



# Technical Installation Sheet

## Installation, Operation & Maintenance Manual Push-In Cartridges

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### TABLE OF CONTENTS

1. General Information
2. Safety Information
3. Design Limitations
4. Installation
5. Flow Configuration
6. Filter Element Replacement
7. Restart Procedure After Element Change
8. Gasket Replacement
9. Filter Element Monitoring
10. Recommended Lubricants
11. Operation
12. Filter Elements
13. Element Replacement Procedure
14. Maintenance
15. Warranty Summary
16. Disclaimer

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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)

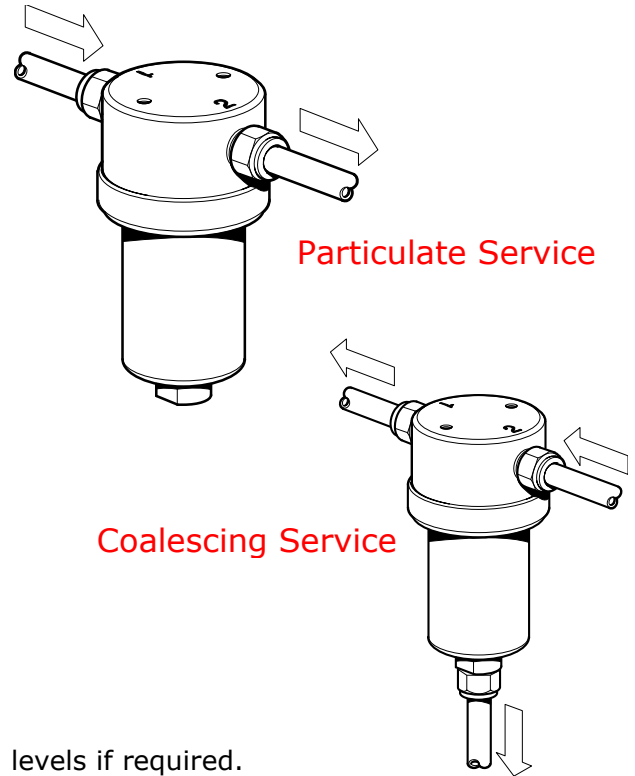
Flow Direction: Inside → Outside

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 and Replacement Procedure

1. Ensure the housing is **fully depressurized**.
2. Remove the bowl by turning **clockwise**.
3. Keep the bowl clean for reinstallation.
4. Remove the **spring-loaded element** by pulling straight downward using both hands.
5. Inspect the housing head and remove any debris.
6. Lubricate the **two O-rings** on the replacement element.
7. Insert the cartridge into the head until it **stops on the end cap lip**.
8. Reinstall the bowl and tighten clockwise until **no gap remains** between head and bowl.
9. Ensure bowl threads are **clean and lubricated**.
10. A **strap wrench** may be used for final tightening to seal the O-ring.



## 7.0 RESTART PROCEDURE AFTER ELEMENT CHANGE

Before restoring pressure:

- Verify all port connections are secure.
- Confirm the **drain plug is installed**.
- Ensure the housing bowl is **fully tightened**.
- Confirm all connections are **leak-tight**.

Slowly reintroduce system pressure and inspect for leaks.

## 8.0 GASKET REPLACEMENT

Gaskets must be replaced periodically.

Replacement intervals depend on:

- Operating conditions
- Service environment
- Media compatibility

## 9.0 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.

## 10.0 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.

## 11. OPERATION

### 11.1 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.

### 11.2 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.

## 12. FILTER ELEMENTS

### 12.1 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.

### 12.2 Stainless Steel Elements

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

## 12.3 PTFE & Sintered Elements 9.1 Restart Procedure After Element Change

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

## 13. ELEMENT REPLACEMENT PROCEDURE

**WARNING: Ensure zero pressure before servicing.**

1. Shut off line pressure.
2. Vent housing completely.
3. Remove bowl.
4. Remove filter element.
5. Inspect housing surfaces.
6. Install new element.
7. Clean and lubricate threads.
8. 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.

## 14. MAINTENANCE

### 14.1 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.

### 14.2 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.

## 15. 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.

## 16. DISCLAIMER

Except for expressly stated warranties:

No implied warranties apply, including:

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