

## FHPES High-Flow Capacity PES Pleated Filter Cartridge



The FHPES pleated filter cartridge is manufactured from hydrophilic Polyethersulfone (PES) membrane material. The membrane features a gradient pore structure (loose outer layer, tight inner layer) or a loose-tight-loose three-layer configuration, maintaining high filtration efficiency (0.1–1.2  $\mu\text{m}$  rating, retention rate  $\geq 99.99\%$ ) while extending service life to 12–24 months through low adsorption characteristics (protein adsorption  $< 5 \mu\text{g}/\text{cm}^2$ ) and anti-fouling design. With excellent chemical resistance (pH 1–13), it is suitable for strong acids, alkalis, oxidizing liquids, and terminal sterile filtration of ultrapure water. The pleated design maintains an initial pressure drop below 0.1 MPa, reducing system energy consumption by 30%. Combined with the integrated pre-filtration and final filtration design, the overall filtration cost is reduced by 40%.

### Product Features

- ❖ High Porosity Network Structure: The membrane features a network-like internal structure with high porosity.
- ❖ High Filtration Precision: The pore size distribution is essentially normal and uniform, ensuring consistent filtration performance.
- ❖ High Flux, High Strength & High Flow Rate: Delivers high throughput with robust mechanical strength.
- ❖ Low Extractables & Low Protein Adsorption: Minimizes product loss and prevents contamination.
- ❖ Thin Membrane with Low Adsorption: Reduces fouling and extends service life.
- ❖ No Media Shedding: Prevents secondary contamination of the filtrate.
- ❖ Excellent Thermal & Chemical Resistance: Withstands high temperatures and a wide range of acids and alkalis.

### Product Parameters

| Parameters                                  | Specification |          |          |
|---------------------------------------------|---------------|----------|----------|
| Length(inch/mm)                             | 20(508)       | 40(1016) | 60(1524) |
| Filtrating Area ( $\text{m}^2$ )            | 3.3           | 6.5      | 8.5      |
| Design Flow Rate ( $\text{m}^3/\text{h}$ )  | 15            | 30       | 45       |
| Maximum Flow Rate ( $\text{m}^3/\text{h}$ ) | 40            | 80       | 110      |
| Design                                      | Pleated       |          |          |

|                                         |                                    |
|-----------------------------------------|------------------------------------|
| Connection                              | Type M、P、K, etc.                   |
| Filtration Accuracy (μm)                | 0.05, 0.1, 0.22, 0.45, 1, 3, 5, 10 |
| Diameter (mm)                           | Outer Diameter: 157                |
| Maximum Operating Pressure (MPa)        | 0.38@20°C                          |
| Replacement Differential Pressure (MPa) | 0.15@20°C                          |
| Maximum Temperature (°C)                | 80                                 |

## Applications



Fine Chemicals



Equipment Manufacturing



Biomedicine



Food and Beverage



New Energy



Water Treatment

## Precautions

### Selection & Operation Guide

When selecting FHPES series pleated filter cartridges, consider the following:

#### Filtration Rating Selection

- ❖ Select from multi-level ratings of 0.1–1.2 μm based on application requirements.
- ❖ Pharmaceutical/Biotech: 0.22 μm or higher rating required (e.g., sterile filtration).
- ❖ Food & Beverage: 0.45 μm or coarser rating commonly used (e.g., clarification).
- ❖ Electronics Industry: 0.1 μm rating for high-purity water terminal filtration.

#### Differential Pressure Monitoring

- ❖ Normal operating differential pressure: ≤ 0.4 MPa (at 25°C).
- ❖ Replacement threshold: Replace when differential pressure reaches 0.4 MPa or when flow rate drops by 30%.

#### Cleaning & Maintenance

- ❖ Routine Cleaning: Backflush with high-purity water (pressure ≤ 0.2 MPa).
- ❖ Deep Cleaning: Soak in 4% hydrochloric acid or sodium hydroxide solution for up to 24 hours (remove O-rings before soaking).

#### Sterilization

- ❖ Steam Sterilization: 121°C for 30 minutes (for high-temperature version cartridges).
- ❖ In-Place Sterilization: Ensure a minimum clearance of 0.5 mm between the cartridge and the filter housing.



## Product Data Sheet-High-Flow Filter Cartridges

Core Filtration, Clear Solutions

- ❖ Note: Standard version cartridges are not compatible with high-temperature steam; chemical disinfection is recommended.

### Service Life Management

- ❖ Standard replacement cycle: 3 months or after 5,000 cumulative operating hours.

\*For specialized applications or customized solutions, please contact FFM Inc. directly.