

**INSTRUCTIONAL MANUAL  
CAT. 91004-OMF & 91005-OMF  
EMF Oil Mist Filters**



## Introduction

Oil Mist Filters (OMF) capture oil mist from the outlet of pumps, which would otherwise be ejected into the atmosphere. This may happen when you use gas ballast or when you pump high gas throughputs. You can also return oil trapped in the mist filter back to the pump, although you must ensure that the process gases will not contaminate the pump or pump oil.

Please read this manual before installing and operating your EMF series filter as important safety information is highlighted as WARNING instructions. These instructions are for the safety of the users and the environment. Use filter only as described.

The EMF3 Oil Mist Filter is suitable for use with the E2M1.5 vacuum pump (CAT. #91004)

The EMF10 Oil Mist Filter is suitable for use with the following vacuum pumps: RV3 (CAT. #91003), RV5 (CAT. #91005) and RV8 (CAT. #91025).

## Safety Symbol Used in this Instruction Manual



### WARNING

*This warning sign means that if the instruction is not followed, injury or death to people may occur.*

## Features

- The EMF Oil Mist Filters are not affected by alkalis, detergents or salt solutions and are also resistant to many chemicals and solvents. They are also suitable to use with chemicals that form azide compounds. If you have any doubt about the suitability of the filter for your application please customer service at 1-800-523-5874.
- The EMF series filters are manufactured with NW flanges sized to suit the dimensions of the filter and the pump that it is designed to fit.
- The Oil Mist Filters have two-part injection molded plastic bodies and have two types of filtering systems: a fiber composite oil mist filter and an activated carbon odor filter.
- Exhaust gases from the pump travel upwards to the center of the Oil Mist Filter and through the filter element to the outside. Oil droplets that are trapped by the fiber composite element travel down the filter and collect in a reservoir in the base of the Oil Mist Filter.
- The oil-free exhaust fumes then pass through the activated carbon filter element to remove any residual odors.
- The filter element has a pressure relief valve that opens should the element becomes blocked. This allows the gas to bypass the element and thus prevents pressure buildup in the pump.

**NOTES:** 1. *The pressure relief valve does not allow gas to escape from the exhaust system.*  
2. *A high exhaust pressure caused by a blockage elsewhere in the exhaust system will not be relieved by the pressure relief valve.*

- The sight panel on the lower part of the filter body shows the amount of oil that has accumulated in the filter. When the oil level reaches the maximum oil level (*see next page, Figure 1, item 13*), remove the drain plug to drain the oil from the filter.

## Unpacking your Filter

Remove all packing material, inspecting and keeping for return purposes.

If filter is damaged DO NOT USE. Call customer service at Toll Free: 1-800-523-5874.

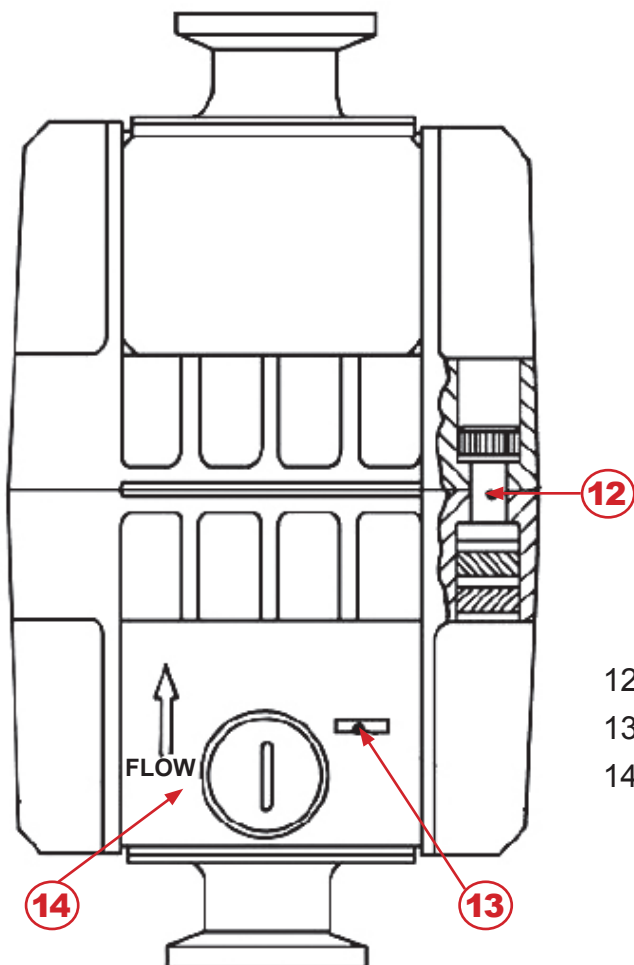
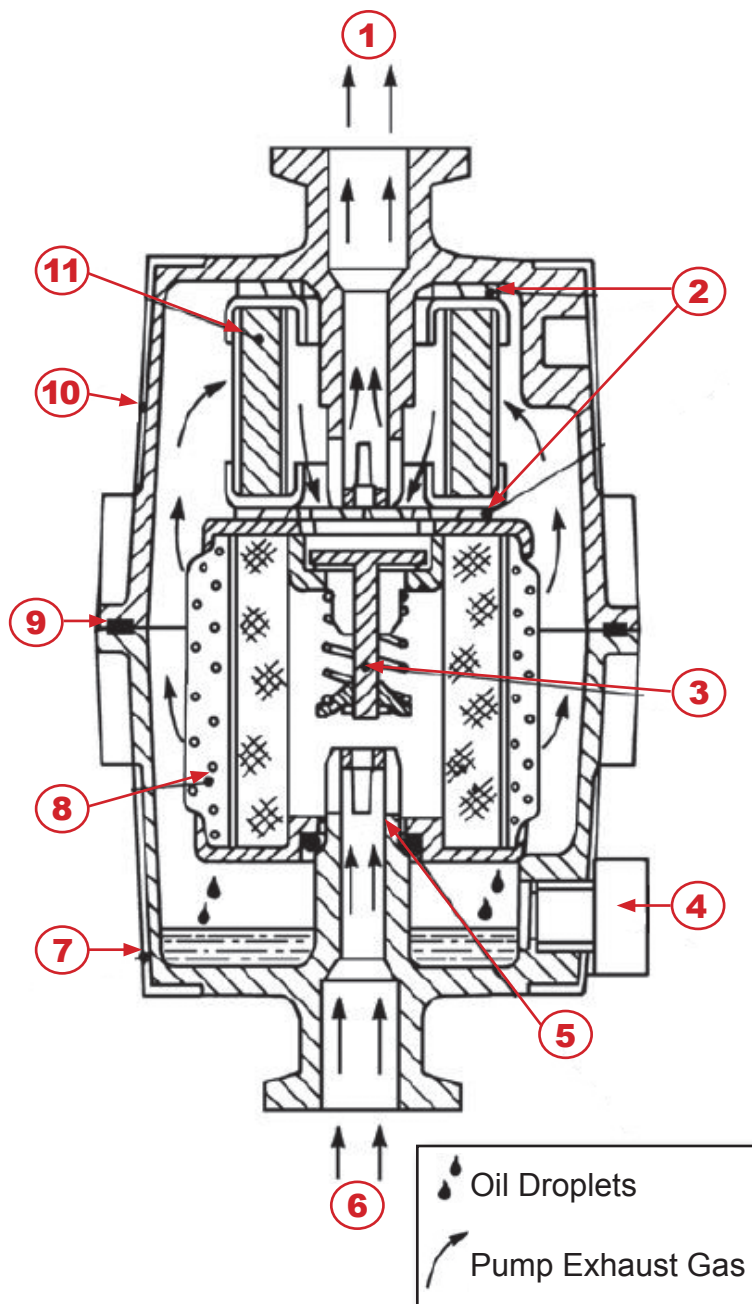
**NOTE:** *If you will not be using the filter immediately, return it to its protective packaging and store in a cool, dry place.*

Package includes:

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> 1 – EMF Oil Mist Filter | <input type="checkbox"/> 1 – Centering-ring and O-ring | <input type="checkbox"/> 1 – O-ring seal |
| <input type="checkbox"/> 1 – Adaptor             | <input type="checkbox"/> 1 – Clamping ring             |  |

**FIGURE 1 – Parts of the EMF Oil Mist Filter**

1. Outlet
2. Odor Element Seal
3. Pressure Relief Valve Assembly
4. Drain Plug
5. Mist Filter Element O-Ring
6. Inlet
7. Lower Body (White)
8. Mist Filter Element
9. D-Seal
10. Upper Body (Gray)
11. Odor Element



12. Body Half Securing Screws
13. Maximum Oil Level
14. Sight Panel

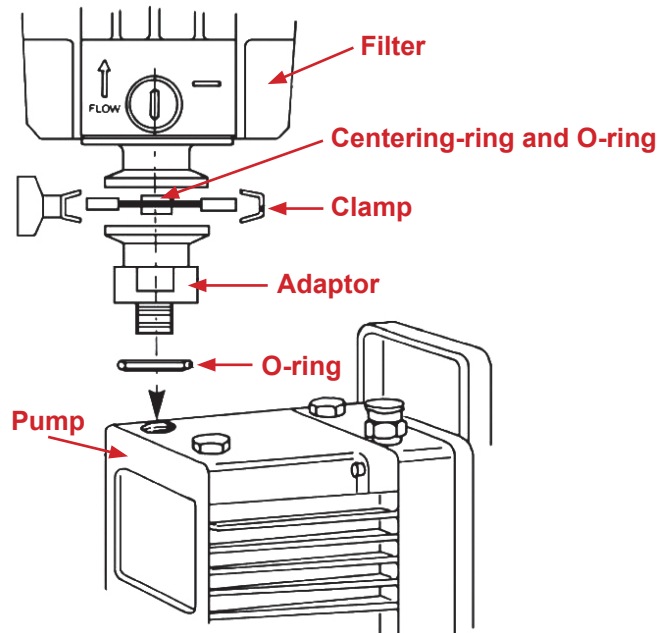
## Installation

**NOTE:** You must install the EMF filter vertically with the direction of exhaust flow as indicated by the arrow on the lower part of the body.

Filter installation procedure: (refer to Figure 2, to the right):

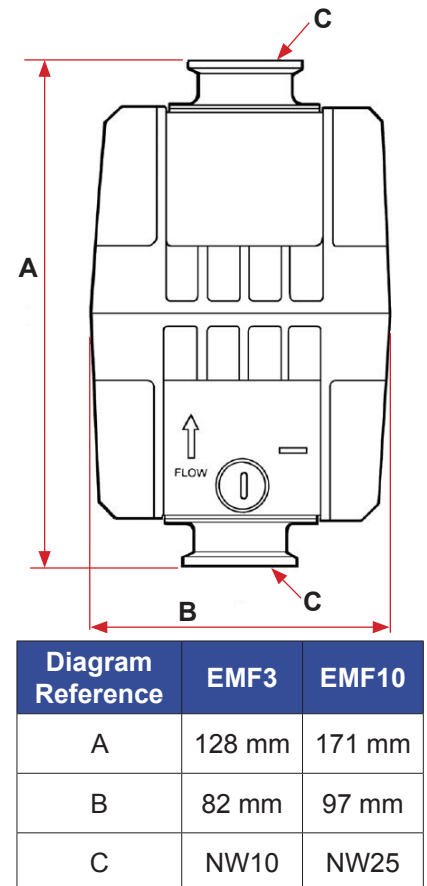
1. Clean the area around the pump outlet connection.
2. On E1M and E2M pumps only, unscrew and remove the outlet connection from the pump, fit the O-ring seal (5) to the adaptor (4) and screw the adaptor into the pump outlet; do not over-tighten the adaptor or you will damage the O-ring seal.
3. Ensure that the sealing surfaces of the filter assembly and pump outlet (or adaptor) are clean, fit the centering-ring (2) to the pump outlet (or adaptor, on E1M and E2M pumps), then position the filter assembly flange on the O-ring. If necessary, rotate the filter so that the oil-level sight panel is visible and so that you can access the drain plug to drain the filter.
4. Fit the clamp (3) and tighten (hand tight only).
5. If required, use a further centering-ring and O-ring and clamp (not supplied) to fit an exhaust pipeline to the outlet of the filter.

Figure 2



## Technical Data

DATA	EMF3 (CAT. 91004-OMF)	EMF10 (91005-OMF)
Rated Flow	3m <sup>3</sup> h <sup>-1</sup>	12m <sup>3</sup> h <sup>-1</sup>
Maximum Back Pressure	12 psig (1.8 bar absolute, 1.8 x 10 <sup>5</sup> Pa)	
Relief Pressure	20 psig (2.37 bar absolute, 2.37 x 10 <sup>5</sup> Pa)	
Mass	0.315 kg	0.5 kg
Odor Filter Element	Activated carbon	
Filter Body Material	Crystalline nylon	
Mist Filter Element	Epoxy impregnated borosilicate glass fiber	
Flange Size (inlet & outlet)	NW10	NW25
For use with Pump E2M1.5 (Cat. #91004)	✓	⊘
For use with Pumps RV3 (Cat. #91003), RV5 (Cat. #91005) & RV8 (Cat. #91025)	⊘	✓
Operational ambient temperature range	0 to 45°C	
Storage ambient temperature range	-10 to 90°C	



## Maintenance

For most applications, the mist filter element should be changed every six months. The life of the mist filter depends on the process application. If an application contaminates the rotary pump oil, then mist filter life will be reduced and must be determined by the operator. If the filter element should become blocked, the pressure relief valve will operate and allow unfiltered exhaust gases to pass through the filter.

The odor element should be changed monthly or whenever the pump emits an oily odor.

Check the oil level in the filter regularly. Remove the drain plug (4) to drain the oil from the filter when the level reaches the maximum mark (13) on the oil-level sight panel. **NOTE:** *The rate of oil collection depends on your rotary pump and your process application.*

### Changing the Filter Elements



#### WARNING

*Wear protective clothing when handling contaminated filters and filter elements. Accordingly, if dangerous or toxic substances have been pumped, take all necessary precautions.*



#### WARNING

*The O-ring must be in its place when fitting a new filter. If the O-ring is not properly placed, the pump exhaust gases will not be treated and the oil mist will pass out of the mist filter into the local environment and could cause injury to people*

1. Switch off the electrical supply to the pump.
2. Wipe clean the outside of the filter.
3. (Refer to Figure 1) Remove the drain plug (4) to drain the oil from the filter. When the filter is fully drained, replace the drain plug.
4. Be sure to disconnect any exhaust pipeline to the filter outlet (1), if one has been connected by user.
5. Undo and remove the four screws (12) which secure the upper body (10) to the lower body (7), then remove the upper body.
6. Lift out the filter elements (8, 11) to be changed. Dispose of the used elements safely and in accordance with local/national regulations.
7. Wipe clean the inside of the upper body (10) and lower body (7) and the mating surfaces. DO NOT remove the seal (9).
8. Ensure that the mist filter element O-ring (5) is in place in the lower body (7), then fit the new filter elements; ensure that the foam sealing rings on the top and bottom of the elements are correctly seated.
9. Refit the upper body (10) to the lower body (7) and secure with the screws (12) removed in Step 5.
10. If fitted, reconnect your exhaust system pipeline to the filter outlet (1).

## Storage & Disposal



#### WARNING

*Wear protective clothing when handling contaminated filters and filter elements. Accordingly, if dangerous or toxic substances have been pumped, take all necessary precautions.*

### STORAGE

1. Remove (and dispose of) contaminated filter elements and clean body with appropriate cleaning solution.
2. Re-wrap the EMF Oil Mist Filter body in its original, protective packaging.
3. Store in a cool dry place (-10 to 90°C ambient).
4. When required for use, install the EMF Oil Mist Filter as described in the Installation Section.

### DISPOSAL

Since the EMF Oil Mist Filter will have oil trapped in the filter and other used filter elements, it is extremely important to dispose of the used filters safely and in accordance with local/national regulations.

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For any questions or for ordering information,  
please contact Customer Service at  
**1-800-523-5874**

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