

Production Scale Hollow Fiber Modules for Processing 1,000 to 50,000 Liters!



Spectrum introduces KrosFlo[®] MAX & CellFlo[®] MAX, the largest hollow fiber filter modules available for the bioprocessing & pharmaceutical industries. These production modules directly scale up from KrosFlo[®] Plus & CellFlo[®] Plus to provide surface areas ranging from 5.3 to 22 m². KrosFlo[®] MAX & CellFlo[®] MAX modules can be operated with the KrosFlo[®] Pharma Production System or a production skid designed by Spectrum to combine and MAX-imize the advantages of gentle hollow fiber flow dynamics, the efficiency of tangential flow filtration and the time & cost savings of disposability. **MAX-imize your process filtration!**

ADVANTAGES OF DISPOSABLE KrosFlo[®] MAX & CellFlo[®] MAX:

- Disposability
- Easier FDA Validation
- Saves Money & Time
- No Cross-Contamination
- Less Down-Time
- Low Shear
- Directly Scalable for Production
- Easy Retrofit for other HF Modules

GENERAL DESCRIPTION

Disposable KrosFlo[®] MAX & CellFlo[®] MAX are available in three convenient sizes. The "300" size provides a direct scale-up of the process volume, flow rate & permeate rate from Spectrum's KrosFlo[®] Plus & CellFlo[®] Plus "3X" size. The "600" and "800" sizes are easy retrofits for commercially available re-usable modules. All three sizes can be connected to any process loop via 2" sanitary retentate ports and 1 1/2" sanitary filtrate ports. Non-irradiated modules can be sterilized once prior to use by autoclaving, irradiation or ETO.

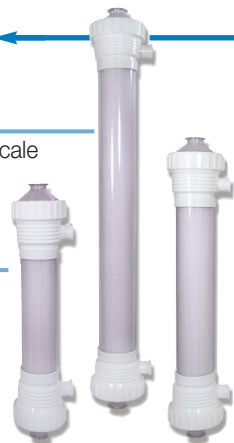
QUALITY ASSURANCE

Spectrum modules are manufactured under cGMP in an ISO Class 209 E (US Fed. Class 10,000) clean-room and are 100% integrity tested and 100% lot traceable. All materials of construction meet Class VI biocompatibility standards.

PROCESS FILTRATION SYSTEMS

KrosFlo[®] MAX & CellFlo[®] MAX can be used with:
Custom Designed Skids to process large scale manufacturing volumes up to 50,000 liters.

KrosFlo[®] Pharma System to process production scale volumes of 50 to 5,000 liters.



NEW! KrosFlo[®] MAX & CellFlo[®] MAX PRODUCTION SCALE MODULES



KrosFlo® MAX HOLLOW FIBER MODULES

The KrosFlo® MAX modules are available for both microfiltration and ultrafiltration applications utilizing 0.5 or 0.6 mm ID fibers to provide increased membrane surface area for processing larger volumes. KrosFlo® MAX modules are designated by a part number starting with "KM" and "0" for the fiber ID.

Example Part No: KM2E-300-01N

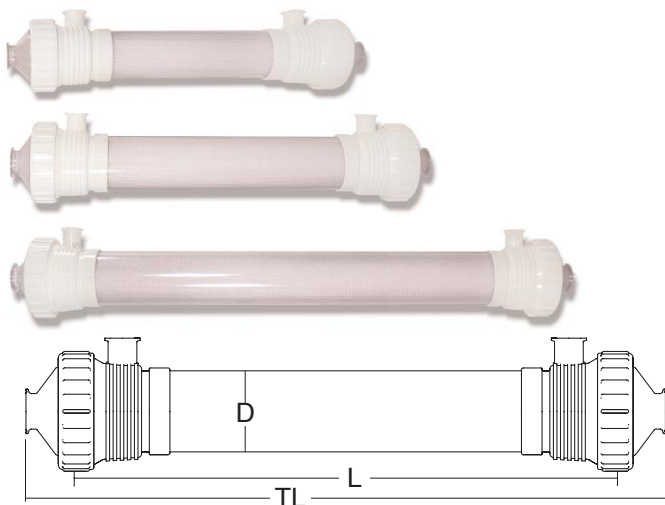
The membrane is available in three types, mixed cellulose ester (ME), polyethersulfone (PES) and polysulfone (PS).

Membrane	ID	MWCO
ME	0.6 mm	0.1 µm & 0.2 µm
PES	0.5 mm	0.2 µm & 0.5 µm
PS	0.5 mm	0.05 µm, 20 nm, 400 kD, 100 kD, 50 kD & 10 kD

KrosFlo® MAX APPLICATIONS:

Cell lysate clarification	0.5, 0.2 & 0.1 µm
Microparticle diafiltration	0.5, 0.2 & 0.1 µm
<i>E. coli</i> concentration	0.2 & 0.1 µm
Fermentation harvest	0.2 & 0.1 µm
Macrophage clarification	0.05 µm
Baculovirus, retrovirus & adenovirus purification	0.05 µm & 400 kD
Viral removal	400 kD
Antibody purification (IgM & IgG)	400, 100 & 50 kD
Protein Concentration	400, 100, 50 & 10 kD
Buffer exchange, pH Change, desalt	100, 50 & 10 kD
Albumin purification	50 kD
Depyrogenation	50 & 10 kD
Small protein & peptide purification	10 kD

MODULE DIMENSIONS & SPECIFICATIONS



Module Size	D (cm)	TL (cm)	L (cm)	EL (cm)
xxxx-600-xxx	11.6	73.5	62.8	49.9
xxxx-300-xxx	11.6	91.5	81.2	67.9
xxxx-800-xxx	11.6	131.1	120.6	107.5

D = Module Tubing Outer Diameter

L = Hollow Fiber Length

TL = Module Total Length

EL = Hollow Fiber Effective Length

CellFlo® MAX HOLLOW FIBER MODULES

The CellFlo® MAX modules is specifically designed with 1 mm ID hollow fibers for the low shear requirements of cell separation applications. It is also well suited for processing high density or viscous fluids. CellFlo® MAX modules are designated by a part number starting with "CM" and "1" for the fiber ID.

Example Part No: CM2E-301-01N

The membrane is available in the same three membrane types ME, PES and PS.

Membrane	ID	MWCO
ME	1.0 mm	0.2 µm
PES	1.0 mm	0.2 µm & 0.5 µm
PS	1.0 mm	20 nm

CellFlo® MAX APPLICATIONS:

Whole cell washing & concentration	0.5 & 0.2 µm
Cell harvesting	0.5 & 0.2 µm
Continuous bioreactor perfusion	0.5 & 0.2 µm
Large diagnostic particle diafiltration	0.5 & 0.2 µm
Clarification of viral cultures	0.5, 0.2 & 0.1 µm
Nanofiltration	20 nm
Colloid Concentration	20 nm
Virus Purification & Concentration	20 nm



Materials of Construction:

Housing:	Clear and pigmented polysulfone
Netting:	Polypropylene
Flange Nut:	Pigmented polysulfone
Inlet/Outlet Reducer:	2" sanitary, clear polysulfone
Filtration Side-port:	1½" sanitary
Potting:	Polyurethane
Process Volume:	50 - 5,000 liters
Surface Area:	5.3 - 22 m ²

ACCESSORIES:

KrosFlo® MAX Module Wrench

Designed to insure connection tightness, the KrosFlo MAX Module Wrench easily allows you to apply up to 50 PSI to the flange nut on the KrosFlo® MAX & CellFlo® MAX modules.



Part No: ACKM-WR1-01N