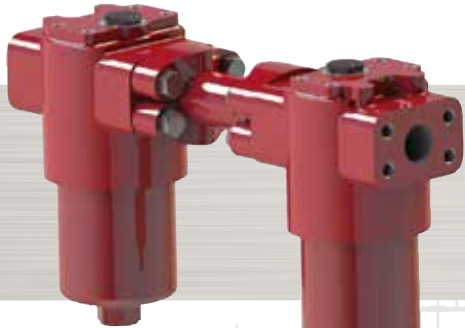


HYDAC INTERNATIONAL

Filters



DFFH & DFFHM Series Service and Parts

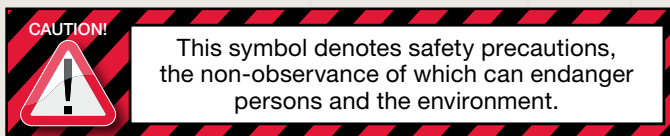
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This symbol is followed by user tips and particularly useful information.

- This pressure unit is for use with hydraulic power or lube systems only.
- All repair, maintenance, installation and commissioning work must be carried out by trained personnel.
- Operate this pressure unit in accordance with hydraulic power or lube system operating instructions.
- Ensure the pressure unit is sufficiently cool before handling.
- This pressure unit is suitable for use with hydraulic or lubricating fluids only.
- It is the responsibility of the operator to comply with local water regulations.



This symbol denotes safety precautions, the non-observance of which can endanger persons and the environment.

- Observe proper venting procedures to avoid the formation of air pockets.
- Caution: Pressurized unit. Purge system pressure before performing any work on the pressure unit.
- Under no circumstances must any modifications (*welding, drilling, or opening by force...*) be carried out on the pressure unit. Any modifications will void the warranty.
- Statutory accident prevention regulations, safety regulations and safety data sheets for fluids must be observed.
- When working on or near hydraulic systems, avoid exposure to open flames and spark generating equipment. Do not smoke near equipment.
- Comply with all regulations with regard to the disposal of used oil and waste.
- Wear proper protective clothing and guards to avoid injury or scalding due to high pressure or high temperature oil.
- Filter housing must be grounded.
- Disconnect all electrical power to the system and other electrical components, prior to working on filter clogging indicators.

NOTE: All details subject to technical modification

FILTER MAINTENANCE

1. General

1.1 Commitment to Quality

HYDAC demonstrates its commitment to quality through the implementation of an ISO 9001: 2000 program, which encompasses not only product design and manufacturing but service and delivery as well.

1.2. Installation

- Before installing the filter in the system, check that the operating pressure of the system does not exceed the maximum allowable operating pressure of the filter.
- Observe type code label on the filter.
- Important: When operating filters without bypass valve above 290 psid (20 bar), high collapse BH/HC type filter elements must be used to ensure safe operation.

1.3. Commissioning

Unscrew bowl and check that the correct filter element is installed. Screw in bowl again fully (*metal to metal contact*) and then unscrew by one quarter-turn (*the sealing effect will not be improved by overtightening.*) Switch on hydraulic system and check filter for leakage. Vent filter at an appropriate point in the system.

1.4. Tools Required for Maintenance

| Size | Wrench size for filter bowl | Allen wrench size for oil drain plug | Wrench size for VD 0 A.1 |
|----------|-----------------------------|--------------------------------------|--------------------------|
| 160-280 | 32 mm | 10 mm | 27 mm |
| 330-1320 | 36 mm | 10 mm | 27 mm |

1.5. Torque Values for Clogging Indicators

| Type | Max. Torque Nm [ft-lb] |
|-----------------------------------|------------------------------------|
| Clogging Indicators - VD...LE, LZ | 50 [37] |
| Clogging Indicators - VD others | 100 [74] |
| Oil Drain Plug | 80 [59] - G½ |
| Bowl / Lid or End Cover | Do not Torque (See 1.3 and 3.2) |

2. Maintenance

2.1. General

This section describes periodic maintenance requirements. Periodic and thorough maintenance will ensure operator safety and the life of the filter.

2.2. Maintenance Procedures

- Only high quality spare parts meeting the technical requirements specified by the manufacturer should be used, quality is always guaranteed with HYDAC original spare parts.
- Keep tools, working area and equipment clean.
- After disassembling the filter, clean all parts and check for damage or wear. Replace parts as required.
- When changing filter elements, a high level of cleanliness must be observed.

2.3. Interval Between Changing Elements

- To ensure optimum performance, HYDAC recommends replacing filter elements every 6 months or upon indication, whichever occurs first.
- HYDAC recommends installing the filter with a clogging indicator (*visual and/or electric or electronic*) to monitor for excessive filter element pressure drop.
- If the clogging indicator trips, immediately change or clean the filter element. (*Only wire mesh and metal fiber elements can be cleaned.*)
- If no clogging indicator is installed, HYDAC recommends changing elements at specified intervals (*depends on filter sizing and conditions*). Higher dynamic loads across the element might necessitate shorter intervals between changes. Shorter intervals can also be expected during commissioning, repairs, oil changes, etc. of the hydraulic system.

3. Element Replacement

3.1. Element Removal

1. Switch off hydraulic system and purge filter pressure.
2. Remove oil drain plug *(if present)*. Drain oil into a suitable container.
3. **One-piece bowl:**
Unscrew bowl *(collect fluid in a suitable container and clean or dispose of it in accordance with environmental regulations)*.
- Two-piece bowl:**
Unscrew end-cap of bowl *(collect fluid in a suitable container and clean or dispose of it in accordance with environmental regulations)*. Remove threaded pin.
4. Remove filter element from the filter head *(examine surface of element for dirt residue and larger particles; these can indicate damage to the components)*.
5. Replace or clean filter element. *(Only wire mesh and metal fiber elements can be cleaned)*.
6. Clean bowl and head, paying particular attention to the screw threads.
7. Examine filter, especially sealing surfaces, for damage.
8. Check O-rings and replace parts as necessary.

3.2. Element Installation

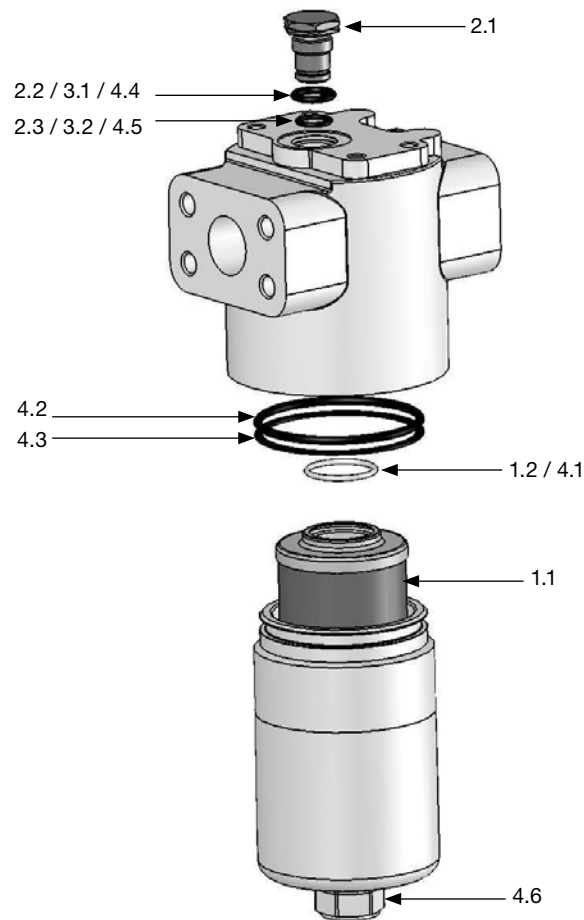
1. Lubricate sealing surfaces and O-ring using clean hydraulic fluid.
Thread on the filter head and bowl.
2. When installing a new element, verify that the designation corresponds to that of the old element.
3. Place filter element carefully onto the element location nozzle in the filter head.
For two-piece bowls; secure with threaded pin.
4. **One-piece bowl:**
Apply silver grade anti-seize *(per Mil-PRF-907E)* to threads. Screw in filter bowl fully *(metal to metal contact)*.
- Two-piece bowl:**
Apply silver grade anti-seize *(per Mil-PRF-907E)* to threads. Screw in end-cap fully *(metal to metal contact)*.
5. Screw in oil drain plug *(if present)*.
6. Unscrew filter bowl or end-cap by one quarter-turn.
(Note: over-tightening does not improve seal).
7. Switch on hydraulic system and vent filter at an appropriate point in the system.
8. Check filter for leakage.

Note: Contamination or incomplete pressure release on disassembly can lead to seizing of the bowl thread. Filter elements which cannot be cleaned must be disposed of in accordance with environmental regulations.

FILTER MAINTENANCE

4. Spare Parts

4.1 DFFH 160-660 (one piece bowl)



| Item | Consists of | Designation | 160 | 240 | 280 | 330 | 500 | 660 |
|-----------|-------------|---|--|----------|-----|----------|--------------|-----|
| 1. | | Filter element | See point 5 Replacement elements | | | | | |
| | 1.1 | Filter element | According to order | | | | | |
| | 1.2 | O-ring | | 34 x 3.5 | | | 42.52 x 2.62 | |
| 2. | | Clogging indicator or indicator plug | See Filter Clogging Indicator brochure | | | | | |
| | | VD 0 A.1 | 00305932 | | | | | |
| | | VD 0 A.1 /-V | 00305931 | | | | | |
| | 2.1 | Indicator plug | | | | VD... | | |
| | 2.2 | Profile seal ring | | | | VD... | | |
| | 2.3 | O-ring | | | | 15 x 1.5 | | |
| 3. | | SEAL KIT-E VD/VM/VR | | | | 00319648 | | |
| | | SEAL KIT-E VD/VM/VR /-V | | | | 00319638 | | |
| | 3.1 | Profile seal ring | | | | VD... | | |
| | 3.2 | O-ring | | | | 15 x 1.5 | | |
| 4. | | SEAL KIT DFFH... NBR | | 02070226 | | | 02068921 | |
| | | SEAL KIT DFFH... FKM | | 2096200 | | | 02085525 | |
| | 4.1 | O-ring (<i>element</i>) | | 34 x 3.5 | | | 42.52 x 2.62 | |
| | 4.2 | O-ring (<i>bowl</i>) | | 80 x 4 | | | 117 x 4 | |
| | 4.3 | Back-up ring (<i>bowl</i>) | | DF 160 | | | DF 330 | |
| | 4.4 | Profile seal ring (<i>VD 0 A.1</i>) | | | | VD... | | |
| | 4.5 | O-ring (<i>VD 0 A.1</i>) | | | | 15 x 1.5 | | |
| | 4.6 | Oil drain plug | | - | | | G 1/2 NA | |

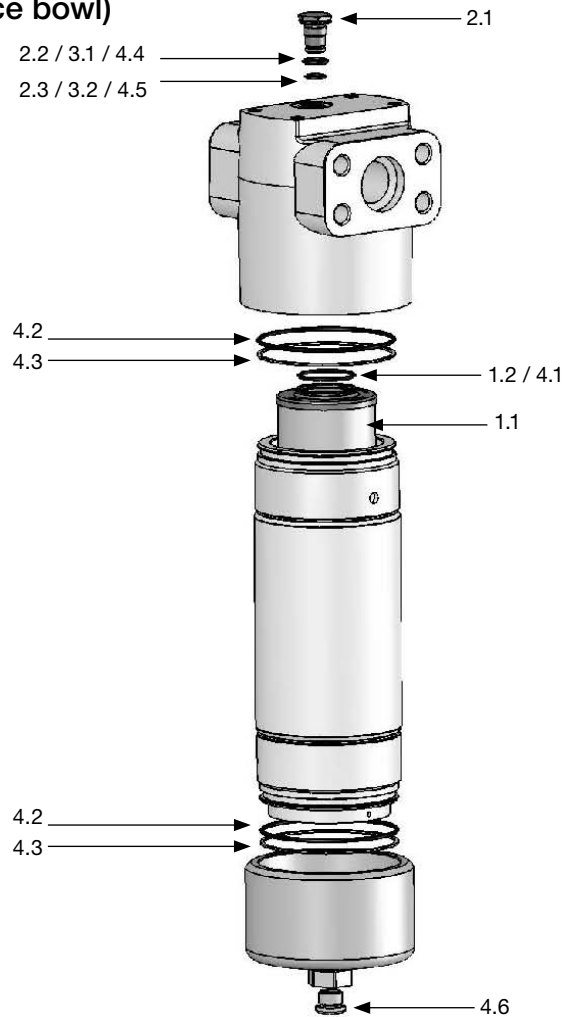
O-Ring durometer can range from 70-80Sh. EPR Seal Kits available on request.

Bowl assembly kits on request - kits include complete bowl with seals, plug, and threaded pin (*if present*).

Other spare parts available on request.

Bold items can be ordered.

4.2 DFFH 660-1320 (two piece bowl)



| Item | Consists of | Designation | 660 | 1320 | |
|-----------|-------------|---|--|----------|--|
| 1. | | Filter element | See point 5 Replacement elements | | |
| | 1.1 | Filter element | According to order | | |
| | 1.2 | O-ring | 48 x 3 | | |
| 2. | | Clogging indicator or indicator plug | See Filter Clogging Indicator brochure | | |
| | | VD 0 A.1 | 00305932 | | |
| | | VD 0 A.1 /-V | 00305931 | | |
| | 2.1 | Indicator plug | VD... | | |
| | 2.2 | Profile seal ring | VD... | | |
| | 2.3 | O-ring | 15 x 1.5 | | |
| 3. | | SEAL KIT-E VD/VM/VR | 00319648 | | |
| | | SEAL KIT-E VD/VM/VR /-V | 00319638 | | |
| | 3.1 | Profile seal ring | VD... | | |
| | 3.2 | O-ring | 15 x 1.5 | | |
| 4. | | REPAIR KIT DFFH 660-1320 / 2.0 | 02089592 | | |
| | | REPAIR KIT DFFH 660-1320 / 2.0 /-V | 02089593 | | |
| | | 4.1 | O-ring (<i>element</i>) | 48 x 3 | |
| | | 4.2 | O-ring (<i>bowl</i>) | 117 x 4 | |
| | | 4.3 | Back-up ring (<i>bowl</i>) | DF 330 | |
| | | 4.4 | Profile seal ring (<i>VD 0 A.1</i>) | VD... | |
| | | 4.5 | O-ring (<i>VD 0 A.1</i>) | 15 x 1.5 | |
| | | 4.6 | Oil drain plug | G 1/2 NA | |

O-Ring durometer can range from 70-80Sh. EPR Seal Kits available on request.

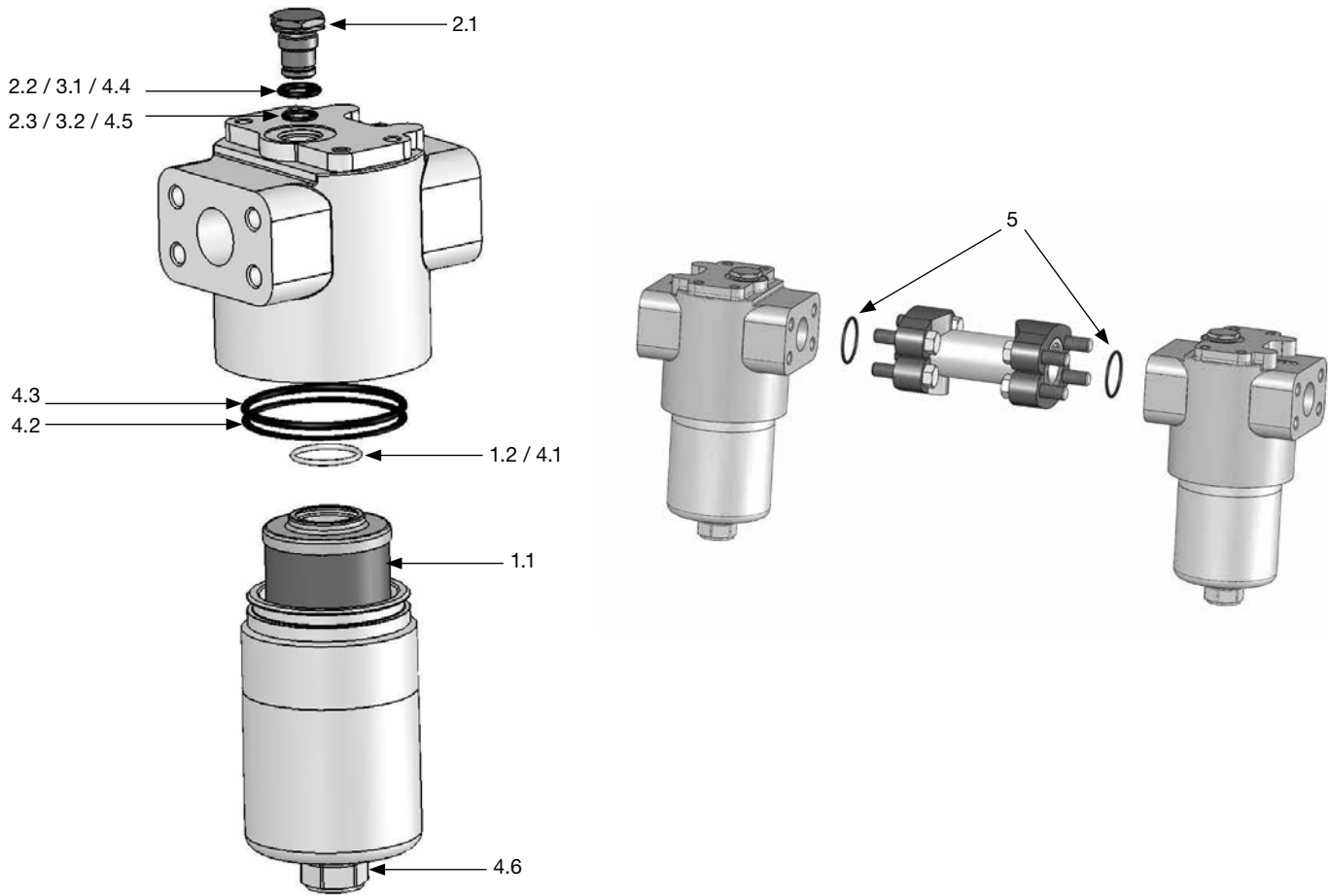
Bowl assembly kits on request - kits include complete bowl with seals, plug, and threaded pin (*if present*).

Other spare parts available on request.

Bold items can be ordered.

FILTER MAINTENANCE

4.3. DFFHM 160-1320



| Item | Consists of | Designation | 160 - 280 | 330 - 660 1 pc. Bowl | 660 - 1320 2 pc. Bowl |
|-----------|-------------|---|--|----------------------|-----------------------|
| 1. | | Filter element | See point 5 Replacement elements | | |
| | 1.1 | Filter element | According to order | | |
| | 1.2 | O-ring | 34 x 3.5 | 48 x 3 | |
| 2. | | Clogging indicator or indicator plug | See Filter Clogging Indicator brochure | | |
| | | VD 0 A.1 | 00305932 | | |
| | | VD 0 A.1 /-V | 00305931 | | |
| | 2.1 | Indicator plug | VD... | | |
| | 2.2 | Profile seal ring | VD... | | |
| | 2.3 | O-ring | 15 x 1.5 | | |
| 3. | | SEAL KIT-E VD/VM/VR | 00319648 | | |
| | | SEAL KIT-E VD/VM/VR /-V | 00319638 | | |
| | 3.1 | Profile seal ring | VD... | | |
| | 3.2 | O-ring | 15 x 1.5 | | |
| 4. | | SEAL KIT DFFH... NBR | 02070226 | 02068921 | 02089592 |
| | | SEAL KIT DFFH... FKM | 2096200 | 02085525 | 02089593 |
| | 4.1 | O-ring (<i>element</i>) | 34 x 3.5 | 48 x 3 | |
| | 4.2 | O-ring (<i>bowl</i>) | 80 x 4 | 117 x 4 | |
| | 4.3 | Back-up ring (<i>bowl</i>) | DF 160 | DF 330 | |
| | 4.4 | Profile seal ring (<i>VD 0 A.1</i>) | VD... | | |
| | 4.5 | O-ring (<i>VD 0 A.1</i>) | 15 x 1.5 | | |
| | 4.6 | Oil drain plug | - | G 1/2 NA | |
| 5. | | O-ring | 37.69 x 3.53 | 56.74 x 3.53 | |

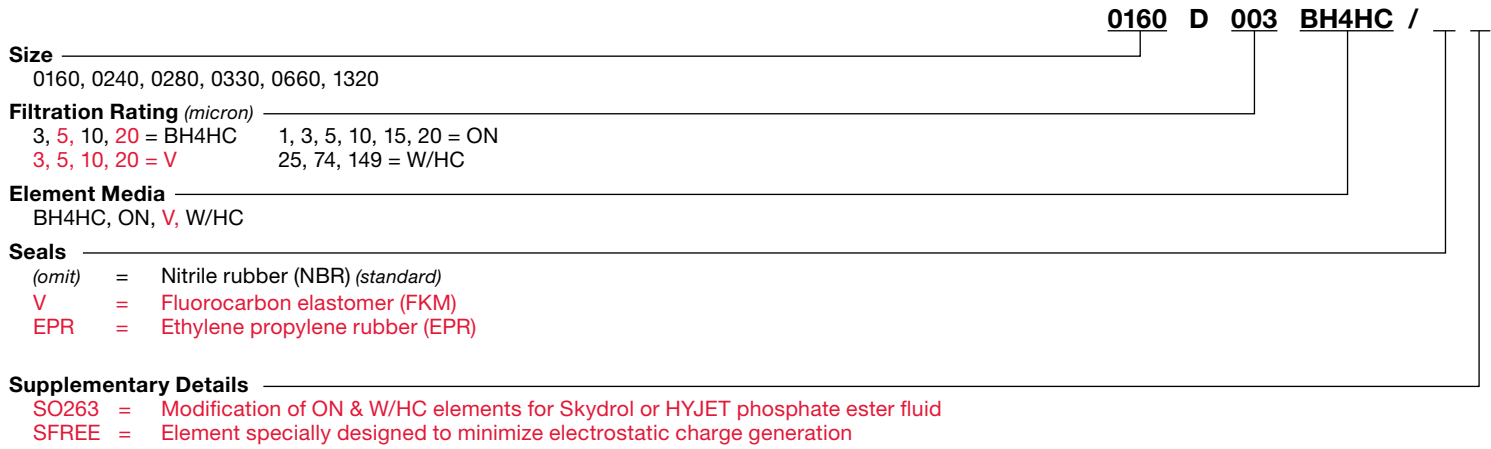
O-Ring durometer can range from 70-80Sh. EPR Seal Kits available on request.

Bowl assembly kits on request - kits include complete bowl with seals, plug, and threaded pin (*if present*).

Other spare parts available on request.

Bold items can be ordered.

5. Replacement Element Model Code



6. NOTE

The information in this brochure relates to the operating conditions and applications described.
 For applications or operating conditions not described, please contact the relevant technical department.
 Subject to technical modifications.

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