

This manual is effective for all filters of the type DSF 175, 176, 180, 330, 331, 340 and related specifications. It contains certain requirements and instructions which ensure unobjectionable operation of the filter. It can be completed with specific additional instructions by the operator himself if necessary.

## **1. Safety instructions**

- Prior to operating the filter, manual and maintenance instructions have to be read carefully.
- Follow the instructions of this manual under any circumstances!
- The manufacturer does not assume liability for any damage, which occurs due to disregarding these instructions.
- If operations are carried out differently, the safety of the pressurized device can not be assured!
- Operating conditions given in the data sheet, especially excess pressure, temperature range and operating fluid, have to be followed unconditionally. Variation of these parameters can cause damage to important pressure holding parts and sealing. Also take in consideration the compatibility of filter components with the operating fluid.
- Under working conditions the filter housing is pressurized. Do not try to loosen or remove any part of the filter or the filter housing during operation. The operating fluid could escape at high pressure and high temperatures.  
This does not apply for parts of the decompressed or the turned off side of the filter.
- Leaking operating fluid always bears the danger of injuries and burns!
- Do not open the filter housing until you made sure it is not pressurized any more!
- Touching parts of the filter may cause burning, depending on the operating temperature.
- When exchanging the filter keep in mind that it might have operating temperature. Danger of burning!
- Always wear safety goggles and gloves when working on the filter!
- If you come into contact with the operating fluid please follow the instructions of the fluid manufacturer!!
- Only use original spare parts.

For filters being used in hazardous locations the INTERNORMEN documentation N° 41269 "Supplementation of the Operating Manual for the use of filters in potential explosive areas.

## **2. Installation**

### **Note safety instructions!**

When removing a new filter from its box it is ready for installation. The filter is fixed with 2 screws M12 at a vertical mounting surface.

When installing the filter please make sure, that:

- sufficient fixation of the filter is assured
- the clogging indicator is accessible and can be checked easily.
- the connections for draining, air-bleeding and pressure measurements can be accessed easily.
- there is enough room above the filter to remove and replace elements.
- no dirt, particles, other contamination or fluids enter the filter.
- both inlet and outlet of the filter are connected to the pipe work correctly.
- counterflanges or screw joints of the pipe system and the filter have to be angled precisely and connected that same way (if counterflanges or pipe joints are canted or under tension switching filters can be aggravated and it might harm pressure tightness)

## **3. Commissioning**

Prior to the commissioning of the filter the completeness (filter elements, seals) has to be controlled.

Then the filter has to be bled as follows :

- Set the shift lever of the reversing valve into middle position
- Open the screw plugs G ½" at the air-bleed bore holes and connect suitable air bleeding tubes with collecting pan for the operating fluid flowing out
- Connection of the volume flow until bubble-free operating fluid flow out of the air-bleeding tubes
- Disconnection of the volume flow
- Remove the air-bleeding tubes and close the air-bleed bore holes
- Connection to the required filter side at the positioning pin of the selector shaft

The shift lever of the selector shaft always points at the operating filter side.

## 4. Change of Elements

The change of filter elements is necessary when reaching the unit specific pressure difference, respectively the maximum pressure difference shown on the clogging indicator. If there is no unit specific definition, the change of elements should be done at a maximum pressure of  $\Delta p$  6 bar.

The elements can be changed as follows:

- Open the pressure balance valve
- Set the positioning pin from the operating side to the other side
- Closing the pressure balance valve
- Open the screw plug for the bleeding at the filter side to be serviced (G ½" at operating filter side), respectively close the bleeding according to data sheet 1650 and open the drain screw G 1" at the filter bowl
- Unscrew the filter bowl
- Remove the filter elements
- Clean the filter bowl (pressure spring Item 8 (DSF175, 330) and item 6 (DSF176, 180, 331, 340) must be there)
- Install the new or cleaned filter element
- Screw the filter bowl to the filter housing
- Closing of the drain bore (G 1") at the filter bowl
- Air-bleeding of the serviced filter side (see Item 5)

In general take care of the absolute cleanness during the change of elements in order to prevent from any penetration of dirt, respectively of impurities. The new elements should be taken out of their package shortly before they are replaced, and they should be protected against mechanical damages.

When changing the filter elements the availability and quality of the sealing elements should be controlled. Worn-out sealing elements should be replaced by new ones.

## 5. Air-bleeding of the Filter

The air-bleeding of the filter during the change of elements is different to the air-bleeding of commissioning. For the change of elements there is an air-bleeding required only at the filter side to be serviced. The air-bleeding is done during the operation of the unit.

- Open the bleeding screw plug G ½" at the operating side of the filter head, respectively connect the bleeding device according to data sheet 1650
- Open the bleeding screw plug G ½" at the operating side of the filter head, respectively connect the bleeding device according to data sheet 1650
- Close the pressure balance valve and the bleeding bore hole. From filters equipped with a bleeding device according to data sheet 1650 this is to be removed.

## 6. Cleaning of the Filter Element

Filter elements with filter materials of glass fibre (VG) or paper (P) are not cleanable. They have to be replaced when having reached the dirt retention capacity. Filter elements with filter materials of wire mesh (G) are cleanable and can be used again.

The cleaning of these filter elements has to be carried out according to the cleaning specification for INTERNORMEN-filter elements (metal), sheet-no. 21070-4 and 39448-4.

## 7. Pressure Difference Measuring

In case of filters installed with clogging indicators a permanent measuring of the pressure difference takes place. The indication corresponds to the kind of clogging indicators; either visual or visual and electrical respectively electronic.

In addition the air-bleeding connections III and IV can be used for the connection of external pressure gauges.

Recommended are the measuring connections according to data sheet 1650.

## 8. Service

The service will be performed by

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Special questions about the operation of the filter will also be answered within this area.

Spare parts respectively wearing parts have to be ordered according to the spare part list of the filter-data-sheet.