BorsoPTFE

VAN BORSELEN FILTERS

ePTFE Membrane Cartridge Filters

BorsoPTFE cartridges are manufactured using a highly hydrophobic ePTFE membrane. The enhanced ePTFE membrane offers exceptionally high gas flow rates at low pressure differentials (see graph). BorsoPTFE cartridges are recommended for sterile gas filtration and venting applications. The hydrophobic characteristics of the ePTFE membrane makes the BorsoPTFE filter cartridge particularly suitable for wet gas sterilising applications, such as fermenter air feed.

For solvent and aggressive chemical filtration applications, BorsoPTFE cartridges offer a wide range of chemical compatibility with high thermal stability. Suitable for the most demanding microfiltration applications, the cartridges can be used for the filtration of aggressive chemical solutions including acids, alkalis, solvents and etchants.

Features and Benefits:

• BorsoPTFE cartridges
The ePTFE membrane is recognised as the world leading gas sterilising hydrophobic membrane. It is the membrane of choice in all Van Borselen BorsoPTFE filter cartridges.

• Guaranteed microbial ratings in a liquid challenge
BorsoPTFE cartridges are validated for bacterial removal in liquids in accordance with PDA, HIMA guidelines and ASTM F838-05, with a log reduction value >7. This test is stringent in comparison to an airborne particulate challenge test.

• Controlled manufacturing environment
BorsoPTFE cartridges are manufactured in an ISOCleanroom environment by fully gowned staff, minimising the risk of contamination.

• Full traceability
All BorsoPTFE cartridges are individually and batch identified with a unique serial number. Each BorsoPTFE cartridge is supplied with a Certificate of Quality and an operating instruction leaflet.

• Bacterial spores and viruses
The retention of bacterial spores and viruses carried in aerosols over extended time periods has been independently validated in tests carried out by the UK Health Protection Agency.

• low ΔP characteristics
The unique characteristics of the ePTFE membrane, combined with the construction of the BorsoPTFE filter cartridge, results in exceptionally high gas flow rates at low pressure differentials. These features result in lower energy consumption and fewer filter cartridges per system.

• Cartridge integrity and low TOC levels
All BorsoPTFE cartridges are integrity tested and supplied clean, having been flushed with pure water. When required they can be pulse flushed with 18MΩ.cm pyrogen-free ultra-clean water.

• Solvents and aggressive chemicals
The exceptional chemical resistance of ePTFE allows BorsoPTFE filter cartridges to be compatible with aggressive chemical solutions, including strong acids, alkalis, solvents and etchants.

Specifications

Materials of Manufacture

Filter membrane:	ePTFE
Membrane support:	Polypropylene
Irrigation mesh (support):	Polypropylene
Drainage layer:	Polypropylene
Inner core:	Polypropylene
Outer support:	Polypropylene
End fittings:	Polypropylene
Support ring:	Fusion bonding

Cartridge Dimensions

Diameter: 70mm (2.8")

Length:

1 module:	BorsoPTFE Junior
1 module:	254mm (10")
2 modules:	508mm (20")
3 modules:	762mm (30")
4 modules:	1016mm (40")

Effective Filtration Area

Up to 0.73m2 per 10".

Gaskets and O-Rings

FDA approved Ethylene Propylene, FEP encapsulated, Silicone, Viton® and Nitrile available.

Maximum Differential Pressure

Normal flow direction at:

20°C (68°F):	6.0 bar (87lb/in2)
80°C (176°F):	4.0 bar (58lb/in2)
100°C (212°F):	3.0 bar (43lb/in2)
120°C (248°F):	2.0 bar (29lb/in2)
125°C (248°F):	1.5 bar (22lb/in2)

Reverse flow direction at:

20°C (68°F):	2.1 bar (30lb/in2)
80°C (176°F):	1.0 bar (15lb/in2)
100°C (212°F):	0.5 bar (7lb/in2)

Operating Temperatures

Maximum continous 80°C (176°F)

Sterilisation

In situ steam 100 x 20 minute cycles at 135°C (275°F).
Hot water 150 x 20 minute cycles at 125°C (257°F).

Extractables

Minimum total extractables. Please refer to the BorsoPTFE Validation Guide.

Foodgrade approved

FDA 21 CFR 177.1520
FDA 21 CFR 177.2600
EC 10/2011

Cartridge Construction

BorsoPTFE cartridges are manufactured from a multi-layer combination of irrigation mesh, filter membrane, membrane support and drainage material. BorsoPTFE 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, BorsoPTFE 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 135°C (275°F).

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

Applications

BorsoPTFE ePTFE membrane cartridges meet the demanding filtration requirements of pharmaceutical, semiconductor and fine chemical manufacturers. They are suitable for a wide range of sterile venting and gas filtration applications, including the filtration of wet gases. They can also be used for the fine filtration of aggressive chemical solutions including acids, alkalis, solvents and etchants.

• Sterile process gases

The supply of sterile gas for critical applications in the pharmaceutical, biotechnology, food and beverage markets.

• Sterile vents

The safe sterile venting of processing vessels in pharmaceutical, fermentation, and food and beverage processes.

• Fine chemicals and solvents

The removal of submicronic particles from processing chemicals and solvents.

• 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.

Additional Information

Range

Van Borselen Filters Supplies a full range of filtration products: e.g.: Filtercartridges (Meltblown/ Membranes/ Activated Carbon) Filterhousings, Filterbags, Lenticular Module Filters, Self Cleaning Filters, Filter Sheets, Sieving Machines, Porous Sintered Metal, Oilskimmers, Strainers and many more.. The BorsoPTFE are available in 0.02, 0.1, 0.2 and 0.45 micron

Material Conformity and Validation

The bio-safety of all materials used in the manufacture of BorsoPTFE cartridges is assured by FDA approval to Title 21CFR.177. and EC 10/2011

Chemical Compatibility

The BorsoPTFE materials of construction are compatible with a wide range of chemicals and solvents, however care must be taken to select the appropriate seal material. Advice on chemical compatibility is available. Since operating conditions vary considerably between applications, verification by the end user is recommended.

Quality control

Our factories are all located in Western Europe and are accredited to ISO 9001-2008.

All our filters are fully traceable and manufactured under clean room conditions.

Engineering capacities

One of our strengths is developing filter vessels for critical applications in the chemical industry.

We have a wide experience in supplying filter vessels, like Duplex (UNS S31803), Super-Duplex (UNS S32750/60), Titanium, RvS316L, CS (optionally with a coating or lining).

Our filter vessels comply with the necessary design codes (ASME VIII, EN13445, U-stamp and PD5500) and comply to ATEX and PED 97/23/EC standards. Both liquids and gasses PED classes I, II, III, IV, all modules

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