

MPPT Filter Cartridges

■ MPPT Membrane

Mem-Pure Membrane Series

Maximized Flow Rate With Next Generation All Fluoropolymer Membrane Filter Cartridges

A unique MPPT membrane provides superior flow rate, surface area and efficiency maximizing the performance of all fluoropolymer Mem-Pure Extended Area membrane filter cartridge. The Mem-Pure Series of filter cartridges meets or exceeds the requirements for the filtration of UHP liquids used in the fabrication of state-of-the-art microelectronic devices.

The Mem-Pure Extended Area Membrane Series is available in 0.05µm, 0.1µm, 0.2µm, 0.45µm and 1µm pore sizes.

Applications

UHP Water

- Ozonated
- Cold
- Hot

UHP Chemicals

- Acids
- Solvents
- Photoresists
- Alkalines
- Developers

- Mixed Acids

- Strippers

Equipment

- Point-of-Use Tools
- Chemical Delivery System
- Cleaning
- Etching
- Photolithography
- Wet Benches



Features and Benefits

Superior MPAP Fluoropolymer Membrane Yields Maximum Filtration Results

- Highest flow rate cartridge available for smallest footprint requirement.
- Rinsed to 18 megohm-cm resistivity with pulsed, ozonated, UHP water.
- Unique PTFE membrane ensures high flow rates and superior retention.
- Available prewetted for immediate use in process.
- Extended Area cartridges are non-fiber releasing and superior in extractable levels.
- Engineered for high temperature resistance.

Clark-Reliance Filtration Group Assures Consistent Performance and Reliable Filtration

- Strict quality control measures include rigorous testing for rinse up, shedding, flow rate and extractable levels.
- Integrity-tested and testable *in situ*.
- Thermally welded, eliminating adhesive extractables.
- Biosafe in accordance with USP Class VI-121°C Plastics Tests.
- Specifically designed to ensure cleanliness.
- All materials of construction are FDA listed as acceptable for potable and edible liquid contact according to CFR Title 21.



WARNING! FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.
This document and other information from Clark-Reliance Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection for the products and systems and assuring that all performance, safety and warning requirements of the application are met.

Mem-Pure Membrane Series

Specifications

Materials of Construction:

- Membrane: hydrophobic PTFE
- Membrane Support/Drainage: PFA
- Core, Sleeve, Adaptors: PFA/PTFE alloy
- End Caps: PFA
- Seal Material: various
- Sealing Method: thermal welding

Dimensions:

- Outside Diameter: 3.25 in (82.6 mm)
- Inside Diameter: 1.125 in (29 mm)
- Lengths: 4-30 in (10-76 cm)

Surface Area (10 in cartridge):

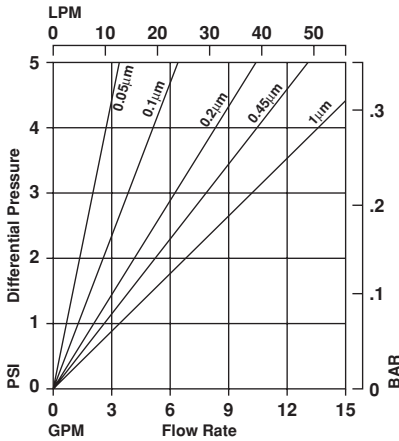
- Minimum 10.5 ft² (0.9 m²)

Integrity Test:

- Bubble Point (Using N₂ and a membrane wet with 100% IPA at 73°F [23°C]):
 - 0.05µm: ≥ 50 psi (3.4 bar)
 - 0.1µm: ≥ 24 psi (1.7 bar)
 - 0.2µm: ≥ 16 psi (1.1 bar)
 - 0.45µm: ≥ 6 psi (0.4 bar)
 - 1µm: ≥ 3 psi (0.2 bar)

PTFE Cartridges (4 in):

Flow rate vs. ΔP for a 1 cps liquid @ 73°F (23°C)**



Recommended Operating Conditions:

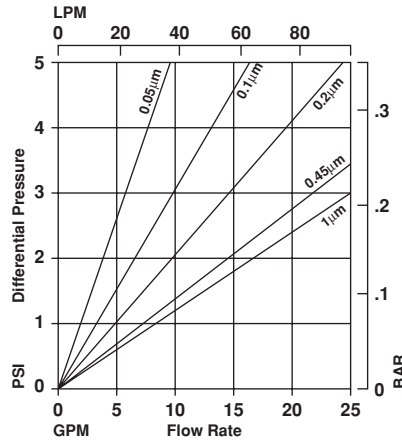
- Maximum Temperature: 375°F (191°C) at 20 ΔP (1.4 bar)
- Maximum Differential Pressure:
 - Forward: 70 psi (4.8 bar) at 77°F (25°C)
 - 30 psi (2.1 bar) at 315°F (157°C)
 - Reverse: 50 psi (3.4 bar) at 77°C (25°C)

Quality Standard

- Each cartridge is flushed with pulsed UHP ozonated water and monitored downstream for TOC and particle count.
- The release criteria are no TOC contribution (ppb) and less than 4 particles/ml at the rating or greater for 15 minutes.
- Each lot of cartridges is evaluated for metallic ion contribution in 10% HNO₃ after a 24-hour static soak.
- Total metals contribution cannot exceed 25 ppb.

PTFE Cartridges (10 in):

Flow rate vs. ΔP for a 1 cps liquid @ 73°F (23°C)**



Flow Advantages

- MPPT cartridges offer 30% greater flow rate while decreasing processing time and increasing recirculation, fluid cleanliness, yields and capacity.
- Maintaining the current flow rate while lowering the differential pressure allows MPPT cartridges to achieve longer life and lower particle counts.
- Maintaining the current flow rate and differential pressure with MPPT cartridges allows the use of smaller filter housings with smaller footprint.
- Maintaining the current flow rate and differential pressure with lower micron-rated MPPT cartridges improves yields and provides cleaner fluids.

Flow Factors (4 in cartridge):

| Pore Size (µm) | GPM/ 1 PSID | LPM/ 1 Bar | PSID/ 1 GPM | Bar/ 1 LPM |
|----------------|-------------|------------|-------------|------------|
| 0.05 | 0.8 | 44 | 1.3 | 0.024 |
| 0.1 | 1.3 | 71 | 0.8 | 0.015 |
| 0.2 | 2.0 | 110 | 0.5 | 0.009 |
| 0.45 | 2.8 | 153 | 0.4 | 0.007 |
| 1 | 3.3 | 181 | 0.3 | 0.005 |

Flow Factors (10 in cartridge):

| Pore Size (µm) | GPM/ 1 PSID | LPM/ 1 Bar | PSID/ 1 GPM | Bar/ 1 LPM |
|----------------|-------------|------------|-------------|------------|
| 0.05 | 2.0 | 110 | 0.50 | 0.009 |
| 0.1 | 3.3 | 181 | 0.30 | 0.005 |
| 0.2 | 5.0 | 274 | 0.20 | 0.004 |
| 0.45 | 7.1 | 389 | 0.14 | 0.003 |
| 1 | 8.3 | 455 | 0.12 | 0.003 |

Ordering Information

| MPPT | F | 10 | T | TC | W |
|----------------|-------------|----------|---------------------------------------|-----------------------|---------------------------------------|
| Cartridge Code | Pore Size | Length | Seal Material | End Cap Configuration | Special Preparation |
| MPAP-3.5" | D = 0.05 µm | 02 = 2" | D = CR 570 | BC = 015 O-Ring/Flat | W = Prewetted with ozonated UHP water |
| MPPT-2.5" | S = 0.1 µm | 04 = 4" | E = EPR | DC = 116 O-Ring/Flat | |
| Membrane | F = 0.2 µm | 10 = 10" | K = KR 4079 | HH = DOE gaskets | |
| PFA | R = 0.45 µm | 20 = 20" | T = PFA/Viton O-Ring or PTFE (gasket) | SC = 226 O-Ring/Flat | |
| Support | Q = 1.0 µm | 30 = 30" | V = Viton | TC = 222 O-Ring/Flat | |
| | | | X = No O-Ring | | |

* A trademark of E. I. duPont de Nemours & Co.

** Consult factory for gas flow data.

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