

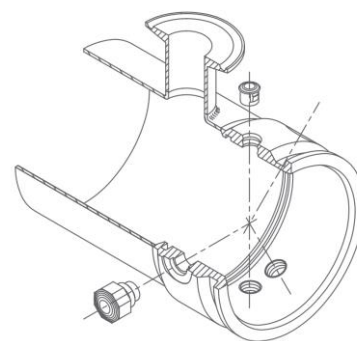
## A19 Series

The A19 Series module is characterized by its removable core design (RCM), which permits simple, rapid, and inexpensive membrane replacement, minimizing the system downtime. The open channel design enables the processing of liquids with high levels of suspended solids without plugging and facilitates highly effective cleaning-in-place interventions.

In each membrane core, 19 membrane tubes are potted with epoxy resin. The core is then fitted in the stainless-steel housing with fixing pins, O-rings and end seals.

Thanks to the availability of different membrane selectivities, this product is suitable for juice clarification, F&B, chemical, pharmaceutical and wastewater treatment applications.

<b>Membrane material:</b>	PVDF/polyester
<b>MWCO options:</b>	0.2 µm, 450 kDa, 200 kDa, 100 kDa and 20 kDa
<b>Membrane configuration:</b>	Tubular
<b>Tube diameter:</b>	12.5 mm (1/2", internal)
<b>Filtration mode:</b>	In-to-out
<b>Potting material:</b>	Polysulphone/epoxy resin
<b>Housing material:</b>	SS AISI316L (DIN 1.4404)
<b>Core fixing pins material:</b>	SS AISI303 (DIN 1.4305)
<b>Seals material:</b>	Nitrile rubber, 70 Shore A hardness
<b>Compliance:</b>	FDA, CFR21 and EU regulations



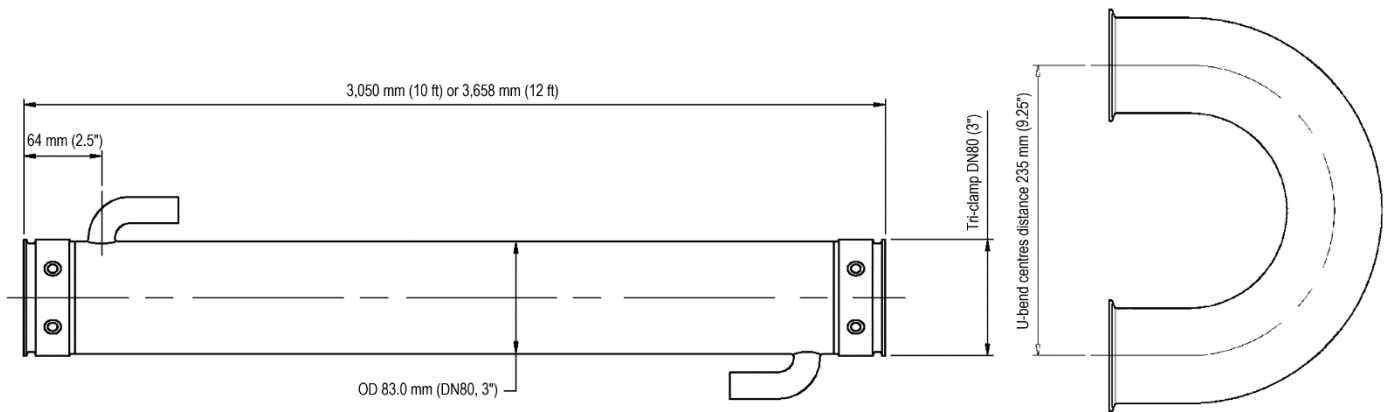
### Membrane Module Specifications

Model	MWCO [kDa]	Length (L) [mm (ft)]	Feed/ concentrate connections	Permeate connections	Membrane area [m <sup>2</sup> (ft <sup>2</sup> )]	Weight (empty/full) [kg (lb)]	Hold-up volume (tube-/shroud-side) [L (gal)]
FPA020/10/2	20	3,050 (10)	3" (Tri-clamp, DN80 DIN 32676)	2 x 3/4" (90° plain spigot, 3/4" OD x 18SWG)	2.2 (23.5)	12.5 (26.0) / 27.6 (57.3)	6.5 (1.7) / 7.0 (1.8)
FPA10/10/2	100						
FPA20/10/2	200						
LPA450/10/2	450						
LMA02/10/2	0.2 µm						
FPA020/10/4	20						
FPA10/10/4	100		3" (Tri-clamp, DN80 DIN 32676)	2 x 1" (Tri-clamp, DN25 DIN 32676)			
FPA20/10/4	200						
LPA450/10/4	450						
LMA02/10/4	0.2 µm						
FPA020/10/S	20					Not applicable (spare core only)	
FPA10/10/S	100						
FPA20/10/S	200						
LPA450/10/S	450						
LMA02/10/S	0.2 µm						

Updated June 3, 2024

## A19 Series

Model	MWCO [kDa]	Length (L) [mm (ft)]	Feed/ concentrate connections	Permeate connections	Membrane area [m <sup>2</sup> (ft <sup>2</sup> )]	Weight (empty/full) [kg (lb)]	Hold-up volume (tube-/shroud-side) [L (gal)]	
FPA020/12/2	20	3,658 (12)	3" (Tri-clamp, DN80 DIN 32676)	2 x ¾" (90° plain spigot, ¾" OD x 18SWG)	2.6 (28.0)	15.0 (33.1) / 31.0 (68.3)	8.0 (2.1) / 8.5 (2.2)	
FPA10/12/2	100							
FPA20/12/2	200							
LPA450/12/2	450							
LMA02/12/2	0.2 µm							
FPA020/12/4	20							
FPA10/12/4	100		3" (Tri-clamp, DN80 DIN 32676)	2 x 1" (Tri-clamp, DN25 DIN 32676)				
FPA20/12/4	200							
LPA450/12/4	450							
LMA02/12/4	0.2 µm							
FPA020/12/S	20					Not applicable (spare core only)		
FPA10/12/S	100							
FPA20/12/S	200							
LMA02/12/S	0.2 µm							



**Note:** U-bends are not included with the modules and are to be ordered separately.

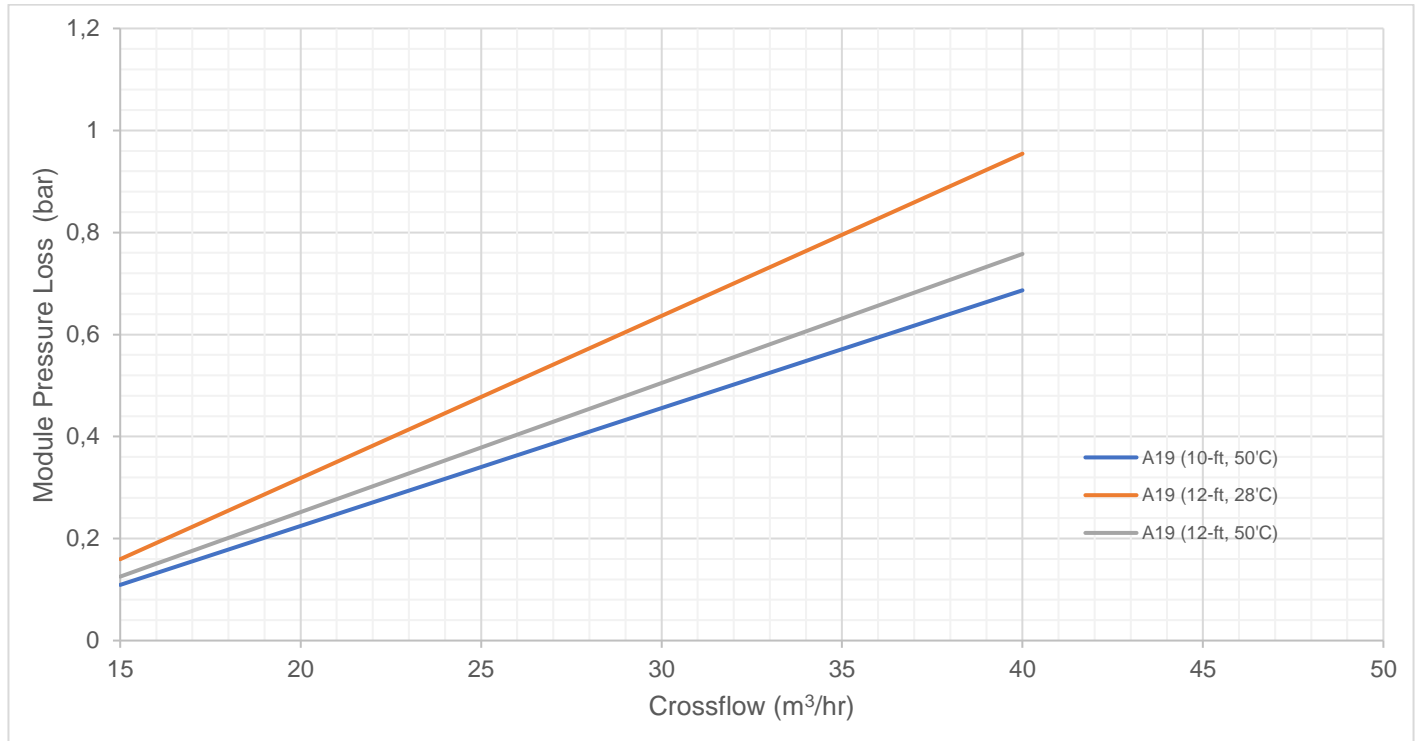
### Recommended Operating Conditions

Parameter	Value
Maximum operating pressure	7.0 bar (102 psi)
Temperature range	5-60°C (41-140°F)
pH range	1.5-10.5
Maximum chlorine concentration	250 ppm at pH > 9

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## A19 Series

### Module Pressure Loss Curve



\* The module pressure loss value includes the pressure loss of the corresponding U-bend. The data is representative for single strength apple juice at 50°C or similar viscosity liquids.

### Storage Guidelines

During storage, membrane modules must always be fully protected and be stored in a dry, clean, non-corrosive, non-polluted, and far from sources of cold or heat environment. The environmental temperature range shall be between -4 and 30°C. Cores are to be stored preserved and sealed.

### Installation Guidelines

For the recoring procedure, please refer to the "[A Series Modules Recoring Instructions](#)". Note:

- New cores contain a preservative and must be given a standard clean before commencing the process.
- Use hand protection when handling new membrane cores.
- Record the reference number, fitting date and position in the plant for all cores fitted.

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### Cleaning Guidelines

The following reference CIP guidelines are referred to depectinized apple juice processing and are to be adapted based on the specific application, feed fluid and operating parameters:

- Displace the process fluid with water at 50-55°C;
- Recirculate a solution of sodium hydroxide at a pH of 10.0-10.5 and at a temperature of 50-55°C for 20 minutes;
- Displace the caustic solution from the system with water at 50-55°C;
- Recirculate a solution of sodium hydroxide around the system at a pH of 10.0-10.5 and at a temperature of 50-55°C until the system is full of the caustic solution;
- Add sodium hypochlorite to have a concentration of chlorine equal to 200 ppm;
- Recirculate for a minimum of 30 minutes, periodically check the chlorine concentration, and top it up to maintain 200 ppm (if necessary);
- Displace and rinse the spent cleaning solution to drain with clean water. During the final stages of the rinse, the bulk permeate flux should be measured. If this is carried out at the same conditions each day (i.e., at the same temperature, pressure, and flow), the effectiveness of the clean can be monitored.

Note: It is essential that the pH of 10.5 is achieved before addition of sodium hypochlorite in order to prevent attack of the membrane by the hypochlorite.

### Accessories

Description	Part Number
10-ft shroud with spigot off-takes (including pins & seals)	MODULEA19/10/2
10-ft shroud with clamp off-takes (including pins & seals)	MODULEA19/10/4
12-ft shroud with spigot off-takes (including pins & seals)	MODULEA19/12/2
12-ft shroud with clamp off-takes (including pins & seals)	MODULEA19/12/4
End seal (2 pcs. per module)	22011091/E
Permeate O-ring seal (2 pcs. per module)	22011089
Core fixing pin (6 pcs. per module)	22011088/A
Recoring tool	22030072/A

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Updated June 3, 2024