PROPOR TFF reusable

- tangential flow filtration
- modified polyethersulphone hollow fibre cartridges

PROPOR TFF reusable hollow fibre filters provide maximum process performance and high product yield through the use of advanced low fouling modified PES membrane technology, while also allowing for more efficient post-use module cleaning.

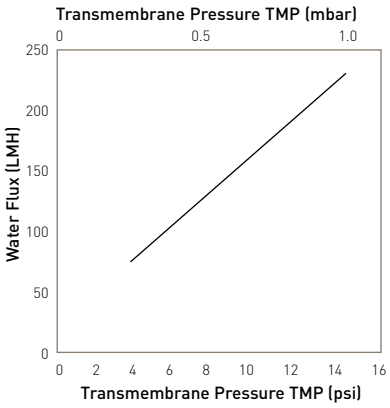
High flux, low fouling and low binding modified PES hollow fibre membrane technology offers consistent and fully scaleable performance in a broad range of applications.

PROPOR TFF reusable filters are also completely caustic stable, allowing the filter to be repeatedly cleaned, sanitized and stored throughout the duration of a long service life without risk to product integrity.

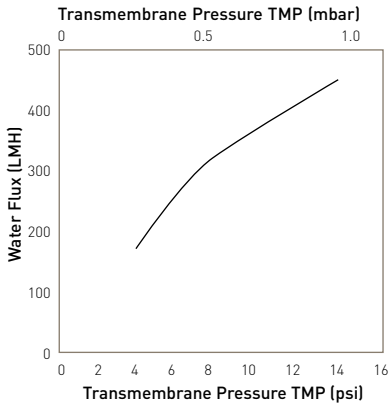
Features and Benefits

- 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

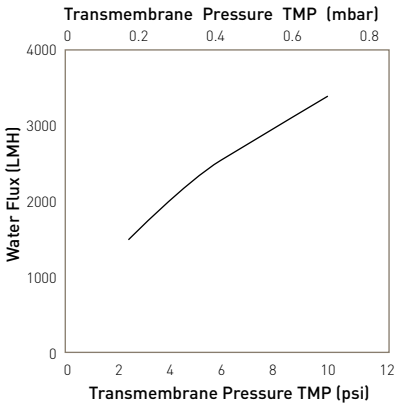
Performance Characteristics



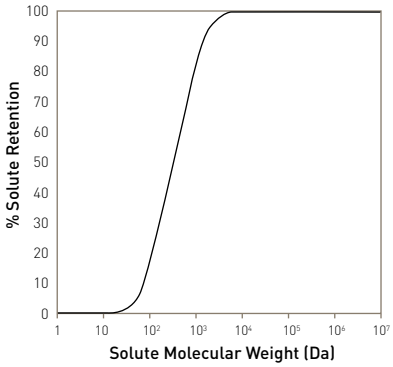
Clean water flux for a 12¨ PilotPlus 30K MWCO, 1.0mm ID



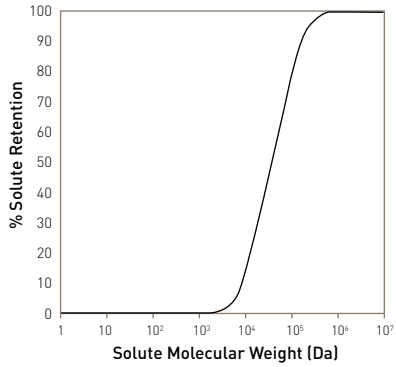
Clean water flux for a 12¨ PilotPlus 300K MWCO, 1.0mm ID



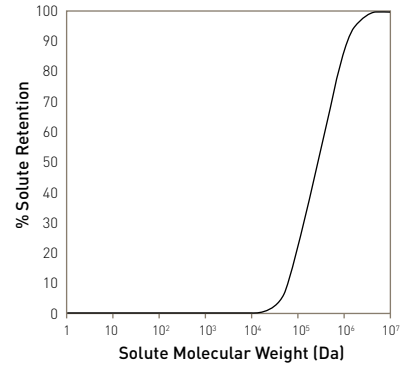
Clean water flux for a 12¨ PilotPlus 0.2 micron, 1.0mm ID



30K MWCO membrane solute retention



300K MWCO membrane solute retention



0.2 micron membrane solute retention

Typical Batch Sizes & Flow Rates by Product Format

		12 inch Fibre Length		24 inch Fibre Length		41 inch Fibre length	
Cartridge Type	Recommended Crossflow Rate (L/min)*	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)
Lab	0.050 to 0.075	0.01 to 0.08	up to 0.05	0.01 to 0.125	up to 0.1	N/A	N/A
LabPlus	0.150 to 0.225	0.01 to 0.25	up to 0.125	0.05 to 0.4	up to 0.25	N/A	N/A
LabMax	0.50 to 0.70	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	1.5 to 2.1	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	4 to 6.5	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
ProductionMini	15 to 20	5.0 to 50.0	up to 20.0	10.0 to 100.0	up to 40.0	25.0 to 200.0	up to 100.0
Production	30 to 40	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	60 to 80	N/A	N/A	100.0 to 500.0	100.0 to 500.0	300.0 to 1000.0	300.0 to 1000.0

** Typical range based on 1 mm lumen diameter*

Specifications

Materials of Construction

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

Sanitization and Storage

All PROPOR TFF reusable hollow fibre filters are supplied containing sodium azide preservative solution. Together with the glycerin humectant contained within the membrane, this solution should be flushed from the filter prior to use.

The filters can be cleaned and sanitized, using sodium hydroxide solution (NaOH) at concentrations of up to 0.5M, and stored in 0.1M NaOH solution. Please refer to the product validation guide and standard operating procedure for specific guidance.

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

		12 inch Fibre Length		24 inch Fibre Length		41 inch Fibre length	
Cartridge Type	Number of Fibres*	EFA	Nominal Module Dimensions (dia. x length) (mm)	EFA	Nominal Module Dimensions (dia. x length) (mm)	EFA	Nominal Module Dimensions (dia. x length) (mm)
Lab	2 or 4	17 cm^2	9 x 330	36 cm^2	9 x 619	N/A	N/A
LabPlus	6 or 12	52 cm^2	9 x 330	107 cm^2	9 x 619	N/A	N/A
LabMax	18 or 36	155 cm^2	13 x 305	320 cm^2	13 x 605	580 cm^2	13 x 1061
Pilot	54 or 108	444 cm^2	19 x 362	940 cm^2	19 x 668	0.17 m^2	19 x 1061
PilotPlus	160 or 320	0.13 m^2	33 x 305	0.27 m^2	33 x 605	0.50 m^2	33 x 1054
ProductionMini	800 or 1600	0.65 m^2	69x 381	1.35 m^2	69x 673	2.50 m^2	69x 1130
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

Parker Hannifin certify that this product complies with the current European Council Pressure Equipment Directive (PED) - Sound Engineering Practice (SEP). This product is intended for use with Group 1 & 2 Dangerous and Harmless Liquids and Group 2 Harmless Gases at the operating conditions stated in this document. The Pressure Equipment Directive mandates that category SEP product cannot bear the CE mark.

Ordering Information

TFFR [ ] - [ ] [ ] - [ ] [ ] [ ]

Code	Length (Nominal)*
1	12 inch+ 304.8 mm
2	24 inch 609.6 mm
3	41 inch^ 1041.4 mm

**Nominal hollow fibre length only, exact module dimensions vary by specific product format.*

+ ProductionMax not available in 12 inch length.

^Lab & LabPlus format not available in 41 inch length.

Code	NMWC* / Micron Rating
003	3 kDa
005	5 kDa
010	10 kDa
030	30 kDa
050	50 kDa
100	100 kDa
300	300 kDa
500	500 kDa
750	750 kDa
910	0.1 µm
920	0.2 µm
945	0.45 µm

**NMWC = Nominal molecular weight cut-off*

Code	Diameter
10	1 mm
05	0.5 mm

Code	Cartridge Type
LA	Lab
LP	LabPlus
LX	LabMax
PL	Pilot
PP	PilotPlus
PM	ProductionMini
PR	Production
PX	ProductionMax

Code	Connector Type: Feed/ Retentate	Permeate	Availability
LL	Luer Lock	Luer Lock	LabPlus
05	1/2 inch TC	3/16 inch Barbed Hose	LabMax
07	3/8 inch TC	3/8 inch Barbed Hose	Pilot
15*	1 1/2 inch TC	1/2 inch TC	PilotPlus
	1 1/2 inch TC	3/4 inch TC	ProductionMini
	1 1/2 inch TC	1 inch TC	Production
20	2 inch TC	1 1/2 inch TC	ProductionMax
30	3 inch TC	1 inch TC	Production

**Code 15 specifies 1/2 inch TC permeate connection on PilotPlus module format, 3/4 inch TC permeate connection on ProductionMini and 1 inch TC permeate connection on Production.*

Code	Pack Qty	Available Formats
1	1	All formats
6	6	Lab & LabPlus

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