

Manual and maintenance instructions

for INTERNORMEN pressure filters, change-over
DU 63, 101, 251, 401, 631, 635, 1001, 1950, 1050, 2050, related specifications

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This manual is effective for all filters of the type DU 63, 101, 251, 401, 631, 635, 1001, 1950, 1050, 2050 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 (see „Maintenance“).
- 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. It is placed on a level area and attached (DU 63) or screwed (DU 101-2050) to it.

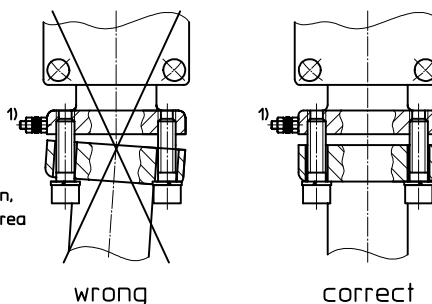
Afterwards remove protective caps from connections and connect those to the present pipe work.

Appropriate pipe work (pipes, hoses) ensures that drain and air-bleed valves are connected to proper containers. For these purposes original INTERNORMEN drain and air-bleed valves can be used.

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)

Fitting the counterflanges for DU 101-2050



1) connection for the potential equalisation,
only for application in the explosive area

- the following torques have to be applied when fastening the counterflanges

Type	DU 63*	DU 101	DU 251	DU 401	DU 631/635	DU 1001/1950	DU 1050/2050		
Connection	¾"	1"	1 ¼"	1 ½"	2"	2"	2 ½"	3"	4"
Moment [Nm]	100 ±15	10 ±2	12,5 ±3	25 ±5	28 ±6	28 ±6	40 ±8	71 ±15	100 ±25

- sufficient measures were taken to prevent corrosion.
- the filter is protected from other mechanical influences (such as impacts and hits).

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3. Initial operation

3.1 Prior to initial operation

Prior to the initial operation of the system or the machine, which means prior to filling in any fluid, check the internal condition of the filter. Proceed as follows:

- Open the filter housing by removing the lid. Check the cleanness of the housing, the presence of an element, the sealing, etc..
- Close the housing tight.

3.2 Filling and air-bleeding

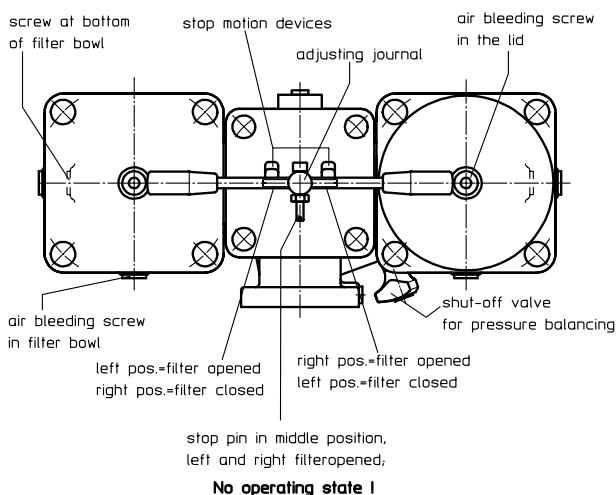
Prior to the initial operation, the filter has to air-bleed as follows:

- Turn the switch of the filter to the middle position. The lever of the DU 63/635/1050/2050 is right in the middle between the two stops. The stop-pin of the DU 101-1950 also is positioned right between the two stops.
- Fill both sides of the filter using the regular operating fluid flow.
- Open the locking screws on the side of the top edge of the filter (DU 63) or on top the filter lid (DU 101-2050). Wait until it leaks fluid without any bubbles and there is no more sound of air escaping.
- afterwards tighten the locking screws again.

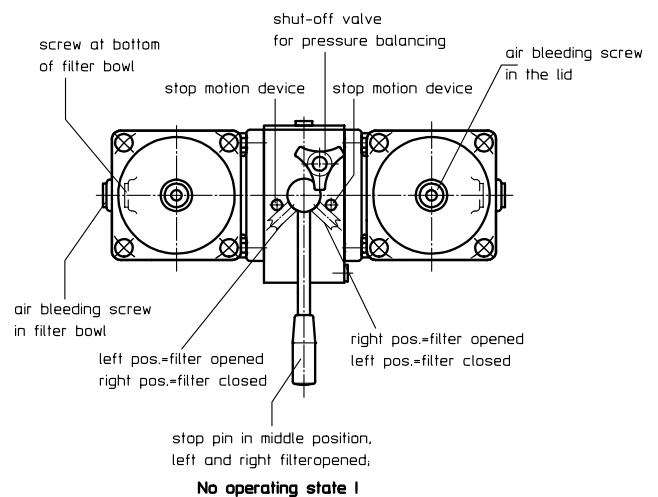
After this process you can direct the flow of the fluid, which is supposed to be filtered, to pass through either side of the filter. This is done simply by turning the lever or the switch. To recognize which side is operating at the moment, just note the following:

DU 101/251/401/631/1001/1950: The stop-pin of the switch is pointing at the side which is operating at the moment.
DU 63/635/1050/2050: The lever itself points at the side which is operating at the moment.

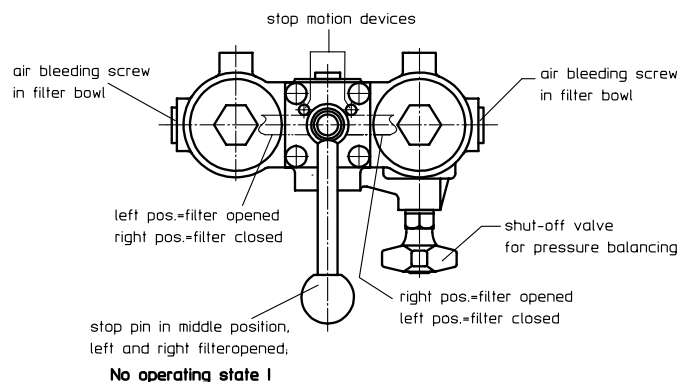
the illustration corresponds to DU 101/251/401/631/1001/1950



the illustration corresponds to DU 635/1050/2050



the illustration corresponds to DU 63



4. Maintenance / Inspection

Also please note all particular site-related instructions for inspection.

Using filters equipped with clogging indicators it is necessary to exchange or clean the element if the signal "Clogged filter" is emitted (also note the data sheet or the instructions of the clogging indicators).
Contaminated elements have to be replaced as soon as possible! If a clogged element is not removed it may cause severe damage to the entire system!

Attention!

Always exchange elements with sealing. If a cleaned metal mesh element type „G“ is reused replace its sealing. The exact markings can be found in spare part lists for each element.

4.1 Replacing the filter element

Maintenance or the exchange of contaminated filter elements has to be performed as follows:

- Open the shut-off valve for pressure equalization.
- Switch the filter to the opposite side.
- Close the shut-off valve.
- Open the air-bleed valve of the discharged side of the housing in order to equalize the pressure with the surrounding atmosphere.
- Open the drain-valves to drain the filter
- Open the lid of the discharged side of the filter housing.
- Loosen and remove the element by light swaying and pulling.
- If necessary cover or close the adaptor end inside the housing and clean the entire inside.
- Close the drain valve and remove the cover of the adaptor end if present.
- Check the sealing of the filter lid and replace the O-ring if necessary.
- Take the replacing element, make sure the serial number matches the number of the old element, and insert it into the housing (prior check if the elements sealing are undamaged and tighten them)
- Close the filter with it's lid.
- finally perform the steps described in 3.2 "Filling and air-bleeding"

4.2 Cleaning the filter element

Filter elements with filter materials such as glass fibre (VG) or paper (P) are not cleanable. They have to be replaced after the dirt retention capacity has been reached. Filter elements with filter materials such a wire mesh (G) are cleanable and could be used again.

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

When removing and reinserting the element please proceed as described in 4.1 "Replacing the filter element".

The maintained side of the filter is now ready to operate at full strain again.

In addition to that it is possible to maintain or replace the clogging indicator if necessary. Both the DU 101 and the DU 251 separate this device from the pressurized system when it's switch is brought into the middle position.

Attention!

Independent from a necessary change of the element, the switching armature has to be actuated at least once per three weeks in order to maintain full operability.

5. Additional information

In addition to the regular clogging indication, the pressure drop, which is evidence for contamination, can be monitored and checked. On filters DU 101-2050 certain miniature measuring devices with a G ¼ A inside thread can be connected to the flanges. For this purpose it is necessary to install measuring connections with M16 screw joints.

6. 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.