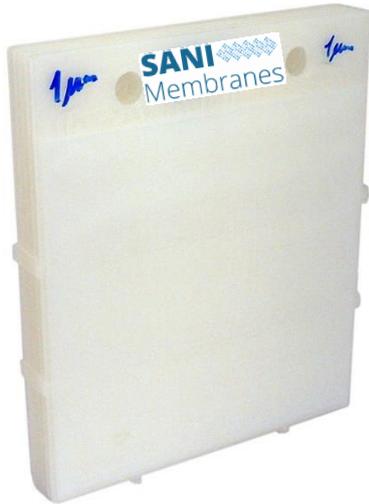


HPL Membrane Element Product Sheet

The SANI Membranes Free Flow Plate™ Laboratory Element (HPL) is a fully fused membrane element consisting of a small stack of Sani Membranes Free Flow Plates bonded together and ready to use in the Vibro™-LE. The HPL is from start designed with sanitary applications in mind. The only material used is polypropylene and all bonding of plates and membranes are done with welding techniques, no glues or bonding materials are used. The Free Flow Plate™ Laboratory Element (HPL) can be equipped with virtually any MF or UF membrane.



The Free Flow Plate™ Laboratory Element - HPL



The HPL mounted in a Vibro™-LE

- The HPL has a very uniform trans membrane pressure (TMP) - this ensures sharper membrane cut off.
- The HPL operates at uniform trans membrane pressures (TMP) - this gives you the possibility of new applications.
- The membrane surface of the HPL is visible during operation in our Vibro™-LE - this gives direct insight into fouling and cleaning.
- The membrane to membrane free flow distance is 1,7mm - this leads the ability to handle difficult feeds with high viscosity and high solids loading.
- No feed spacers are used to promote turbulent flow - this means no fouling promoted by feed spacers.
- The HPL has an integrated and open permeate channel design - this means that the retentate as well as the permeate can be drained completely by gravity alone and leads to shorter CIP cycles, less water usage, and NO product loss (i.e. very little white water in dairy).
- The integrated design of the permeate channels gives you the possibility of CIP cleaning both the feed and permeate sides effectively.
- The HPL operates at pH 0-14 and at temperatures up to 85°C, practically limited by the mounted membrane or filter material.
- The HPL has a membrane area of 0,35 m² and can be fitted with virtually any commercially available membrane.
- The only material used in the HPL is polypropylene.
- The HPL conforms to FDA materials and sanitary/GMP standards; No glues or bonding materials are used to assemble the HPL.

The HPL makes up-scaling to industrial applications easy.

- The HPL makes it possible to test virtually any type of organic membrane or filter in your application.
- The function of the HPL is the same as in a full-size plant utilizing the Free Flow Plate™ technique.
- The Vibro™-LE uses one element, that is easily exchanged or cleaned in place.
- The retentate chamber in the Vibro-LE is made in clear PVC - perfect for visually following fouling build-up and CIP wash.

The HPL is available in 3 different materials depending upon application.

- Sani Membranes' standard material Polypropylene Nature is for sanitary applications with CIP below 75°C.
- Sani Membranes' water material Polypropylene Gray is for all water applications with CIP below 75°C.
- Sani Membranes' high temperature material Polypropylene HT is for sanitary applications with high temperature CIP (up to 85°C).

HPL Membrane Element Product Sheet

Free Flow Plate™ Materials					
Code	Name	Material	Application	pH	Max-Temp.
S	Standard	Polypropylene Nature	Sanitary	0-14	75°C
W	Water	Polypropylene Gray	Water	0-14	65°C
H	High Temperature	Polypropylene HT	Sanitary	0-14	85°C

Free Flow Plate™ Laboratory Element (HPL) Data	
Generic Design	Free Flow Plate™. Fused Polypropylenes
Membrane Type	Most organic membranes (MF, UF, and other filter types)
Membrane Area	0,35 m ²
Dimensions (L x W x H)	242 mm x 30 mm x 202 mm
Viscosity Range, Apparent	1-1000 cP (e.g. Cream Cheese+)
Temperature Range	5-85°C
pH Range	0-14

Free Flow Plate™ Laboratory Element (HPL) Standard Membranes		
Membrane type	Cut-off	Membrane Material
UF	5 kDa	PES
UF	5 kDa	PESH
UF	30 kDa	PESH
UF	100 kDa	PVDF
UF	300 kDa	PES
UF	400 kDa	PAN
MF	800 kDa / 0,08 µm	PVDF
MF	0,2 µm	PVDF
MF/Filter	1 µm	PET (Woven)
MF/Filter	5 µm	PET (Woven)
MF/Filter	10 µm	PET (Woven)

The HPL can be equipped with your membrane of choice. SANI Membranes have a line of standard MF and UF membranes from Synder, Microdyn-Nadir and others on stock. Most commercially available membranes can however also be used with the HPL. Please, do not hesitate to contact us with your membrane wishes.

