

These instructions are based on data sheets 4013, 4014, 4015 and 4026 (or in case of special design the corresponding data sheet) and contain common requirements intended to ensure perfect operation of the filter unit and which may need to be supplemented by user-specific conditions for application.

### **General regulations**

The filter unit UM may be used only for intended uses. All non-called application cases are not valid as in accordance with the requirements. From the not intended use resulting damage **EATON Technologies GmbH** assumes no liability.

Before operating the unit it is essential that this manual and maintenance instruction is read and be understood by all operating persons. Changes in the system may be made only with explicit permission by **EATON Technologies GmbH**. Unauthorized modification may cause damage to the plant or work equipment, for these damages **EATON Technologies GmbH** assumes no liability.

Only original spare parts may be used. Installation of untested spare parts from **EATON Technologies GmbH** or accessories leads to the loss of the guarantee claim. For damages originate by:

- Disregard of these operating instructions
- Injury of the care duty with transport, installation and operation
- Faulty repair
- Maintenance failure

**EATON Technologies GmbH** assumes no liability.

Design modifications remain reserved for the system. Substantive changes to these operating and maintenance instructions are subject to change without notice.

## **1. Safety**

### **1.1 Dangers of maloperation**

In case of maloperation or abuse, as well as in case of insensitivity for application limits and safety regulations, the following threats can occur for:

- life or physical condition of the operator;
- the device itself as well as connected machinery and systems;
- the environment.

This manual contains information and safety advice, which ensure risk free operations and which help to keep the device in an ideal condition. Therefore it is necessary that all people involved in operating and maintaining the device do note this manual unconditionally.

### **1.2 Intended application**

The filter units UM 20, 40, 80 and 125 are mobile filter units according to the technical data parameters specified in data sheets 4013, 4014, 4015 and 4026 for the fine filtering of mineral oil-based hydraulic oil as well as water separation from the above-mentioned fluids.

The circulation filter units UM take oil from a reservoir connected by a hose to clean it from dirt and water. The purified oil is pumped into the intended reservoir. The contaminants accumulate in the filter. The unit works without supervision after the start.

The max. allowable dirt particle size of the working fluid should be < 200µm. Larger dirt particles cause a premature wear of the gear pump.

### **Limits of application und conditions for the location**

The device is intended exclusively for the application in hydraulic and lubricating systems within these following limits:

- |                              |  |
|------------------------------|--|
| - Viscosity range:           | 10...800 mm <sup>2</sup> /s* (46...9200 SUS) |
| - Oil temperature range:     | -5°C... 60 °C (23...140°F)                   |
| - Ambient temperature range: | 0... 60 °C (32...140°F)                      |

\* The technical specifications of each device see the enclosed documents! (General Note: Performance data of electric motors relate to atmospheric pressure (1013 mbar) and a height of 1000 m)

Proper operation of the UM and the guarantee of safety requires the application of accessories provided or approved by **EATON Technologies GmbH**.

## 2. Installation

### 2.1 Initial stand-by state

The unit is delivered in the initial stand-by state. This state is present if:

- The filter unit is not connected to the power supply.
- The combined OFF-ON and motor protection switch is turned off (Switch set at 0).
- Hoses for the inlet and the outlet are rolled up. The open ends of these hoses are placed in the corresponding tubes.
- The filter is equipped with an element ready for operation.
- Breather and drainage are closed.
- The filter element was drained.

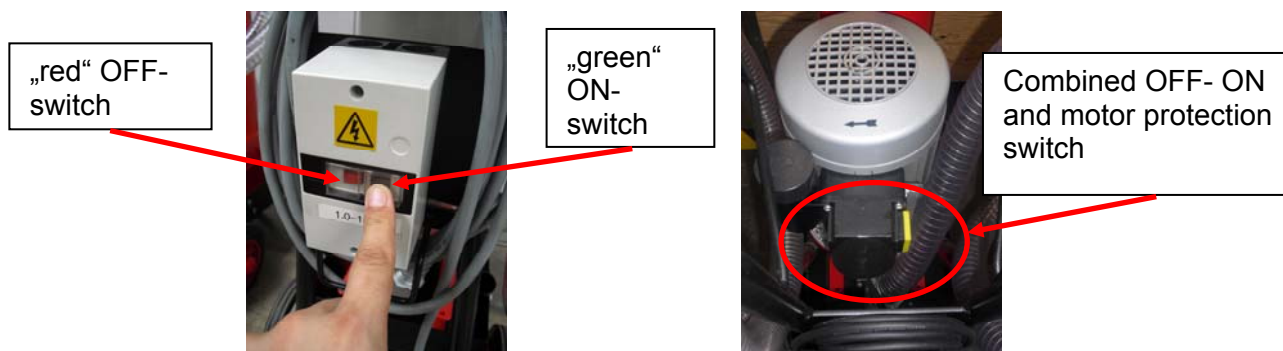
After the element was used, respectively after repairs or maintenance, this initial stand-by state should be restored.

### 2.2 Ready for operation

Prior to any operation, check the cleanliness of the open hoses, especially those of the return line. Please remove any contamination using cleaning solution prior to any contact of the hoses with the fluid, which is supposed to be filtered. The suction and the return line have to be connected to the corresponding connections, respectively placed within the fluid.



During operation the open end of the suction line has to be minimum 100 mm below the fluids surface. Also, make sure that the fluid circulation is not blocked at both ends of the hoses. Please use the pipe connections included in delivery, if the hoses will be connected to any pipe work. The filter unit is switched on and off at the combined OFF-ON and motor protection switch.



## 3. Behavior during disturbance/ Fixes

The combined OFF –ON and motor protection switch acts as overload protection of the electric motor and separates it from the power supply in case of an overload.

An excessive consumption of the electric motor can occur at

- the suction of cold oil,
- at high ambient or operating temperatures,
- the breakdown of one or more phases or
- the connection to the wrong power supply.

To eliminate this disturbance, the instrument should cool down for a while and for starting you have to press on a three phase-AC-motor the "green" ON-switch of the combined OFF – ON and motor protection switch, and on a single-phase- AC-motor you have to press the motor protection switch (see **picture**).

#### **4. Changing the element**

It is necessary to exchange the element, if the clogging indicator "O" of the filter indicates clogging (red in display).

Exchanging an element will be carried out while the filter unit is in stand-by (Disconnected from the power supply (plug pulled), filter drained, drainage screw E2 open).

In order to remove the clogged filter element, turn the filter's clamping screw pos. 5 to the left until it can be removed together with the filter cover pos. 2. Now the filter element can be accessed and removed.

Depending on the amount of contamination in the filter housing, cleaning might be necessary before a new element will be inserted.

Replacing element shall remain packed until the moment of installation.

Please also check if the element is damaged (noticeable mechanical damages) and if it is complete (o-rings in the connecting parts of the replacing element).

After the new element was inserted in the filter housing, reset the lit and tighten it using the clamping nut (Tightening torque 60 Nm).

Please ensure during the entire procedure, that neither the new element nor the filter housing will be contaminated with dirt.

Close all drain plugs and vent points. Please also check the condition and clogging of the coarse filter in the suction line after the element was exchanged and prior to the next operation (see data sheet 31961-4).

#### **5. Cleaning the filter housing**

Cleaning of the filter housing becomes necessary if fluids with coarse contamination were filtered and if noticeable dirt can be seen within the filter housing. The filter housing can be cleaned while exchanging the filter element.

Open the drain plug E2 and E3. Use the usual cleaning devices and solutions for the interior of the filter housing.

While cleaning please make sure that no dirt can enter the clean side (drilling of the inlet borehole and the plug) and no cleaning solution remains within the housing.

#### **6. Venting**

Venting of the filter is necessary every time the filter has been emptied.

Venting is carried out when the filter is in operation. A vent hose is connected to the vent point E1 of the filter according to the instructions specified in data sheet 1650, using either the high pressure hose M 16. 630 (length of hose 630 mm) or hose M16. 2000 (length of hose 2000 mm). Venting has been carried out satisfactorily when bubble-free fluid forms the connected hose.

The hose is removed from the vent point after venting and a sealing cap is fitted to the vent point.

#### **7. General information**

- At all activities that are made with or on the filter unit it is always to ensure that an appropriate protective equipment be worn under accident prevention regulations.
- Check the condition of the O-ring, item 9, every time the filter cover has been removed and change the O-rings if there is any sign of any damage or leakage.
- Clamping screw, item 5, tightening torque is 60 Nm.
- The electric motor is fitted with a thermal and pressure-dependent safety switch, which operates in the event of overloading and automatically switches off the electric motor.
- If the contamination function of the electric motor has been activated, the display condition of the contamination indicator must be checked and the contaminated element changed.
- Special versions with three-phase squirrel-cage motors have a pole-dependent direction of rotation.
- Prior to any operation check the direction in which the e-motor is turning. The direction has to be equivalent to the direction marked on the housing. If this is not the case, please correct the direction by reversing the polarity.



Screwdriver place in position here and turn left/right

- The protection class of the electrical equipment is IP 54 (→ No use of the device in the open air!)