

1. Remarks



It is for the responsible operating company to ensure that all operators have read and understood this instruction manual, a printed version is available also on the operation site and the nameplate is legible at all times.

This instruction manual contains safety instructions for installation, operation and maintenance of equipment. Besides this document, guidelines and legal regulations, the existing standards, the specifications on the nameplate and the national legislation of the final place of use must be respected.

The optimal operation and safety equipment can be guaranteed in case of use STRICTLY respecting the conditions outlined in this manual and the operating instruction of this device.

This equipment has been developed, manufactured and tested in compliance with the directive of the European community PED 97/23/EC.

For equipment intended for use in explosive atmosphere zone, refer to the specific instructions ATEX attached.



Any other use or modification on the design data is prohibited and leads to the cancellation of all guarantees. Any modification (welding, drilling, etc..) by the responsible operating company regarding the resistant parts to pressure is prohibited or is allowed only after manufacturer consultation and written agreement. Not any modification of the filter housing name plate is allowed.

For any further questions, particularly when ordering spare parts, contact your 3M Purification representative, with the operating instructions and data equipment shown on the nameplate.

All documents relating to the proper functioning of equipment must be maintained throughout the lifetime of the device, these documents should always be available to operators.

2. Security



This chapter contains safety instructions that must be respected. However, those listed in the operation instruction must also be observed. And, if applicable, specific instruction to the operation of this equipment in ATEX zone included in the attached manual.

Failure to comply with safety instructions may result in serious injury and / or physical hazards and environmental pollution. The non-observance of safety instructions will also result in the cancellation of the guarantee.

Only authorized personnel may intervene on this equipment and its accessories, this after having read and understood this instruction manual and the operating instruction associated.



Before opening a connection, equipment or removal of an accessory, checked that the volumes involved are secure, empty, no pressure and there is no risk of burns. During the procedure check that unauthorized act can not open the circuits connected.

The equipment must be installed in a stable, in a safe environment and be protected from shocks, allowing safe operation. It can not be subjected to the action of flame, unanticipated loads such as wind, snow, earthquakes or any other condition involving the devices resistance. If efforts other than pressure and temperature are provided, turn the equipment off before these stresses exceed the permissible limit.

The equipment must not be subjected to conditions that can cause unanticipated erosion, abrasion or corrosion of internal or external surfaces. If a loss of thickness is provided, a regular monitoring report recorded will permit to turn the equipment off before the allowable limit is exceeded.

Solicitations not provided on the piping or equipment involving the holding of it are prohibited. In any case, the pipe lines and accessories shall not be used as steps.

Avoid absolutely water-hammer at any time.



The responsible operating company shall assure the protection of its operators against risk of burns due to temperature on non-insulated surfaces.

If the filter housing has been supplied with safety devices, the responsible operating company shall assure the protection against effects of their operation.

If the filter housing has in not been supplied with safety devices, the responsible operating company shall assure the protection against any possible excess of pressure and temperature.

3. Transport and storage

This equipment is delivered in a package designed to protect equipment during transportation. Upon receipt, the operator must ensure its integrity and handle the goods with care.

To prevent corrosion and dirt accumulation during extended outages, it is advisable to drain all the equipment, remove the cartridges, clean all internal surfaces and dry.

The equipment must be stored in order to function properly even after prolonged storage, in particular by closing all valves, by closing all connections and taking all precautions against contamination, freezing, corrosion, galling.

4. Installation / Operation



Before all operations of the equipment, ensure the stability of the latter and the rigidity of its supporting structure, it is forbidden to use or open the equipment before its stabilization.

Unpack the equipment on the installation location, and then connect all the pipes (check for absence of pressure and temperature risks). All connections to the piping must correspond to their functions and their flow direction (see operating instruction).

This assembly must be performed without the introduction of internal stresses to joints.

Check that all parts that are affected by the pressure are properly assembled and tightened, including the closure of the pressure vessel and connections (see operating instructions).

Perform a leak test with a compatible fluid at ambient temperature, at operating pressure for 30 minutes.

Correct any leakage at the connections.

Rinse with clean media and compatible with the process, drain and clean the equipment. Then dry the equipment thoroughly if it is not used immediately. (cf. « Transport and storage »).



Before disassembling a connection, accessory or body equipment, verify that the adjacent volumes are secured, empty, without pressure (drain and vent open) and without risk of burns.

During the procedure check that unauthorized act can not open the circuits connected.

Conditions for use of equipment are shown on the nameplate, and must be strictly observed. If a change of fluid or conditions of use occurs, causing a change in data from the equipment according the PED 97/23/EC, verification and validation of the manufacturer is required.

5. Maintenance



Any intervention can be carried out after disconnecting power sources and only by competent and experienced staff, using appropriate tools.

All repairs to equipment on some parts under pressure must be performed by the manufacturer.



All interventions must lead to the establishment of a verbatim record to be kept on equipment operating book of the responsible operating company.

Each time you open a connection or equipment, check the condition of seals and closure systems. Replace if necessary.

Regularly check the overall condition of the equipment (corrosion, damage and wear). If the equipment has a particular protection (internal or external), regular inspection should be performed. Clean if necessary, be careful to not damage surfaces and using the appropriate products.

For maintenance, a list of specific spare parts for this equipment is available upon request. Use only original spare parts manufacturer.

If the equipment is fitted with accessories, for any realization of maintenance refer to the corresponding references. Accessories documentation is attached to the operator file or is available upon request.

On some equipment, handling devices are present. Do not move equipment without checking it is empty, at zero pressure and poses no risk of burns.



Some handling devices are used only for removable parts and not for equipment in full. (see operating instruction)



Periodic mandatory inspections must be realized in accordance with national legislation of the final point of use. Exceeding these unauthorized deadlines, equipment must be decommissioned.

During a regular inspection of equipment, resulting in a hydraulic test (pressure test), ensure that the installed equipment (safety devices, measuring instruments, accessories ...) are consistent with the pressure test.


OPERATING INSTRUCTION

HOUSING: 01HFB2 SP FILTER

REFERENCE: A0005902 – UU001xxxxxx

3M Purification

1 Remarks

 **It is for the responsible operating company to ensure that all operators have read and understood this instruction manual and the attached instruction manual (General), a printed version is available also on the operation site and the nameplate is legible at all times.**

This manual contains instructions for operating the equipment as specified in Chapter 2, "Description."
Refer to the instruction manual attached for the safety aspects, transportation, installation and maintenance.
For any further questions, particularly when ordering spare parts, contact your 3M Purification representative, taking with you this manual and data equipment shown on the nameplate.
All documents relating to the proper functioning of equipment must be kept for the duration of use; these documents should always be available to operators.

2 Description

HFB filter housings must be used only with High-Flow cartridges.

2.1 *Customer / responsible operating company needs*

The design of this equipment has been carried out on the basis of the study requirements definition supplied by the customer / responsible operating company when ordering the product, that is to say:

	Process		
	Fluid	PS (barg)	TS (°C)
Filtered fluid	Liquid Group 2	0/10	0/80
Fluid/Cat. Acc. PED 97/23/EC	Liquid Group 2 / Art.3.3		
Material	316L		
Design conditions	0/10 barg at 80°C		

Gasket	NBR
Construction code	3M Internal procedure
ATEX 94/9/EC	Not applicable
Corrosion	Not applicable
Natural phenomena	Not applicable
Additional load	Not applicable

 **Any other use or modification on the design data is prohibited.**

The maximum allowed fluid speed is 3m/s for liquids

2.2 Marking

This pressured equipment is marked according the PED 97/23/EC.

This marking shows at minima:

- The designation of the equipment and its references
- The volume
- The maximum allowed conditions (PS/TS)
- The test pressure
- The material of the wetted parts
- The fluid and its group according PED 97/23/EC

A name plate copy is joined to this manual.

This name plate is etched definitively on its support.



The alteration of the name plate is strictly prohibited.

2.3 Lifetime

HFB filter housings are designed for a lifetime of about 5000 cycles in the absence of corrosion and damage, excluding wear parts (Locking system, seals and cartridges).

A full inspection must be made no later than after half of their lifetime, that is to say before 2500 cycles.

3 Operating



Handling

The lifting lugs on the cover are designed only for the opening of the filter body. Do not use these lugs for lifting the filter body complete. Handle preferably the housing manually in order to decrease the risk for damage of the polished surfaces. If handling devices are needed use non-metallic soft slings. Always check before moving that the housing is empty and without pressure.

To reduce the risk of damaging the polished surfaces, place the removable parts (Lid, internal parts ...) on suitable surfaces.

3.1 Closure system



Before opening a connection, equipment or removal of an accessory, checked that the volumes involved are secure, empty, no pressure and there is no risk of burns.

During the procedure check that unauthorized act can not open the circuits connected.

To open, unscrew lock nuts **13*** using a suitable tool, remove brackets on the lid **2*** and swing it.

To close, check the status and positioning of the gasket **3*** in the base plate groove and then place the lid **2*** in its original position. Tighten lock nuts **13***.

*: See annexe B

3.2 Cartridges mounting



Replace the cartridges at the latest when the maximum loss is reached (See cartridges instruction manual)
Before installing the cartridges, check that all the circuit process is clean and ready for normal operation, to avoid premature clogging of the cartridges by impurities other than those of the medium.
If necessary, rinse the entire the process circuit before installing cartridges.
Always install new cartridges and check their expiry date.

Verify before mounting into the housing that each cartridge:

- Is new, clean and without damage,
- Is of the required filtration grade.
- Is equipped with one gasket.

Take-off the cartridge identification labels for traceability purposes.

Open the filter housing as described in §3.1 and clean all internal surfaces.

Check that the cartridges guides **5*** are installed in the filter housing and are screwed properly in their bracket.

Mount the cartridge **17***. To do this, take the cartridge **17***, and insert it into its cartridge guide **5*** and its bracket. Then, turn it clockwise until it stops.

Mount the gasket **3*** and the lid **2*** as described in §3.1.

For sanitizing, sterilization, flushing and conservation procedures see the concerned cartridge specification.

*: See annexe B

3.3 Operating



When constant displacement pumps are used, provide a pump relief valve for filter housing protection against accidental overload.

The operating pressure and temperature shall never exceed the cartridge and housing design conditions.

The outlet pressure shall never exceed the inlet pressure, for example:

- Due to water hammer / back pressure,
- Due to incorrect valve operations (Back flow).

Filling-up:

Close all valves except the vent valve, which shall be open.

Fill-up the up-stream circuit. Once the fluid available at the filter inlet, open slowly * the inlet valve for filling-up. Once filled-up, close the vent valve.

When the down stream circuit shall be filled-up through the filter housing, keep the inlet valve open and open partially the outlet valve in order to keep the housing full and under pressure.

Keep then the outlet valve closed in order to maintain the pressure and to avoid air entrance.

Start-up:

When the whole process circuit is clean, fully filled-up without air and ready for operation:

- Pressurize the up-stream circuit and verify the correct functioning of the available relief valve (When constant displacement pumps are used),
- Slowly* open the inlet first and then the outlet valve.

Operation:

If no automatic venting device has been provided, regularly open-close the vent valve during operation to check for air presence (See also §5 in the attached instruction manual).

If the process does'nt allow vent valve opening, a particular procedure shall be developed for venting if needed.

Turn-off:

To stop the flow through the filter, close slowly* the outlet valve first and close then the inlet valve in order to keep the housing under pressure in stand-by position isolated from the process circuit.

* Operation of the valves shall always occur slowly in order to avoid water hammer which could provoke damage on cartridges and housing.

3.4 Cartridge change

Replace cartridges:

- At latest when the pressure drop reaches the allowable value for the cartridge (See the concerned cartridge specification),
- According to user's application requirements.

Empty the filter housing:

Close first the outlet valve and then the inlet valve.
Open the drain and vent valves.

Prepare the filter housing:

Take-off the lid 2* as described in §3.1.
Take out the used cartridges: unlock counterclockwise and pull the cartridge out.
Clean all internal surfaces.
Make the verifications listed in §3.5.

Cartridges installation:

For mounting the new cartridges, follow the instructions of §3.2.

*: See annexe B

3.5 Maintenance


Refer to the attached instruction manual.

4 Use in ATEX zone



This filter housing is not designed for operation in an Atex area.

ANNEXE A NAME PLATE COPY – 15*

<p>MODEL - DRAWING PART NUMBER SERIAL LF ITEM ALLOWABLE PRESSURE PS (bar) ALLOWABLE TEMP. TS (°C) TEST PRESSURE PT (bar) EMPTY WEIGHT</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="4" style="text-align: center;">01HFB2V6 SP - 509120-01</td> </tr> <tr> <td style="width: 30%;">TO DEFINE</td> <td style="width: 15%;">MAT.</td> <td colspan="2" style="text-align: center;">316L</td> </tr> <tr> <td>TO DEFINE</td> <td>YEAR</td> <td colspan="2" style="text-align: center;">2014</td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td style="text-align: center;">10</td> <td style="text-align: right;">max</td> <td style="text-align: center;">FULL VACUUM</td> <td style="text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: right;">min</td> <td style="text-align: center;">80</td> <td style="text-align: right;">max</td> </tr> <tr> <td style="text-align: center;">15</td> <td></td> <td style="text-align: center;">DATE</td> <td style="text-align: center;">TO DEFINE</td> </tr> <tr> <td style="text-align: center;">74</td> <td style="text-align: right;">kg</td> <td style="text-align: center;">VOLUME</td> <td style="text-align: center;">66 L</td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td colspan="4" style="text-align: center;">PED 97/23 EC ONLY ART. 3.3</td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td colspan="4" style="text-align: center;">INSTRUCTIONS IN MANUAL MUST BE STRICTLY ADHERED TO 3M Purification IS TO BE CONTACTED FOR ANY QUERIES</td> </tr> </table>	01HFB2V6 SP - 509120-01				TO DEFINE	MAT.	316L		TO DEFINE	YEAR	2014						10	max	FULL VACUUM	NO	0	min	80	max	15		DATE	TO DEFINE	74	kg	VOLUME	66 L					PED 97/23 EC ONLY ART. 3.3								INSTRUCTIONS IN MANUAL MUST BE STRICTLY ADHERED TO 3M Purification IS TO BE CONTACTED FOR ANY QUERIES			
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ANNEXE B FILTER HOUSING DESCRIPTION

