



PF-BEV

Polyethersulphone Double Layer Cartridge Filters



PF-BEV

PF-BEV:

A range of microbially rated cartridge filters from Ultrafilter GmbH, featuring the latest developments in membrane technology, PF-BEV Serie cartridges are based on a naturally hydrophilic polyethersulphone (PES) membrane with a mirrored asymmetric pore structure. When combined with quality all-polypropylene cartridge components and high integrity manufacturing techniques common to all Ultrafilter cartridge filters, the polyethersulphone membrane provides a high strength, long life cartridge of consistently precise microbial retention.

PF-BEV Serie cartridges benefit from the low non-specific protein binding characteristics of polyethersulphone membranes. They are also highly resistant to integrity failure caused by steam sterilisation and have excellent chemical compatibility characteristics. Furthermore, since they will not hydrolyse.

As a consequence PF-BEV Serie cartridges provide a combination of features and benefits not hitherto available from cartridges based on PVDF, nylon, mixed esters of cellulose or polysulphone membranes.

They are suitable for applications ranging from sterile filtration, bioburden reduction and the clarification of a wide range of process liquids and end products.

CARTRIDGE CONSTRUCTION:

PF-BEV Serie cartridges are manufactured from a multi-layer combination of irrigation mesh, filter membrane, membrane support and drainage material. PF-BEV Serie cartridges have optimal pleat geometry to maximise the available filtration area and to ensure an efficient flow through the cartridges.

An all thermal fusion bonded assembly process eliminates the use of resins and binders.

Manufactured as standard with injection moulded polypropylene inner and outer supports, PF-BEV Serie cartridges are designed with the strength necessary to withstand thermal stresses encountered during steam sterilisation and subsequent cooling. They can be steam sterilised and will retain total integrity following steaming at 130°C (266°F).

All components used in the construction of PF-BEV Serie cartridges are FDA approved to 21CFR and meet or exceed the latest EC Directives for Food Contact.

APPLICATIONS:

PF-BEV Serie cartridges are suitable for the submicronic filtration of a wide range of process liquids, in applications where the characteristics of a naturally hydrophilic membrane are required. Typical applications include:

• BIOPHARMACEUTICALS

For the sub-micronic filtration of ingredients, intermediates, make-up waters and final products, including sterilisation, clarification and bioburden reduction.

• OPHTHALMIC SOLUTIONS

Shelf life assured through the low adsorption of preservatives, such as Benzalkonium Chloride (BAK).

• ELECTRONICS AND SEMICONDUCTORS

For the sub-micronic filtration of process water and chemicals, including solvents, developers and photoresists. Applications typically include central water plant treatment and critical 'wet bench' point of use filtration.

• PHOTORESISTS AND DEVELOPERS

The microfiltration of photoresists and developer solvents, susceptible to contamination and precipitation during manufacture, storage and processing.

• PURE WATER SUPPLY SYSTEMS

For use in de-mineralised and de-ionised water systems, for the supply of ultra-pure water, for example in the semiconductor industry.



Kronsbein ultrafilter®

Ultrafilter GmbH Headquarters

Otto-Hahn-Str. 1 • 40721 Hilden • Germany

Tel: +49 (0) 21 03.33 36 13 • Fax +49 (0) 21 03.33 36 36

e-Mail: info@ultra-filter.de • www.ultra-filter.de



PF-BEV

FEATURES AND BENEFITS:

- **PF-BEV SERIE CARTRIDGES**

Careful media selection means that PF-PES Serie cartridges are available to suit a wide range of process critical and general purpose applications.

- **GUARANTEED MICROBIAL RATINGS**

PF-BEV Serie cartridges are validated for bacterial removal according to HIMA guidelines and ASTM F838-05, with a log reduction value >7. They are therefore suitable for applications requiring sterilising grade filtration.

- **LOW PROTEIN BINDING**

PF-BEV Serie cartridges have excellent low protein binding characteristics, typically 10 times lower than nylon, 2 times lower than polysulphone and similar to PVDF.

- **WILL NOT HYDROLYSE**

Compared with other membranes such as nylon, the polyethersulphone membrane used in PF-BEV Serie cartridges is extremely resistant to hydrolysis. Capable of exposure in excess of 2 years, they are ideal for hot deionised water applications.

- **EXCELLENT CHEMICAL COMPATIBILITY**

Resistant to many process chemicals, PF-BEV Serie cartridges are suitable for use in a wide range of process applications.

- **CARTRIDGE INTEGRITY AND LOW TOC LEVELS**

Each PF-BEV Serie module of every cartridge is individually integrity tested. Each complete filter cartridge is flushed with pure water which is inspected daily for pyrogens using the standard LAL test. When required, they can be pulse flushed with 180 MΩ.cm pyrogen-free ultra-clean water.

- **SUITABLE FOR STEAM STERILISING**

PF-BEV Serie cartridges incorporating a stainless steel support ring can be subjected to steam sterilisation at 130°C (266°F) without loss of integrity.

- **FULL TRACEABILITY**

All PF-BEV Serie cartridges are individually and batch identified with a unique serial number. Each PF-BEV Serie cartridge is supplied with a Certificate of Quality and an operating instruction leaflet.

- **CONTROLLED MANUFACTURING ENVIRONMENT**

PF-BEV Serie cartridges are manufactured in an ISO Cleanroom environment by fully gowned staff, minimising the risk of contamination.

- **USP <87> CYTOTOXICITY**

PF-BEV Serie cartridges meet the requirement of USP <87> in vitro biological reactivity test.

- **USP <88> BIOLOGICAL REACTIVITY**

PF-BEV Serie cartridges meet the criteria of the USP <88> biological reactivity for CLASS VI-121 °C plastics.

OPERATING CONDITIONS

Maximum Operating Pressure	6.9 bar (100 psi) at 25 °C 4.0 bar (58 psi) at 60 °C 2.4 bar (35 psi) at 80 °C
Max. Differential Pressure	Forward: 6.9 bar (100 psi) at 25 °C 4.0 bar (58 psi) at 60 °C 2.4 bar (35 psi) at 80 °C Reverse: 3.0 bar (44 psi) at 25 °C 1.0 bar (15 psi) at 80 °C
Sterilization	Inline Steam Sterilization: 100 cycles for 30min. at 130 °C (< 0.3 bar, 5 psi). Autoclave: 200 cycles for 30min. at 130 °C. Hot water sanitization: 50 cycles for 30 minutes at 85 °C Chemistry sanitization: 50 cycles for 30 min. at 40 °C in a mix solution of sodium hypochlorite (NaClO, 100 ppm) and peroxyacetic acid (100 ppm).

Technical Data:

MATERIALS OF CONSTRUCTION

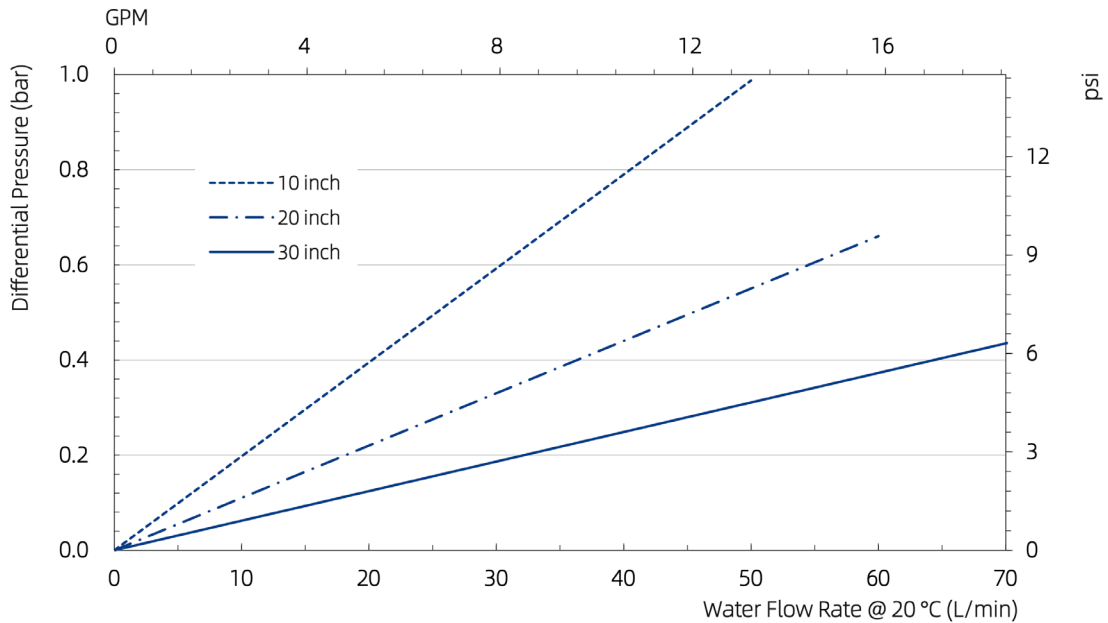
Filter Medium	PES Membrane
Cage Support	Polypropylene
Core Endcaps	Polypropylene



PF-BEV

Ultrafilter PF-BEV 0.2 + 0.1 µm

Water Flow Rate — PF-BEV 0.2 + 0.1 µm Cartridge Filter



CATALOGUE NUMBERS DESCRIPTION

PF-BEV-

	PORE SIZE	FILTER LENGTH	CARTRIDGE ADAPTER TYPE	SEAL MATERIAL	PHARMA GRADE
	2010 = 0.20+0.10 µm	5 = 5"	2 = Code 2	A = EPDM	-V
	2020 = 0.20+0.20 µm	1 = 10"	3 = Code 3	B = Silicone	
	4520 = 0.45+0.20 µm	2 = 20"	7 = Code 7	G = Fluoroelastomer	
	4545 = 0.45+0.45 µm	3 = 30"	8 = Code 8		
	6520 = 0.65+0.20 µm	4 = 40"	MF = DOE		
	6545 = 0.65+0.45 µm		UF = UF		

Example Part Number:	Filter-Type	Pore size	Filter Length	Connection Type	Sealing	Pharma Grade
	PF-BEV-	4545	3	7	-B	-V

Technical Alternations reserved



Kronsbein ultrafilter®

Ultrafilter GmbH Headquarters

Otto-Hahn-Str. 1 • 40721 Hilden • Germany

Tel: +49 (0) 21 03.33 36 13 • Fax +49 (0) 21 03.33 36 36

e-Mail: info@ultra-filter.de • www.ultra-filter.de

