SANI Membranes

Harvest, Concentration and Refinery

One-step solution with Vibro® Filtration

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Agenda

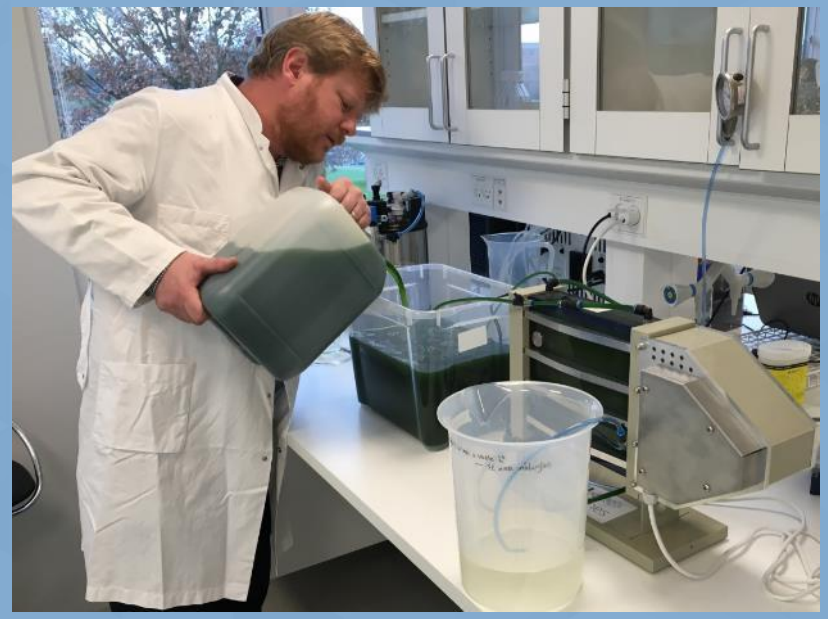
- What is Vibro® Technology?
- Enabling superior refining
- Scaling your algae production
- Application example

Vibro Technology

Harvest and Concentration

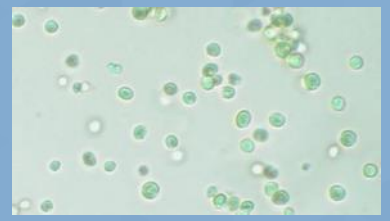
- Nannochloropsis: 1 g/l → 190 g/l
- Chlorella: 50 g/l → 290 g/l
- Pumpable = up to 95% cell density
- Any other algae and cells, also

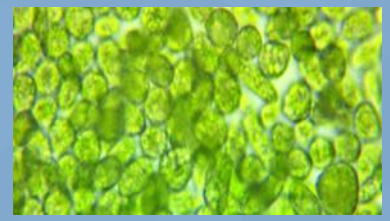
  very soft and fragile cells



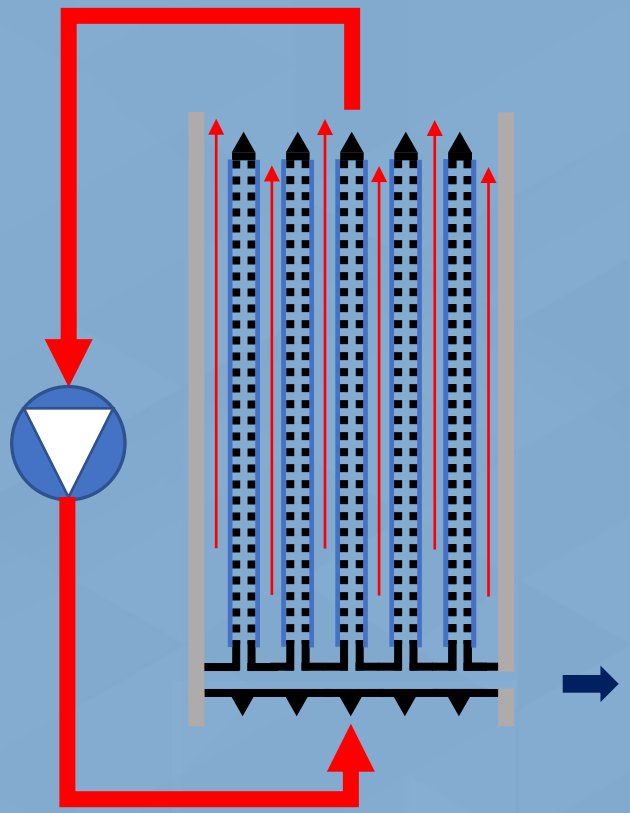
Further refining with same technology

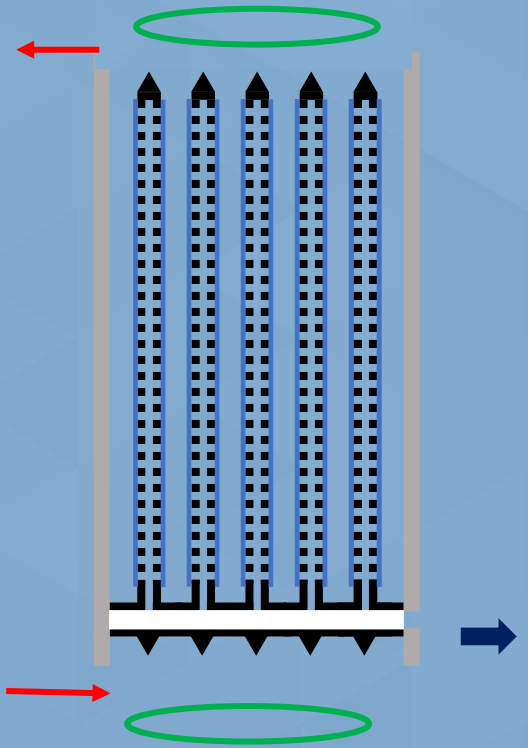
- Separation of target molecules after lysing
- Protein/API fractionation and concentration





Conventional TFF vs Vibro Filtration





From harvest to concentration in one step

High recovery

Sanitary

Eliminating manual work

Less energy

Higher yield

Ideal for high viscosities and solid loads

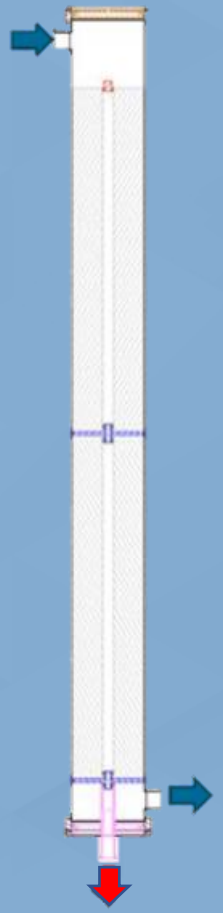
Gentle product handling

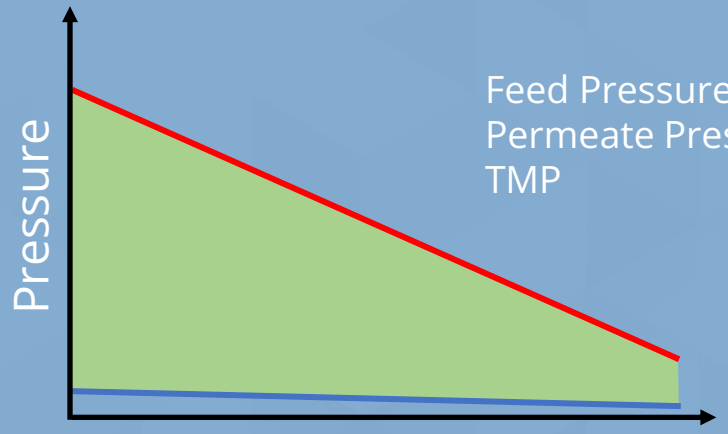
Ideal separation

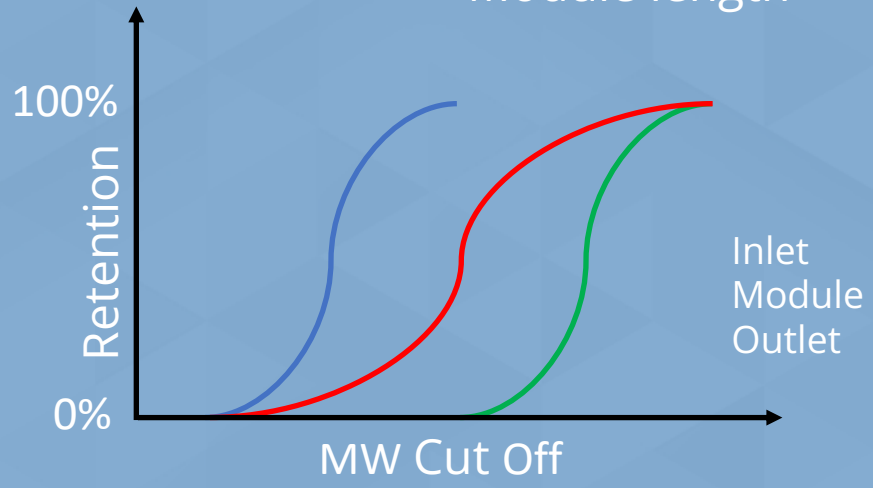
No cooling needed

Ideal separation - Unique process control

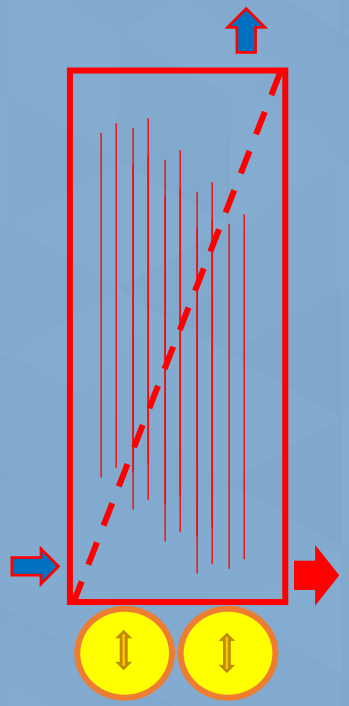
Tangential Cross Flow

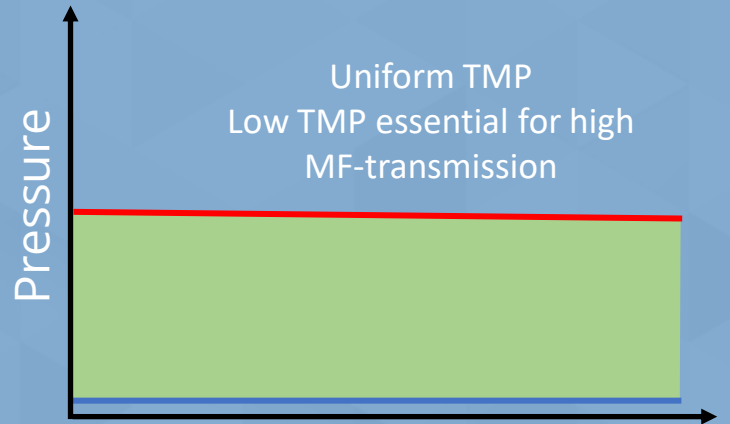


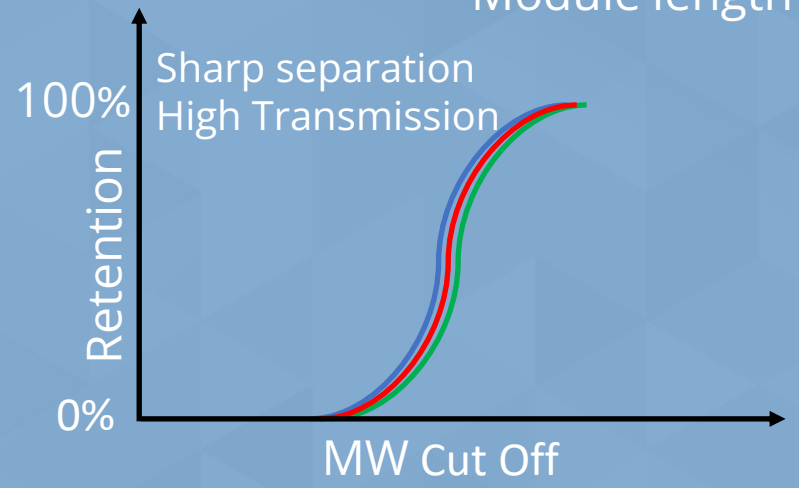




Vibro™ Filtration

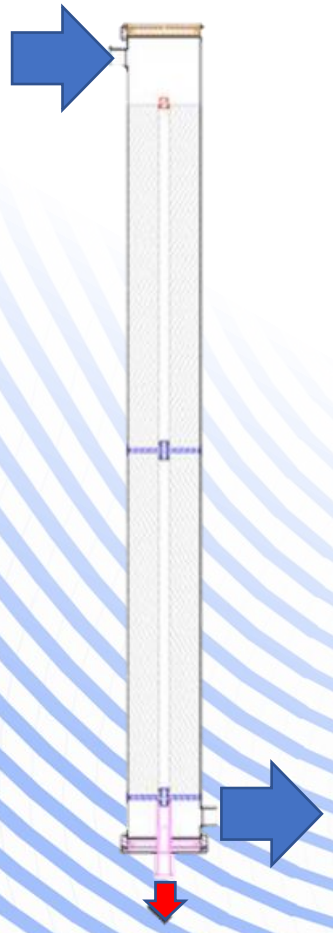




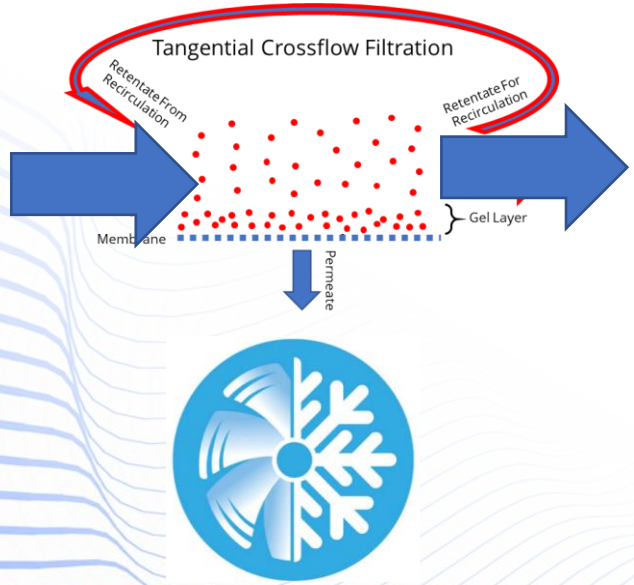


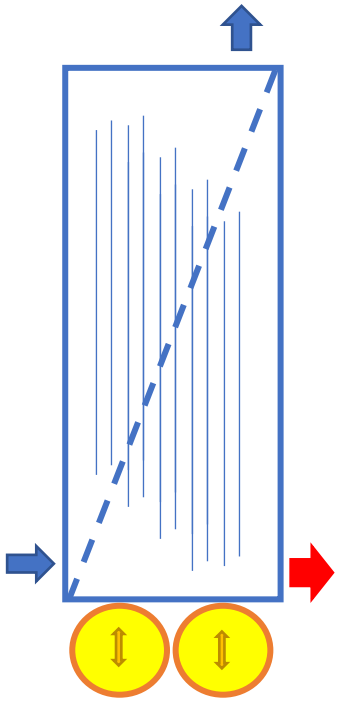
Energy saving

Energy where needed



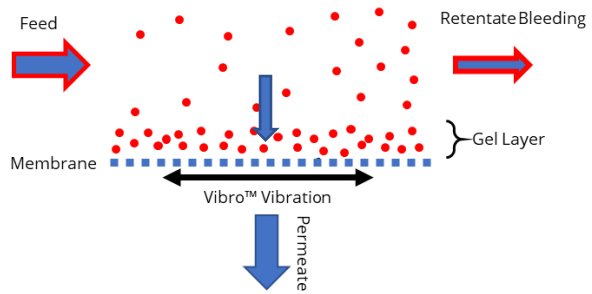
Massive flow to get turbulence
at the membrane surface
= High pressure drop
> Much pumping
> Much cooling



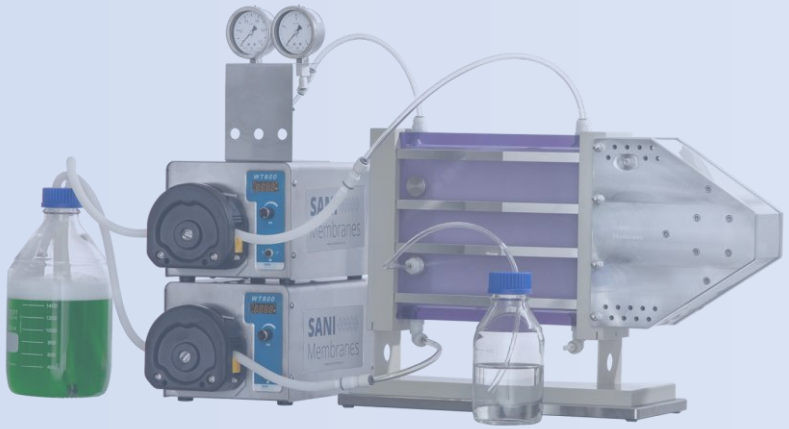


Free-flow & Turbulence only
at the membrane surface
= Minimal pressure drop
> Minimal energy

Vibro™ Filtration



Higher viscosity = more saving



Scaling of production

Vibro-Lab series

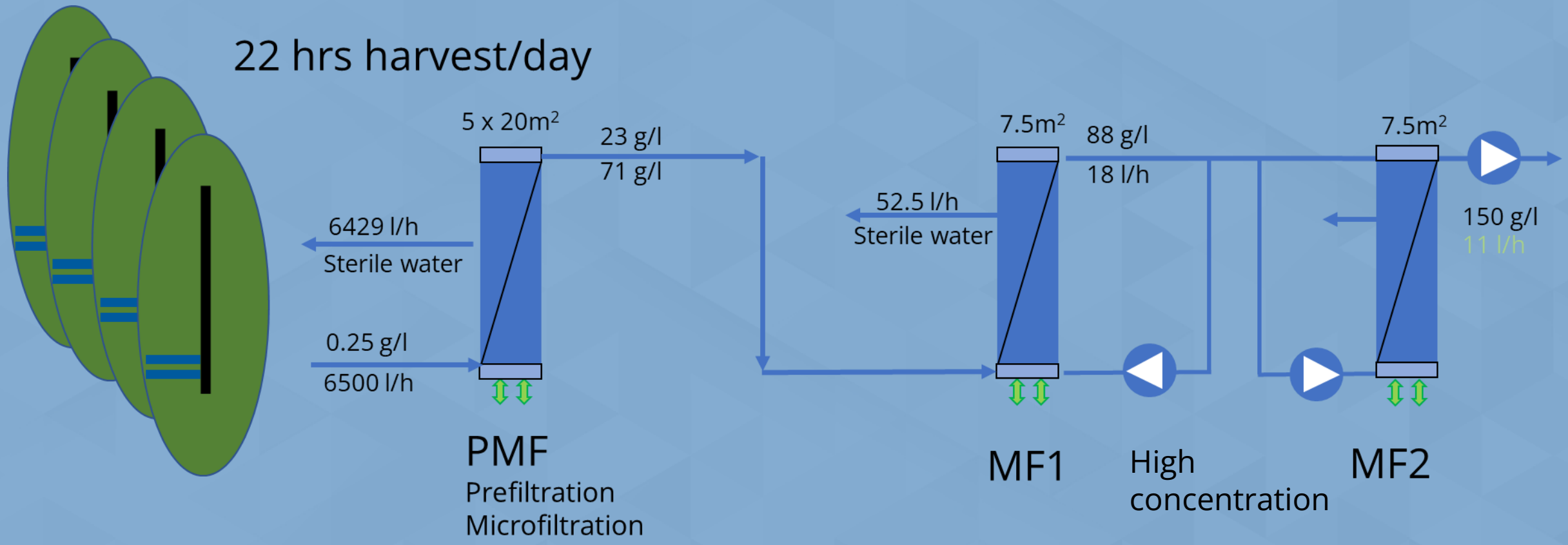
Available from sizes that support extremely low volumes, to sizes that support small bioreactors. Simplifies and facilitates process development

Vibro-I (Industrial series)

Modular units from 2.5 m2 – 80 m2 membrane surface area. Units can be connected to each other for unlimited capacity.

From harvest to high concentration

Continuous processing reusing the water



Same solution to refinery