



User's Manual UFM015

Mobile filtration unit



PASSION TO PERFORM

PRODUCT OVERVIEW

UFM filtration unit series

Key features:

- Transfer
- Filtration
- Flow rates 15 l/min
- Maximum working pressure 4 bar
- Absolute filtration
- Wide range of filtration media
- Water removal filter elements
- Single-phase and three-phase motors
- Comprehensive choice of configurations
- Equipped with handles and wheels for manoeuvrability
- CEE standard





DECLARATION OF CONFORMITY

EC declaration **DECLARATION OF CONFORMITY IN ACCORDANCE WITH 2006/42/EC MACHINERY DIRECTIVE**

The company:

MP Filtri S.p.A.
Via 1° Maggio, 3
20042 - Pessano con Bornago (MI) - Italy

as a manufacturer, it declares that the machine:

Name	Code / Model
MOBILE FILTRATION UNIT	UFM015MA1000P01

to which this declaration refers, complies with the following Directives: **2006/42/EC Machinery Directive.**

Furthermore, the technical documentation was compiled in accordance with **Annex VII Part A.**

The machine also complies with the provisions of the following standards:

UNI EN ISO 12100-1-2:2010 Safety of machinery

UNI EN ISO 13857:2008 Safety of machinery - Safety distances to prevent the reaching into dangerous areas with the upper and lower limbs

UNI EN ISO 13732-1:2009 Ergonomics of thermal environments - Methods for evaluating human response to contact with surfaces

UNI EN ISO 4413:2012 Hydraulics - General rules and safety requirements for systems and their components

Pessano con Bornago, 14/05/2019

Chief Executive Officer
CEO





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1 General warnings and information for the recipient

1.1 General information

The mobile filtration units of the UFM series have been designed and manufactured in compliance with the machinery directive and the low voltage directive with regards to electric motors. The EC Declaration of Conformity is included in this manual. The warranty has a duration of twelve months starting from the date shown on the delivery note. To consulte “General Warranty Conditions” section of this Use and Maintenance Manual.

1.2 General and safety instructions

Read this manual carefully before commissioning, maintenance or other activities on or with the unit. Each operator involved in the operation of the mobile filtration unit must wear the following personal protective equipment:



Safety glasses



Safety shoes



Gloves

Before carrying out any installation or work on and/or with the machine it is necessary to strictly follow the instructions listed in this manual. It is also necessary to comply with the provisions in force concerning accident prevention and safety in the workplace. The warnings to prevent dangers to the health of the personnel assigned to the machine, are highlighted in this documentation with signal words to notifications:

If important information concerning the product affects the use of the product or a part of this documentation, all of it must be particularly taken into account.



NOTE

This means that failure to comply with the relevant safety regulations may result in slight injury or damage to equipment.



CAUTION

This means that failure to comply with the relevant safety regulations can result in death, serious injury or considerable damage to equipment.



DANGER

GENERAL WARNINGS

To allow rapid identification of the employees who must read this manual, definitions have been used with the following meaning:

OPERATOR	The person in charge of using the machine for productive purposes. The operator is aware of the measures taken by the machine manufacturer to eliminate the sources of risk of accidents at work and complies with the operational constraints.
PERSONNEL INVOLVED IN SLINGING AND HOISTING OPERATIONS	The person in charge of handling the machine or parts thereof. The slinger is aware of the problems concerning the transport of machines or parts thereof in safe conditions; for this purpose, they use lifting equipment suitable for the purpose following the instructions provided by the machine manufacturer.
MACHINE SETTER	The person in charge of preparing the machine for normal operation. The machine setter is aware of the measures taken by the machine manufacturer to eliminate the sources of risk of accidents at work and complies with the operational constraints. The machine setter takes the necessary precautions to intervene in conditions of maximum safety.
MAINTENANCE TECHNICIAN	The person in charge of performing maintenance operations on the machine. The maintenance technician is aware of the possible dangerous situations that may arise during his work and takes the necessary precautions to avoid risks of accidents at work.
ELECTRICIAN	The person in charge of carrying out maintenance operations on the machine's electrical system. The electrician is aware of the possible dangerous situations that may arise during his work and takes appropriate precautions to avoid risks of accidents at work.

1.3 Operator station and dangerous areas

Areas adjacent to the electric motor due to the presence of live equipment and potentially very hot surfaces are to be considered as dangerous areas. The operator has no reason to access electrical equipment and is not authorised to do so.

The trolley must be taken out of service and/or dismantled in full compliance with the regulations in force at that time in the country where the machine is installed.



NOTE

The machine is not suitable for outdoor use and all electrical equipment has a minimum degree of protection IP 55.



NOTE

1.4 Hazards and risks that cannot be eliminated

Risk of electric shock on the electric motor, in case of motor malfunction, risk of burns due to high temperature, accidental oil leakage with consequent possibility of slipping, rupture of the hoses with consequent loss of lubricant.

With oil temperatures above 40/45 °C, take extra caution in the handling of metal lances/tubes and movement of the mobile filtration unit. Avoid direct contact with hot oil and the filter housing.

1.5 Personal Protective Equipment

For normal use of the mobile filtration unit, safety shoes, gloves and safety glasses must be worn. In general the PPE to be used according to the operations on the machine are summarised in the following table:

OPERATION	PPE
Normal operation	Safety shoes, protective gloves, safety glasses
Normal maintenance	Safety shoes, protective gloves, safety glasses



TRANSPORT / STORAGE

2 Transport and handling conditions

The filtration unit is transported packed in a cardboard box.

Handling of the product is done with a handle bracket.

The weight is listed below:

Total weight UFM015	14.8 Kg
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GENERAL WARRANTY CONDITIONS

3 Warranty, limits and exclusions

- 1 - The seller assumes a guarantee of the normal mechanical operation of their product for a period of one year (except as provided for in Item H4 referred to the general conditions of sale and warranty sent with each order confirmation) from the delivery date.
- 2 - The warranty is limited to the replacement of damaged or defective parts due to poor quality of the material or construction. It does not extend to defects due to normal wear or due to inexperience or negligence of the customer and to parts that due to the composition of the material or the nature of their use are subject to rapid wear.
- 3 - Damage or defects must be declared, under penalty of forfeiture, by registered letter within eight days of discovery.
The seller, once being aware of the existence of the defect, is obligated to replace the defective elements if they have not been tampered with due to attempted repair or modification by the customer (or third parties), and provided that he has punctually fulfilled the contractual obligations, with particular regard to payments which, if not carried out in the manner and within the agreed terms, entail the forfeiture of the guarantee and the seller's right not to effect the replacements.
- 4 - Any other indemnity, request for compensation for damages, also by third parties, due to production shutdown of the customer is expressly excluded.
- 5 - The items to be replaced must be sent with transport costs to be paid by the purchaser ex works of the seller who will replace them as soon as possible with delivery to their premises. The replaced parts belonging to the customer remain at his disposal for eight days within which they can be collected; following this deadline the seller is entitled to regard them as scrap in his possession without any compensation.
- 6 - The examination of the failures and their causes will always be carried out in the seller's workshops and all the related costs will be borne by the customer. The customer is also responsible for all inspection costs that may be requested on site. In no case may the customer demand the termination of the contract.
- 7 - The warranty is not transferable and applies only to the invoice recipient.
- 8 - The warranty is no longer valid when one of the following conditions is the case:
 - a) payments are not made by the client in the manner and terms agreed
 - b) tampering with what is provided without the seller's explicit authorisation
 - c) improper use of what is supplied
 - d) failure to perform maintenance
 - e) installation, modification, replacement of parts or of what is supplied

4 Mobile transfer and filtration units

The UFM series mobile filtration units are machines designed for transferring and filtering lubricants and hydraulic oils. The UFM015 version can be moved thanks to the use of handle and low weight, all other versions have wheels for moving. They can be used with fluids at different temperatures (therefore different viscosities) as long as they fall within the limits indicated by this manual. Operation with Mineral Oils, Synthetic Fluids & HFCs.

NOTE

The machine can be used for:

TRANSFER

- transferring from drums into tanks
- to refill from drums into tanks

FILTRATION

- off-line filtration in tanks
- additional off-line filtration system in tanks
- off-line filtration of new oil into drums or underground/large tanks
- Particle counting and determination of cleanliness class according to ISO4406, NAS1638, AS4059 (only for versions with ICM mounted on UFM051-091-181-919)
- Measurement of the water saturation level (RH) contained in the fluid and of the temperature

Depending on the version, the mobile filtration units can use filter elements and cartridges with different filtering media, filtration degree and dimensions; the fibre filter elements have high storage capacity and absolute filtration $\beta_{x(c)} > 1000$.

Single-phase and three-phase electric motors.

Wide range of flow rate, from 15 l/min to 180 l/min.

Optical and electrical systems for filter monitoring.

Electrical systems for greater safety:

- unit shutdown in case of clogged filter (from the UFM041 version onwards)
- unit shutdown when the set cleanliness class is reached (particle counter version only).

Before commissioning the equipment make sure:

- you have read this manual carefully
- check the good condition of the mobile filtration unit
- report any damage or breakages suffered by the mobile filtration unit during transport
- verify the presence of all the accessories supplied

PRODUCT DOCUMENTATION


4.1 Test certificate


Hard copy of test certificate is attached to the cart.

4.2 Download Area

Please scan the QR codes below to get updated electronic version of the related document.


MOBILE FILTRATION UNIT
General catalogue







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CONTAMINATION MONITORING PRODUCTS General catalogue







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UFM series





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USER'S MANUAL - UFM series

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<p>UFM 015</p> 	<p>UFM 041</p> 	<p>UFM 051</p> 
<p>UFM 091</p> 	<p>UFM 181</p> 	<p>UFM 919</p> 

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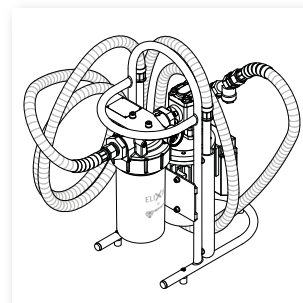


5 Technical features

The mobile filtration unit consists of a support frame with a handle for transport. The assembly/motor pump connected to the hoses is used for suctioning and discharging the fluid.

It is equipped with a suction filter and a discharge filter.

The mobile filtration unit is complete with electrical safety systems for the filter and the assembly/motor pump.



Pump	External gear pump
Electric motor	0.18 kW 230 V single-phase
Flow rate (l/min)	15 l/min -1450 rpm
Max. working pressure	4 bar
Viscosity	Minimum operating viscosity 10 cSt Maximum operating viscosity 200 cSt Maximum only for cold starts 400 cSt
Suction filter	Y-shape fine filter unit 500 µm
Type of filtering mat/degree of filtration	Fibre 3/6/10/16/25 $\beta_{x(c)} > 1000$
Internal/external filtration	Wire mesh 25/60 µm
	Water absorber NOTE 1/NOTE 2
Bypass valve Δp set	3.5 bar
Fluid temperature	from +5 °C to +60 °C
Ambient temperature	from +5 °C to +40 °C
Protection class	IP 55
Seals	NBR
Compatibility with hydraulic fluids	Mineral & Synthetic oils. For other fluids contact MP Filtri.
Hoses	Flexible suction hose DN18 L = 2500 mm
	Nozzle $\varnothing_e = 20$ L = 400 mm
	Flexible delivery hose DN18 L = 2500 mm
	Nozzle $\varnothing_e = 18$ L = 400 mm
Weight	14.8 kg
Equipment	Pressure gauge

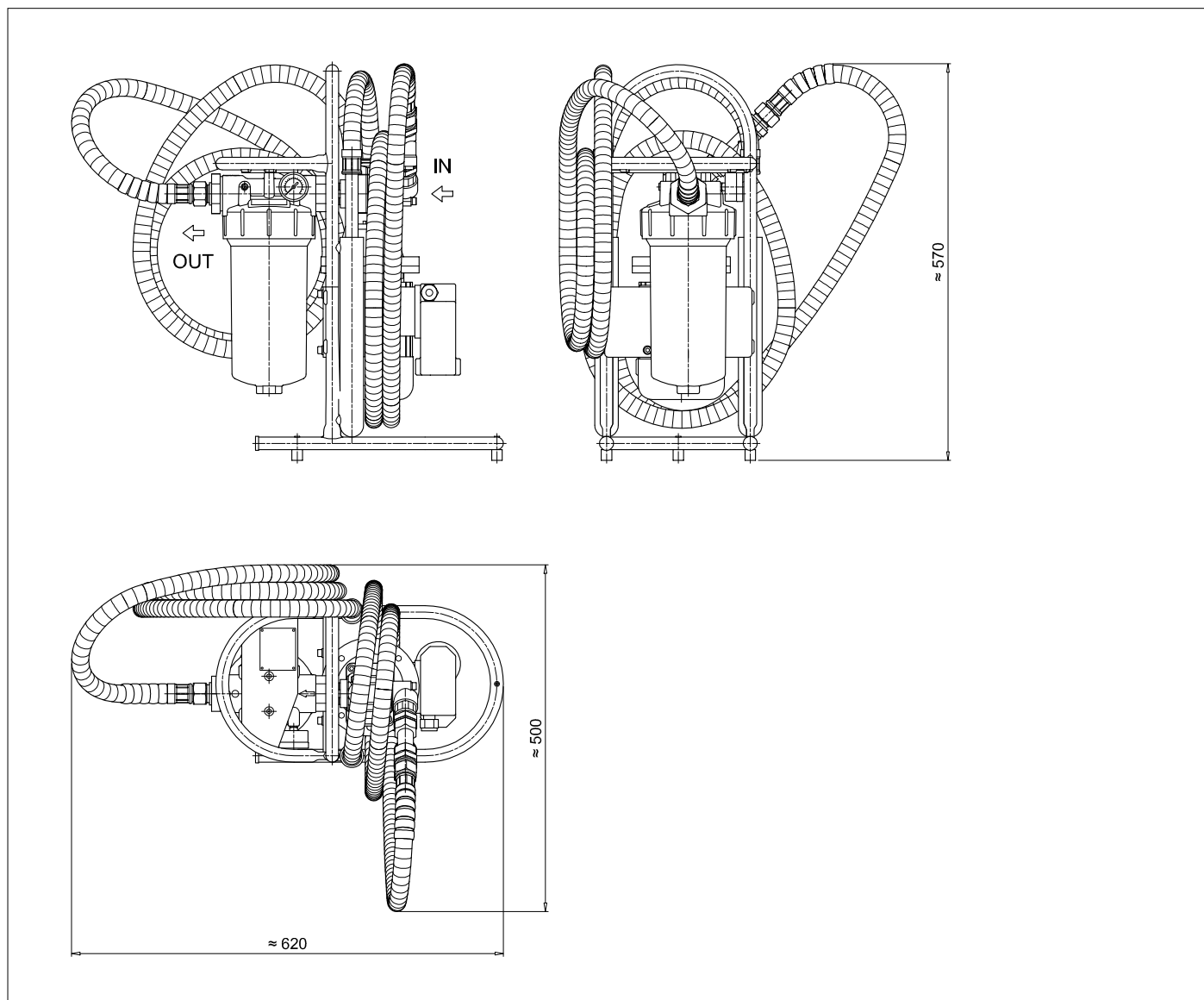
Microfibre filter elements with water absorber: disposable components

NOTE 1

The system is supplied without a filter element

NOTE 2

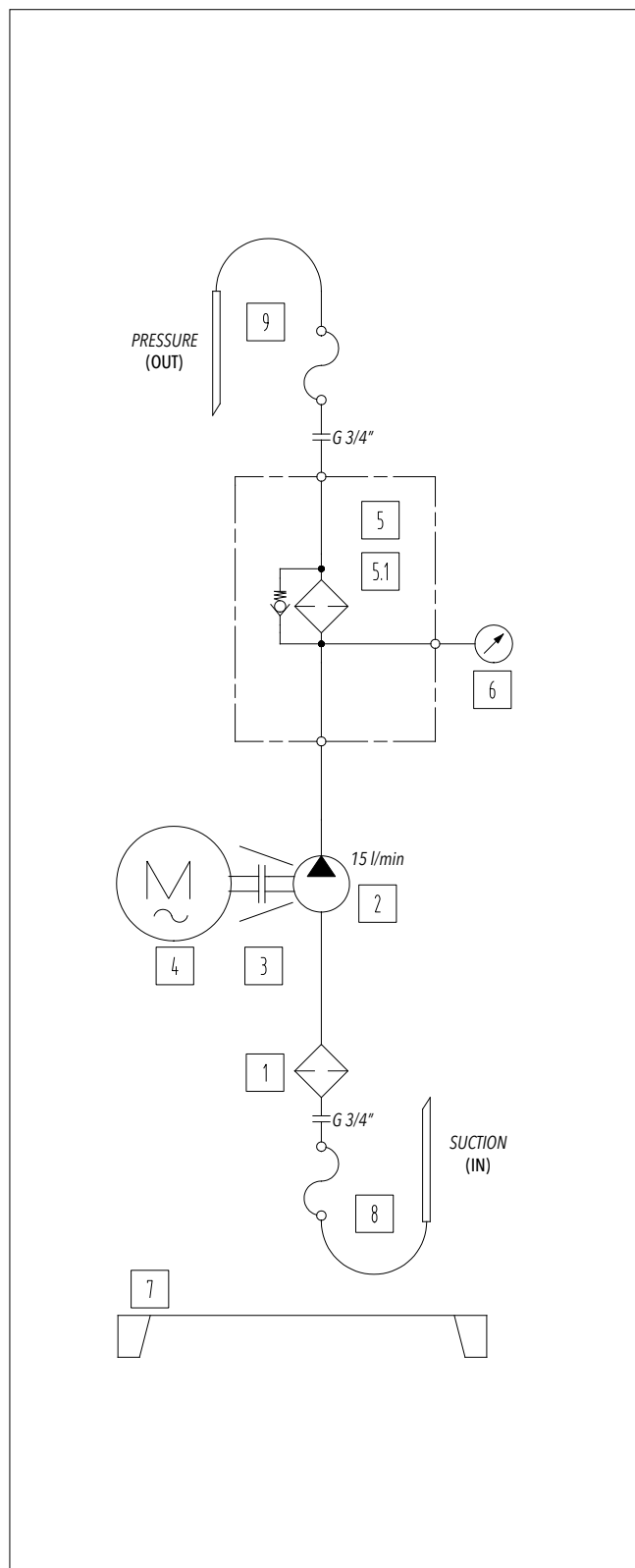
5.1 Dimensions



<p>BVA</p> <p>Axial Pressure Gauge</p> <p>Settings 2.5 bar $\pm 10\%$</p> <p>Ordering code BV A 25 P01</p>	<p>Technical drawing of the axial pressure gauge. The dial has a diameter of $\varnothing 43$. The mounting bracket has a height of 15 and a base width of 25. The connection is labeled EN 10226 - R1/8".</p>	<p>Hydraulic symbol</p> <p>Dial scale</p> <p>BV A 25 P01</p> <p>Yellow 3 Green 2.5 Red 10 0 bar</p>	<p>Materials</p> <ul style="list-style-type: none"> - Case: Painted Steel - Window: Transparent plastic - Dial: Painted Steel - Pointer: Painted Aluminium - Pressure connection: Brass - Pressure element: Bourdon tube Cu-alloy soft soldered <p>Technical data</p> <ul style="list-style-type: none"> - Max working pressure: Static: 7 bar Fluctuating: 6 bar Short time: 10 bar - Working temperature: From -40 °C to +60 °C - Compatibility with fluids: Mineral oils, Synthetic fluids HFA, HFB, HFC according to ISO 2943 - Accuracy: Class 2.5 according to EN 13190 - Degree of protection: IP31 according to EN 60529
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UFM015

5.2 Hydraulic circuit and bill of materials



Version:
UFM015MA1000P01

Position	Quantity	Description
1	1	Y shaped filter 500 µm
2	1	Gear pump
3	1	Complete motor/pump coupling
4	1	Electric motor 0.18 kW 4P-B3/B5
5	1	Filter Head
5.1	1	Microfibre filter element 3 µm Microfibre filter element 6 µm Microfibre filter element 10 µm Microfibre filter element 16 µm Microfibre filter element 25 µm Wire mesh filter element 25 µm Wire mesh filter element 60 µm Filter element for water separation
6	1	Pressure gauge
7	1	Mobile unit frame
8	1	(IN) DN18 flexible suction hose + nozzle
9	1	(OUT) DN18 flexible pressure hose + nozzle

NOTE

Microfibre filter elements with water absorber: disposable components

NOTE

6 Standard maintenance

6.1 Filter clogging

- (Fig. 1) Clogging of the filter element is easily detected by the pressure gauge (Fig. 2) mounted on the filter head. When the pressure reaches 2.5 bar, replace the filter element and at the same time clean the Y-shaped filter in the suction line. The filter is equipped with a bypass valve with a response pressure set at 3.5 bar.

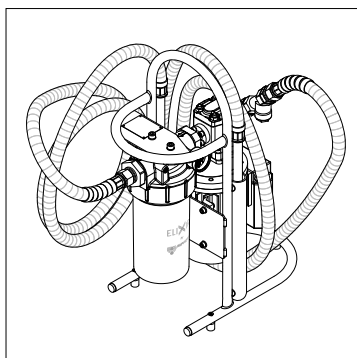


fig. 1

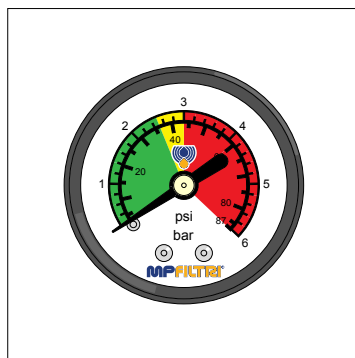


fig. 2

6.2 Filter element replacement

- Check the availability of the right spare filter element by comparing the part number shown on the element with that shown on the filter name plate or spare parts list
- For the disassembly and the assembly of the parts, please see fig. 1 to 3
- Switch off the system
- (Fig. 1) Unscrew the filter bowl after placing a protection from operating fluid dripping
- (Fig. 2) Empty the operating fluid from the bowl into a collection vessel
- (Fig. 3) Pull the filter element out
- Clean the cavity in the housing, the tap and the bowl. Check them for damage
- Check the condition of the bowl seals and, if necessary, replace them referring to the “Special maintenance” paragraph.

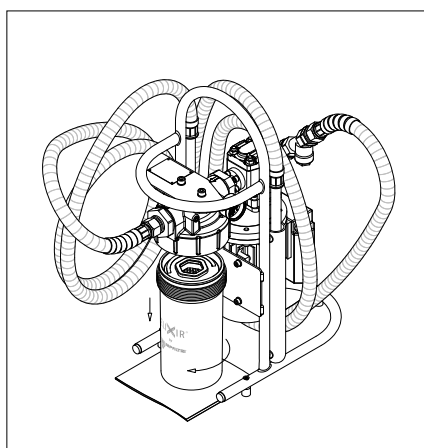


fig. 1

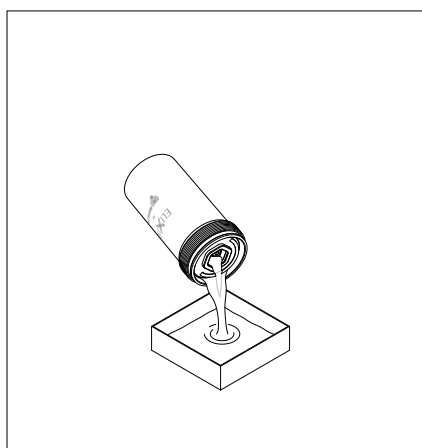


fig. 2

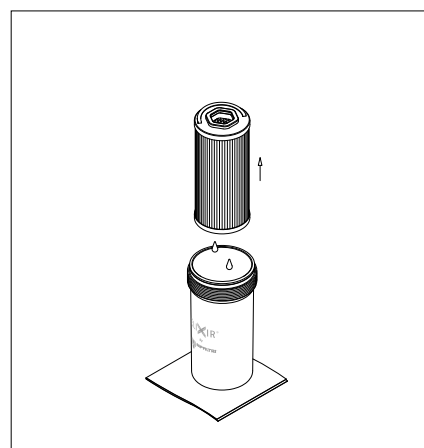


fig. 3

UFM015

- (Fig. 4) Push the filter element into the bowl until the end cap hooks onto the internal teeth.
- (Fig. 5) Lubricate with the operating fluid the filter housing tap, the filter element and bowl seals, and the threads of head cavity and bowl.
- (Fig. 6) Fit the filter element on the tap and screw the bowl (please see fig. 4 to 6)
Pay attention not to damage the seals
- Switch on the system and check the filter for leaks at the maximum working conditions (pressure, temperature...)
- Dispose of the replaced parts and the collected fluid in accordance with the laws in force in the country of use of the product.

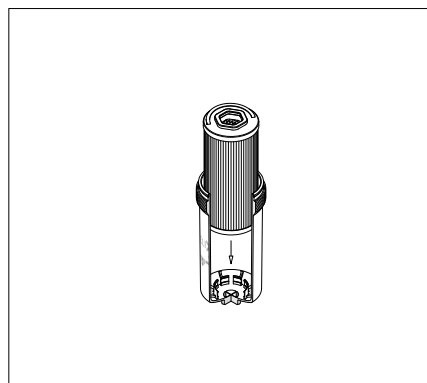


fig. 4

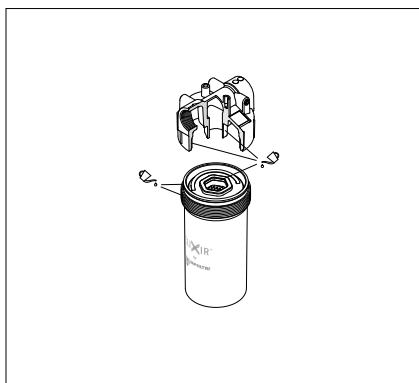


fig. 5

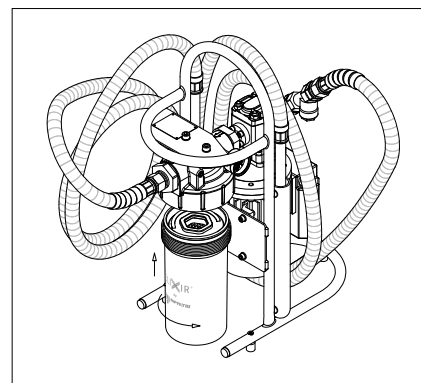


fig. 6

6.3 Suction filter replacement

- (Fig. 7) Frequency of maintenance of the Y-shaped suction filter should be determined in the maintenance schedule based on the contamination conditions of your specific application, however no later than 6 months
Inspection is recommended at each filter element replacement or if pump cavitation noise is heard
- For the disassembly and the assembly of the parts, please see fig. 7 to 9
- Switch off the system and empty the tube IN of the working fluid
- (Fig. 8) Unscrew the filter plug after placing a collection vessel to collect for the operating fluid dripping. Pull out the mesh basket as well and clean both components, check the state of the first one and if damaged proceed with its replacement
- (Fig. 9) Lubricate with the operating the plug thread and the O-ring, insert the mesh basket in the plug, then screw the assembly in
- Switch on the system and check the filter for leaks at the maximum working conditions (pressure, temperature...)
- Dispose of the replaced parts and the collected fluid in accordance with the laws in force in the country of use of the product.

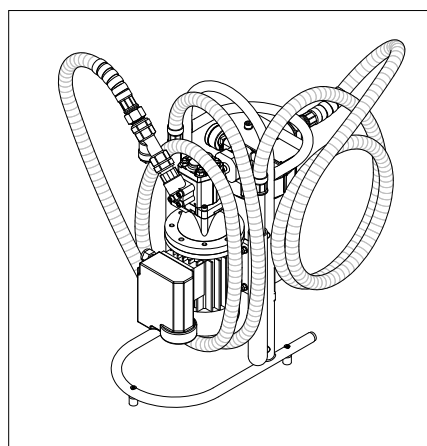


fig. 7

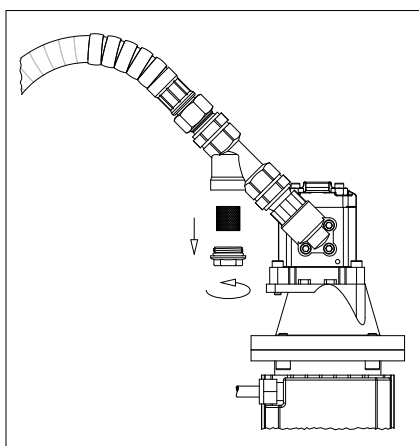


fig. 8

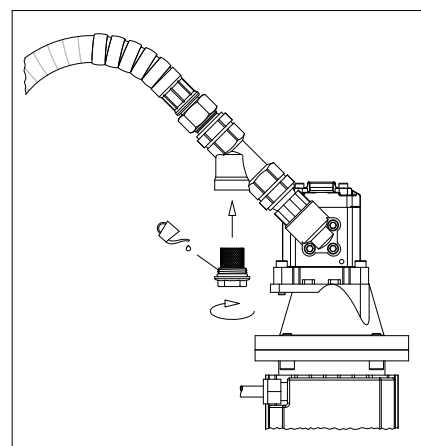


fig. 9

7 Special maintenance

7.1 Pressure gauge replacement

- Check the availability of the right spare parts by comparing the part numbers shown on them with that shown on the filter name plate or spare parts list
- For the disassembly and the assembly of the parts, please see fig. 10 to 11
- Switch off the system
- (Fig. 10) Unscrew the pressure gauge after having moved the pipe IN from it seat to facilitate the manoeuvre of the open-end wrench
- (Fig. 11) Apply some PTFE hydraulic sealant on both threads, then screw the pressure gauge (please see fig. 10 to 11)
- Switch on the system and check the filter for leaks at the maximum working conditions (pressure, temperature...)
- Dispose of the replaced parts and the collected fluid in accordance with the laws in force in the country of use of the product.

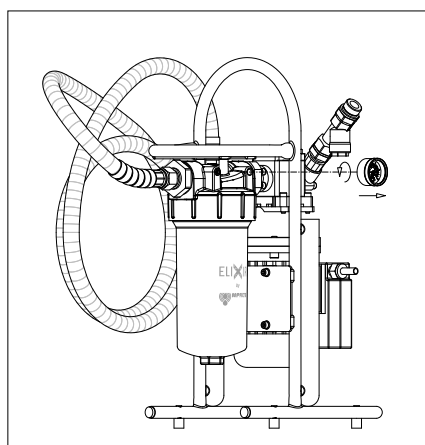


fig. 10

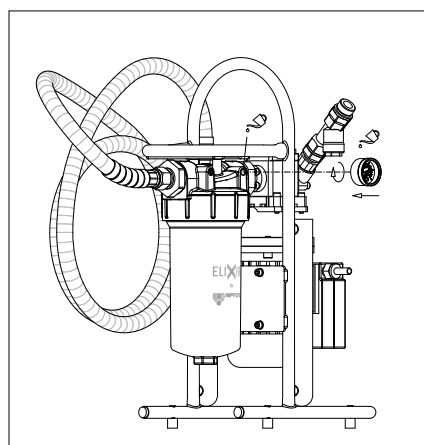


fig. 11

7.2 Seals replacement

- Check the availability of the right spare filter element by comparing the part number shown on the element with that shown on the filter name plate or spare parts list
- For the disassembly and the assembly of the parts, please see fig. 12 to 15
- Switch off the system
- (Fig. 12) Unscrew the filter bowl after placing a protection from operating fluid dripping
- (Fig. 13) Empty the operating fluid from the bowl into a collection vessel
- (Fig. 14) Pull the filter element out
- Remove all the seal from the bowl and the filter element and prepare the spare parts referring to the list in paragraph 6.7.1
- Clean the cavity in the housing, the tap and the bowl. Check them for damage
- (Fig. 15) Fit the O-ring in the bowl groove, insert the Hex-ring in the filter element cap

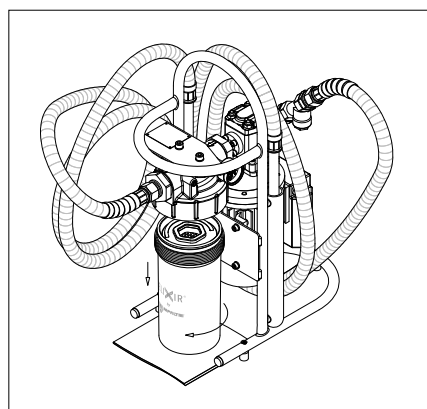


fig. 12

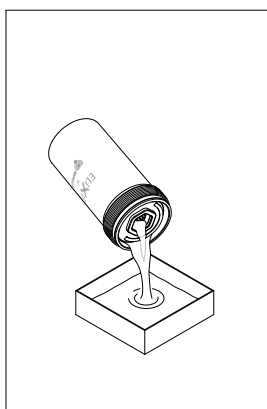


fig. 13

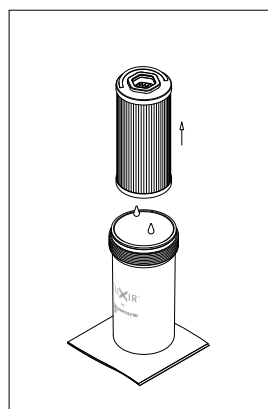


fig. 14

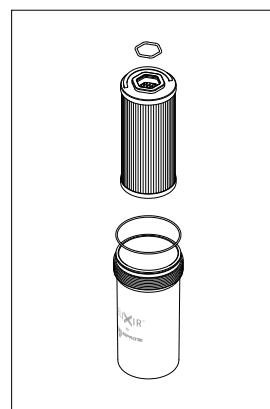


fig. 15

- (Fig. 16) Push the filter element into the bowl until the end cap hooks onto the internal teeth
- (Fig. 17) Lubricate with the operating fluid the filter housing tap, the filter element and bowl seals, and the threads of head cavity and bowl
- (Fig. 18) Fit the filter element on the tap and screw the bowl (please see fig. 16 to 18)
Pay attention not to damage the seals
- Switch on the system and check the filter for leaks at the maximum working conditions (pressure, temperature...)
- Dispose of the replaced parts and the collected fluid in accordance with the laws in force in the country of use of the product.

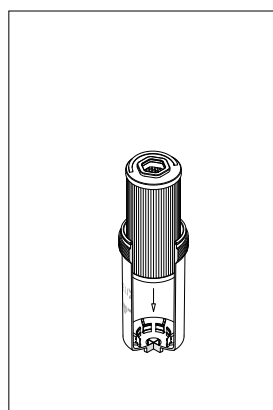


fig. 16

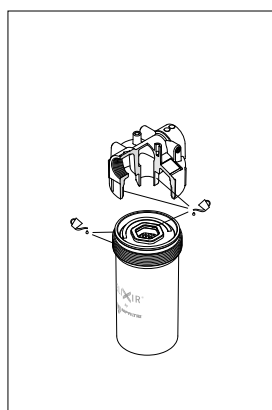


fig. 17

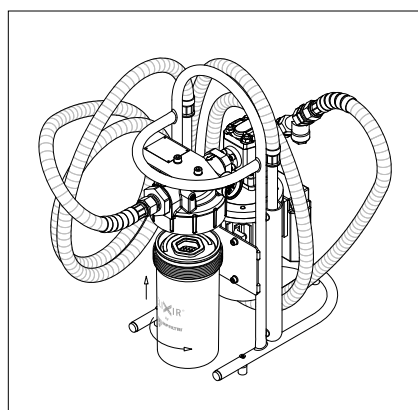


fig. 18

8 Designation & ordering code

MOBILE FILTRATION UNIT UFM 015										
Series	Configuration example: UFM 015 M A 1 0 0 0 P01									
UFM										
Size										
015 15 l/min										
Electric motor										
M 230 V single phase										
Seals										
A NBR										
Pressure gauges (see below)										
1 Manometer (*)										
Filter element										
0 Without element (for ordering, see table 9.1, pos. 7)										
Filtration surface										
0 Not provided (for ordering, see table 9.1, pos. 7)										
Option										
0 No options										
Option										
P01 MP Filtri standard										
Pxx Customized										

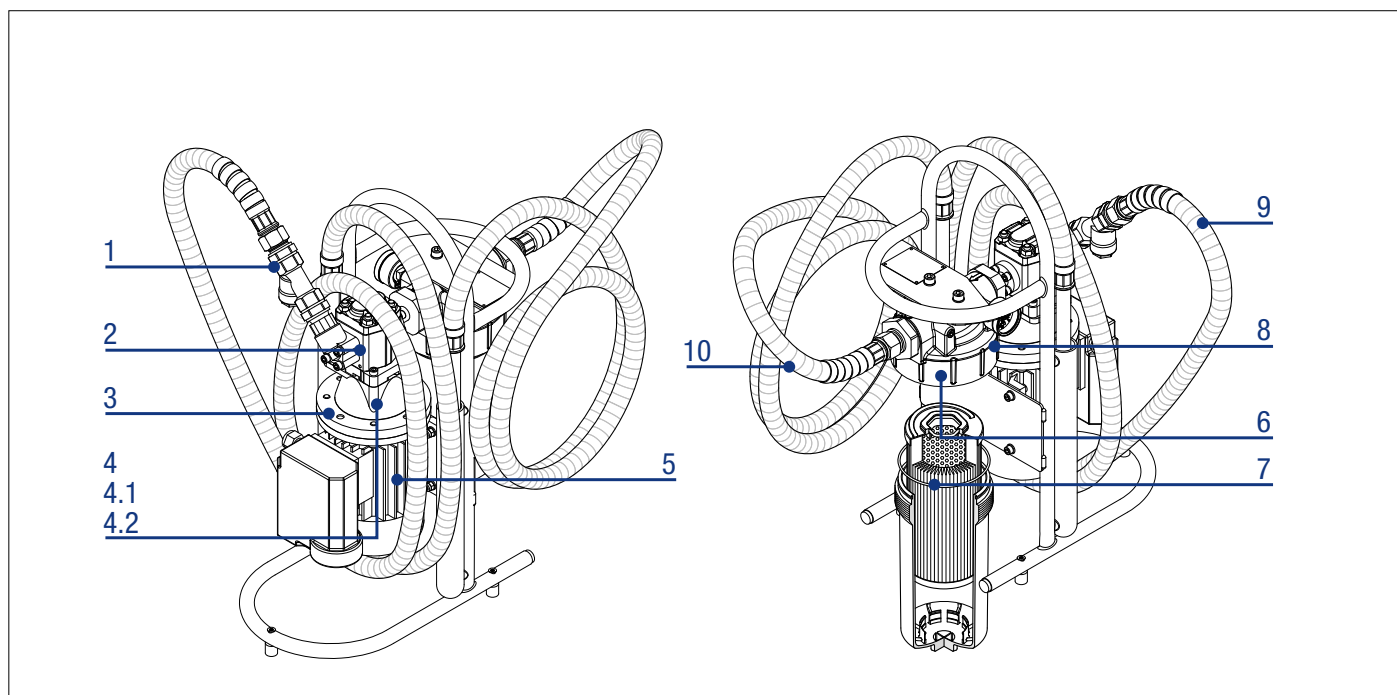
MANOMETER (*)

BVA Axial pressure gauge

Settings	Ordering code
2.5 bar $\pm 10\%$	BV A 25 P01

UFM015

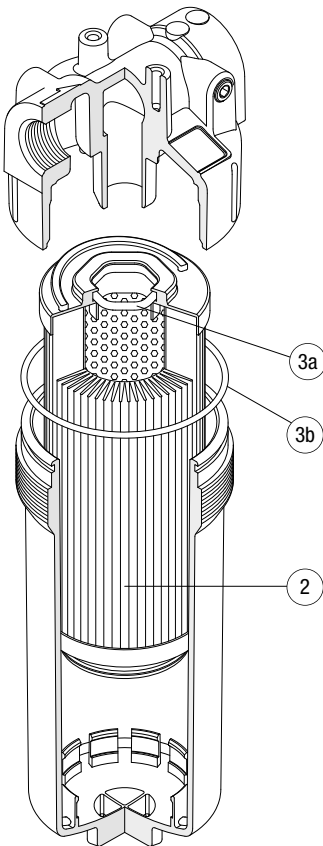
9 Spare parts



9.1 List of spare parts

Position	Series	Description	Code	Quantity
1	UFM015MA1000P01	Y-shaped filter 3/4" BSP - 500 µm	02200001	1
2	UFM015MA1000P01	Gear pump	02200002	1
3	UFM015MA1000P01	Pump bracket	LMG140MFS1004EAN	1
4	UFM015MA1000P01	Pump side half-coupling	SGEA01FS100	1
4.1	UFM015MA1000P01	Motor side half-coupling	SGEA01M01021FG	1
4.2	UFM015MA1000P01	Elastic wheel	EGE0	1
5	UFM015MA1000P01	Electric motor 0.18 kW 4P B3B5 IP55 2F 230V 50/60Hz	02200003	1
6	UFM015MA1000P01	Filter body	RFEX160EAB6P01	1
7	UFM015MA1000P01	Microfibre filter element 3 µm	FEX160A03ANP01	1
		Microfibre filter element 6 µm	FEX160A06ANP01	
		Microfibre filter element 10 µm	FEX160A10ANP01	
		Microfibre filter element 16 µm	FEX160A16ANP01	
		Microfibre filter element 25 µm	FEX160A25ANP01	
		Wire mesh filter element 25 µm	FEX160M25ANP01	
		Wire mesh filter element 60 µm	FEX160M60ANP01	
		Water absorber filter element	FEX160WA025ANP01	
8	UFM015MA1000P01	Pressure gauge	BVA25P01	1
9	UFM015MA1000P01	Flexible suction hose DN18 L = 2500 mm Inclined cut lance Øe = 20 L = 370 mm	02200004	1
10	UFM015MA1000P01	Flexible delivery hose DN18 L = 2500 mm Inclined cut lance Øe = 18 L = 370 mm	02200005	1

9.2 Filter element detail



Item:	Q.ty: 1 pc. 2	Q.ty: 1 pc. 3 (3a ÷ 3b)
Filter series	Filter element	Seal Kit code number NBR
RFEX 160	See spare parts (position 7)	02050772 (included with filter element)

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