



PROPOR TFF single-use

- tangential flow filtration
- modified polyethersulphone hollow fibre cartridges

PROPOR TFF single-use hollow fibre filters provide maximum cross-flow performance with minimal preparation and installation time.

High flux, low fouling and low binding modified PES hollow fibre membrane technology offers consistent and fully scaleable performance in a broad range of applications.

Applying single-use technologies to tangential flow filtration reduces the risk of batch-to-batch contaminations, increases operational flexibility and decreases time to market through the elimination of cleaning, validation and storage protocols.

PROPOR TFF single-use filters are supplied glycerin-free, ready to use without the need for extensive pre-flushing. Set up time can be reduced even further when provided pre-integrated and irradiated as part of a Parker domnick hunter manifold.

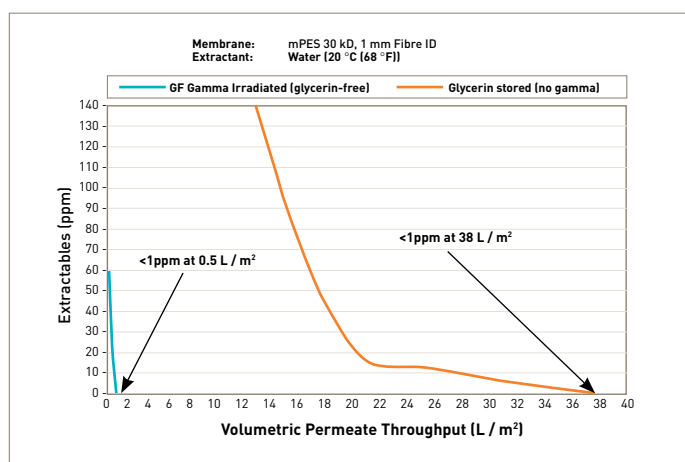
Features and Benefits

- 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
- Self-contained hollow fibre filters - no hardware, no installation
- 100% integrity tested
- Sterilizable by gamma-irradiation



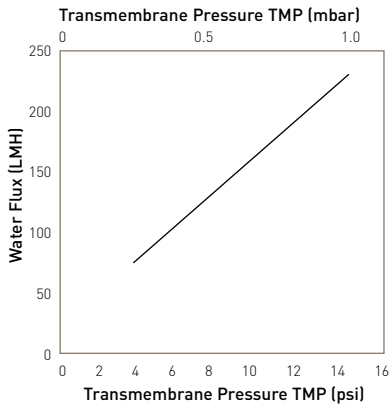
Note: PROPOR is a registered trademark of Parker Hannifin Corporation.

PROPOR TFF single-use filters offer minimal extractable levels with no water flush

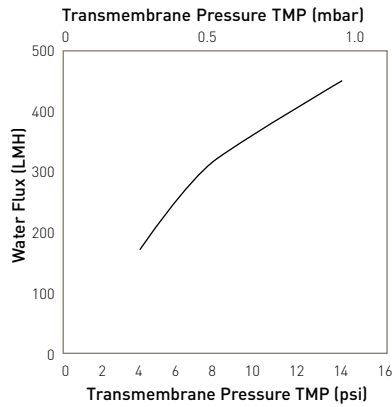


Extractable flush analysis: glycerin-free vs glycerin stored

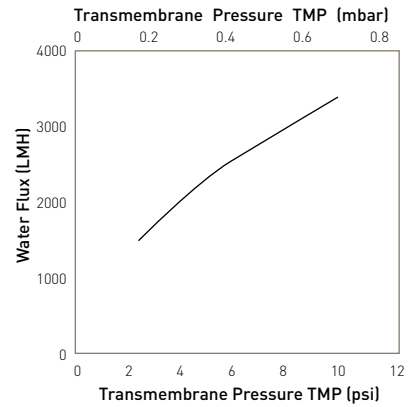
Performance Characteristics



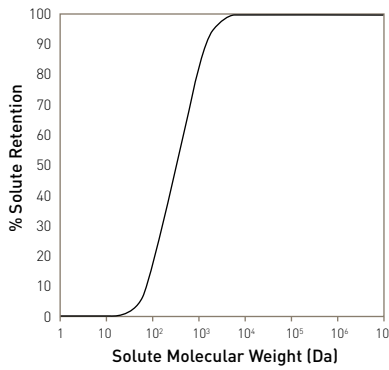
Clean water flux for a 12" PilotPlus
30K MWCO, 1.0mm ID



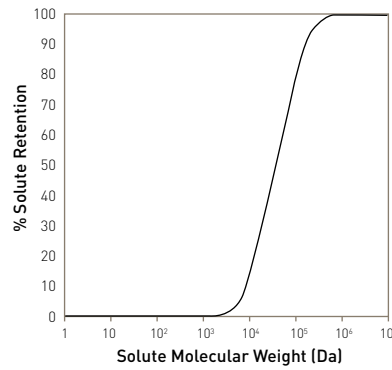
Clean water flux for a 12" PilotPlus
300K MWCO, 1.0mm ID



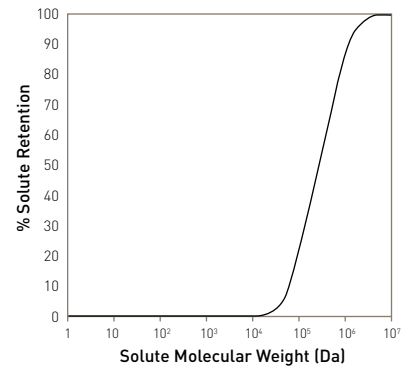
Clean water flux for a 12" PilotPlus
0.2 micron, 1.0mm ID



30K MWCO membrane solute retention



300K MWCO membrane solute retention



0.2 micron membrane solute retention

Typical Batch Sizes & Flow Rates by Product Format

Cartridge Type	12 inch Fibre Length		24 inch Fibre Length		41 inch Fibre length	
	Recommended Batch Volume (L)	Recommended Permeate Flow Rate (L / h)	Recommended Batch Volume (L)	Recommended Permeate Flow Rate (L / h)	Recommended Batch Volume (L)	Recommended Permeate Flow Rate (L / h)
LabPlus	0.01 to 0.25	up to 0.125	0.05 to 0.4	up to 0.25	N/A	N/A
LabMax	0.15 to 0.75	up to 0.4	0.25 to 1.5	up to 0.8	0.3 to 3.0	up to 1.5
Pilot	0.4 to 2.0	up to 1.4	0.7 to 4.0	up to 2.5	1.0 to 8.0	up to 5.0
PilotPlus	1.0 to 6.0	up to 3.0	2.0 to 12.0	up to 6.0	3.0 to 25.0	up to 12.0
Production	25.0 to 100.0	up to 30.0	50.0 to 250.0	up to 70.0	100.0 to 500.0	up to 150.0
ProductionMax	N/A	N/A	100.0 to 500.0	100.0 to 500.0	300.0 to 1000.0	300.0 to 1000.0

Specifications

Materials of Construction

- Membrane: Modified glycerin-free polyethersulphone (PES)
- Internal Screens: Polypropylene
- Encapsulant: FDA compliant urethane
- Housing: White polysulphone

Sterilization

All PROPOR TFF single-use hollow fibre filters are supplied pre-irradiated to prevent the requirement for use of an antimicrobial agent post-manufacture.

Filters are validated to withstand secondary irradiation dosage at 25 to 40kGy to allow sterilization as part of a larger system.

Compliance / Biological Safety

All materials of construction meet USP Class VI and Physiochemical Test for Plastics standards, and are compliant with FDA 21CFR parts 175 – 177 as relevant to the appropriate material type.

Quality Standards

All materials used in the construction of Parker domnick hunter hollow fibre filters are 100% lot traceable.

All membrane lots are tested to ensure conformity with retention, permeability and water-flux specifications. All finished filters are tested for clean water flux, and cartridge / fibre integrity post manufacture.

Shelf-Life

Under recommended conditions (refer to product validation guide) unused PROPOR TFF filters can be stored for a period of up to 24 months following the date of manufacture without affecting product performance.

Product Dimensions & Membrane Area

Cartridge Type	Number of Fibres*	12 inch Fibre Length		24 inch Fibre Length		41 inch Fibre length	
		EFA (cm ²)	Nominal Module Dimensions (dia. x length) (mm)	EFA (cm ²)	Nominal Module Dimensions (dia. x length) (mm)	EFA (cm ²)	Nominal Module Dimensions (dia. x length) (mm)
LabPlus	6 or 12	52 cm ²	9 x 300	107 cm ²	9 x 600	N/A	N/A
LabMax	18 or 36	155 cm ²	13 x 312	320 cm ²	13 x 605	580 cm ²	13 x 1062
Pilot	54 or 108	444 cm ²	33 x 311	940 cm ²	33 x 597	0.17 m ²	33 x 1061
PilotPlus	160 or 320	0.13 m ²	33 x 305	0.20 m ²	33 x 597	0.50 m ²	33 x 1054
Production	1600 or 3200	1.25 m ²	89 x 381	2.72 m ²	89 x 673	5.00 m ²	89 x 1130
ProductionMax	3200 or 6400	N/A	N/A	5.00 m ²	117 x 724	10.00 m ²	117 x 1181

* Dictated by fibre lumen diameter (1.0 mm / 0.5 mm).

Recommended Operating Conditions

Membrane Type	Maximum Feed Pressure		Maximum Transmembrane Pressure (TMP)		Maximum Temperature		pH Range
	barg	psig	barg	psig	° C	° F	
5K - 100K MWCO	2.76	40	2.41	35	60	140	2 to 13.5
300K - 500K MWCO	2.07	30	1.72	25	50	122	2 to 13.5
750K MWCO	1.72	25	1.38	20	50	122	2 to 13.5
0.1 µm	1.38	20	1.03	15	40	104	2 to 13.5
0.2 µm	1.03	15	0.69	10	40	104	2 to 13.5
0.45 µm	1.03	15	0.69	10	40	104	2 to 13.5

Ordering Information

Code Length (Nominal)*		Code NMWC* / Micron Rating		Code Diameter		Code Cartridge Type		Connector Type				Code Pack Quantity*	
								Code	Feed/ Retentate	Permeate	Availability		
1	12 inch	304.8 mm	003	3 kDa	10	1 mm	LP	LabPlus	LL	Luer Lock	Luer Lock	LabPlus	1
2	24 inch	609.6 mm	005	5 kDa	05	0.5 mm	LX	LabMax	05	1/2 inch TC	3/16 inch Barbed Hose	LabMax	3
3	41 inch	1041.4 mm	010	10 kDa			PL	Pilot	07	3/8 inch TC	3/8 inch Barbed Hose	Pilot	6
*Nominal hollow-fibre length only, exact module dimensions vary by specific product format.			030	30 kDa			PP	PilotPlus	15	1 1/2 inch TC	1/2 inch TC / 1 inch TC	PilotPlus/	12
			050	50 kDa			PR	Production				Production	
			100	100 kDa			PM	ProductionMax	20	2 inch TC	1 1/2 inch TC	ProductionMax	
			300	300 kDa					30	3 inch TC	1 inch TC	Production	
			500	500 kDa									
			750	750 kDa									
			910	0.1 µm									
			920	0.2 µm									
			945	0.45 µm									
			*NMWC = Nominal molecular weight cut-off										
			*Available pack quantities dependant on specific module format.										