

# MPPT Filter Cartridges

■ PTFE Membrane

**Mem-Pure Membrane Series**

## Increased Flow Rate With Next Generation, All Fluoropolymer Membrane Filter Cartridges

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

The Mem-Pure 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
- Alkalies
- Developers

- Mixed Acids
- Strippers

#### Equipment

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



### Features and Benefits

#### Superior MPPT Fluoropolymer Membrane Yields Maximum Filtration Results

- Unique fluoropolymer membrane ensures high flow rates and superior retention.
- Rinsed to 18 megohm-cm resistivity with pulsed, ozonated, UHP water.
- Available prewetted for immediate use in process.
- Mem-Pure 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
- Structural Components: PFA
- Seal Material: various
- Sealing Method: thermal welding

### Dimensions:

- Outside Diameter: 2.5 in (63.5 mm)
- Inside Diameter: 0.825 in (22.2 mm)
- Lengths: 2-30 in (10-76 cm)

### Surface Area (10 in cartridge):

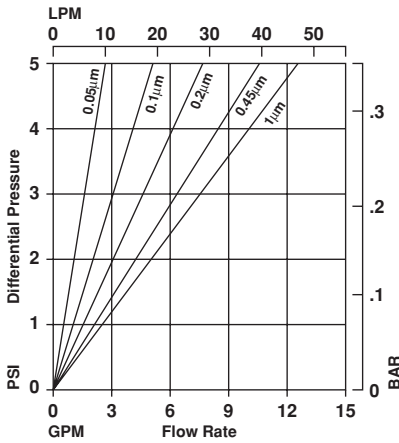
- Minimum 6.5 ft<sup>2</sup> (0.9 m<sup>2</sup>)

### Integrity Test:

- Bubble Point (Using N<sub>2</sub> 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)

### Fluoropolymer Cartridges (4 in):

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



### Recommended Operating Conditions:

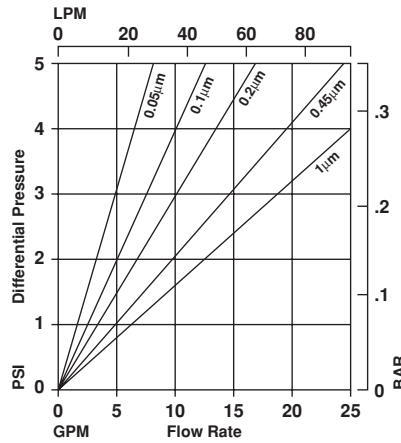
- Maximum Temperature: 302°F (150°C) at 20 ΔP (1.4 bar)
- Maximum Differential Pressure:
  - Forward: 70 psi (4.8 bar) at 77°F (25°C)
  - 30 psi (2.1 bar) at 315°F (157°C)
  - Reverse: 50 psi (3.4 bar) at 77°C (25°C)

### 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% HNO<sub>3</sub> after a 24-hour static soak.
- Total metals contribution cannot exceed 25 ppb.

### Fluoropolymer Cartridges (10 in):

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



## Flow Advantages

- MPPT cartridges offer 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	0.6	33	1.7	0.031
0.1	1.0	55	1.0	0.018
0.2	1.5	82	0.7	0.013
0.45	2.0	110	0.5	0.009
1	2.4	132	0.4	0.007

### Flow Factors (10 in cartridge):

Pore Size (µm)	GPM/1 PSID	LPM/1 Bar	PSID/1 GPM	Bar/1 LPM
0.05	1.5	82	0.67	0.012
0.1	2.5	137	0.40	0.007
0.2	3.5	192	0.30	0.005
0.45	5.0	274	0.20	0.004
1	6.0	329	0.17	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.

200 Williams Drive  
Zelienople, PA 16063  
Toll Free 1-800-544-9262  
Telephone 1-724-452-6015  
Fax 1-724-452-4521  
www.clarkreliance.com

