

# 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 <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         | 3kD<br>5kD<br>10kD<br>30kD<br>50kD<br>100kD<br>300kD<br>500kD<br>750kD | 0.5                       | 28  | 6            | 9                                       | 27                                      | 10*346                                  | Luer Connection<br>Female               | Luer Connection<br>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<br>(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<br>(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<br>(Disk Outer Diameter 50.5mm) | 0.5" TC<br>(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<br>(Disk Outer Diameter 50.5mm) | 1.0" TC<br>(Disk Outer Diameter 50.5mm) |                                       |                                       |          |
|             | 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                                  |   |   |                                       |                                       |          |
|             | 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<br>(Disk Outer Diameter 64mm)   | 1.5" TC<br>(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 <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         | 3kD<br>5kD<br>10kD<br>30kD<br>50kD<br>100kD<br>300kD<br>500kD<br>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<br>(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<br>(Disk Outer Diameter 25mm)   | 3/8" HB                               |                                       |          |
|             | 60                    | <12L           |  | 1.0                       | 0.10  | 60           | 706                                     | 2118                                    | 18*620                                  |   |                                       |                                       |          |
| Pilot       | 30                    | <15L           |  | 1.0                       | 0.15  | 160          | 1884                                    | 5652                                    | 33*361                                  | 1.5" TC<br>(Disk Outer Diameter 50.5mm) | 0.5" TC<br>(Disk Outer Diameter 25mm) |                                       |          |
|             | 60                    | <30L           |  | 1.0                       | 0.30  | 160          | 1884                                    | 5652                                    | 33*661                                  |   |                                       |                                       |          |
|             | 110                   | <50L           |  | 1.0                       | 0.55  | 160          | 1884                                    | 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<br>(Disk Outer Diameter 50.5mm) | 1.0" TC<br>(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                                  |   |   |                                       |                                       |          |
|             | 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<br>(Disk Outer Diameter 64mm)   | 1.5" TC<br>(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

|  |   |   |   |  |   |   |
|--|---|---|---|--|---|---|
|  |  |    |                                  |  |  |  |
| <b>Product type</b>  | <b>Membrane</b>   | <b>Module</b>   | <b>MWCO</b>   | <b>Fiber Inner Lumen</b>   | <b>Effective Length</b>   |   |
| HF Hollow Fiber  | E PES   | MN Mini<br>MI Minilab<br>LA Lab<br>LP Lab+<br>PI Pilot<br>PP Pilot+<br>MP Miniprocess<br>DP Midprocess<br>PR Process<br>MA Maxi | 0003 3kD<br>0005 5kD<br>0010 10kD<br>0030 30kD<br>0050 50kD<br>0100 100kD<br>0300 300kD<br>0500 500kD<br>0750 750kD | 05 0.5mm<br>10 1.0mm   | 30 30cm<br>60 60cm<br>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 <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                    | <140mL         | M010=0.1um<br>M020=0.2um<br>M045=0.45um<br>M065=0.65um<br>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<br>(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<br>(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<br>(Disk Outer Diameter 50.5mm) | 0.5" TC<br>(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<br>MI Minilab<br>LA Lab<br>LP Lab+<br>PI Pilot<br>PP Pilot+                 | M010 0.10µm<br>M020 0.20µm<br>M045 0.45µm<br>M065 0.65µm<br>M20R 0.20µm-R           | 10 1.0mm   | 30 30cm<br>60 60cm<br>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 <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                    | <250ml         | 750R=750kD-R<br>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<br>(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<br>(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<br>(Disk Outer Diameter 50.5mm)                           | 0.5" TC<br>(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<br>(Disk Outer Diameter 64mm)<br>For use with SS housing | 1.5"TC<br>(Disk Outer Diameter 50.5mm)<br>For use with SS housing |                                       |

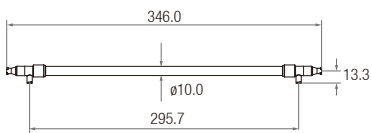
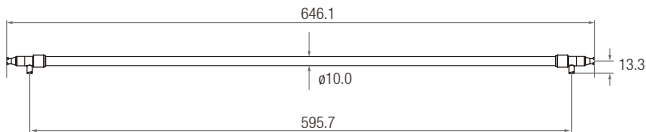
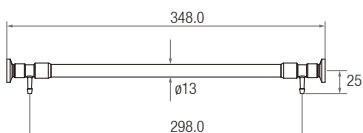
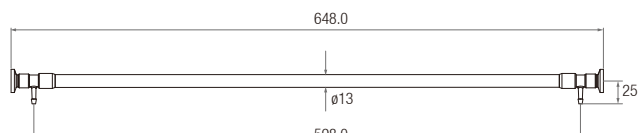
### HF-E-XX-XXXX-XX-XX-A-P e.g.:HFEMIM20R1060AP

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

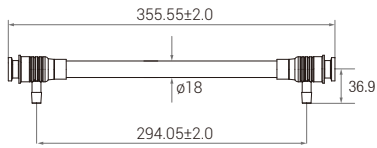
# Material Construction

| 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.  |

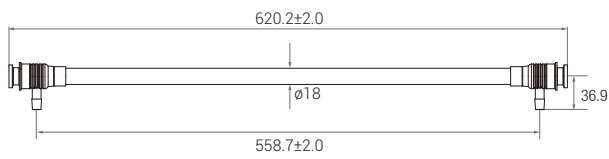
# Overall Dimension

|  |                         |
|--|-------------------------|
|  | <b>MI-Minilab -30cm</b> |
|  | <b>MI-Minilab-60cm</b>  |
|  | <b>Lab-30cm</b>         |
|  | <b>Lab-60cm</b>         |

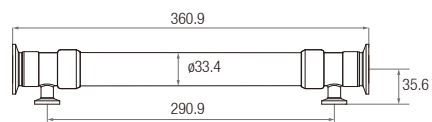
# Overall Dimension



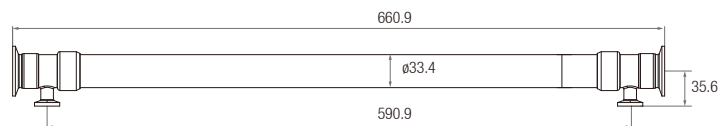
Lab+ -30cm



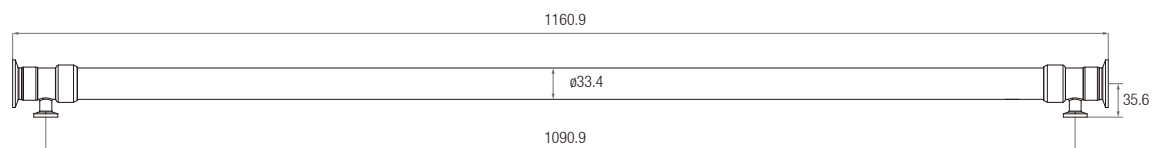
Lab+ -60cm



Pilot / Pilot+  
30cm



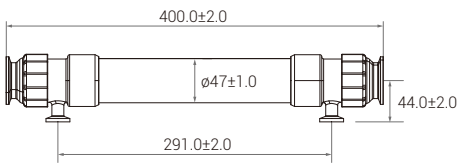
Pilot / Pilot+  
60cm



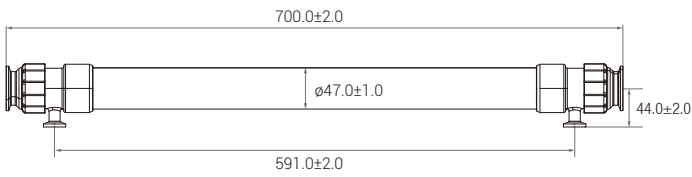
Pilot / Pilot+  
110cm



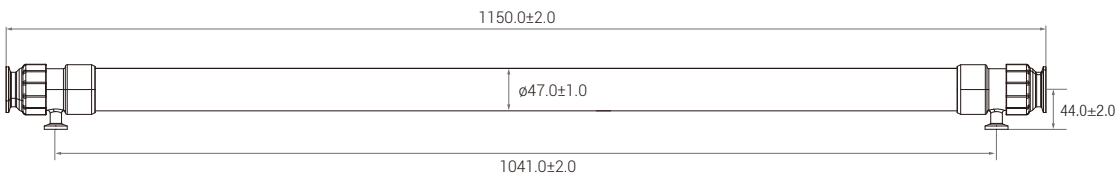
# Overall Dimension



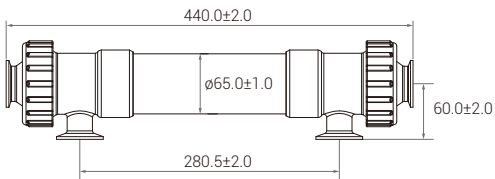
**Mini-Process  
30cm**



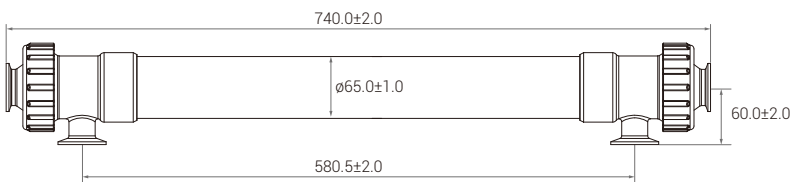
**Mini-Process  
60cm**



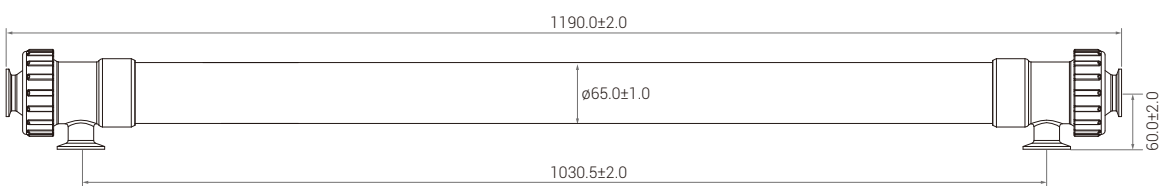
**Mini-Process  
110cm**



**Mid-Process  
30cm**

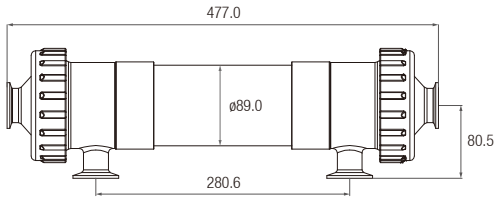


**Mid-Process  
60cm**

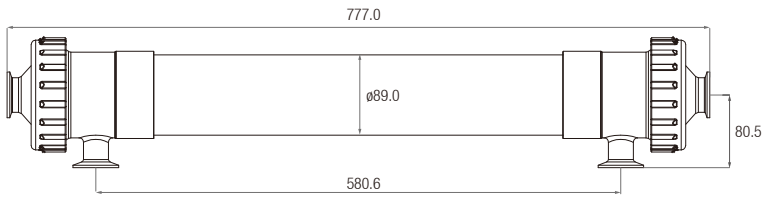


**Mid-Process  
110cm**

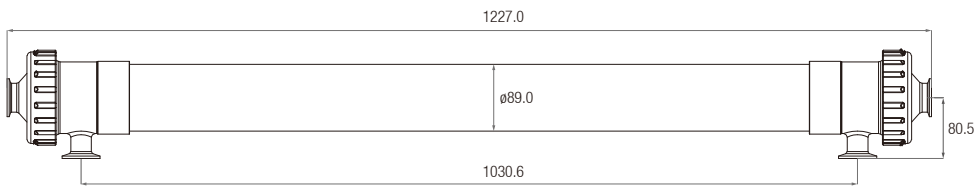
# Overall Dimension



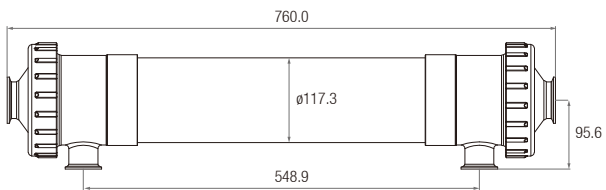
**Process  
30cm**



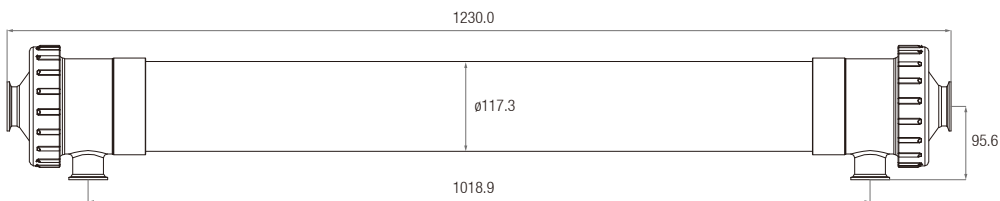
**Process  
60cm**



**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 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, 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 $\mu$ m, 0.45 $\mu$ m, 0.65 $\mu$ m

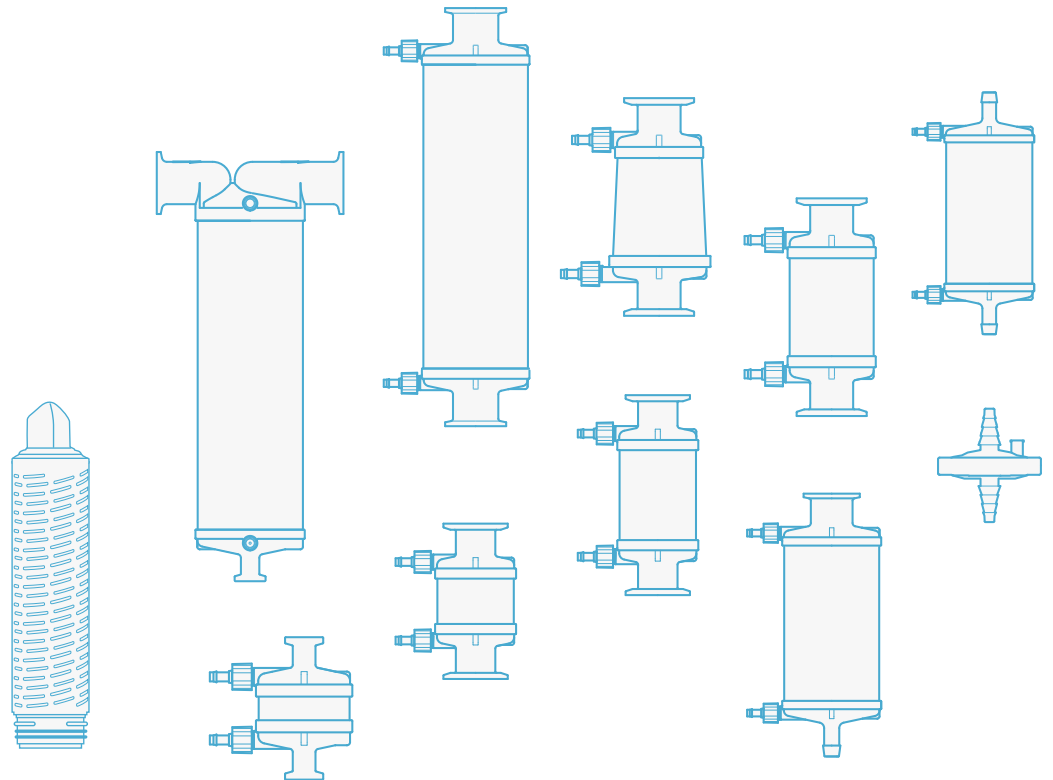
## Effective Length

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.



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