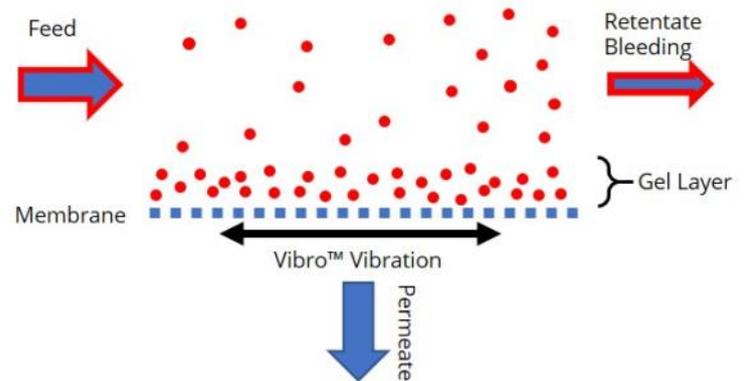


# Vibro™-LE

## Benchtop MF & UF



### Disruptive in size, simplicity and process:

sharpest cut-off, fully drainable, easy to clean, easy to service and simple to operate.

**SANI**   
Membranes

MORE FILTRATION, LESS ENERGY

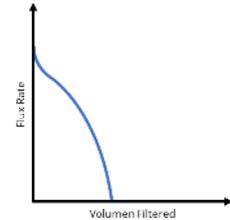
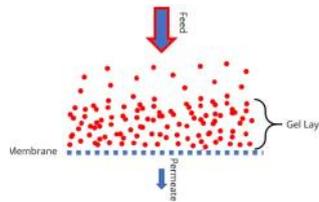
# Vibro™-LE

Vibro™-LE is the perfect **easy-to-use** benchtop micro- and ultrafiltration solution for process development and laboratory filtration where high flux, **low capital investment** and gentle filtration are key words. Vibro™-LE deliver low fouling continuous filtration, where the filter is kept clean by vibration shear.

## Description of filtration principals

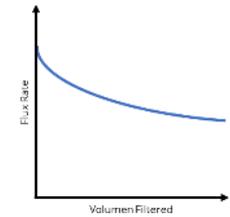
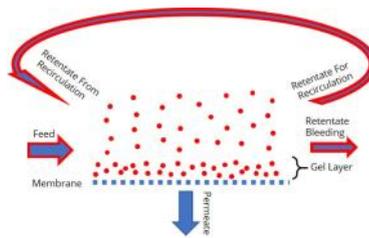
### Dead-End Filtration

The feed is pressurized against the membrane. Particles and molecules form a growing gel layer that clogs the membrane.



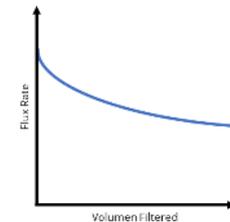
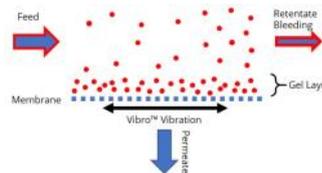
### Tangential Crossflow Filtration

Pressurized feed flows fast along the membrane surface creating turbulence in the stream. The turbulence keeps the gel layer from growing.



### Vibro™ Filtration

A vibrating motion of the membrane relative to the pressurized feed creates turbulence at the membrane surface. The turbulence keeps the gel layer from growing.



## Vibro™ technology

The Vibro™-LE utilizes a Free Flow Plate™ membrane element (HPL), fixed rigidly inside a flexibly supported retentate chamber with pressure balanced air cushions in each end.

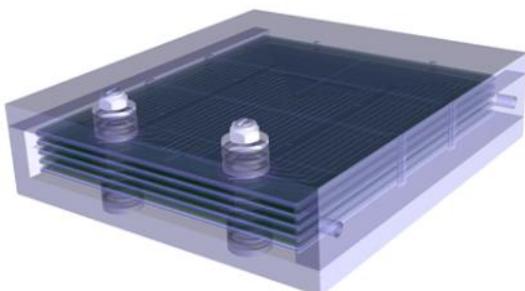
The patented Vibro™ technology makes it possible to vibrate the membrane element relative to the media. Thus, an optimal turbulence is created at the membrane surface.

The turbulence created on the membrane surface ensures a fast filtration

process without the need of a conventional tangential cross flow

The vibrating membrane enables the Vibro™ systems to filtrate the most demanding media with high viscosity and high solids with unprecedented results in terms of less fouling, higher flux and higher degree of up-concentration.

Processes developed on the Vibro™-LE can easily be scaled to the industrial Vibro™-I systems.



0,35 m<sup>2</sup> Free Flow Plate™ Laboratory Element (HPL) mounted in retentate chamber



Example of a batch Vibro™-LE set-up - The gentlest filtration possible

# a unique filtration device for micro- and ultrafiltration

The perfect benchtop filtration solution for process development and small-scale filtration applications. Low fouling continuous filtration where the filter is kept clean by vibration shear.

The transparent retentate chamber gives excellent visibility of the membrane during operation and cleaning. A groundbreaking feature that makes it possible to visually follow fouling build-up and membrane cleaning processes.

The Vibro™-LE is exceptional for gaining insight into filtration processes, for selecting the right membranes and for filtering the most demanding media with continuous membrane filtration. The ability to work with small samples makes it the perfect tool for process development in biotech, pharma, food etc.

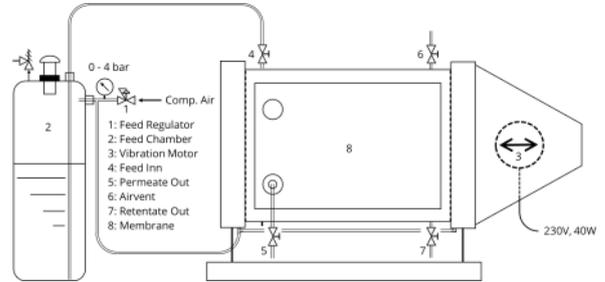
The Vibro™-LE can be operated as continuous filtration with a feed pump or as batch filtration where no feed pump is necessary. This means that valuable samples can be filtered extremely gently without any damage from pump shear.

The Vibro™-LE is fully drainable of both retentate and permeate. No sample is lost during filtration.

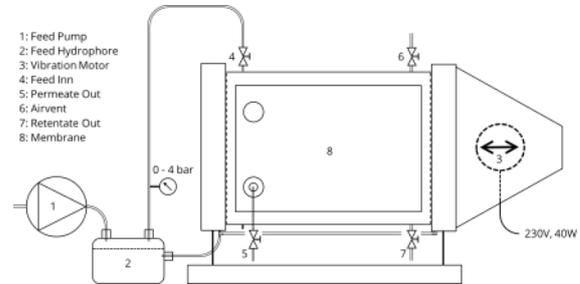
Due to the open design of the 0,35 m<sup>2</sup> Free Flow Plate™ membrane element, the Vibro™-LE can handle very difficult samples with high viscosity, high mass loadings and even high particulates.

A mix pump can be attached to the retentate chamber if you work with difficult feeds. The mix pump creates a slow flow in the retentate and prevents fouling.

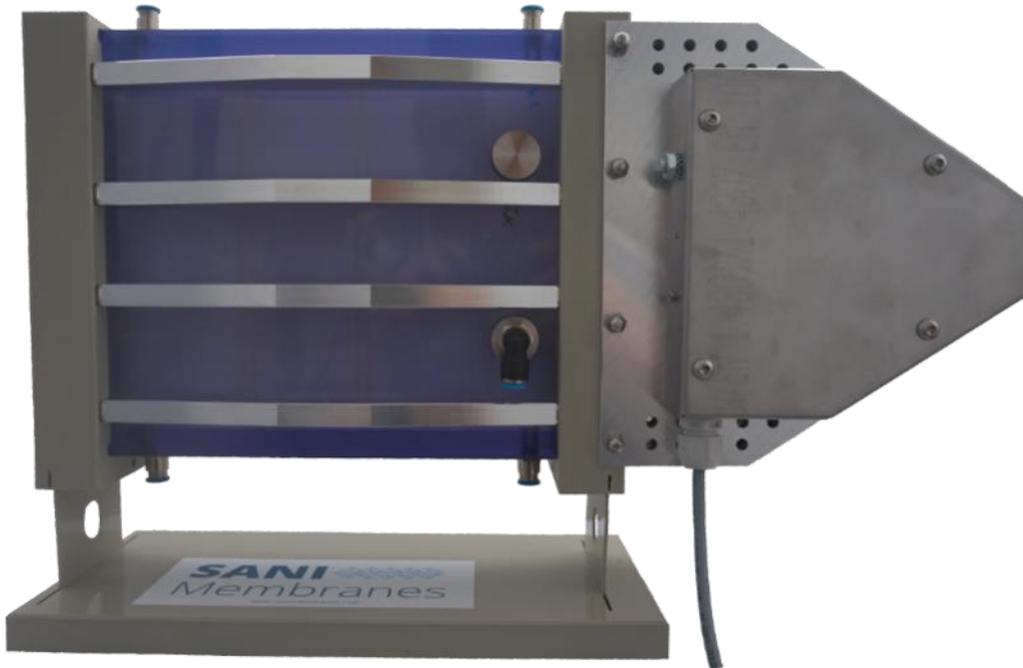
The Vibro™-LE system can be cleaned-in-place with your preferred CIP chemicals and cleaning conditions.



Vibro™-LE with the standard batch feed system



Example of a continuous Vibro™-LE set-up



## Typical applications

- |   |  |
|---|--|
| <p>Sanitary:<br/>Food &amp; Beverages:<br/>Water:<br/>Industrial:</p> | <p>Biotech, pharma, cell harvesting, broth filtration, enzyme concentration, biomass fractionation etc.<br/>Dairy, milk fractionation, whey concentration, wine filtration, beer filtration, juice filtration, juice concentration etc.<br/>Sterile water, drinking water, pre-filtration, industrial waste water, municipal waste water etc.<br/>Fuel oil, lubrication media, gear box oils, hydraulic oils, waste streams etc.</p> |
|---|--|



## Disruptive in size, simplicity and process

### Compact Solution

Vibro™-LE systems has a small footprint and comes with 0,35 m<sup>2</sup> membrane elements with virtually any commercially available MF or UF membrane

### Patented Filtration Process

The Vibro™ filtration process gives you low fouling filtration with unimpeded flux and the sharpest cut-off

### Easy to use

Easy and simple manual operation of all functions ensures good reliable filtration. The membrane elements can be exchanged in 10 minutes

### Fully drainable for maximum product yield

Vibro™-LE systems has no high shear pump destroying your valuable product and are completely drainable for maximum product yield

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