PROPOR TFF

Hollow fibre tangential flow filters

Parker domnick hunter

ENGINEERING YOUR SUCCESS.

PROPOR TFF hollow fibre filters from Parker domnick hunter are specially designed for use in biopharmaceutical microfiltration and ultrafiltration applications.

PROPOR TFF hollow fibre filters are available in single-use, reusable and autoclaveable formats to meet the needs of your application.

Without compromising on the performance, consistency and robustness of the membrane, each format has unique benefits to help optimize bioprocess productivity and throughput.

Membrane Characteristics

1 OPTIMUM MEMBRANE MATERIAL

PROPOR TFF membranes are manufactured with modified polyethersulphone (mPES), the most technologically advanced filter membrane material. The proprietary manufacturing process delivers a membrane with extremely low binding characteristics to prevent fouling and maximize throughput, lifetime and yields.

INCREASED PRODUCTIVITY

2 MEMBRANE CONSISTENCY

The proprietary membrane manufacturing process delivers a highly consistent membrane with extremely narrow porosity specifications. This minimizes bioprocess variability, thereby ensuring product quality, and increases the predictability during process scale-up. The risk of product losses that might occur should the porosity be unexpectedly high are eliminated.

REDUCED PROCESS VARIABILITY

3 FILTER ROBUSTNESS

To prevent out-of-the-box failures, 100% of PROPOR TFF filters are integrity tested against tight specifications before they leave the production facility. The membrane construction is highly robust and has a special void-free construction that eliminates 'finger voids' found in other cross-flow filter membranes. The robustness of the PROPOR TFF filters maximizes service lifetime and minimizes process failures associated with a loss of membrane integrity.

DECREASED FILTRATION COSTS

MICROFILTRATION

- Post-centrifugation clarification
- Cell recovery and washing
- Inclusion body processing
- *E. coli* lysate clarification
- Clarification of mammalian cell cultures

ULTRAFILTRATION

- Vaccine purification and concentration
- Recombinant protein concentration and diafiltration

Features & Benefits

- SINGLE-USE
- REUSABLE
- AUTOCLAVEABLE

SINGLE-USE

- Ready to use cross-flow filtration - no pre-rinse required
- Up to 80x reduction in extractables compared to glycerin conditioned membranes
- High-flux, low-fouling modified PES membrane for exceptional performance
- Plug-and-play - connect, use and discard
- No cleaning required, time saving
- Self-contained hollow fibre filters - no hardware - no installation
- 100% integrity tested
- Sterilizable by gamma-irradiation

REUSABLE

- High-flux, low-fouling modified PES membrane for exceptional performance
- Self-contained hollow fibre filters - no hardware - no installation
- 100% integrity tested
- Robust, caustic-stable materials of construction allow repeated chemical cleaning, sanitization and storage cycles

AUTOCLAVEABLE

- Ready to use cross-flow filtration - no pre-rinse required
- Up to 80x reduction in extractables compared to glycerin conditioned membranes
- High-flux, low-fouling modified PES membrane for exceptional performance
- Plug-and-play - connect, use and discard
- No cleaning required, time saving
- Self-contained hollow fibre filters - no hardware - no installation
- 100% integrity tested
- Able to be sterilized by autoclaving

Scale-up made easy...

PROPOR TFF filters can be readily scaled-up by maintaining a consistent hollow fibre path length and increasing the filtration area by increasing the number of fibres.

In this way, the scale-up from approximately 100 cm^2 to 5 m^2 can be easily achieved. Scale-up to even greater membrane areas has been achieved by increasing the path lengths although Parker domnick hunter recommends the longer path length is first tested in scale-down trials.

		Sample Volume	Membrane Area
Lab / LabPlus	$^1/_4$" PROPOR TFF hollow fibre filters small volume membrane screening and product discovery applications	10 - 400 mL	18 cm^2 - 108 cm^2
LabMax	$^1/_2$" PROPOR TFF hollow fibre filters membrane screening and laboratory-scale	150 - 3000 mL	154 cm^2 - 600 cm^2
Pilot	$^3/_4$" PROPOR TFF hollow fibre filters preparative-scale applications	0.4 - 8 L	444 cm^2 - 1715 cm^2
PilotPlus	1" PROPOR TFF hollow fibre filters pilot and scale-up applications	1 - 25 L	0.12 m^2 - 0.5 m^2
Production	3" PROPOR TFF hollow fibre filters medium to large-scale production	> 25 L	1.2 m^2 - 5.0 m^2
Production-Max	$4^1/_2$" PROPOR TFF hollow fibre filters large-scale production	> 300 L	5.0 m^2 - 10 m^2

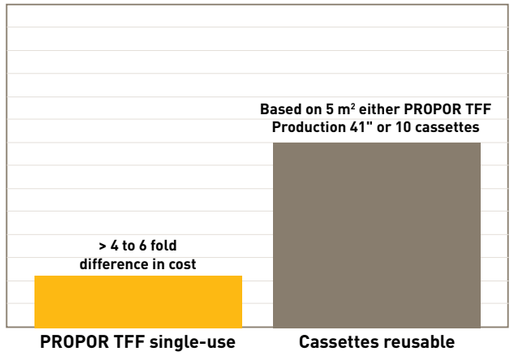
Single-use TFF operations

Benefits:

- Eliminates the need for expensive cleaning utilities reducing facility capital and running costs
- Eliminates the need for cleaning validation decreasing time to market
- Prevents product cross contamination in multi-product facilities
- Easier to modify than stainless steel processes increasing flexibility in both R & D and manufacturing

Cost savings

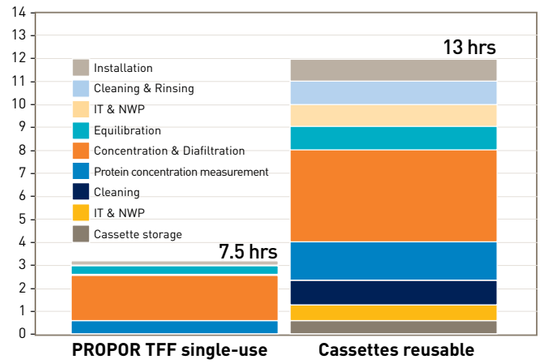
Ultrafiltration cost comparison



A hollow fibre TFF filter format provides a more effective method for packaging filter membrane than cassettes or flat sheets which can significantly reduce the cost per filter area. In this example a single 41" PROPOR TFF hollow fibre filter is compared to 10 cassettes both giving a total filter area of 5 m^2. The cost is 4-6 times higher for cassettes.

Time savings

Facility time saving with PROPOR TFF



By switching to a fully disposable flow path, including the TFF filter, up to 5 hours of facility time can be saved during ultrafiltration applications compared to reusable cassettes. This is achieved by eliminating pre and post-use water permeability testing, pre-flushing, pre and post-use cleaning and cassette storage operations.

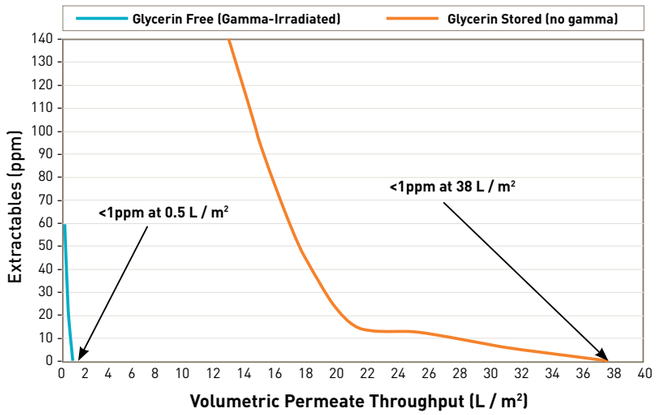
No pre-flush required

PROPOR TFF single-use hollow fibre filters have been developed so as not to require a storage preservative and that means no time consuming pre-flushing prior to use. In fact an 80-fold reduction in flush volume can be achieved when using PROPOR TFF single-use filters (glycerin-free) compared to PROPOR TFF reusable filters (glycerin stored).

The reduction in pre-use flush volume required to remove glycerin from PROPOR TFF single-use filters compared to PROPOR TFF reusable filters

Extractable flush analysis: glycerin-free vs glycerin stored

Membrane: mPES 30 kD, 1 mm Fibre ID
Extractant: Water (20 °C (68 °F))



Use with scalable automated TFF systems

PureTec®

- Lab
- LabPlus
- LabMax

SciFlex®

- Pilot
- PilotPlus

SciPure®

- Production
- ProductionMax

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