

FUNDAWAVE®

Tangential crossflow filtration enhanced by vibration



DrM
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FUNDAWAVE®

EXPERIENCE THE FLOW

The FUNDAWAVE® is a new filtration concept which targets applications that so far could not give satisfactory results with any type solid/liquid separation equipment. The equipment is based on the cross-flow principle with membrane-based filtering media adapted to specific filtration duties. The flow rate is maintained by constantly removing the solids layer forming on the membrane. In contrast to standard tangential flow filtration equipment (TFF) the cross-flow is accomplished by movement of the filter membrane across a stationary liquid.

Key advantages



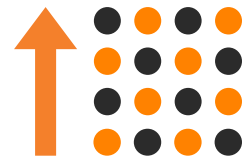
Ideal separation



Unique
microfiltration



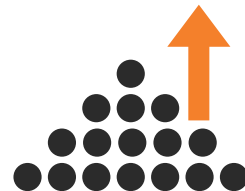
Less energy



High concentration,
viscosity and solid load



High product
quality



Higher Yield



Sanitary

And more:

- Uniform TMP secures an consistent cut-off over the entire membrane surface
- Efficient microfiltration at extremely low pressure in the entire system
- Extremely high transmission of target molecules.
- Fouling starts later on flat surfaces and is easier to remove when formed
- Modules have a fully open free flow channel design with no spacers
- Ideal for membrane filtration of high viscous and high solid load media
- Fully drainable modules to ensure full product recovery

Main product features

The FUNDAWAVE® is an industrial crossflow filtration solution specifically targeted for applications where flux rates, capital investments, gentle filtration conditions, energy consumption and sanitary design play an important role. It continuously delivers low fouling filtration by keeping the media clean by vibrating shear forces.

The filtering membranes are arranged in modules which vibrate vertically while keeping the liquid feed stationary. The relative velocity changes direction many times per second and creates turbulence on the membrane surface, thereby minimising the fouling layer. The vibrating mass is reduced to a minimum which also minimises the required energy input. The resulting heat input is significantly lowered and even for temperature sensitive products cooling may not be required.



Applications and industries



Water and Waste Water

- Sterile water filtration
- Drinking water purification
- Liquids pre-filtration
- Industrial waste water treatment
- Municipal waste water treatment

Algae and microalgae

- Harvesting of microalgae
- Separation of algae debris
- Concentration of protein



Oils and lubrication

- Fuel oil filtration
- Lubrication media processing
- Gear box oils refinement
- Hydraulic oil processing
- Waste stream purification



Beverages

- Wine filtration
- Filtration of impurities in beer
- Pulp separation for juices
- Juice concentration

Dairy and milk

- Cultured milk concentration
- Milk fractionation
- Whey concentration



Microbiological and Biochemical

- Cell harvesting
- Broth filtration
- Enzyme concentration
- Biomass fractionation



System capabilities

The FUNDAWAVE® handles the feed solution very gently as no large circulation pump is needed. A conventional circulation pump can damage cells, molecules or other sensitive substances during operation and by eliminating the circulation pump the FUNDAWAVE® is the most product gentle industrial scale MF and UF system available. Additionally, the elimination of the circulation pump produces uniform trans-membrane pressures throughout the unit and results in the sharpest membrane cut-offs of any industrial system.

Due to this design the FUNDAWAVE® can handle very difficult products with high viscosities, high mass loadings as well as high solids concentrations. When extremely difficult feeds are processed, it is possible to homogenise the retentate in the FUNDAWAVE® by adding a small recirculation pump. The FUNDAWAVE® is fully drainable of both retentate and permeate, thus reducing product loss and increasing CIP cycles. The FUNDAWAVE® utilizes stacked 2.5 m2 modules and comes in tower units with configurations of 7.5, 15 or 20 m2 filtration area. The towers can be connected in series or parallel depending on the needs.

The tower configuration eliminates circulation pumps, cooling aggregates, booster pumps and the simplified piping layout gives the FUNDAWAVE® system a small footprint. All media contacting parts are in durable polymeric materials or stainless steel. The FUNDAWAVE® conforms to FDA materials and sanitary resp. GMP standards if required. An extensive set of filtering membranes are available to adapt to the product feeds.

Unit options

Every new application is developed in the lab. We supply a basic lab filter for installation on an existing vessel, a Pilot unit for more long-term on-site testings and a fully equipped industrial unit.

Lab unit

Technical specifications

Filter Area	0.0035 m²
PP housing operating conditions	3 barg max. 85 °C
Oscillation drive	Pneumatic
Oscillation Frequency	20 Hz
Membrane	1 kDa - 10 µm, full industrial range



Pilot unit

Technical specifications

Filter Area	0.35m²
PVC housing operating conditions	3 barg max. 85 °C
Filter elements	Polypropylene
Oscillation Frequency	20 Hz
Motor	230 VAC / 40 W
Membrane	1 kDa - 10 µm, full industrial range



Industrial unit

Technical specifications

Filter Area	2.5 m² per module
Housing PP Max.	4 barg max. 35 °C 3 barg max. 55 °C 1 barg max. 80 °C
Oscillation Frequency	20 Hz
With 3 modules	7.5 m² / 400 VAC / 0.44 kW
With 3 modules	10 m² / 400 VAC / 0.44 kW
With 3 modules	15 m² / 400 VAC / 0.74 kW
With 3 modules	20 m² / 400 VAC / 0.74 kW
Membrane	1 kDa - 10µm full industrial range



Membrane range

We offer a wide range of membranes to suit many types of industrial applications and help you land the perfect filtration results.

Available membranes	Application	Material
1 kDa	UF	PES
3 kDa	UF	PES
5 kDa	UF	PES
5 kDa	UF	PESH
10 kDa	UF	PS
10 kDa	UF	CA
10 kDa	UF	PES
30 kDa	UF	PES
30 kDa	UF	PESH
100 kDa	UF	PES
100 kDa	UF	PVDF
300 kDa	UF	PES
400 kDa	UF	PAN
500 kDa	UF/MF	PVDF
800kD / 0.08 micron	UF/MF	PVDF
0.2 micron	MF	PVDF / PP
0.2 micron	MF	PVDF / PE
0.45 micron	MF	PTFE-HF
1 micron	MF / filter	PET, woven
5 micron	MF / filter	PET, woven
10 micron	MF / filter	PET, woven



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