LFX Series

LFX™ Series – Liquid Filtration Excellence Engineered for Results

LFX-CMB™ Melt-Blown Polypropylene Depth Filter Cartridges
Technical Overview

FiltraCore Asia's **LFX-CMB™ Melt-Blown Polypropylene Depth Filter Cartridges** use a randomly oriented microfibre web with a **graded porosity** from outer to inner layers. The fibre diameter distribution and lay-down density are tuned to create **progressive depth capture** and tortuous flow paths, so solids are distributed through the full media thickness rather than blinding the surface. The result is **stable, low differential pressure** at start-up and sustained **dirt-holding** over the service interval in water and common process fluids.

Available **surface finish options** include **coarse surface** (strong mechanical performance and high-pressure resistance), **smooth surface** (no fibre shedding, graded density pore structure), **deep groove** (larger filtration area for higher flow rates and dirt-holding capacity), and **minigroove** (tight fibre construction delivering maximum filtration efficiency).

The melt-blown matrix exhibits **controlled compressibility** under load; the graded density limits pore collapse and mitigates early breakthrough compared with single-density mats. Standard flow is **outside-to-inside** to maximise contaminant accommodation and protect downstream elements.

Mechanically and form-fit, LFX-CMB™ is an **all-polypropylene**, **thermally bonded, binder-free** construction with **2.5" OD** industry lengths and DOE/SOE options for positive engagement in sealed housings. Nominal ratings (1–150 µm, 0.5 µm on request) are referenced to single-pass particle removal tests (ISO 12103-1 dust), and operating limits are governed by the **lowest-rated component** (cartridge, elastomer, housing). For applications requiring **absolute cut-points or integrity testing**, select LFX-CPLEAT-PP™ (absolute pleated PP) or membrane cartridges (PES/NY/PTFE) as appropriate.

Depth Filtration. Progressive Capture. Low, Stable ΔP.

Technical Specifications

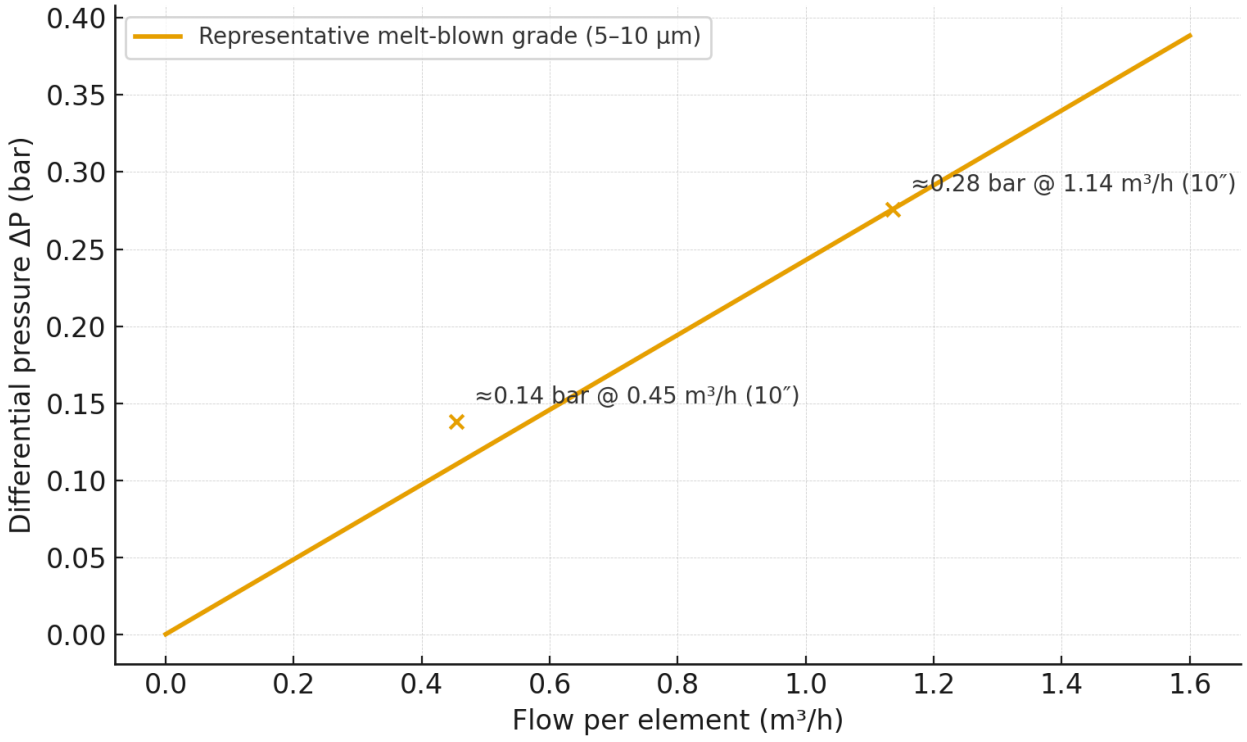
- **Media & construction:** Graded-density melt-blown polypropylene depth media; polypropylene core, cage/ends; thermally bonded, binder-free; flow outside-to-inside. Coreless versions available on request where housings support integral core support
- **Nominal retention ratings:** 1, 3, 5, 10, 20, 25, 30, 50, 75, 100, 120, 125, 150 µm (0.5 µm available on request for specialised polishing duties)
- **Lengths (industry-standard):** 4-7/8″, 5″, 9.75″, 10″, 19.5″, 20″, 29.25″, 30″, 40″ (124, 127, 248, 254, 495, 508, 743, 762, 1016 mm)
- **Outside / inside diameter:** OD 2.4–2.5″ (≈62–63 mm); ID ≈1.1″ (≈28 mm).
- **Dimensional tolerances (typical):** Length ±1% (or ±3 mm, whichever larger); OD ±1 mm; ID ±1 mm
- **End styles / seals: DOE** (double open end) standard; SOE 222/Flat, 222/Fin, 226/Flat, 226/Fin on request. Elastomers: EPDM (standard), Silicone, NBR (Buna-N), FKM (Viton®)
- **Operating temperature (PP builds):** Continuous service up to 80 °C; short excursions to ~90 °C depending on chemistry and elastomers. Always apply the lowest-rated component (cartridge, elastomer, housing)
  Maximum differential pressure (per element): Forward (outside→inside) 2.4 bar at 25 °C for continuous service; short, non-cyclic upsets up to 3.4 bar may be tolerated if the housing/elastomers are rated accordingly. Reverse ΔP not permitted for depth elements
- **Recommended change-out ΔP:** Typically 1.4 bar per element (clean-water reference) or per process criticality; alternatively, when ΔP rises ~0.2–0.3 bar above baseline
- **Pressure-drop sizing (clean water, 25 °C, per 10″ element):** ΔP ≈ m·Q, with ΔP in bar and Q in m³/h. Representative linear factors *m* by nominal grade (bar per m³/h): 0.5 µm ≈ 0.35 · 1 µm ≈ 0.17 · 3 µm ≈ 0.12 · 5 µm ≈ 0.09 · 10 µm ≈ 0.06 · 25 µm ≈ 0.045 · 50 µm ≈ 0.03 · 75 µm ≈ 0.025 · 100 µm ≈ 0.02 · 150 µm ≈ 0.016. For 20″/30″/40″ elements at the same per-element flow, per-element ΔP ≈ ½ / ⅓ / ¼ respectively. Add housing and piping losses to obtain total system ΔP. For fluids with viscosity ≠ water, scale ΔP approximately with viscosity (cP) at operating temperature
- **Definition of nominal rating / test method:** Nominal retention is defined by initial single-pass particle efficiency using ISO 12103-1 test dust (A2 Fine for ≤5 µm; A4 Coarse for ≥10 µm) in water at 20–25 °C. Curves are typical and not an absolute retention claim. *For integrity-testable or absolute retention, select LFX-CPLEAT-PP™ (absolute pleated PP) or membrane cartridges (PES/NY/PTFE)*
- **Chemical compatibility:** Broad compatibility in aqueous acids/alkalis and plant utility waters; avoid strong oxidisers and halogenated hydrocarbons unless specifically validated. Verify solvent exposure, temperature, and elastomer selection for non-aqueous service
- **Cleanliness / extractables:** Low extractables by design (all-PP, binder-free). Each element labelled with lot/traceability code

- **Compliance:** Food-contact compliant variants available (FDA 21 CFR; EU 1935/2004 & 10/2011) when specified. Manufactured under ISO 9001 quality systems

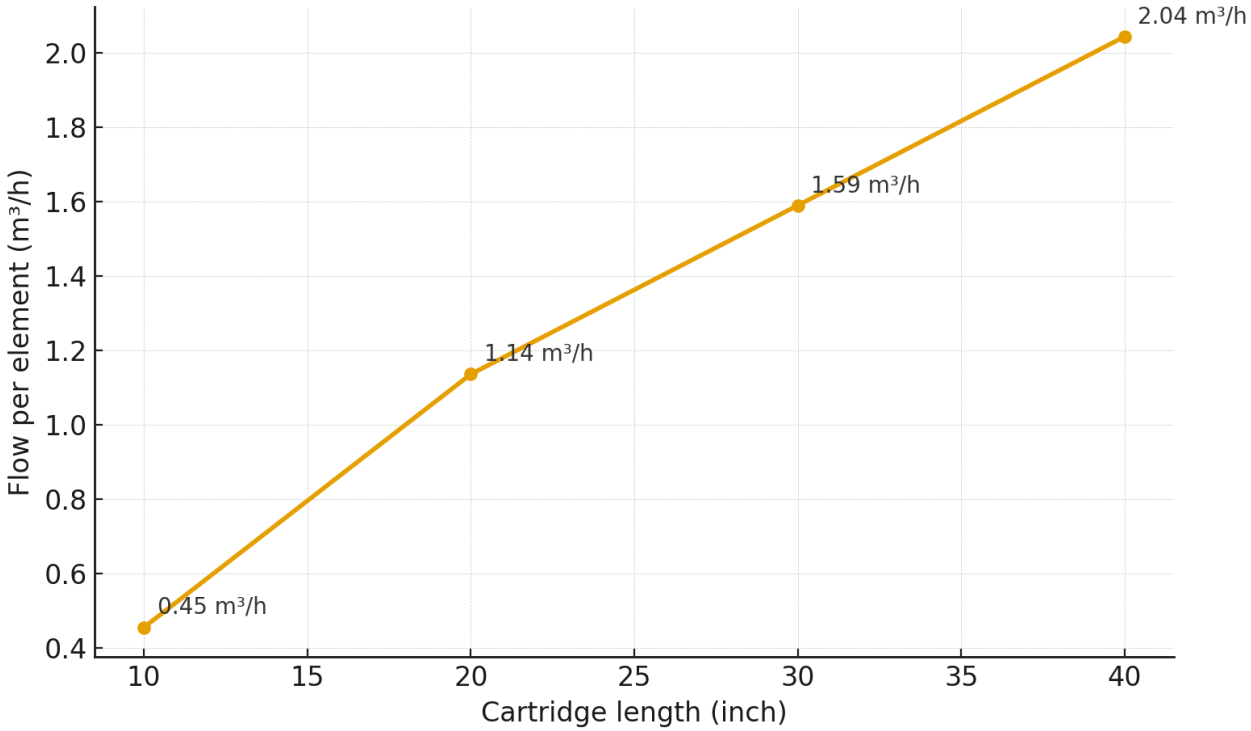
Service & Sizing Guidance – LFX-CMB™

- **Staging:** Use coarse → fine trains (e.g., 25 → 10 → 5 µm) to balance loading and protect downstream pleated elements and membranes
- **Viscosity correction:** Multiply clean-water ΔP by the fluid viscosity (cP) at operating temperature for first-order estimates; verify with field data on non-Newtonian or high-solids fluids
- **Change-out strategy:** Fix a ΔP set-point per duty (typ. 1.4 bar per element or earlier for critical equipment) rather than a fixed time interval to prevent breakthrough and minimise life-cycle cost
- **Housing alignment:** Observe the lowest rating among cartridge, elastomer, and housing; de-rate pressure and temperature at elevated conditions; include housing/piping losses in total ΔP

Clean-Water Differential Pressure vs Flow[1] – LFX-CMB™ (Single 10″ element, 25 °C)



Recommended Service Flow[2] per element @ ΔP ≈ 0.14 bar – LFX-CMB™ (Clean water, 25 °C)



[1] *Clean-water ΔP vs Flow — Values are typical for a single 10" element at 25 °C (water). Curve is a conservative laminar fit anchored to widely published melt-blown depth points. Actual ΔP varies with viscosity, temperature, solids loading, and housing/piping losses. For 20"/30"/40" at the same per-element flow, ΔP is approximately ½ / ⅓ / ¼. Do not exceed the lowest rating among cartridge, housing, and elastomers.*

[2] *Recommended Service Flow @ ~0.14 bar — Clean-water guidance per element at 25 °C for initial ΔP ≈ 0.14 bar. Use as a starting point for sizing; correct for viscosity and include housing/piping losses. Scale approximately 2×/3×/4× for 20"/30"/40" housings populated with one element per position.*

FILTRACORE ASIA
THE STANDARD IN FILTRATION
SINCE 1998
SINGAPORE | INDONESIA | JAPAN | SOUTH KOREA | DUBAI

■ sales@filtracoreasia.com ■ www.filtracoreasia.com ■ +65 89-**FILTER** (+65 89-345837)