

Hollow Fiber Filters





Product Features

- High flux rates, high filtration capacity
- Modified hydrophilic PES hollow fiber membrane provides low protein binding, less membrane fouling and easy cleaning
- As a complete device without additional assembly or device holder, quick installation and operation
- Regenerated by chemical wash with 0.5M NaOH solution
- Simple and reliable linear amplified scale-up

Cobetter hollow fiber filters deliver excellent filtration selectivity and low fouling membrane performance, it helps to improve the yield and filtration capacity in biotech process and provides cost-economic solutions.

Typical use by application

- Purification, concentration and diafiltration of vaccine
- Purification, concentration and diafiltration of viral vector
- Clarification of cells and bacterial in fermentation broth
- Clarification of cell lysates and bacterial in product recovery and wash
- Concentration and diafiltration of protein



Product Specification

Hollow Fiber Filter Module Part Numbers Key (0.5mm)

Module	Effective Length (cm)	Process Volume	MWCO	Fiber inner Lumen(mm)	Effective Surface Area (cm ² /m ²)	Fiber Number	Flow rate@2000s ⁻¹ (mL/min)	Flow rate@6000s ⁻¹ (mL/min)	Overall Dimension (mm*mm)	Inlet/Outlet	Side Port	
Mini	30	<300mL	100kD	0.5	28	6	9	27	10*346	Luer Connection Female	Luer Connection Female	
	60	<600mL		0.5	56	6	9	27				
Minilab	30	<1L		0.5	118	25	37	110	13*348	0.5" TC	3/16" HB	
	60	<2L		0.5	236	25	37	110				
Lab	30	<2L		0.5	236	50	74	221	13*648	1.5" TC	0.5" TC	
	60	<4L		0.5	471	50	74	221				
Pilot	30	<15L		300kD	0.5	0.15	320	471	1413	33*361	1.5" TC	0.5" TC
	60	<30L		500kD	0.5	0.30	320	471	1413			
	110	<50L		750kD	0.5	0.55	320	471	1413			
Pilot+	30	<15L		0.5	0.24	500	736	2209	33*361	33*661	33*1161	
	60	<50L		0.5	0.47	500	736	2209				
	110	<80L		0.5	0.86	500	736	2209				
Process	30	<200L	0.5	2.59	5500	8099	24298	89*477	1.5" TC	1.0" TC		
	60	<500L	0.5	5.18	5500	8099	24298	89*777				
	110	<800L	0.5	9.07	5500	8099	24298	89*1227				

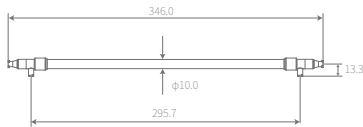
Hollow Fiber Filter Module Part Numbers Key (1.0mm)

Module	Effective Length (cm)	Process Volume	MWCO	Fiber inner Lumen(mm)	Effective Surface Area (cm ² /m ²)	Fiber Number	Flow rate@2000s ⁻¹ (mL/min)	Flow rate@6000s ⁻¹ (mL/min)	Overall Dimension (mm*mm)	Inlet/Outlet	Side Port	
Mini	30	<300mL	100kD	1.0	28	3	35.3	106	10*346	Luer Connection Female	Luer Connection Female	
	60	<600mL		1.0	56	3	35.3	106				
Minilab	30	<1L		1.0	94	10	118	353	13*348	0.5" TC	3/16" HB	
	60	<2L		1.0	188	10	118	353				
Lab	30	<2L		1.0	170	18	212	636	13*648	1.5" TC	0.5" TC	
	60	<4L		1.0	340	18	212	636				
Pilot	30	<15L		300kD	1.0	0.15	160	1884	5652	33*361	1.5" TC	0.5" TC
	60	<30L		500kD	1.0	0.30	160	1884	5652			
	110	<50L		750kD	1.0	0.55	160	1884	5652			
Pilot+	30	<15L		1.0	0.23	240	2824	8471	33*361	33*661	33*1161	
	60	<50L		1.0	0.45	240	2824	8471				
	110	<80L		1.0	0.83	240	2824	8471				
Process	30	<200L	1.0	2.08	2200	25880	77650	89*477	1.5" TC	1.0" TC		
	60	<500L	1.0	4.16	2200	25880	77650	89*777				
	110	<800L	1.0	7.62	2200	25880	77650	89*1227				

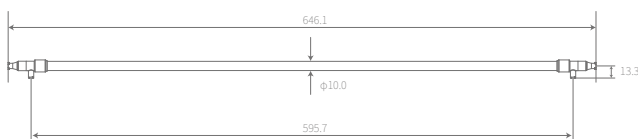
Material Construction

Module Component	Material	Advantages and Function
Hollow Fiber Membrane	mPES	The modified hydrophilic PES hollow fiber membrane delivers low binding, less membrane fouling and continuous high flux rates for faster processing times, the membrane is approved to effectively retain virus particles so as to achieve the purpose of concentration and buffers exchange.
Potting Glue	Polyurethane/Epoxy	It wraps each hollow fiber to provide a support site for the hollow fiber membrane, at the same time, those material completely isolates the inlet flow channel and the permeate flow channel.
End Cap	White Polysulfone	Provide a flow channel connection for liquid in and out, with good chemical compatibility.
Shell	Transparent Polysulfone	Connect the inlet and outlet caps to form a complete assembly, while providing a cavity flow channel for the permeate, with good chemical compatibility.

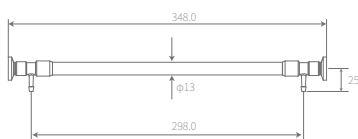
Overall Dimension



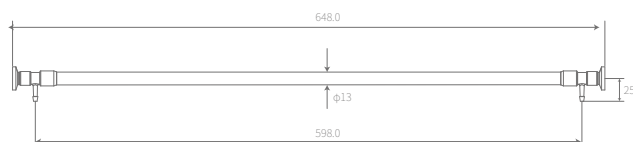
MI-Minilab — 30cm



MI-Minilab — 60cm

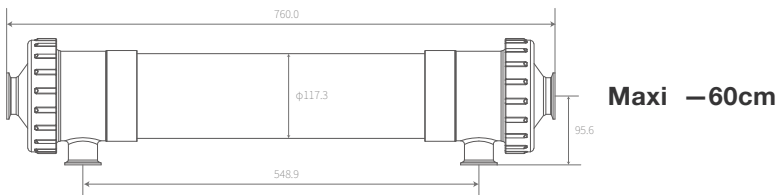
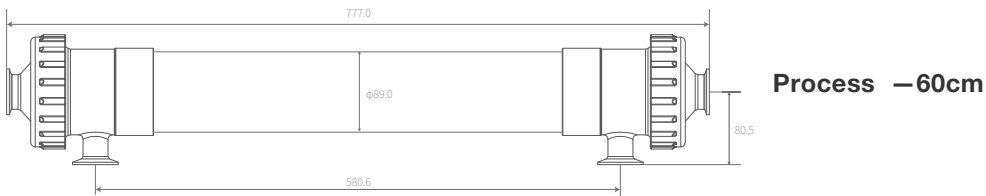
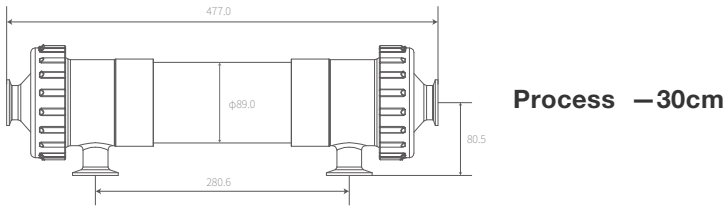
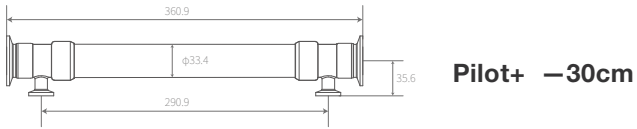


Lab — 30cm



Lab — 60cm

Overall Dimension



Key Figures

Shear Rate

The circulating flow rate of the hollow fiber depends on the product tolerance to the shear rate, in generally it will be set at 2000/s to 10000/s, which is much smaller than the shear rate generated by the turbulent flow on the surface of the cassette screen.

For general materials, we usually choose a shear rate of 4000/s to 6000/s;

If the product is sensitive to shear force (such as lentivirus, new coronavirus or macromolecular protein expressed by animal cells, large plasmids and LNP, etc.), the shear rate needs to be reduced to 2000/s;

If the product is with good resistant to shear force (such as small molecular proteins expressed by bacteria, etc.) shear rate could be increased to 8000/s to 10000/s correspondingly.

Fiber Inner Lumen

Module with fiber of 1.0mm ID is ideal for product with high cell density or high solid content or high viscosity.

Module with fiber of 0.5mm ID is widely used in most application scenarios to improve mass transfer efficiency.

MWCO

It is necessary to take into account of sufficient separation selectivity to secure the selectivity and flux of process.

With above premise, we also suggest choosing relatively smaller pore size to reduce membrane block risk from processing particles. It will help to extend the service life effectively.

Common processing scenarios are as following:

- Concentration, purification and removal of Virus : 100kD, 300kD, 500kD, 750kD
- Clarification of recombinant protein, antibody : 500kD, 750kD
- Concentration of bacterial: 500kD, 750kD

Effective Length

The process scale-up feature of hollow fibers is that: direct process scale-up can be carried out as long as the effective length is kept the same.

On the opposite, due to the significant pressure drop difference between inlet and outlet existed in different lengths, the internal pressure and flow velocity distribution of the flow channel also change correspondingly, so linear amplification cannot be performed on devices with different length.

When we process with more fouling and high viscosity product, it is preferred to choose components with shorter flow path lengths.

Ordering Information

HF-E-XX-XXXX-XX-XX-P e.g.:HFELA05000560P

Product type	Membrane	Module	MWCO	Fiber inner Lumen	Effective Length	
HF Hollow Fiber	E PES	MN Mini MI Minilab LA Lab PI Pilot PP Pilot+ PR Process MA Maxi	0100 100K 0300 300K 0500 500K 0750 750K	05 0.5mm 10 1.0mm	30 30cm 60 60cm 11 110cm	P Pharmaceutical