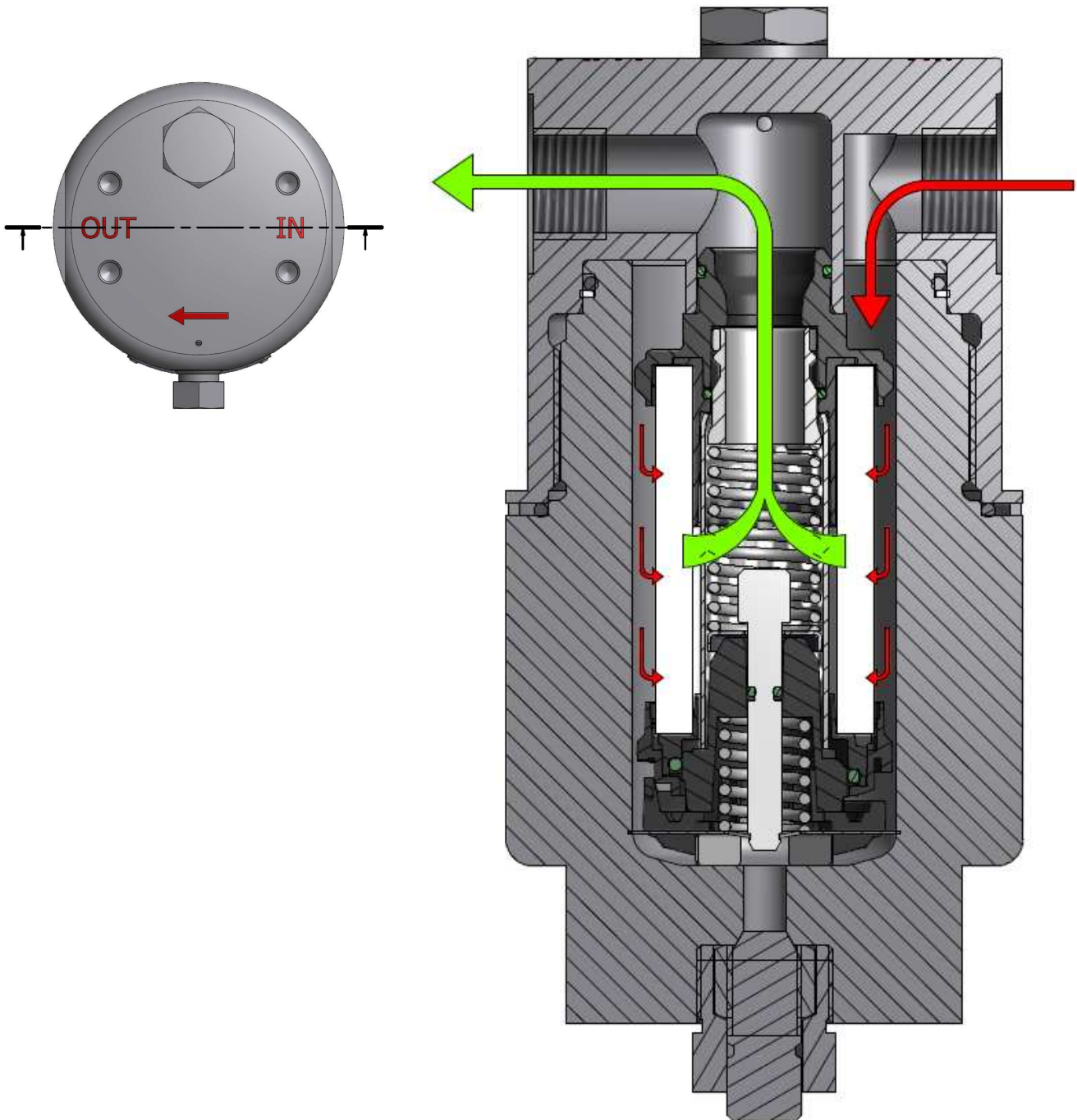
1. Indicator port
2. Vent plug assembly
3. Filter head
- 4a. O-ring
- 4b. Back-up ring
5. O-ring
6. Element
7. Filter bowl
8. Drain plug assembly



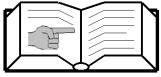
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**6. DESCRIPTION OF OPERATION**

Oil enters the filter through the inlet connection by means of the machine system pressure. Oil is then flowing from the outside through the filter element, which captures contaminants. The filtered oil exits the filter through the outlet connection.



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## 7. INSTALLING AND COMMISSIONING



**Before installation, make sure that all components are in proper condition and that all required parts are at the installation site.**

### 7.1. Transporting and storing

**Follow these guidelines for transporting and storing:**

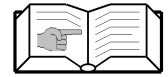
- Keep the device away from excessive temperature variations and corrosive chemicals.
- Keep the device and accessories dry.
- The device must be kept safe from mechanical effects, such as hits and excessive static loads. Their transport must be performed without deforming or damaging the device or its packaging.
- When transported the device/packaging must be secured in a fixed position and should not be transported together with sharp objects.

### 7.2. Precautions

**When installing the system, pay special attention to the following:**

- Installation base shall be level and even.
- Supporting bracket or piping may not cause any stresses on the filter (twisting, pulling, etc.).
- Sufficient space is available for installation work (Cf. Installation Drawing).
- All screws and connections are properly tightened according to manufacturer's specifications.
- If filtered fluid has high viscosity, provide the filter with thermal insulation and use extraheating for the fluid as necessary (consult manufacturer).

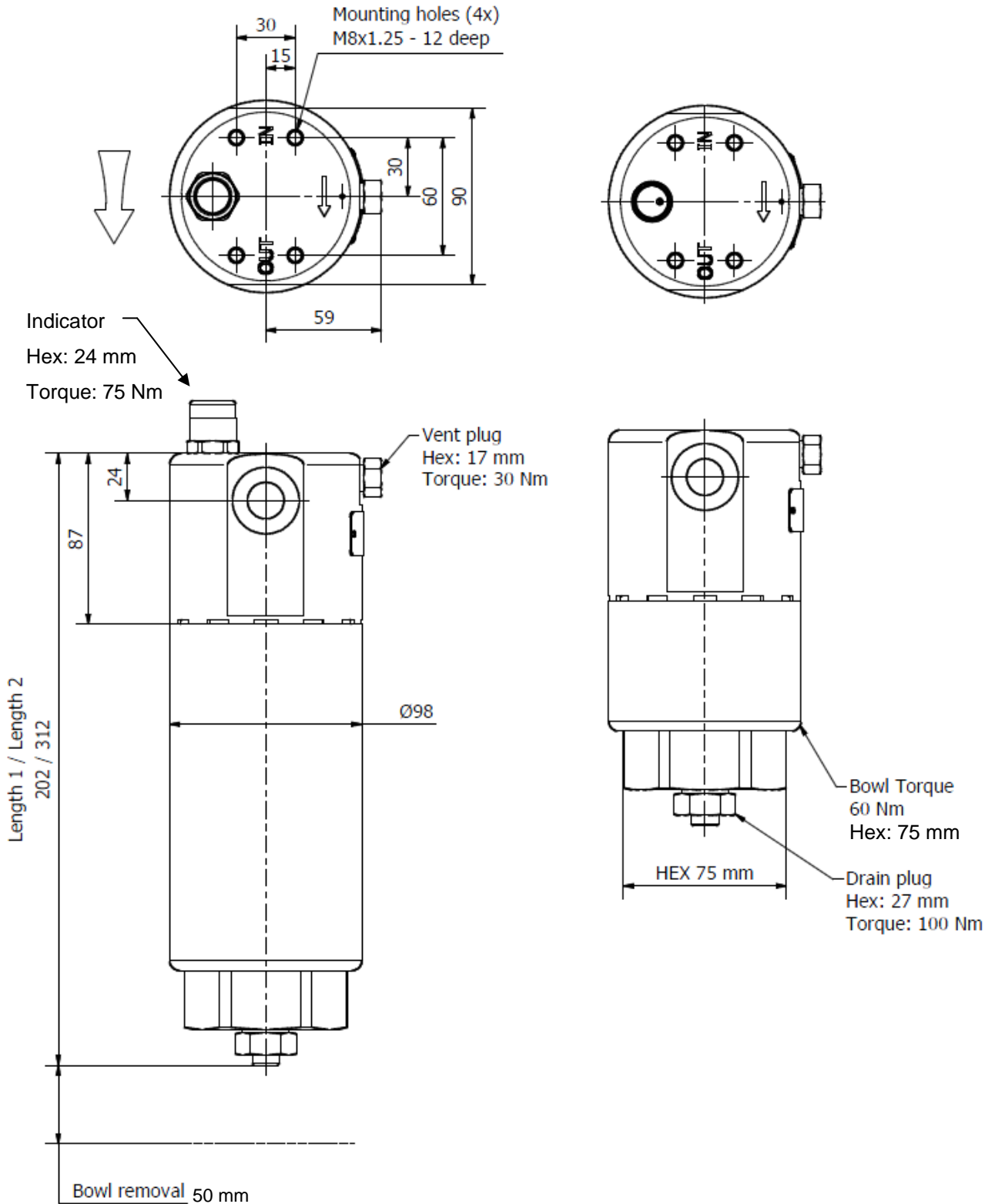
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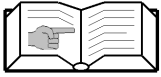


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## 7.3. Installation drawing / Torque values





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## 8. USE OF SYSTEM



**Before using the system, make sure that it does not cause any danger to persons or the environment.**

### 8.1. Precautions

Before using the filter, make sure the bowl and all connections are fastened correctly.

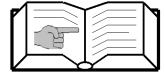
### 8.2. General use of the filter

Do not exceed specified pressure and flow limits.

Check the differential pressure over the filter at regular intervals.

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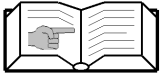
**8.3. Malfunctions****Leaks**

- > Make sure the system pressure is within specified limits
- > Tighten joints at and around leaking point
- > Replace the seals

**Excessive pressure drop**

- > Make sure the indicator is working correctly and is installed according to the maintenance instructions.
- > Make sure the filter element has been replaced and installed according to the maintenance instructions and to the specified maintenance interval.
- > Make sure the oil cleanliness is correct.
- > Replace the filter element, using an element with the correct filtering grade and according to the maintenance instructions.

**See maintenance instructions in chapter 9.**



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## 9. MAINTENANCE OF THE SYSTEM



**Always use proper tools and lifting devices with sufficient capacity. Replace damaged or defective equipment or lifting devices without delay**



**There is hot fluid inside the device, and the outer surfaces of the device also become hot. Do not touch the device or attempt to open the filter without proper protection.**



**Do not change any settings of the system unless instructions are provided in the manual or without authorization from the manufacturer.**



**Never exceed any of the pressure values given by the manufacturer.**

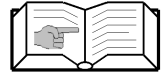


**All parts replaced in relation with maintenance or repairs shall be original spare parts.**



**Remember the following notes and warnings concerning pressurized fluids:**

- Components and hoses contain high-pressure oil
- High-pressure oil sprays can penetrate the skin and cause severe internal damage. In case of an accident, contact medical support without delay.
- Oil is hot and will cause burns on the skin.
- High-pressure oil leaks are not necessarily visible. Do not examine the system for leaks with bare hands, use a piece of cardboard or other equivalent material.
- Before any connections are opened, the system must be relieved of pressure.
- Clean all connections and components in conjunction with maintenance work.
- Check all connections for tightness.

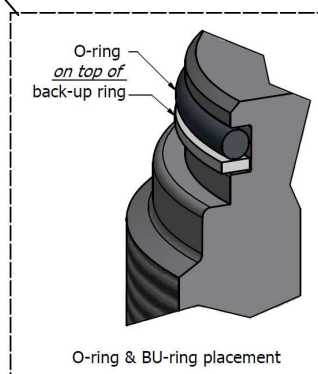
**EAPF 1****9.1. Replacing the filter element**

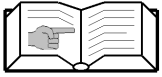
**Before opening the filtration chamber make sure of the system is switched off and safe.**

**Filter elements have to be replaced by using original Parker Hannifin filter elements.**



1. Make sure the system is safe.
2. Drain the filter.
3. Remove the filter bowl by using the correct tool on the lower hexagonal part of the bowl.
4. Change the filter element according to the instruction-sheet in appendix A (instruction-sheet also supplied with a replacement filter element)
5. Make sure the new O-ring is on top of the Back-up ring!
6. Lightly oiling the O-rings and the bowl thread with clean oil used in the system will help refitting and prevent damage to O-ring and the back-up ring.
7. Vent the filter housing, see chapter 9.5





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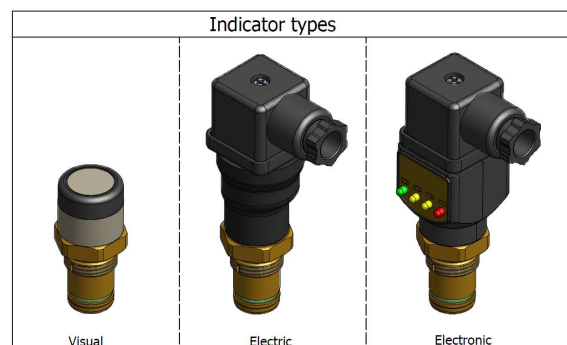
## 9.2. Installing or changing the indicator



**Make sure that the system is switched off and safe before starting to change or install an indicator.**



1. Make sure the system is safe.
2. Using the correct tools, remove the indicator plug or indicator.
3. Check the new plug or indicator seals for damage, replace if there is damage, cracks or any doubt of the seals function.
4. Install the indicator and tighten according to the instructions supplied with the indicator or plug.
5. If an electrical or electronic indicator is used, make all electric connections according to the instructions provided with the indicator.
6. Vent the filter housing, see chapter 9.5

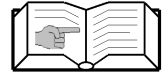




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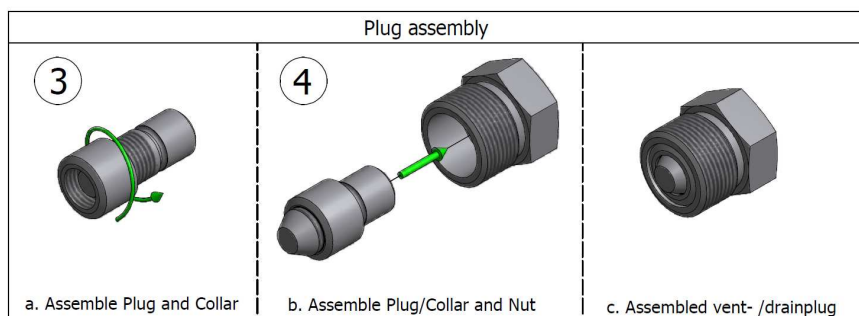
Operation and Maintenance Instructions

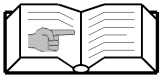
**9.3. Changing vent plug**

**Make sure that the system is switched off and safe before starting to change or install a vent plug.**



1. Make sure the system is safe.
  2. Remove the vent plug.
  3. Preassemble the new plug. Screw the plug and collar fully into each other.
- Note: This is left-handed thread!**
4. Place the plug/collar assembly into the nut.
  5. Screw the plug into the housing. Making sure to use the torque values as shown in chapter 7.3.
  6. Vent the filter housing, see chapter 9.5





# EAPF 1

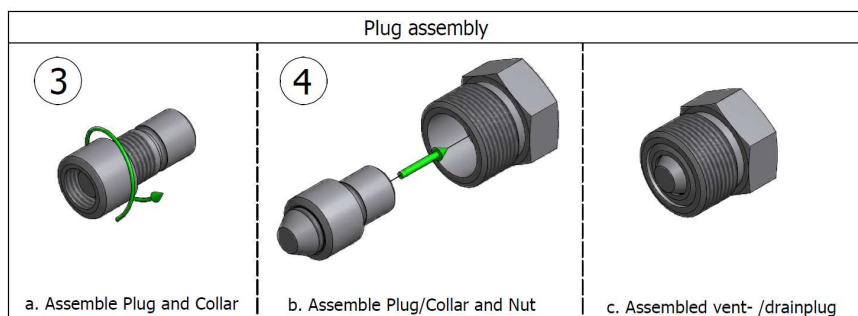
## 9.4. Changing drain plug



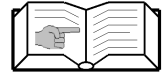
**Make sure that the system is switched off and safe before starting to change or install a drain plug.**



1. Make sure the system is safe.
2. Remove the drain plug.
3. Preassemble the new plug. Screw the plug and collar fully into each other. **Note: This is left-handed thread!**
4. Place the plug/collar assembly into the nut.
5. Screw the plug into the housing. Making sure to use the torque values as shown in chapter 7.3.
6. Vent the filter housing, see chapter 9.5



# EAPF 1



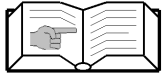
## 9.5. Venting filter housing



**Make sure that the system is safe before starting to vent the filter housing.**



1. Make sure the system is safe.
2. Turn on the system.
3. Slowly unscrew the vent plug.
4. Stop unscrewing when there is air escaping from the vent.
5. Wait until all the air is escaped and there is only system oil coming from the vent.
6. Tighten the vent plug. Making sure to use the torque values as shown in chapter 7.3.



# **EAPF 1**

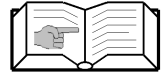
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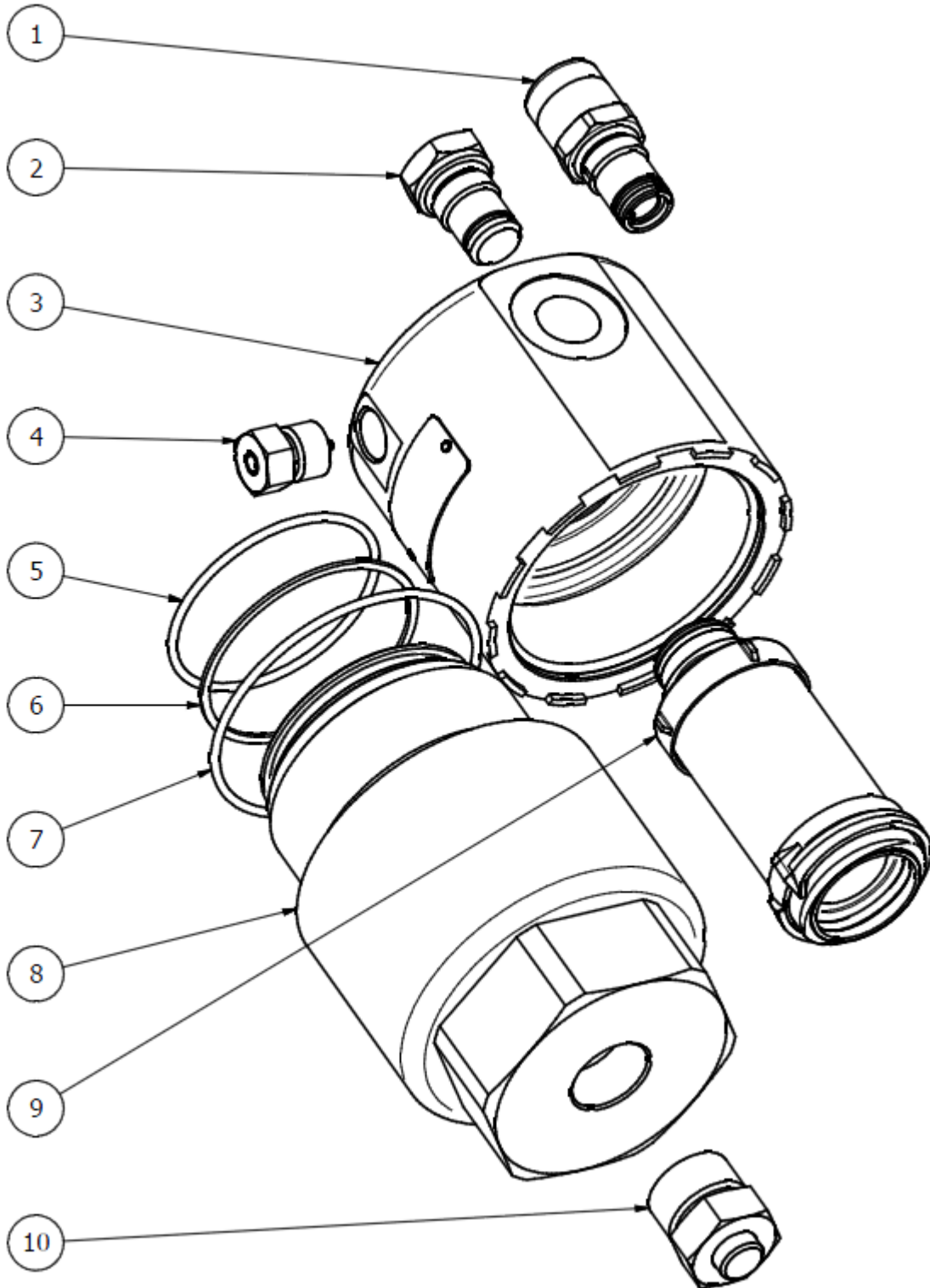
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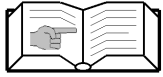
# **SPARE PARTS & OPTIONAL ACCESSORIES**

# EAPF 1



## 10. SPARE PARTS



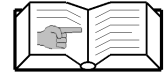


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Ref.No	Description	Standard designation	Order code	Qty
1	Indicator			1
	Indicator options, FMU series	-	See table on the next page	
2	Indicator plug (incl. seals)	SAE-8 Plug	-	1
3	Housing	-	-	1
4	Vent plug	M16 autoclave	-	1
5	O-ring	Ø63,17 x 2,62 90SH	EAPFSK001 (NBR) / EAPFSK002 (Viton)	1
6	Back-up ring	Ø65/70 x 1.3	EAPFSK001 (NBR) / EAPFSK002 (Viton)	1
7	O-ring	Ø88,57 x 2,62 70SH	EAPFSK001 (NBR) / EAPFSK002 (Viton)	1
8	Bowl	-	-	1
9	Filter element	-	See table on the next page	1
10	Drain plug	M26 autoclave	-	1

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**Filter elements**

Type QI		Type QIH (High Strength)		Type QIR (Reverse Flow)	
Element type	Order code	Element type	Order code	Element type	Order code
EAPF Size 1 L1 2 µm	944418Q	EAPF Size 1 L1 2 µm	944481Q	EAPF Size 1 L1 2 µm	944561Q
EAPF Size 1 L1 5 µm	944419Q	EAPF Size 1 L1 5 µm	944482Q	EAPF Size 1 L1 5 µm	944562Q
EAPF Size 1 L1 10 µm	944420Q	EAPF Size 1 L1 10 µm	944483Q	EAPF Size 1 L1 10 µm	944563Q
EAPF Size 1 L1 20 µm	944421Q	EAPF Size 1 L1 20 µm	944484Q	EAPF Size 1 L1 20 µm	944564Q
EAPF Size 1 L2 2 µm	944422Q	EAPF Size 1 L2 2 µm	944485Q	EAPF Size 1 L2 2 µm	944565Q
EAPF Size 1 L2 5 µm	944423Q	EAPF Size 1 L2 5 µm	944486Q	EAPF Size 1 L2 5 µm	944566Q
EAPF Size 1 L2 10 µm	944424Q	EAPF Size 1 L2 10 µm	944487Q	EAPF Size 1 L2 10 µm	944567Q
EAPF Size 1 L2 20 µm	944425Q	EAPF Size 1 L2 20 µm	944488Q	EAPF Size 1 L2 20 µm	944568Q

Order code includes 1 element with seals and EAPF Service seal kit

**Indicators**

FMU series, S08 type indicators can be mounted into the EAPF's indicator port.

Ordering information:

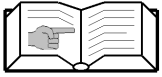
Table 1      Table 2      Table 3  
 FMU   V  S08 |

Table 1	
INDICATOR TYPE	
Indicator options	CODE
Visual Δp indicator (auto reset)	<b>M3</b>
Electrical Δp indicator	<b>T1</b>
Ex Version (Ex II GD Eex m II T6)	<b>X1</b>
Electronic 4 LED, PNP, NO	On request
Electronic 4 LED, NPN, NO	On request
Electronic 4 LED, PNP, NC	On request
Electronic 4 LED, NPN, NC	On request

Table 3	
BODY MATERIAL	
Standard body material	CODE
Stainless steel	<b>R</b>
Optional body material	
Brass (Non ATEX)	<b>M</b>

Table 2	
INDICATING PRESSURE	
Indicating pressure options	CODE
2.5 bar	<b>K</b>
3.5 bar	<b>L</b>
5.0 bar	<b>M</b>

Please note; the bold options reflect standard options with reduced lead-time.



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## 11. MANUFACTURER'S CONTACT INFORMATION

### **Parker Hannifin Manufacturing Netherlands (Filtration) B.V.**

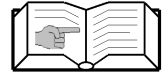
Mail address	Stieltjesweg 8 6827 BV Arnhem The Netherlands
Telephone	+31 26 376 0376
Fax	+31 26 364 3620
Web	<a href="http://www.parker.com">www.parker.com</a>



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### Appendix A – EPF element instruction sheet



#### Filter element servicing

1. Ensure that the hydraulic system is switched off
2. Ensure that the pipework / hoses are de-pressurized
3. The bowl can be drained by using the drain plug
4. Use suitable tools to remove the filter bowl including filter element from the filter head
5. Pull out the iprotect® filter element
6. Replace the o-ring and back-up ring of the filter bowl (picture D)
7. Install new iprotect® filter element in bowl
8. Refit the bowl to the filter head, the filter element will be automatically positioned
9. Apply correct torque values for filter bowl and bowl plug
10. Repressure the system and check for leaks

Filter Size	EPF S1	EPF S2	EPF S3	EPF S4	EPF S5
Tightening Torque (Nm)	35 - 50	35 - 50	35 - 50	80 - 95	80 - 95
Torque drain plug (Nm)	35 - 40	35 - 40	35 - 40	35 - 40	35 - 40

