



CATALOGUS 2020

CLEAN AND SAFE WATER

Metric

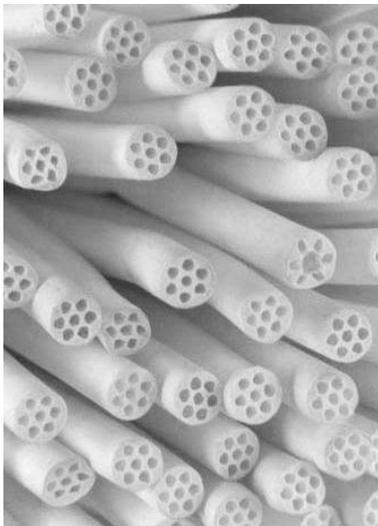
www.pb-international.com

E-mail: info@pb-international.com
Phone: +31(0)314 621 465

Ultrafiltration

Background information

Process of ultrafiltration

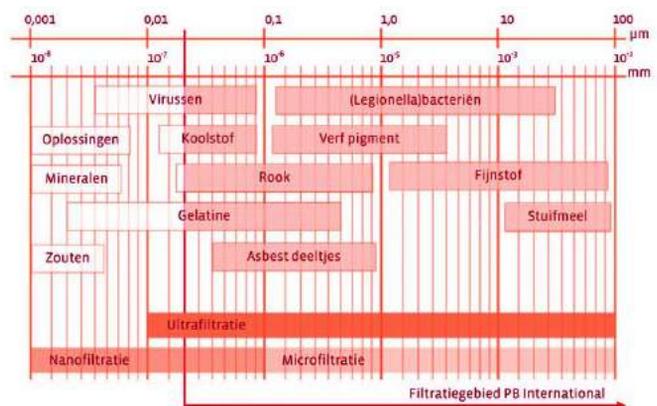


Ultrafiltration is a technology that is used to filter out all small undissolved particles such as bacteria and viruses from water. Ultrafiltration is a membrane-based technique. The inside of the membrane acts as a very fine sieve, with a pore size of 0.015 to 0.03 μm . The water must be pushed through these pores with a pressure of about 2 bar. The reduction of legionella bacteria by this technique is 99.9999% (Log 6).

PB International membranes have an open foam structure. This results in a very low resistance with a higher flux and a better reduction result. In addition, the membrane has a high chemical and biological resistance and a very high mechanical stability.

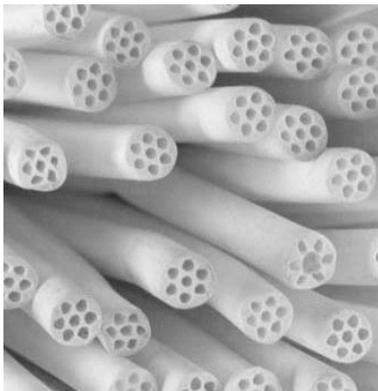
This stability is due to a revolutionary membrane technology, in which a membrane has been developed with 7 capillaries in each fibre. This is much stronger than the usual 'singlebore' membranes. The 'sevenbore' can also support the fluctuations of high-water pressures more easily than conventional membranes.

Specifications	
Quality water (supply)	Potable water
Efficiency for reduction of bacteria	99,9999% (Log 6)
Efficiency for reduction of viruses	99,99% (Log 4)
Material of membrane	Polyethersulfone
Pore size of membrane	0,02 micron
Type of membrane	Multibore® ultrafiltration
Maximum water pressure	6 Bar (87 psi)
Diameter fiber OD	4,2mm
Diameter bores ID	0,9mm
Number of membrane channels	7

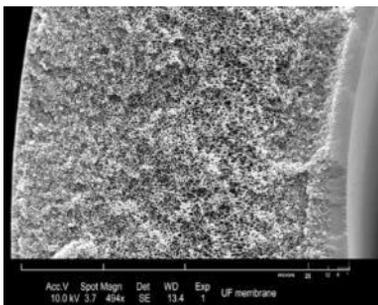


UF membrane

Technical data sheet



UF membrane



Detail of membrane wall

Product

PB-Ultrafiltration is a pressure-driven technology commonly used to remove suspended solids, bacteria and viruses, providing a physical barrier to pathogens in consumable water production. In addition to providing a very high purity, low Silt Density Index (SDI) product. PB-Ultrafiltration offers a pretreatment alternative for surface water, seawater, and biological treatment of municipal effluent prior to reverse osmosis (RO) and other membrane systems.

As a result of a special mixture of the polymers and new production methods our membrane has a very open foam structure as well as a very low resistance with a higher flux and lower fouling. In addition to a high chemical and biological resistance, our revolutionary 7 Bore membrane has a very high mechanical stability. The revolutionary 7 Bore membrane with 7 capillaries in each fiber is much stronger and can sustain high-pressure water surges more easily than conventional single bore membranes. With our unique 7 Bore membrane PB International has set a new standard in Ultrafiltration technology.

Technical specifications

Type of filtration	Ultrafiltration
Poresize of membrane	0.015 µm
Number of bores per fiber	7
Material of membrane	Polyethersulfone
Diameter bores ID	0.9 mm
Diameter fiber OD	4.2 mm
MWCO	100 – 150 kD
Maximum system pressure	10 bar
Trans membrane pressure operation	0.5 – 1 bar
Maximum	2.5 bar
Productivity clean water at 25°C	< 1000 l/m ² /bar/h
pH range during operation	3 – 10
Maximum water temperature	80°C
Soaking time during cleaning	5 min
PH range during cleaning	1 – 13
Disinfection chemicals	50 – 100 ppm hypochlorite (NaOCl)
Disinfection chemicals	100 – 200 ppm hydrogen peroxide (H ₂ O ₂)

The membrane removes all water related pathogens like

Legionella pneumophila

Escherichia coli (E.coli)

Amoeba associated bacteria

Mycobacterium spp.

Legionella spp.

Pseudomonas aeruginosa

Fungi

Vibrio cholera

Micro-organisms

Background information

Tested on

Escherichia coli (E.coli)
Klebsiella terrigena
Legionella pneumophila
MS2-bacteriophagen
Pseudomonas diminuta
Pseudomonas aeruginosa

Bacteria Gram positive/negative

Amoeba-associated bacteria
Enterobacter cloacae
Enterococcus faecalis
Escherichia coli (E.coli)
Fecal coliforms 44°C
Fecal streptococci
Staphylococcus aureus
Legionella pneumophila
Legionella spp.
Mycobacterium spp.
Pseudomonas aeruginosa
Staphylococcus haemolyticus
Vibrio cholerae

Protista

Ascaris suum
Cryptosporidium parvum
Entamoeba coli
Giardia lamblia
Hymenolepis nana
Schistosoma mansoni

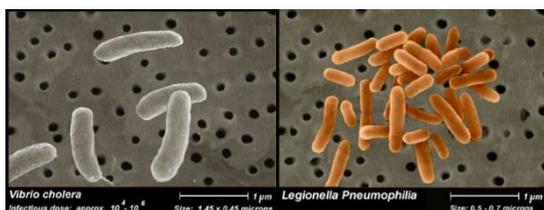
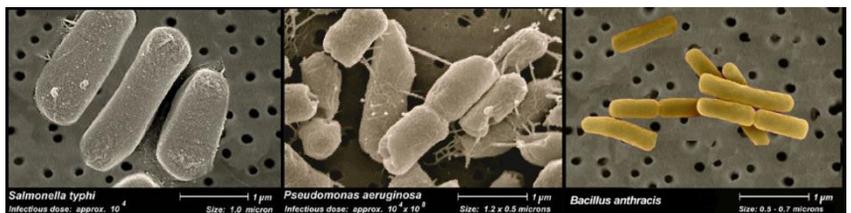
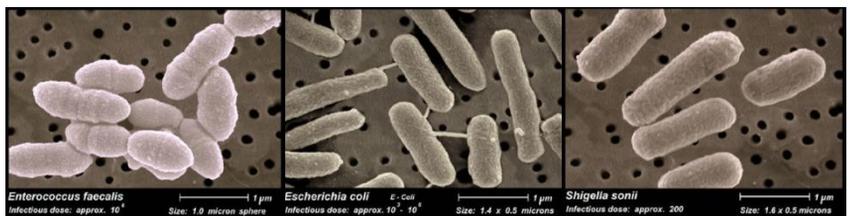
Fungi/ yeasts

Candida albicans
Rhodotorula mucilaginosa
Saccharomyces cerevisiae

Ultrafiltration

All particles larger than 0.02 micron are captured by means of ultrafiltration. This includes the following bacteria, protista, fungi and yeasts.

Examples of particles captured with UF





Ultrafiltration modules pressure / temperature

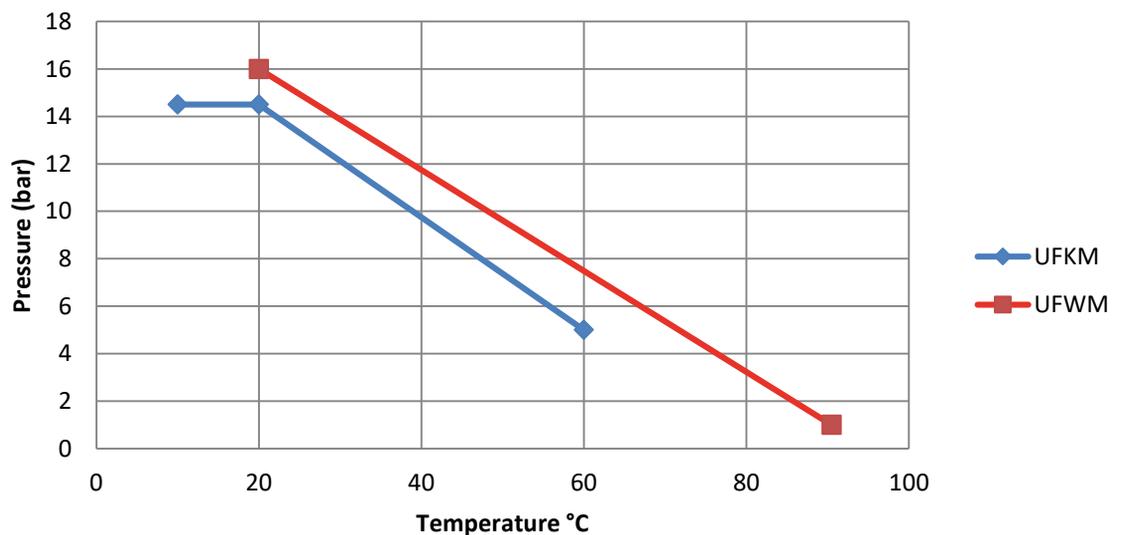
Background information



Explanation

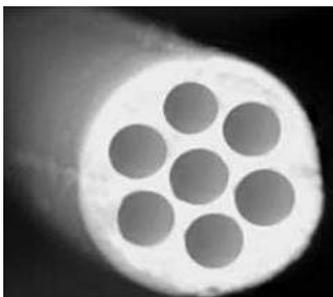
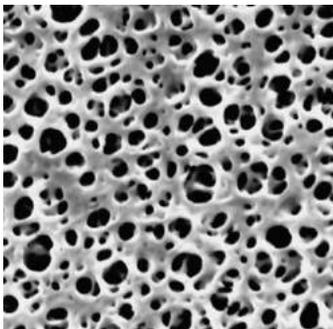
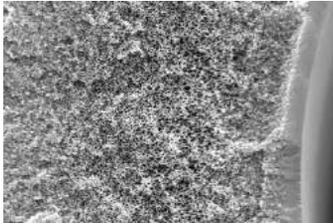
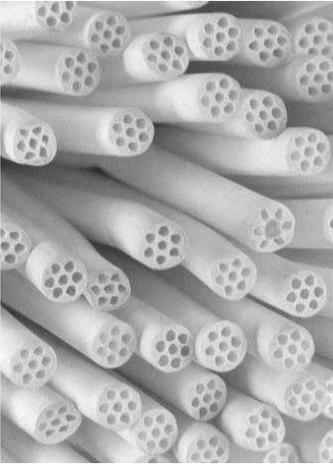
The PB International Ultrafiltration modules are available for hot and cold water. The maximum pressure depends on the water temperature. The graph below shows the maximum permissible pressure, depending on the supply water temperature.

Ultrafiltration modules - Pressure / Temperature

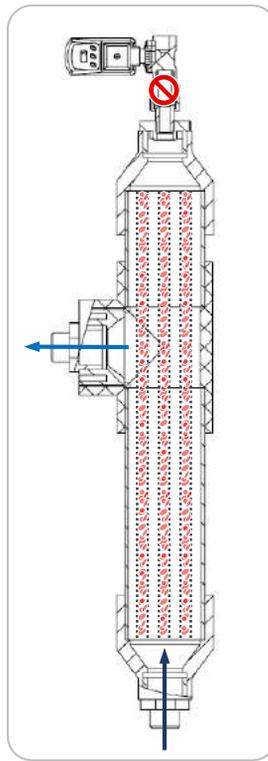


Filtration process

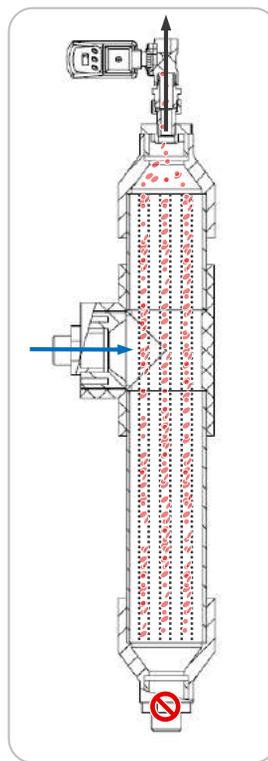
Ultrafiltration membranes filter out all small particles from water. These particles remain in the membrane. PB International's filter systems are always equipped with automatic flushing functionality. As a result, the membranes are flushed clean. In the figures below the flushing principles and the filtering action are shown schematically.



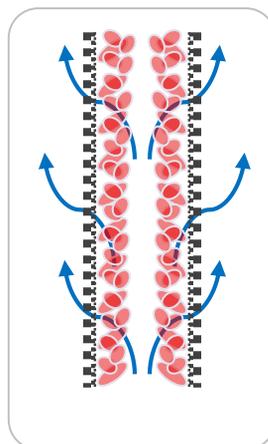
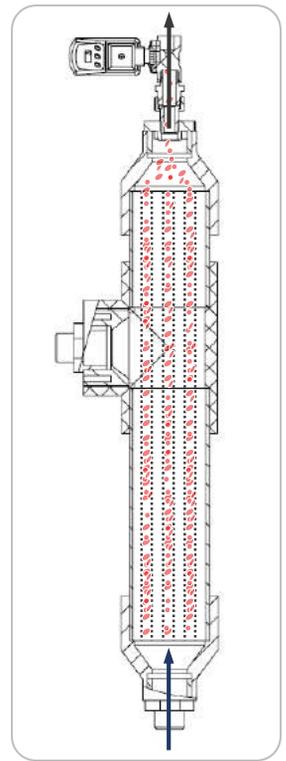
Filtratie proces



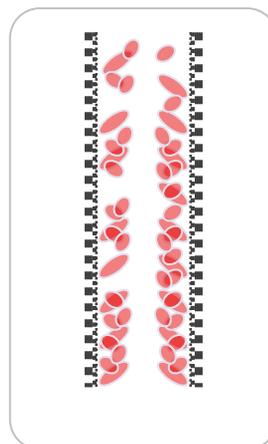
Backward flush



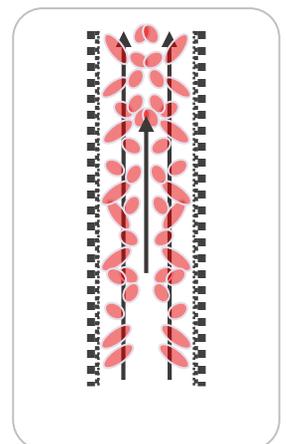
Forward flush



Detail filtratie proces



Detail backward flush



Detail forward flush



Water shock absorber

A water hammer absorber reduces the force of the water hammer that can occur when pressure changes occur in the pipeline. The water hammer absorber can be applied to the system's outgoing pipe.

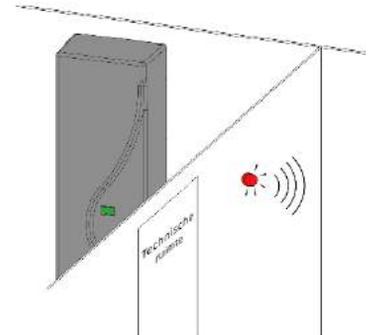


External failure indicator

A gatekeeper comes equipped with visual and auditory signalling devices that become active in the event of a fault report. It is possible to place an external fault detector at the location of your choice in the building. A fault will be quickly detected.



An external fault detector consists of a box with visual and auditory pulse signalling devices. These signalling devices become active during a fault report. These can be deactivated by means of a button on the box. An external fault detector is often used with systems that do not receive visual inspection during normal use. It is possible to connect several external fault detectors to a system.



PB-online monitoring

The PB online monitoring tool has been specially developed for gatekeeper systems. The PB-online monitoring tool monitors and supervises the operation of the filter modules via a GPRS or LAN connection.

Netbiter

The Netbiter is a module that can optionally be mounted in the gatekeeper system. The Netbiter enables remote control of the gatekeeper system and reports any potential faults by email. Various sensors can be connected to the Netbiter.



Pressure sensors

A pressure sensor measures the water pressure in the water pipe of the system. The sensor can be used in combination with the Netbiter.





Shower bar

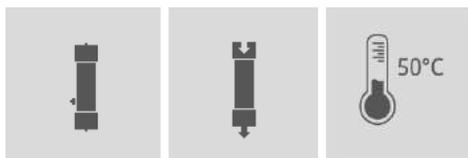
Product information



Shower bar

The PB International shower bar is a very effective and simple solution to prevent Legionella bacteria contamination from your shower head. The shower bar is used as an alternative to the anti-Legionella shower head. The shower head is in many situations the most dangerous aerosol-forming tapping point.

The shower bar is easy to install and immediately suitable for use. The product can be fitted to any shower mixer with a 1/2" hose connection. We advise to replace the shower head and hose at the same time. You can also order this from us. It will ensure you or your guests can shower safely.



Art. nr.	Description	Capacity*	Dimensions HxWxD (cm)
10053	Shower bar	12 L/min	84x6x5
10083	Shower head, shower hose	-	hose: 1,50m

* For drinking water at 35°C and water pressure of 2 bar.

Delivered inclusive:	
✓ Connection gland 1/2"	✓ Filtermodule
✓ flush device	✓ Wall mount

- Ultrafiltration technology
- No anti legionella cartridges needed
- Lifespan of 5 years, in combination with annual maintenance



UFK

Product information



UFK filter

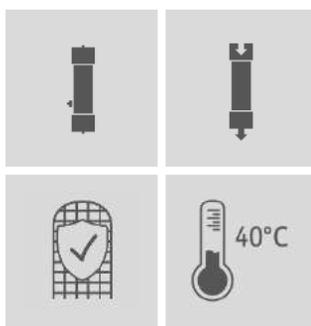
The UFK filter module is an independently operating filter and can easily be used as a gatekeeper in a small-scale pipeline network, a pipe section or an individual tapping point. The filter is suitable for cold water installations with a maximum temperature of 40° Celsius.

With the periodic forward flush, pollution is automatically flushed away. The automatic flushing of the filter combined with annual maintenance ensures a lifespan of 5 years.

The UFK has minimal management costs, annual thorough cleaning of the modules and settings check is sufficient.

Art. nr.	Description	Capacity *	Dimensions HxWxD (cm)
10021	UFK 50-510	0,3 m ³ /h	97×24×9
10022	UFK 63-510	0,5 m ³ /h	96×23×11
10023	UFK 75-510	0,7 m ³ /h	99×25×12
10024	UFK 90-510	1 m ³ /h	102×28×14
10025	UFK 90-750	1,5 m ³ /h	123×28×14
10026	UFK 90-1000	2 m ³ /h	151×28×14
10027	UFK 110-750	2 m ³ /h	126×31×16
10028	UFK 125-750	2,5 m ³ /h	128×33×19
10029	UFK 140-750	3 m ³ /h	129×34×22
10030	UFK 160-750	4 m ³ /h	131×36×23
10031	UFK 160-1000	5 m ³ /h	159×36×23

* For drinking water at 16° C and water pressure of 2 bar.



Delivered inclusive:

- | | |
|--------------------------------------|--------------------|
| ✓ Drain valve and timer | ✓ Pre filter |
| ✓ Connection bij three-part coupling | ✓ Non return valve |
| ✓ Manual valves | ✓ Pipe clamps |
| ✓ Manometers | ✓ Power cord (2m) |

- Long-term solution against legionella norm overruns.
- Includes flushing set and suitable mounting materials.
- Applications: Shower legionella prevention, pre-filter Reverse osmosis, general water filter.

UFW

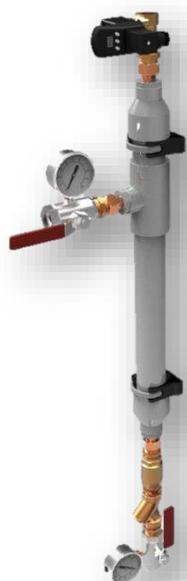
Product information



UFW filtermodule

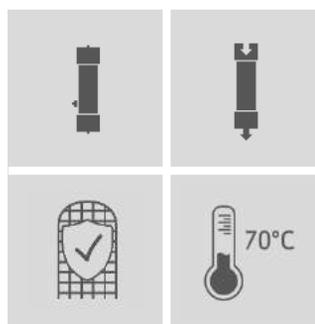
The UFK filter module is an independently operating filter and can easily be used as a gatekeeper in a small-scale pipeline network, a pipe section or an individual tapping point. The filter is suitable for cold water installations with a maximum temperature of 70° Celsius.

With the periodic forward flush, pollution is automatically flushed away. The automatic flushing of the filter combined with annual maintenance ensures a lifespan of 5 years.



Art. nr.	Omschrijving	Capaciteit*	Afmetingen HxWxD (cm)
10032	UFW 50-510	0,4 m ³ /h	97×24×9
10033	UFW 63-510	0,6 m ³ /h	96×23×11
10034	UFW 75-510	0,8 m ³ /h	99×25×12
10035	UFW 90-510	1,5 m ³ /h	102×28×14
10036	UFW 90-750	2 m ³ /h	123×28×14
10037	UFW 90-1000	2,5 m ³ /h	151×28×14
10038	UFW 110-750	2,5 m ³ /h	126×31×16
10039	UFW 160-750	5 m ³ /h	131×36×23
10040	UFW 160-1000	6 m ³ /h	159×36×23

* For drinking water at 30° C and water pressure of 2 bar.



Delivered inclusive:

- | | |
|--------------------------------------|--------------------|
| ✓ Drain valve and timer | ✓ Pre filter |
| ✓ Connection bij three-part coupling | ✓ Non return valve |
| ✓ Manual valves | ✓ Pipe clamps |
| ✓ Manometers | ✓ Power cord (2m) |

- Ultrafiltration technic.
- Includes flushing set and suitable mounting materials.
- Long-term solution for legionella problems in mixed or hot water.