

# RMF SYSTEMS



[www.bsf-filtertechnik.com](http://www.bsf-filtertechnik.com)

## User Manual

BY-PASS UNITS







## **INTRODUCTION**

Thank you for buying this RMF Systems By-Pass Unit. Please read this manual as it contains important information regarding the unique features of this By-Pass Unit.

## **IMPORTANT**

To secure optimum efficiency from your RMF By-Pass Unit, we recommend that you read and follow the instructions as set out in this manual. Should you have any questions or queries, contact your RMF Systems supplier.

## **EXCLUSION OF LIABILITY**

RMF Systems has made every endeavour to ensure the accuracy of the content of this manual. However errors cannot be ruled out. Consequently we accept no liability for such errors as may exist nor for any damage or loss what so ever which may arise as a result of such errors. The content of the manual is checked regularly, any corrections required will be incorporated in subsequent editions.

All details are subject to modifications.



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# 1. Installation

## 1.1. Mounting instructions



Let a qualified specialist carry out the installation of the By-pass unit.

- ▶ Install the filter upright in a vertical position.
- ▶ Ensure a free distance of 400 mm for A filter housing and 700 mm for B filter housing over the filter top for element removal.
- ▶ Mount the filter on a shock or vibration free surface, in case this is not possible please utilise shock or vibration absorbers for mounting.
- ▶ Make sure the pressure gauge is properly visible at all times.
- ▶ Enable access to monitoring points.
- ▶ Protect the filter housing corrosion or aggressive environments if necessary.

## 1.2. Specifications

TYPE FILTER	BY-PASS UNIT
Material filter housing	Anodized aluminium
Seal material	Buna-N standard
Nominal flow	± 2,1 l/min, 4,2 l/min
By-pass opening pressure at 0 bar backpressure	± 6,2 bar
Max. working pr. FC valve	420 bar
Min. working pr. FC valve	12 bar
Max. pressure filter housing	20 bar
Max. oiltemperature	80°C
Max. viscosity	180cSt
Indicator type	Gauge glycerine filled
Connection pressure side	1/4" BSP female
Diameter hose pr. side	3/8"
Connection return side	1/2" BSP female
Diameter hose ret. side	3/8" ; (1/2" with long hoses)
Connection oil - analysis installation:	
P1 filter inlet side	Test conn. (M16x2) Red
P2 filter outlet side	Test conn. (M16x2) Yellow

### 1.3. Hydraulic connection

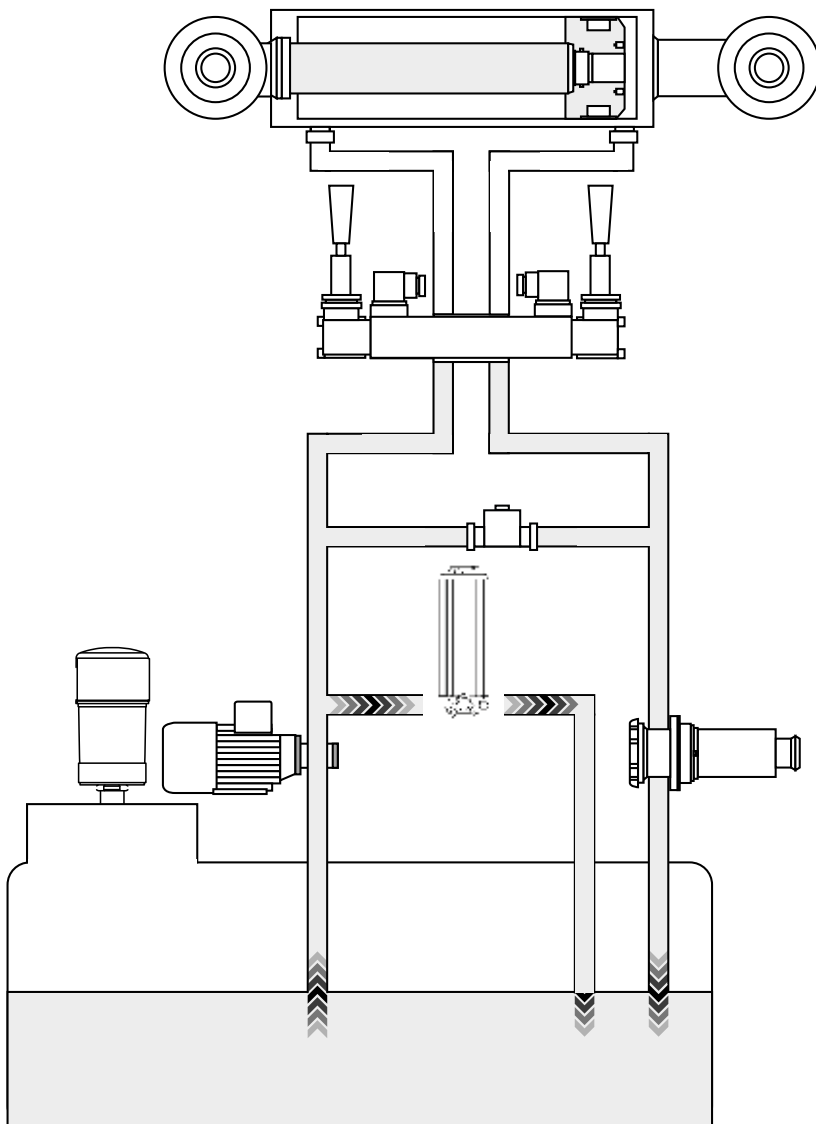


Let a proper tradesman carry out the hydraulic installation of the By-pass unit.

- ▶ Use the "P" connection (1/4" BSP on flow control valve) to connect the filter direct to a pressure line of the hydraulic system. Three alternative "P" connections (3/8" BSP) are plugged and should not be used without the agreement of RMF personnel.
- ▶ Use one of the "T" ports (1/2" BSP) for the connection direct to tank. The other "T" port should be closed by means of the provided plug.
- ▶ The minimum feeding pressure at the "P" port is 12 bar (170 psi). The maximum feeding pressure at the "P" port is 420 bar (6000 psi). The feeding pressure to the filter should preferably be stabilised.
- ▶ Connect the "T" port to tank utilising a separate hydraulic line without back pressure. In case the tank is pre-pressurised a maximum back pressure of 1 bar is allowed.
- ▶ The connections to and from the filter should be as short as possible. Always use flexible hoses to connect the filter to the hydraulic system. Do NOT use Teflon tape or liquid sealant for fitting.
- ▶ Do not use ball valves or other obstructions in the return line of the filter.
- ▶ Do not fit ball valve or any obstructions in the return line of the filter unit, the return line must flow free back to tank.



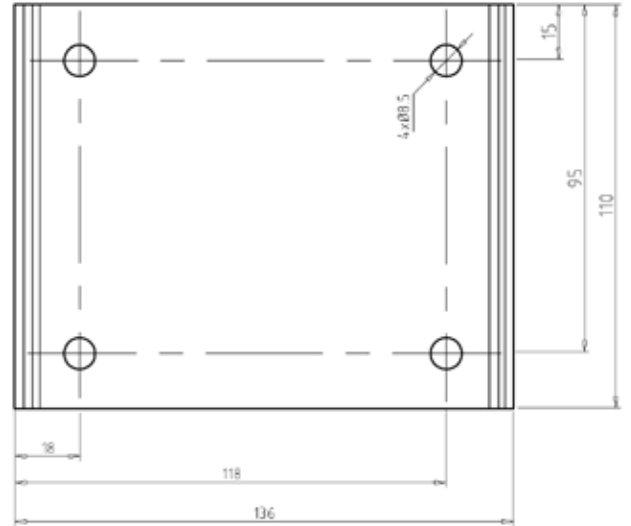
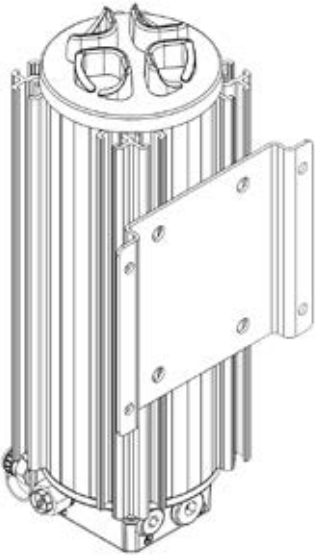
Keep the return line as short as possible and use hydraulic hose of correct internal diameter.



## 1.4. Mounting Options BPU1

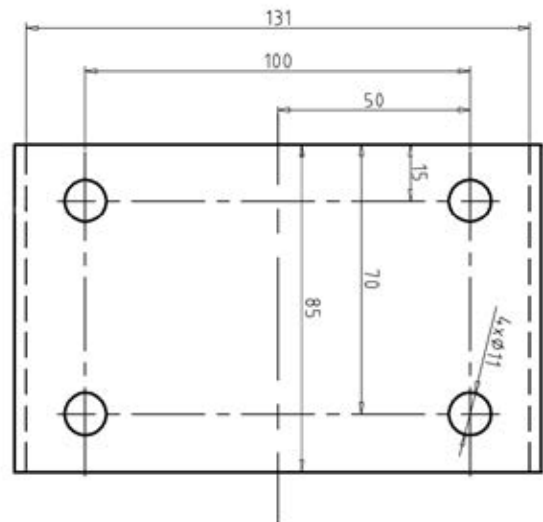
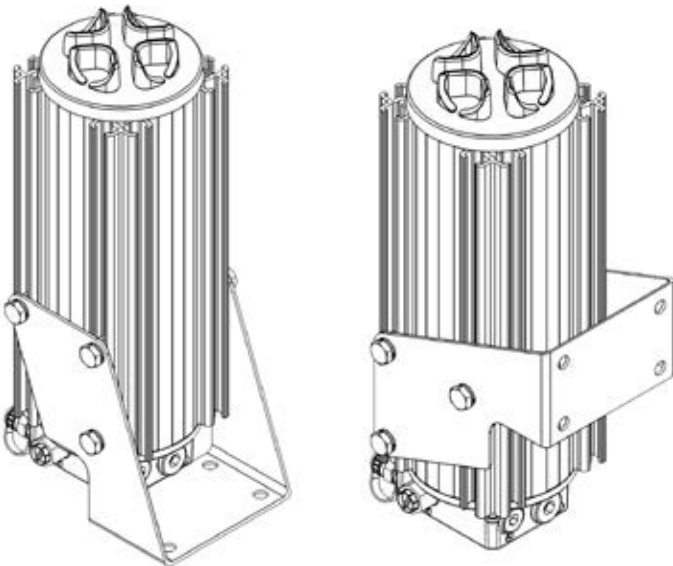
### WALL MOUNTING BRACKET

Item No.: 9331203



### FOOT AND BULK HEAD MOUNTING BRACKET

Item No: 9331230







## 2. Element change

- ▶ Elements must be replaced on indicator 6,3 bar (cellulose) and 4,5 bar (glass fibre) or at least every 6 months.
- ▶ Check on the identification sticker of the filter unit which element is fitted.
- ▶ Make sure you have the correct replacement element available.
- ▶ Cellulose elements 30H and 60H, 0,5 $\mu$  with NBR (B) FPM (V) seals available.
- ▶ Glass Fibre elements 30G and 60G are available in different filter fineness with NBR (B) or FPM (V) Seals.
- ▶ Switch off the unit.
- ▶ Make sure that no one else can switch on the unit during maintenance. Tag the switch!

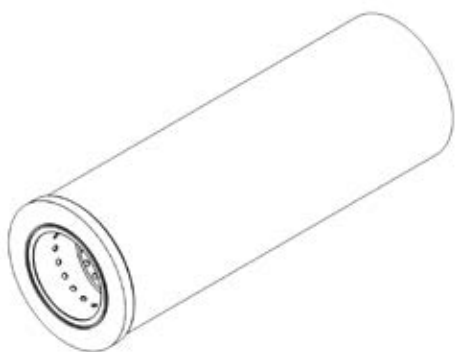


Fig. 4

- ▶ Check that the filter housing is free of pressure (Fig. 5).

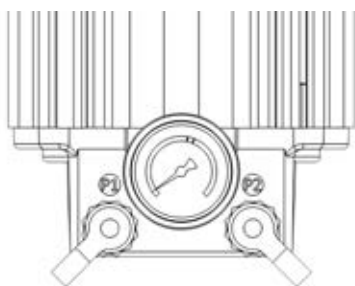


Fig. 5

- ▶ Remove filter lid by turning anti-clockwise (Fig. 6).
- ▶ Lift the lid and the filter element carefully from the housing, check that the housing is not overflowing from oil out of the hydraulic lines connected to the filter unit. Make sure the "O" ring does not fall from the lid into the housing (Fig. 7).

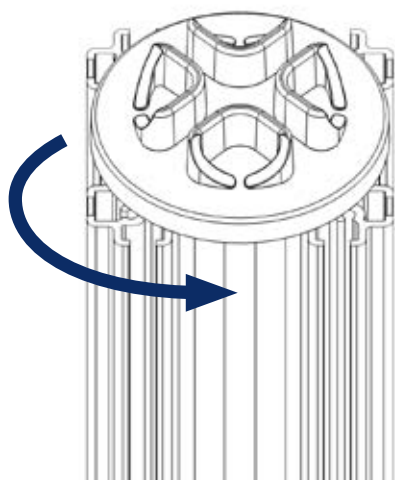


Fig. 6

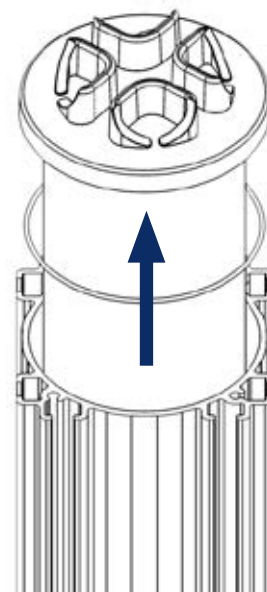
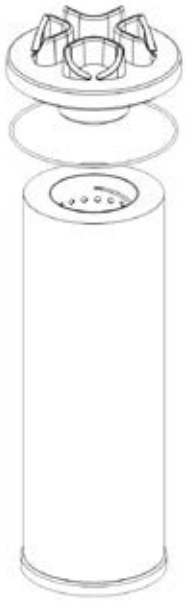


Fig. 7

- ▶ Remove the filter element from the lid (fig. 7) and dispose off in accordance with local regulation.

A-filter element



B-filter element

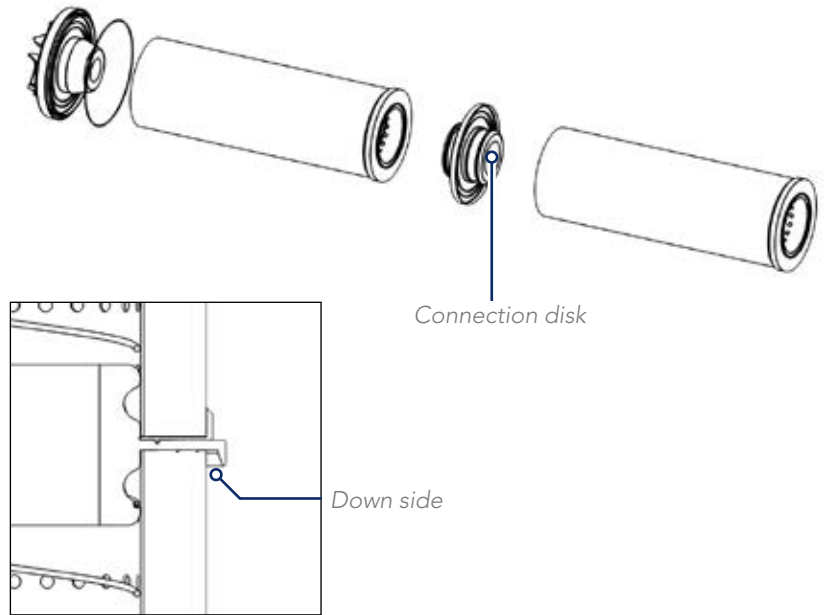


Fig. 7

- ▶ Wet new "O" ring (provided with the new element) with hydraulic fluid, fit to the lid and fit new element onto lid with the side that contains no silicon seal. Push element hard onto filter lid until it mates properly.
- ▶ If you would like to stack 30G elements, please make sure to use the correct o-rings on both sides of the connection disk (Fig. 8e).



Fig. 8a



Fig. 8b



Fig. 8c

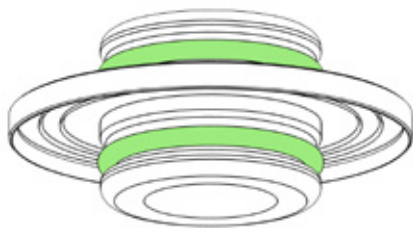


Fig. 8e



Fig. 8d

- ▶ Carefully insert new filter element into filter housing. (Fig. 9)
- ▶ Turn lid clock wise and close upon the housing, observe that the "O"-ring fits in place properly. (Fig. 10)

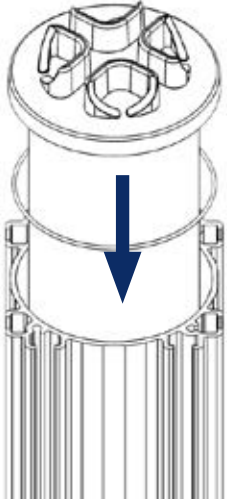


Fig. 9

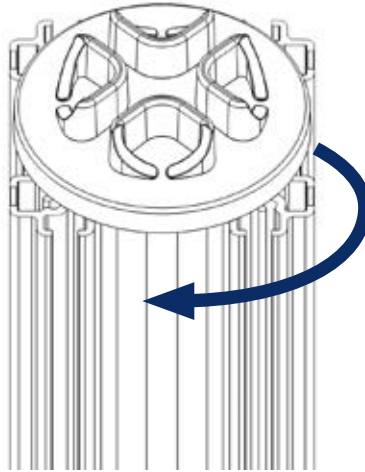


Fig. 10

- ▶ Close and tighten properly, use spanner, prying bar or tool, but do not over tighten! (Fig 11)

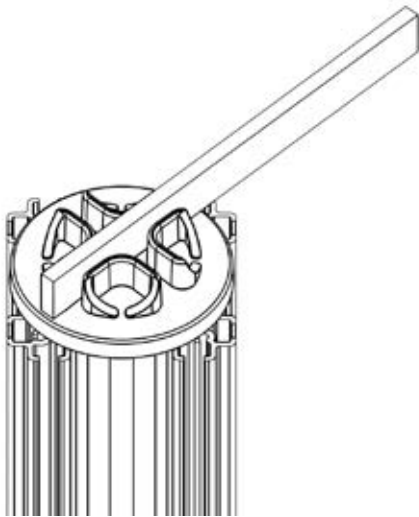


Fig. 11

- ▶ Tightening torque  $\pm 20$  Nm.
- ▶ When replacing a 30H element there is no need to push the element into the filter lid, the element can be lowered into the filter housing. Following that the filter lid can be placed on the element/housing. All other steps remain the same!
- ▶ Re-start the filter unit and observe to make sure there are no leaks.

### 3. Change of watersorb element (Optional BPUW)

- ▶ Change watersorb element always at same time as filter elements.
- ▶ Make sure you have the correct watersorb replacement element available.
- ▶ Remove watersorb filter element by turning clockwise. (See Fig. 10).
- ▶ If this cannot be done by hand, use special tool for filter removal (See for example Fig. 11)

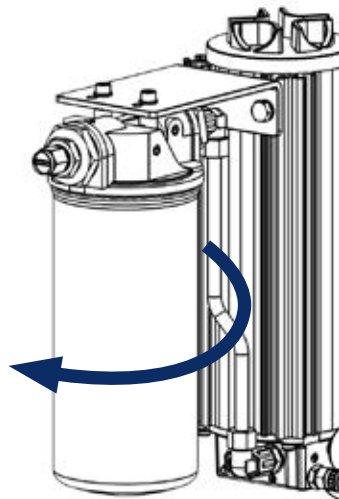


Fig. 10



Fig. 11

- ▶ Use a new seal included with watersorb packaging, lubricate and observe that the seal fits in place properly.
- ▶ Close anti-clockwise and tighten new watersorb element by hand, do not over tighten! (see Fig. 12)

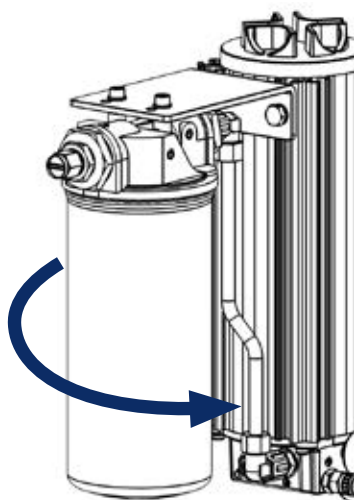


Fig. 12

- ▶ Dispose off old watersorb element in accordance with local regulation.
- ▶ Re-start the filter unit and observe to make sure there are no leaks.

**i** Always connect inlet hose to the integrated pressure compensated flow control valve (fig. 13). This valve bleeds oil from the main hydraulic systems. Oil flows through the filter before returning back to the oil reservoir.

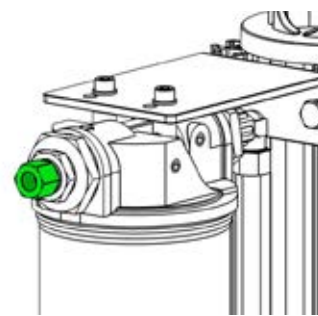


Fig. 13









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