



Technical Installation Sheet

Installation, Operation & Maintenance Manual Filter Housings and Associated Elements

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1. GENERAL INFORMATION

This manual provides installation, operation, inspection, and maintenance requirements for filter housings and associated filter elements.

IMPORTANT:

Filter housings are pressure vessels. Improper installation, operation, or servicing can result in serious injury, equipment damage, or system failure.

2. SAFETY INFORMATION

2.1 Pressure Vessel Warning

- Never exceed Maximum Allowable Working Pressure (MAWP).
- Never exceed stated temperature limits.
- Pressure rating decreases at elevated temperatures.
- Use only in properly designed piping systems.
- Install pressure indicators and temperature indicators where applicable.
- Use pressure-limiting or safety devices whenever possible.
- Ensure all connections are leak-tight.

2.2 Inspection Requirement

At every service interval:

- Inspect housing interior and exterior.
- Check for:
 - Corrosion
 - Erosion
 - Pitting
 - Cracks
 - Thread damage
- Remove housing from service if deterioration is observed.

Note: No corrosion allowance is built into the design.

2.3 Application Responsibility

The user is solely responsible for ensuring:

- Compatibility of housing material, gasket, and filter element with process media.
- Proper system design.
- Correct product selection.
- Safe operating conditions.

Not recommended for unstable or decomposing fluids.

3. DESIGN LIMITATIONS

The following conditions are NOT included in housing design:

- Static pressure and weight of contents
- Wind loading
- Seismic loading
- Traffic loading
- Reaction forces from improper mounting
- Decomposition of unstable fluids
- External fire conditions

Proper engineering evaluation is required for these conditions.

4. INSTALLATION

4.1 General Installation Requirements

- Install in a vibration-free system.
- Use mounting brackets to prevent piping stress.
- Do NOT interchange heads and bowls from different assemblies.
- Ensure all threaded connections are leak-tight.

4.2 Thread Sealant

Use compatible pipe sealant such as:

- PTFE tape
- PTFE paste
- Approved thread compound

Sealant must be compatible with filtered media.

4.3 Fitting Torque

Typical fitting torque range:

- 30–55 ft-lb

Actual torque depends on:

- Fitting material
- Thread quality
- Sealant type

Inspect fittings during servicing and re-tighten if required.

5. FLOW CONFIGURATION

5.1 Particulate Service (Gas or Liquid)

Flow Direction: Outside → Inside

Port 1 = Inlet

Port 2 = Outlet

5.2 Coalescing Service (Liquid Removal from Gas)

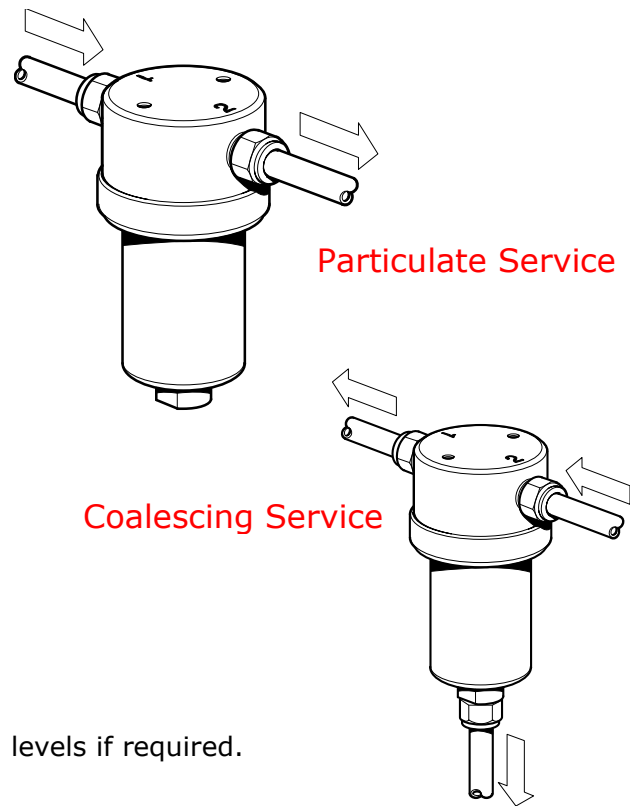
Flow Direction: Inside → Outside

Port 2 = Inlet

Port 1 = Outlet

Coalesced liquids collect in bowl and must be drained via:

- Manual drain
- Automatic drain



6.0 FILTER ELEMENT REPLACEMENT

6.1 Safety Precautions

WARNING – PRESSURE VESSEL

Before servicing:

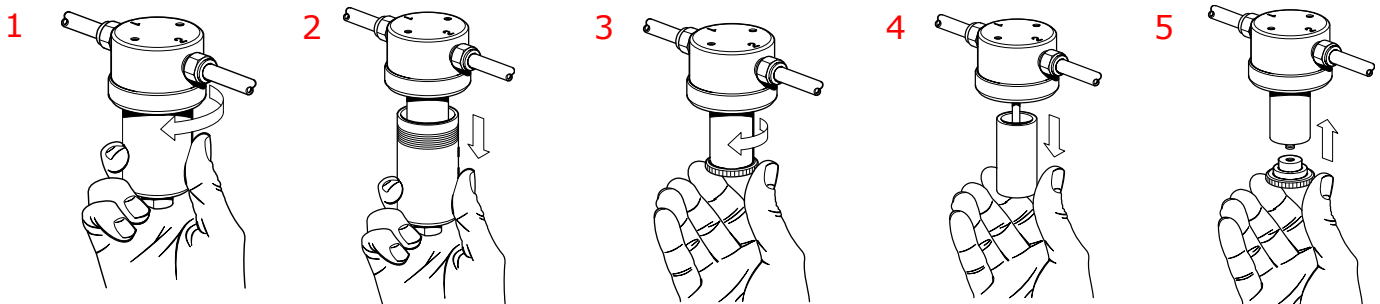
1. Shut off line pressure.
2. Vent and confirm ZERO pressure in the housing.
3. Allow system temperature to return to safe handling levels if required.

Failure to fully depressurize may result in serious injury.

6.2 Removal Procedure

1. Confirm housing is fully depressurized.
2. Remove housing bowl.
3. Remove element retainer.
4. Remove filter element.
5. Inspect:
 - Housing interior
 - Threads
 - Sealing surfaces
 - Guides
 - Gaskets (if applicable)

Remove housing from service if corrosion, erosion, or damage is observed.



6.3 Element Sealing Types

6.3.1 Disposable & Sintered PTFE Elements

- Sealed by compression against a flat surface.
- No gasket required between element and housing components.

6.3.2 Stainless Steel Elements

- Utilize a gasket at each end.
- Element is positioned by internal guides matching the inside diameter of the tube.
- Sealed by tightening a threaded element retainer.

6.4 Retainer Tightening Procedure

1. Install new element into housing.
2. Thread retainer until it first contacts the element.
3. Tighten an additional **¼ to 1 full turn**.
 - Exact amount depends on housing type and element size.
4. Use alignment mark on retainer as visual guide.

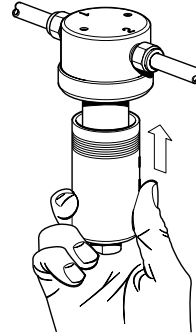
Do not overtighten.

6.5 Bowl Reinstallation

Before reinstalling bowl:

- Ensure threads are clean.
- Ensure sealing surfaces are clean and undamaged.
- Apply a light coating of silicone grease to:
 - Threads
 - Sealing faces

We use SuperLube Multi-Purpose Synthetic Grease



Stainless Steel Housings with Solid PTFE Bowl Gasket

Tightening torque:

22–30 ft-lb

7.0 FILTER CONFIGURATION – INSTRUMENT AIR SERVICE

Grade 70C / 70CS elements are pneumatic-grade coalescing filters for instrument air applications.

Recommended configuration:

1. Grade 70C / 70CS (Prefilter)
2. Grade 50C / 50CS (Final Filter)

Flow Direction:

Inside → Outside for both housings

8.0 DISPOSABLE MICROFIBER ELEMENTS

Disposable microfiber elements are intended for:

- Final point-of-use filtration
- Polishing filtration

Important:

- Must be protected by an upstream pre-filter.
- Not designed for continuous bulk contaminant removal.
- Require continuous monitoring.
- Cannot be backflushed or cleaned.

9.0 SERVICE INTERVALS

9.1 Differential Pressure Guidelines

- Initial dry pressure drop: < 2 PSI
- Replace element at: **8-14 PSI differential pressure** depending on DPI / VDI.

Pressure drop increases gradually as solids are captured throughout the depth of the element.

Coalescing elements:

- Cannot be backflushed.
- Cannot be cleaned in solution.

Timely element replacement is required to maintain efficiency and system protection.

9.2 Restart Procedure After Element Change

Before restoring pressure:

- Verify all port connections are secure.
- Confirm drain plug is properly installed.
- Confirm housing bowl is fully tightened.
- Ensure all connections are LEAK-TIGHT

The user is solely responsible for product selection and safety compliance.

9.3 Gasket Replacement

Gaskets must be replaced at suitable intervals.

The interval time will depend on service and operating conditions.

10.0 FILTER ELEMENT MONITORING

Filter elements must be regularly monitored to:

- Ensure proper filtration efficiency
- Prevent system upset
- Avoid element breakthrough

If continual failure or contamination breakthrough occurs:

- The element selection may be incorrect.
- The housing configuration may be incorrect.
- Immediate corrective action is required.

11.0 RECOMMENDED LUBRICANTS

Proper lubrication ensures sealing integrity and prevents thread damage.

Standard Applications

Super Lube with PTFE

- Temperature range: -45°F to +450°F

Heavy Load / Thread Wear Applications

Fuchs Renolit ST-80 (White Lithium Grease)

- Temperature range: -10°F to +300°F

Critical Analytical Applications

Krytox GPL-220 Series

- Temperature range: -76°F to +310°F
- Non-outgassing
- Suitable for high-purity systems

High-Temperature / Heatable Housings

Krytox XHT-AC

- Temperature range: 400°F to 572°F

Lubricant must be compatible with process media and operating temperature.

12.0 DIFFERENTIAL PRESSURE INDICATORS (DPI)

Two DPI options are available:

12.1 Differential Pressure Indicator (C-DPB360 Kit)

- Activation range: 0-8 PSIG differential
- Change Element @ 8 PSID

12.2 Visual Differential Indicator (380VDI-750)

Color-coded gauge:

- Green: 0-5 PSIG
- Yellow: 5-10 PSIG
- Red: Up to 14 PSIG
- Change Element @ 14 PSID

Provides visual indication of element replacement requirement.

13. SPECIAL HOUSING TYPES

13.1 Plastic 700 Series

Constructed of engineered plastics (nylon, polypropylene, polycarbonate, Kynar).

Precautions:

- Do not overtighten fittings.
- Avoid metal fittings where possible.
- Do not use if threads strip or deform.

13.2 Fast Loop Housings

- Mount vertically.
- Removable cap positioned on top.
- Ensure zero pressure before servicing.
- No specific torque value for cap.

13.3 Onstream Liquid Housings

- Install vertically.
- Turn off liquid supply before servicing.
- Top nut torque: 30 ft-lb.

13.4 Heatable Housings

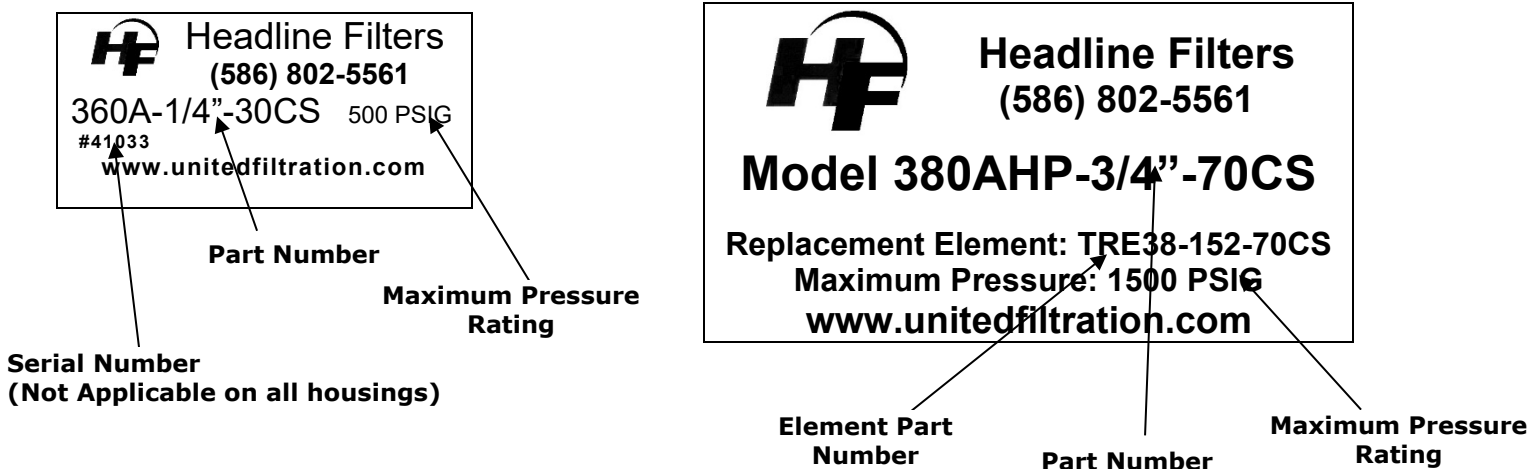
- Disconnect power before servicing.
- Allow housing to cool to room temperature.
- O-ring life reduced due to elevated temperatures.
- Clean and re-lubricate O-ring at each service.
- Use appropriate high-temperature lubricants.

13.5 Membrane Separators

- Hand tighten cap until seated.
- Cap torque: 30 ft-lb.
- Fitting torque: 30–55 ft-lb.
- Do not swap caps and bodies.

For more technical information on Membrane Separators: <http://unitedfiltration.com/wp-content/uploads/Technical-Installation-Sheet-for-Membrane-Housings.pdf>

14. Explanation of Housing Labels



15. OPERATION

15.1 Initial Startup

1. Confirm all connections are tight.
2. Confirm bowl and drain are secure.
3. Slowly introduce system pressure.
4. Check for leaks.
5. Verify correct flow direction.

15.2 Pressure Drop Monitoring

- Initial dry differential pressure: < 2 PSI
- Replace element at 10 PSI differential pressure.

Optional differential pressure indicators may be installed for monitoring.

16. FILTER ELEMENTS

16.1 Disposable Microfiber Elements

- Intended for final or polishing filtration.
- Must be protected by pre-filter.
- Not designed for bulk contaminant removal.
- Cannot be cleaned or backflushed.
- Must be replaced when differential pressure limit is reached.

16.2 Stainless Steel Elements

- Sealed with gaskets at each end.
- Ensure proper alignment before tightening retainer.

16.3 PTFE & Sintered Elements

- Sealed by compression.
- No gasket required between element and housing.

17. ELEMENT REPLACEMENT PROCEDURE

WARNING: Ensure zero pressure before servicing.

1. Shut off line pressure.
2. Vent housing completely.
3. Remove bowl.
4. Remove element retainer.
5. Remove filter element.
6. Inspect housing surfaces.
7. Install new element.
8. Tighten element retainer $\frac{1}{4}$ to 1 turn after contact.
9. Clean and lubricate threads.
10. Reinstall bowl.

Stainless steel bowl torque with PTFE gasket:

- 22–30 ft-lb

Before re-pressurizing:

- Verify all ports are secure.
- Ensure drain is closed.
- Confirm leak-tight assembly.

18. MAINTENANCE

18.1 Service Intervals

- Replace elements at 8-14 PSI differential.
- The interval time will depend on service and operating conditions

Inspect fittings and seals during each service.

18.2 Lubrication

Recommended lubricants:

- PTFE-based general lubricant for standard applications
- Lithium grease for heavy thread loads
- Krytox for analytical or high-temperature applications

Lubricant selection must match operating temperature and media compatibility.

19. WARRANTY SUMMARY

Headline Filters Ltd. provides a one-year limited warranty covering:

- Conformance to purchase order
- Material and workmanship defects
- Clear title

Warranty does not cover:

- Improper installation
- Abuse or misuse
- Pressure spikes
- Unauthorized repair or alteration
- Normal wear
- O-rings or element life

Exclusive remedy is repair, replacement, or credit at manufacturer's discretion.

No liability for incidental or consequential damages.

20. DISCLAIMER

Except for expressly stated warranties:

No implied warranties apply, including:

- Merchantability
- Fitness for a particular purpose
- Non-infringement