



## **Your Guide to Easy Cross Flow.**

Follow these steps to enhance your WaterSep hollow fiber cross flow performance.

### **1. Choose a membrane cut-off appropriate for your application.**

Concentration/Diafiltration.

The product molecule should optimally be 5-6 X larger than the Molecular Weight Cut Off (MWCO) of the membrane.

Exemple: For a 150K Dalton antibody a 30 K MWCO membrane is recommended.

For a CHO cell clarification, where high transmission is essential we recommend a 0.1um -0.45um membrane, depending on the molecular weight of the product.

For an E-Coli whole cell harvest or a lysate clarification a 750K MWCO – 0.2 um is optimum.

**2. Choose the right membrane surface area based on sample volume, product concentration and process time.**

Example:

MiniDiscover/ Sample volume 10-300 ml

Discover: Sample volume 80-600 ml

Explorer Series: Sample volume 200 ml – 5L

Investigator Series: Sample volume 2L – 40L

Producer Series: Sample volume > 40 L

The following flow rates can be expected based on listed flux assumptions.

Product	20 LMH Flux	40 LMH Flux	60 LMH Flux
	Expected flow rate/	Expected flow rate	Expected flow rate
	ml/min*	ml/min*	ml/min*
MiniDiscover12	0.6	1.2	1.8
MiniDiscover24	1.2	2.4	3.6
Discover12	1.8	3.6	5.4
Discover24	3.6	7.2	10.8
Explorer12	5	10	16
Explorer24	11	22	32
Explorer41	19	38	57

Investigator12	44	88	132
Investigator24	93	186	278
Investigator41	169	338	508
Producer12	400	800	1,200
Producer24	900	1,800	2,700
Producer41	1,600	3,200	4,800

\*The flow rate numbers indicated above are approximate and depend on temperature, viscosity and trans membrane pressure.

### 3. Recommended process conditions.

Cross flow:	MiniDiscover:	32-80 ml/min
	Discover:	100-230 ml/min
	Explorer Series:	300-700 ml/min
	Investigator Series:	2.7 – 6.2 L/min
	BioProducer Series:	35-90 L/min

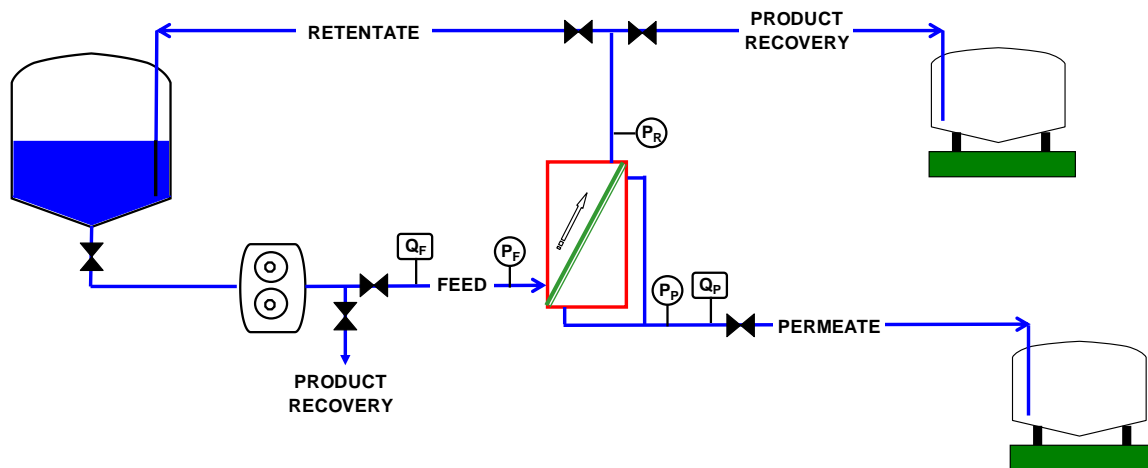
Trans membrane Pressure:

Concentration/diafiltration      15-30 psi (1-2 Bar)

Cell harvest/Clarification      3-8 psi (0.2-0.5 Bar)

4. Connect the WaterSep hollow fiber cartridge with pump, tubing valves and pressure sensors. Please see picture 1.

Fitting and tubing packages for Explorer and Investigator series are available from WaterSep. Please visit web page or contact us.



Picture 1. Schematic Cross Flow System

5. Start the pump, rinse system with water and equilibrate with buffer. Discard retentate and permeate fluid.
6. Start the concentration/clarification and monitor permeate flow rates and trans-membrane pressure.
7. When finished rinse system with one aliquote of buffer to maximize yield.
8. Clean membrane or discard filter if single use. See WaterSep SOP posted on [www.WaterSep.net/Support](http://www.WaterSep.net/Support) and Validation
9. Please contact WaterSep for any questions or advise. We have over 75 years of cross flow experience.

For process optimization please contact the application group at WaterSep. Email [experttalk@watersep.net](mailto:experttalk@watersep.net) or by phone.

Tel. 508 970 0089 ext 204