

# 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 <sup>2</sup> /m <sup>2</sup> )	Fiber Number	Flow rate @2000s <sup>-1</sup> (mL/min)	Flow rate @6000s <sup>-1</sup> (mL/min)	Overall Dimension (mm*mm)	Inlet /Outlet	Side Port				
Mini	30	<300mL	50kD	0.5	28	6	9	27	10*346	Luer Connection Female	Luer Connection Female				
	60	<600mL		0.5	56	6	9	27	10*646						
Minilab	30	<1L		0.5	118	25	37	110	10*346			1.5" TC (Clamp OD φ50.5mm)	0.5" TC (Clamp OD φ25mm)		
	60	<2L		0.5	236	25	37	110	10*646						
Lab	30	<2L		0.5	236	50	74	221	13*348					0.5" TC (Clamp OD φ25mm)	3/16" HB
	60	<4L		0.5	471	50	74	221	13*648						
Lab+	30	<8L		0.5	0.08	180	265	794	18*355	0.5" TC (Clamp OD φ25mm)	3/8" HB				
	60	<16L		0.5	0.16	180	265	794	18*620						
Pilot	30	<15L		0.5	0.15	320	471	1413	33*361	1.5" TC (Clamp OD φ50.5mm)	0.5" TC (Clamp OD φ25mm)				
	60	<30L		0.5	0.30	320	471	1413	33*661						
	110	<50L		0.5	0.55	320	471	1413	33*1161						
Pilot+	30	<15L		100kD	0.5	0.24	500	736	2206					33*361	
	60	<50L	300kD	0.5	0.47	500	736	2206	33*661						
	110	<80L	500kD	0.5	0.86	500	736	2206	33*1161						
MiniProcess	30	<75L	750kD	0.5	0.68	1450	2132	6397	47*400			1.5" TC (Clamp OD φ50.5mm)	1.0" TC (Clamp OD φ50.5mm)		
	60	<150L	0.5	1.37	1450	2132	6397	47*400							
	110	<250L	0.5	2.50	1450	2132	6397	47*1150							
MidProcess	30	<120L	0.5	1.22	2600	3824	11471	65*440	1.5" TC (Clamp OD φ50.5mm)					1.0" TC (Clamp OD φ50.5mm)	
	60	<200L	0.5	2.45	2600	3824	11471	65*740							
	110	<400L	0.5	4.29	2600	3824	11471	65*1190							
Process	30	<200L	0.5	2.45	5200	7647	22941	89*477	2.0" TC (Clamp OD φ64mm)	1.5" TC (Clamp OD φ50.5mm)					
	60	<500L	0.5	4.90	5200	7647	22941	89*777							
	110	<800L	0.5	8.57	5200	7647	22941	89*1227							
Maxi	60	<800L	0.5	9.29	10200	15000	45000	117*760	2.0" TC (Clamp OD φ64mm)	1.5" TC (Clamp OD φ50.5mm)					
	110	<1500L	0.5	16.81	10200	15000	45000	117*1230							

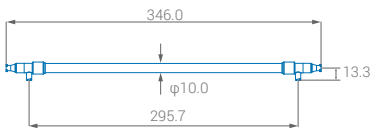
### Hollow Fiber Filter Module Part Numbers Key (1.0mm)

Module	Effective Length (cm)	Process Volume	MWCO	Fiber Inner Lumen (mm)	Effective Surface Area (cm <sup>2</sup> /m <sup>2</sup> )	Fiber Number	Flow rate @2000s <sup>-1</sup> (mL/min)	Flow rate @6000s <sup>-1</sup> (mL/min)	Overall Dimension (mm*mm)	Inlet /Outlet	Side Port	
Mini	30	<300ml	50kD 100kD 300kD 500kD 750kD	1.0	28	3	35.3	106	10*346	Luer Connection Female	Luer Connection Female	
	60	<600ml		1.0	56	3	35.3	106	10*646			
Minilab	30	<1L		1.0	94	10	118	353	10*346			
	60	<2L		1.0	188	10	118	353	10*646			
Lab	30	<2L		1.0	170	18	212	636	13*348	0.5" TC (Clamp OD φ25mm)	3/16" HB	
	60	<4L		1.0	340	18	212	636	13*648			
Lab+	30	<6L		1.0	0.05	60	706	2118	18*355	0.5" TC (Clamp OD φ25mm)	3/8" HB	
	60	<12L		1.0	0.1	60	706	2118	18*620			
Pilot	30	<15L		1.0	0.15	160	1184	5652	33*361	1.5" TC (Clamp OD φ50.5mm)	0.5" TC (Clamp OD φ25mm)	
	60	<30L		1.0	0.3	160	1184	5652	33*661			
	110	<50L		1.0	0.55	160	1184	5652	33*1161			
Pilot+	30	<15L		1.0	0.23	240	2824	8471	33*361			
	60	<50L	1.0	0.45	240	2824	8471	33*661				
	110	<80L	1.0	0.83	240	2824	8471	33*1161				
MiniProcess	30	<75L	1.0	0.56	600	7059	21176	47*400				
	60	<150L	1.0	1.13	600	7059	21176	47*700				
	110	<250L	1.0	2.07	600	7059	21176	47*1150				
MidProcess	30	<120L	1.0	1.13	1200	14118	42353	65*440	1.5" TC (Clamp OD φ50.5mm)			1.0" TC (Clamp OD φ50.5mm)
	60	<200L	1.0	2.26	1200	14118	42353	65*740				
	110	<400L	1.0	3.95	1200	14118	42353	65*1190				
Process	30	<200L	1.0	2.08	2200	25880	77650	89*477				
	60	<500L	1.0	4.16	2200	25880	77650	89*777				
	110	<800L	1.0	7.25	2200	25880	77650	89*1227				
Maxi	60	<800L	1.0	8.20	4500	52941	158824	117*760	2.0" TC (Clamp OD φ64mm)	1.5" TC (Clamp OD φ50.5mm)		
	110	<1500L	1.0	14.84	4500	52941	158824	117*1230				

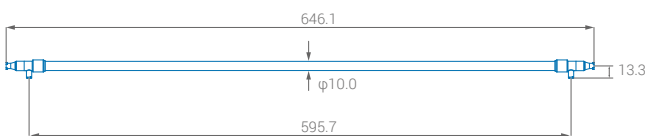
# Material Construction

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.

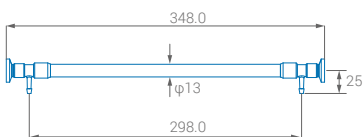
# Overall Dimension



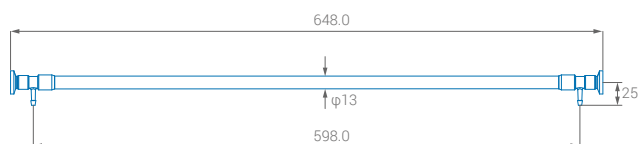
**MI-Minilab -30cm**



**MI-Minilab -60cm**

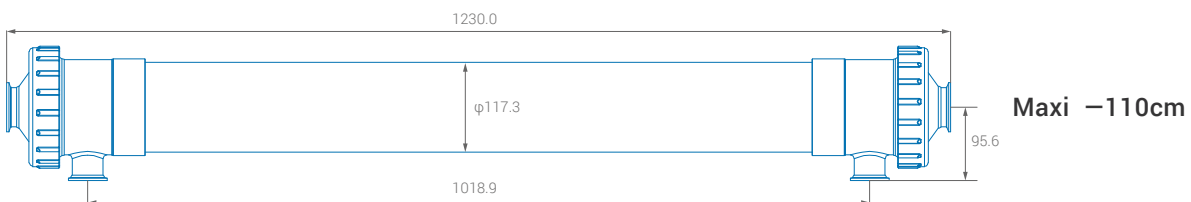
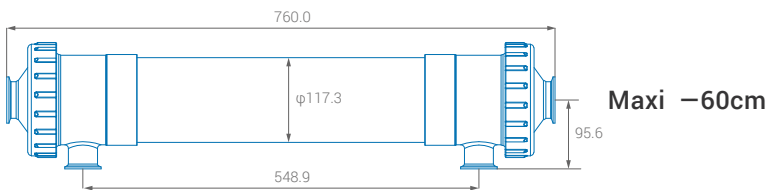
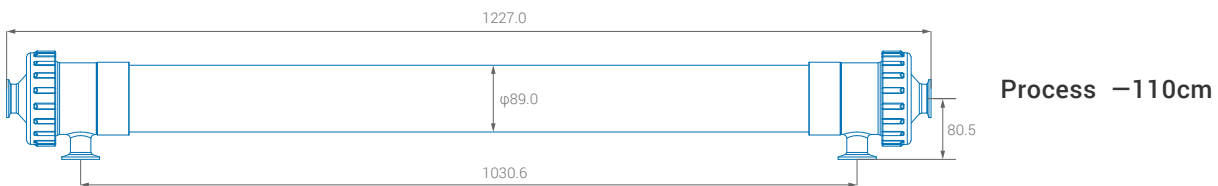
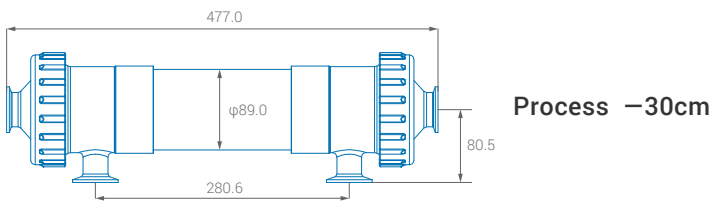
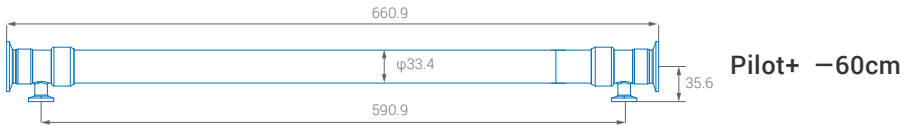
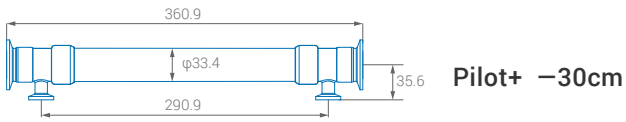


**Lab -30cm**



**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.

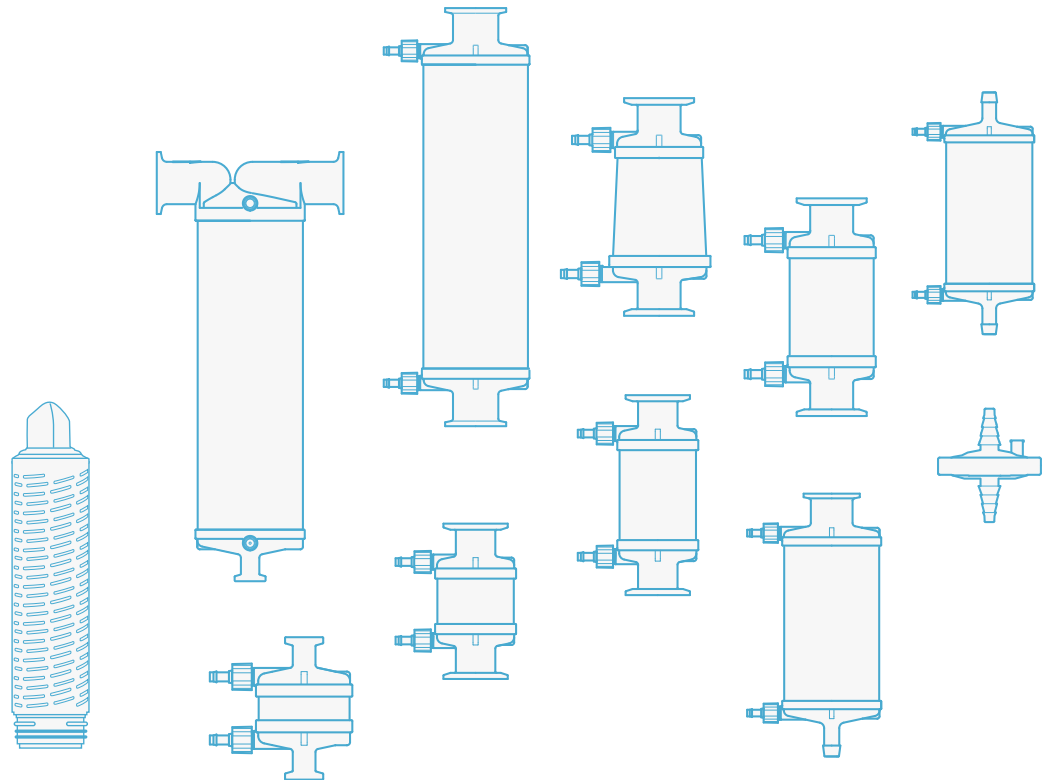
# Ordering Information

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

Product type	Membrane	Module	MWCO	Fiber ID	Effective Length	
<b>HF</b> Hollow Fiber	<b>E</b> PES	<b>MN</b> Mini <b>MI</b> Minilab <b>LA</b> Lab <b>LP</b> Lab+ <b>PI</b> Pilot <b>PP</b> Pilot+ <b>MP</b> Miniprocess <b>DP</b> Midprocess <b>PR</b> Process <b>MA</b> Maxi	<b>0050</b> 50kD <b>0100</b> 100kD <b>0300</b> 300kD <b>0500</b> 500kD <b>0750</b> 750kD	<b>05</b> 0.5mm <b>10</b> 1.0mm	<b>30</b> 30cm <b>60</b> 60cm <b>11</b> 110cm	<b>P</b> Pharmaceutical

# Our Mission

Committed to providing excellent products and continuous innovative solutions, we help customers optimise their process and improve product quality.



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