

Biophsep™ Hollow Fiber





Product Features

- High flow rate, high filtration capacity
- Modified hydrophilic PES hollow fiber membrane provides low protein adsorption, less membrane fouling and easy cleaning
- Integrated device without additional assembly or device holder, quick installation and operation
- Re-washable with 0.5M NaOH solution
- Simple and reliable linear scale-up

Cobetter Biophsep™ hollow fiber with good filtration resolution and low fouling, helps biopharmaceutical customers to improve product yield and filtration load, and reduce production costs.

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
- Recycling and washing of cells and bacteria
- Concentration and diafiltration of protein



Product Specification








Hollow Fiber Filter Module Part Number Description(0.5mm)

Module	Effective Length (cm)	Process Volume	MWCO	Fiber Inner Diameter (mm)	Effective 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	3kD 5kD 10kD 30kD 50kD 100kD 300kD 500kD 750kD	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				
	60	<2L		0.5	236	25	37	110	10*646				
Lab	30	<2L		0.5	236	50	74	221	13*348			0.5" TC (Disk Outer Diameter 25mm)	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 (Disk Outer Diameter 25mm)	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 (Disk Outer Diameter 50.5mm)	0.5" TC (Disk Outer Diameter 25mm)		
	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		0.5	0.24	500	736	2206	33*361				
	60	<50L	0.5	0.47	500	736	2206	33*661					
	110	<80L	0.5	0.86	500	736	2206	33*1161					
MiniProcess	30	<75L	0.5	0.68	1450	2132	6397	47*400					
	60	<150L	0.5	1.37	1450	2132	6397	47*700					
	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 (Disk Outer Diameter 50.5mm)	1.0" TC (Disk Outer Diameter 25mm)			
	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					
	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 (Disk Outer Diameter 64mm)	1.5" TC (Disk Outer Diameter 50.5mm)			
	110	<1500L	0.5	16.81	10200	15000	45000	117*1230					

Hollow Fiber Filter Module Part Number Description(1.0mm)

Module	Effective Length (cm)	Process Volume	MWCO	Fiber Inner Diameter (mm)	Effective 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	3kD 5kD 10kD 30kD 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			1.5" TC (Disk Outer Diameter 50.5mm)	0.5" TC (Disk Outer Diameter 25mm)			
	60	<2L		1.0	188	10	118	353	10*646							
Lab	30	<2L		1.0	170	18	212	636	13*348					0.5" TC (Disk Outer Diameter 25mm)	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 (Disk Outer Diameter 25mm)	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 (Disk Outer Diameter 50.5mm)	0.5" TC (Disk Outer Diameter 25mm)					
	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					1.5" TC (Disk Outer Diameter 50.5mm)	0.5" TC (Disk Outer Diameter 25mm)	
	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	1.5" TC (Disk Outer Diameter 50.5mm)			1.0" TC (Disk Outer Diameter 50.5mm)				
	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 (Disk Outer Diameter 50.5mm)			1.0" TC (Disk Outer Diameter 50.5mm)
	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		2.0" TC (Disk Outer Diameter 64mm)	1.5" TC (Disk Outer Diameter 50.5mm)					
	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 (Disk Outer Diameter 64mm)	1.5" TC (Disk Outer Diameter 50.5mm)	
	110	<1500L	1.0	14.84	4500	52941	158824	117*1230								

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 LP Lab+ PI Pilot PP Pilot+ MP Miniprocess DP Midprocess PR Process MA Maxi	0003 3kD 0005 5kD 0010 10kD 0030 30kD 0050 50kD 0100 100kD 0300 300kD 0500 500kD 0750 750kD	05 0.5mm 10 1.0mm	30 30cm 60 60cm 11 110cm	P Pharmaceutical

Microfiltration Hollow Fiber Filter (Suitable for Chemical Cleaning) Part Number Description(1.0mm)

Module	Effective Length (cm)	Process Volume	MWCO	Fiber Inner Diameter (mm)	Effective 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	<140mL	M010=0.1um M020=0.2um M045=0.45um M065=0.65um M20R=0.2um-R	1.0	28	3	35	106	10*346	Luer Connection Female	Luer Connection Female
	60	<280mL		1.0	56	3	35	106	10*646		
Minilab	30	<375mL		1.0	75	8	94	282	10*346		
	60	<750mL		1.0	150	8	94	282	10*646		
Lab	30	<850mL		1.0	170	18	212	635	13*348	0.5" TC (Disk Outer Diameter 25mm)	3/16" HB
	60	<1.7L		1.0	340	18	212	635	13*648		
Lab+	30	<2.5L		1.0	0.05	60	706	2118	18*355	0.5" TC (Disk Outer Diameter 25mm)	3/8" HB
	60	<5.0L		1.0	0.10	60	706	2118	18*655		
Pilot	30	<6.0L		1.0	0.12	130	1529	4588	33*361	1.5" TC (Disk Outer Diameter 50.5mm)	0.5" TC (Disk Outer Diameter 25mm)
	60	<12L		1.0	0.25	130	1529	4588	33*661		
	110	<22L		1.0	0.45	130	1529	4588	33*1161		
Pilot+	30	<7.5L		1.0	0.15	160	1882	5647	33*361		
	60	<15L	1.0	0.30	160	1882	5647	33*661			
	110	<27L	1.0	0.55	160	1882	5647	33*1161			









HF-E-XX-XXXX-XX-XX-P e.g.:HFEMIM20R1060

						
Product type	Membrane	Module	MWCO	Fiber Inner Lumen	Effective Length	P
HF Hollow Fiber	E PES	MN Mini MI Minilab LA Lab LP Lab+ PI Pilot PP Pilot+	M010 0.10µm M020 0.20µm M045 0.45µm M065 0.65m M20R 0.20µm-R	10 1.0mm	30 30cm 60 60cm 11 110cm	P Pharmaceutical

Hollow Fiber Filter (Autoclavable) Part Number Description(1.0mm)

Module	Effective Length (cm)	Process Volume	MWCO	Fiber Inner Diameter (mm)	Effective 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	<250ml	750R=750kD-R M20R=0.2um-R	1.0	28	3	35	106	10*346	Luer Connection Female	Luer Connection Female
	60	<500ml		1.0	56	3	35	106	10*646		
Minilab	30	<750mL		1.0	75	8	94	282	10*346		
	60	<1.5L		1.0	150	8	94	282	10*646		
Lab	30	<1.5L		1.0	170	18	212	635	13*348	0.5" TC (Disk Outer Diameter 25mm)	3/16" HB
	60	<3L		1.0	340	18	212	635	13*648		
Lab+	30	<5L		1.0	0.05	60	706	2118	18*355	0.5" TC (Disk Outer Diameter 25mm)	3/8" HB
	60	<10L		1.0	0.10	60	706	2118	18*655		
Pilot	30	<10L		1.0	0.12	130	1529	4588	33*361	1.5" TC (Disk Outer Diameter 50.5mm)	0.5" TC (Disk Outer Diameter 25mm)
	60	<20L		1.0	0.25	130	1529	4588	33*661		
	110	<40L		1.0	0.45	130	1529	4588	33*1161		
Pilot+	30	<15L		1.0	0.15	160	1882	5647	33*361		
	60	<30L	1.0	0.30	160	1882	5647	33*661			
	110	<50L	1.0	0.55	160	1882	5647	33*1161			
Column Max	60	<400L	1.0	4.2	2550	30000	90000	101.5*622	2.0"TC (Disk Outer Diameter 64mm) For use with SS housing	1.5"TC (Disk Outer Diameter 50.5mm) For use with SS housing	

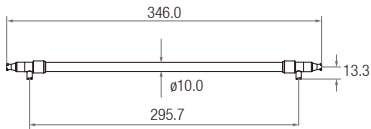
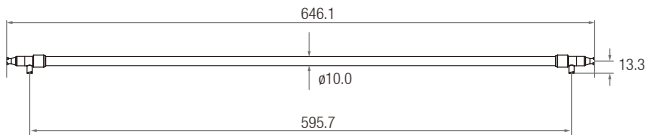
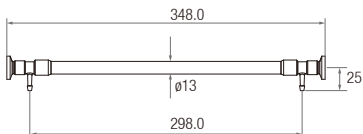
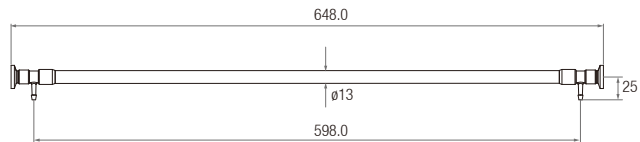
HF-E-XX-XXXX-XX-XX-A-P e.g.:HFEMIM20R1060AP

							
Product type	Membrane	Module	MWCO	Fiber Inner Lumen	Effective Length	Sterilization	
HF Hollow Fiber	E PES	MN Mini MI Minilab LA Lab LP Lab+ PI Pilot PP Pilot+ CM Column Max	750R 750kD-R M20R 0.20µm-R	10 1.0mm	30 30cm 60 60cm 11 110cm	A Autoclavable	P Pharmaceutical

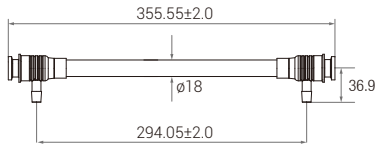
Material Construction

Module Component	Material	Advantages and Functions
Hollow Fiber Membrane	mPES	The modified hydrophilic PES hollow fiber membrane features low adsorption, less membrane fouling and continuous high flow rate for faster processing time, the membrane is proved to effectively retain virus particles so as to achieve the purpose of concentration and buffer exchange.
Potting Glue	Polyurethane/Epoxy	Potting glue wraps each hollow fiber to provide support for the hollow fiber membrane, and at the same time completely separates the inlet flow channel and the permeate flow channel.
End Cap	White Polysulfone	Flow channel connection for liquid in and out, with good chemical compatibility.
Shell	Transparent Polysulfone	Connect the inlet and outlet caps to form an integrated assembly, while providing a flow channel for the permeate, with good chemical compatibility.

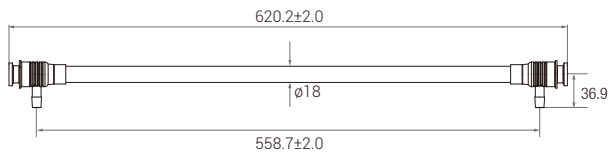
Overall Dimension

	MI-Minilab -30cm
	MI-Minilab-60cm
	Lab-30cm
	Lab-60cm

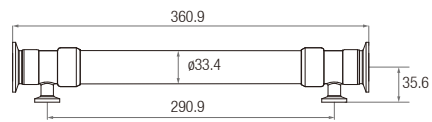
Overall Dimension



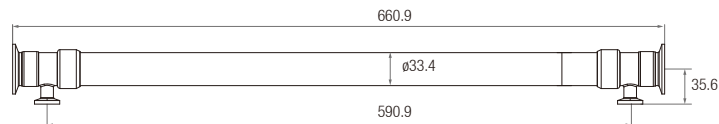
Lab+ -30cm



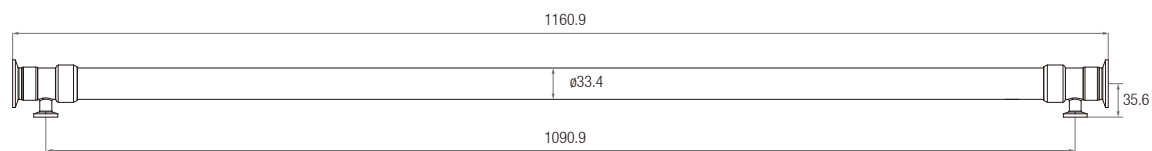
Lab+ -60cm



Pilot / Pilot+
30cm

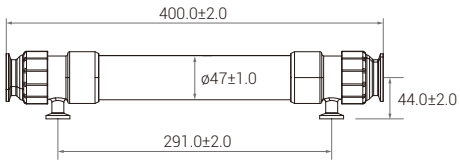


Pilot / Pilot+
60cm

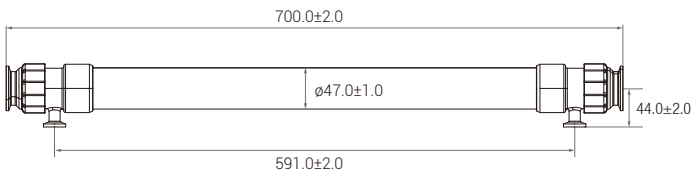


Pilot / Pilot+
110cm

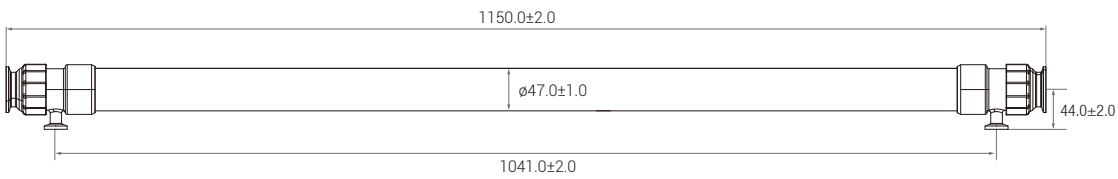
Overall Dimension



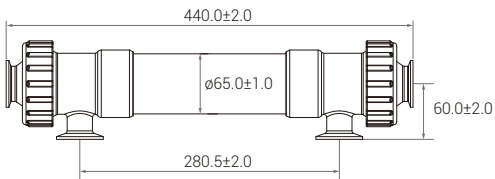
**Mini-Process
30cm**



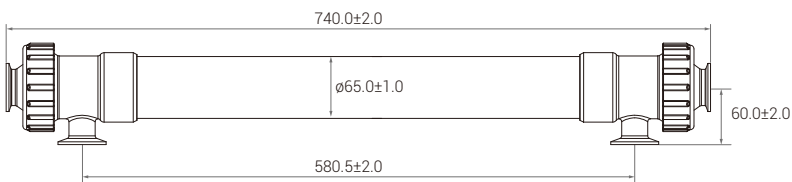
**Mini-Process
60cm**



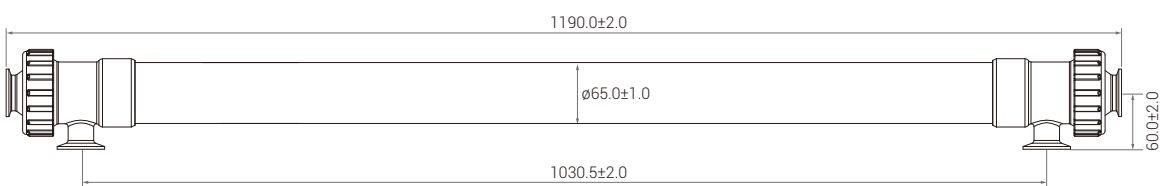
**Mini-Process
110cm**



**Mid-Process
30cm**

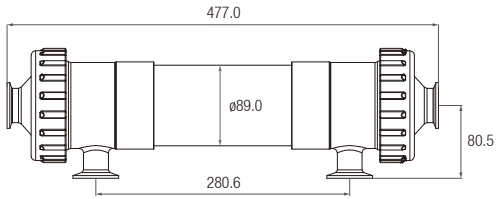


**Mid-Process
60cm**

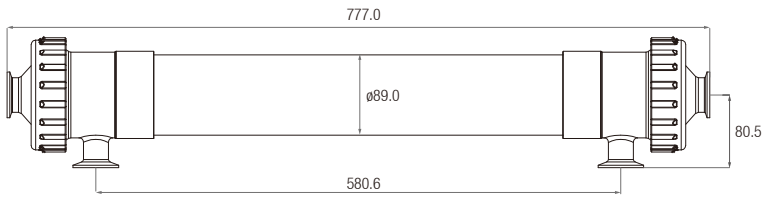


**Mid-Process
110cm**

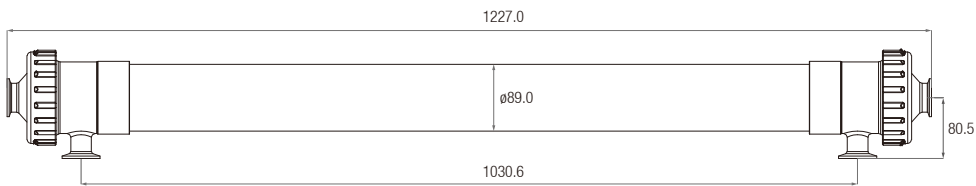
Overall Dimension



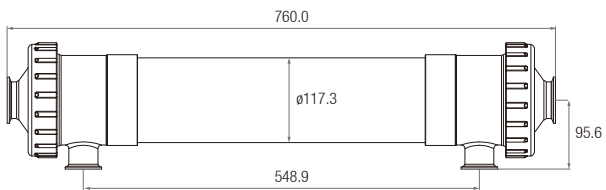
**Process
30cm**



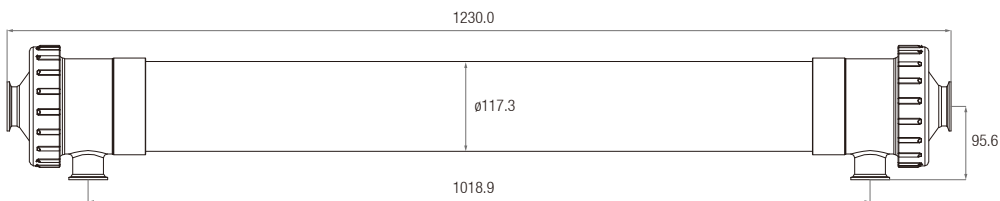
**Process
60cm**



**Process
110cm**



**Maxi
60cm**



**Max
110cm**

Key Figures

Shear Rate

The circulating flow rate of the hollow fiber depends on the product tolerance to the shear rate, in general 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, 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 resistance to shear force (such as small molecular proteins expressed by bacteria, etc.) shear rate could be increased to 8000/s to 10000/s.

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.

Only module with fiber of 1.0mm ID is autoclavable, as steam cannot enter the fiber of 0.5mm ID effectively.

MWCO

Sufficient separation efficiency and the risks of fouling should both be taken into consideration when choosing MWCO.

To minimize the risk of fouling that inevitably occurs during membrane processing, it is advisable to choose membranes with relatively smaller pore sizes, as long as the separation efficiency and flux are maintained. This helps reduce the intrusion of impurity particles into the membrane pores, thus extending the membrane's service life.

Common processing scenarios are as following:

- Heat source removal of small molecule in Chinese medicines : 5kD, 10kD
- Ultrafiltration and concentration of mABs, buffer exchange : 30kD, 50kD
- Concentration, purification and removal of virus : 100kD, 300kD, 500kD, 750kD
- Clarification of recombinant protein, antibody : 500kD, 750kD
- Concentration for bacteria: 500kD, 750kD
- Clarification of lysate: 0.2 μ m, 0.45 μ m, 0.65 μ m

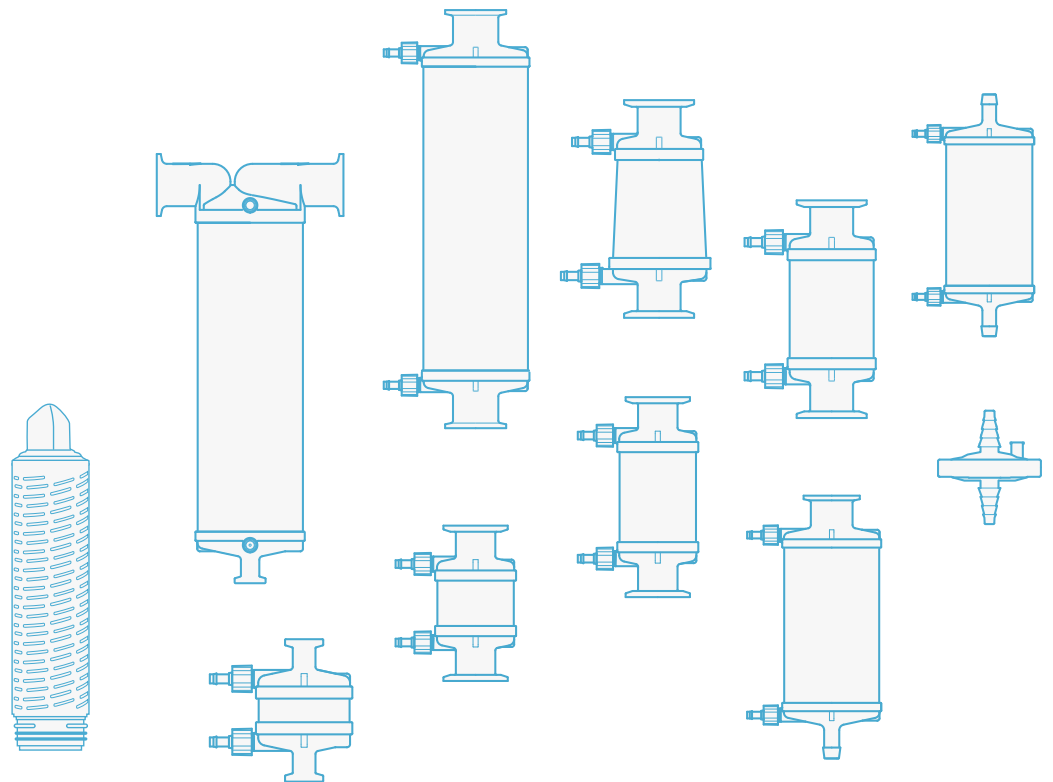
Effective Length

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 scale-up can not be performed on devices with different length. When processing with more fouling and high viscosity product, it is preferred to choose module with shorter length.

Our Mission

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



Please contact us for more information
Hangzhou Cobetter Filtration Equipment Co.,Ltd.

Sales Add 13-18 F, Building 1, Zicheng International Innovation Center, No.39
Jincheng Road, Xiaoshan District, Hangzhou 311215, China

Factory Cobetter Park, Heshang New Material Industrial Park,
Xiaoshan District, Hangzhou 311265, China

Tel +400-070-4266

Fax +86 571-87704256

www.cobetter.com