Industrial filtration

LifeASSURE EMZ filter cartridges

Thermo Scientific™ LifeASSURE™ EMZ Filter Cartridges are high efficiency, naturally hydrophilic, charge modified, nylon membrane filters designed to meet the exacting requirements of Ultra Pure Water (UPW), critical parts cleaning, and chemical applications. Utilizing multi-zone membrane and Advanced Pleat Technology (APT), LifeASSURE EMZ filter cartridges provide superior flow characteristics with minimal pressure drop.



Multi-zone membrane technology

LifeASSURE EMZ filter cartridges utilize Thermo Fisher Scientific's multi-zone membrane technology to maximize contaminant holding capacity while maintaining high particle reduction efficiency. The membrane features a more open, larger pore upstream zone and a tighter downstream zone. The higher porosity upstream layer provides effective pre-filtration of larger particles, delivering higher contaminant holding capacity and longer service life compared to single zone membranes. The lower porosity downstream layer ensures a sharp retention cut-off at the rated pore size. As shown in the SEM image (Figure 1), the multi-zone structure increases internal surface area, reduces pressure drop, and extends filter life thereby eliminating the need for double-layer membrane construction.

Features and benefits

Charge modified nylon membrane

- Mechanical and electro-kinetic contaminant reduction delivers extremely low particle counts

High flow rates - low pressure drops

- New water systems can be optimized, decreasing capital costs; existing systems can deliver desired flows at lower pressure drops, resulting in lower cost of ownership

Increased membrane area

- Maximize contaminant holding capacity

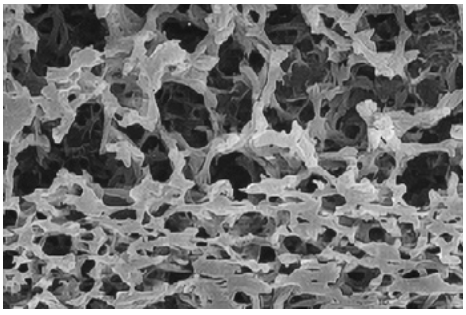
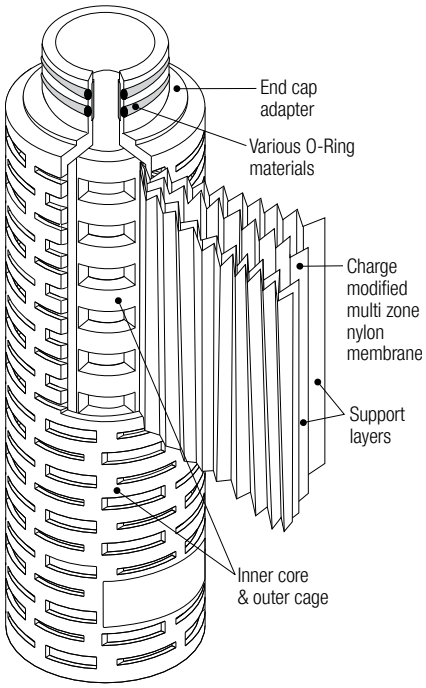


Figure 1. SEM showing the multi-zone structure

LifeASSURE EMZ filter cartridge construction

LifeASSURE EMZ filter cartridges are constructed of high efficiency, naturally hydrophilic, single layer multi-zone charge modified nylon membrane. The cage, core, end caps, adapters, and membrane supports are made of polypropylene. No adhesives, binders, or surfactants are used in the manufacturing process. Filter cartridges are manufactured, rinsed with 18 Megohm-cm DI water, dried and bagged in a clean environment under an ISO certified quality system.



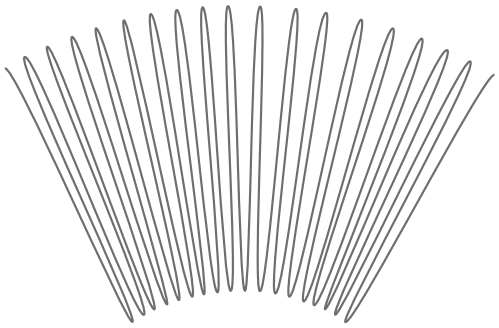


Figure 2. Conventional pleat design

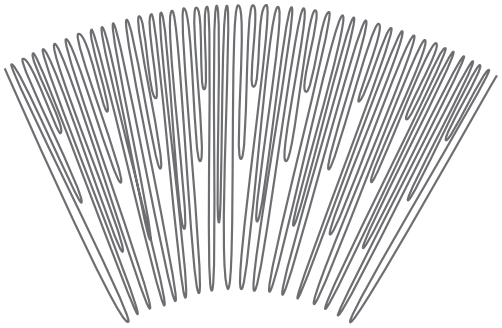


Figure 3. Advanced Pleat Technology

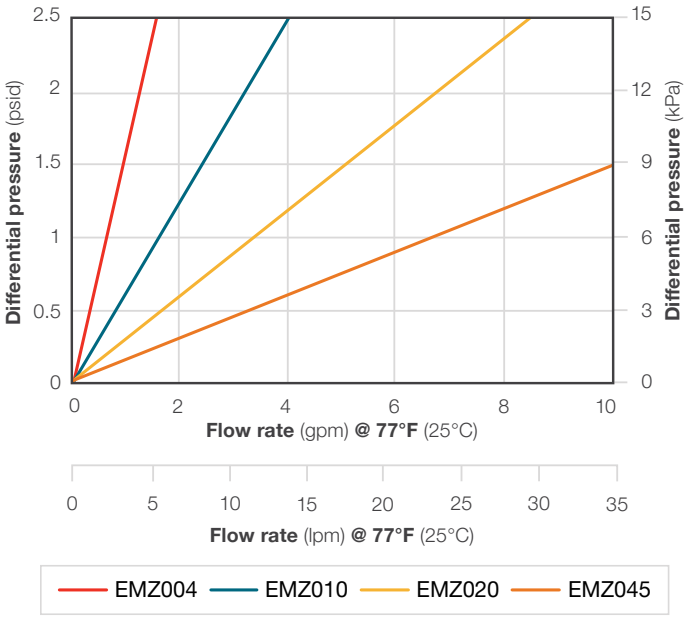


Figure 4. LifeASSURE EMZ 10-inch filter cartridge typical water flow rates

Cartridge components	
Membrane	Multi-zone naturally hydrophilic charge modified nylon
Cage, core, end-caps, and media support layers	Polypropylene
Cartridge dimensions	
Filtration surface area	11 ft² (1 m²)
Nominal outside diameter	2.75 in (7 cm) nominal
Nominal length	10 in (25.4 cm), 20 in (50.8 cm), 30 in (76.2 cm), 40 in (101.6 cm)
Operating parameters	
Maximum operation temperature	176°F (80°C) for 30 minutes
Maximum differential pressure	80 psid @ 77°F (550 kPa @ 25°C); 35 psid @ 176°F (240 kPa @ 80°C)
Reduction ratings (absolute)	0.04 µm, 0.1 µm, 0.2 µm, 0.45 µm
Integrity test values — maximum air diffusion	
0.04 µm	23 cc/min @ 40 psi (270 kPa)
0.1 µm	33 cc/min @ 19 psi (130 kPa)
0.2 µm	30 cc/min @ 12 psi (83 kPa)
0.45 µm	15 cc/min @ 6 psi (41 kPa)

LifeASSURE EMZ filter cartridges ordering guide

Cartridge type	Grade code	Grade rating (µm)	Configuration	Length (inches)	End modification	Gasket/O-ring material
EMZ	004 010 020 045	0.04 0.10 0.20 0.45	F	01 / 10 in 02 / 20 in 03 / 30 in 04 / 40 in	B - 226 O-ring and spear C - 222 O-ring and spear D - Double open end (10-inch or 20-inch length) E - Double open end (9.7-inch, 19.5-inch or 29.2-inch length) F - 222 O-ring and flat cap	A - Silicone B - Fluorocarbon C - EPR H - High purity clear silicone K - PTFE* N - Double open end without gasket

*Available with B, C and F end modifications only.
Please consult with your Thermo Fisher Scientific representative to determine the appropriate part number for your application.

Intend Use: LifeASSURE EMZ filter cartridge products are intended for use in industrial, chemical and electronics filtration applications of aqueous and non-aqueous fluids in accordance with the product instructions, specifications and where materials of construction are compatible.

Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the Thermo Scientific product is suitable and appropriate for the user's specific application, including user risk assessments and evaluation of the Thermo Scientific product in the user's application.

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LifeASSURE EMZ filter cartridges products are not for use in food contact applications.

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