

XperCell™ ATF Hollow Fiber

Cobetter XperCell™ ATF hollow fiber product is specially developed for perfusion cell culture process. The main body of the series is made of Cobetter's self-produced polyethersulfone (PES) hollow fiber membrane filament. The raw material has been tested and validated to have the features of low E&L profile and good biocompatibility. It is suitable for cell culture processes such as medium exchanging, continuous cell clarifying and harvesting from 1L to 2000L culture scale, which meets the requirements from R&D to commercialization.

It is manufactured following strict quality control standards. The production process is carried out in accordance with the ISO9001-2015 quality management system, and is all done under ISO Class 7. Each hollow fiber products will pass the integrity test and water flux test before release. Quality documentation can be provided to help bio-pharmaceutical customers' safety production and audit requirements.

Features

- 100% product integrity test;
- Low bioburden, no cytotoxicity;
- ADCF, good biocompatibility,
- Portable, flexible connection to 1L-2000L single-use bioreactors
- Single-use format available. Gamma irradiated and ready to use. Eliminating the need for complex on-site assembly and sterilization operations, improving manufacturing efficiency;
- All series of hollow fiber membrane columns can withstand regular autoclaving sterilization procedures, reducing the investment of high-cost sterilization equipment;
- Breakthrough the limitation of cell density in batch/ fed-Batch process while maintaining high cell viability.

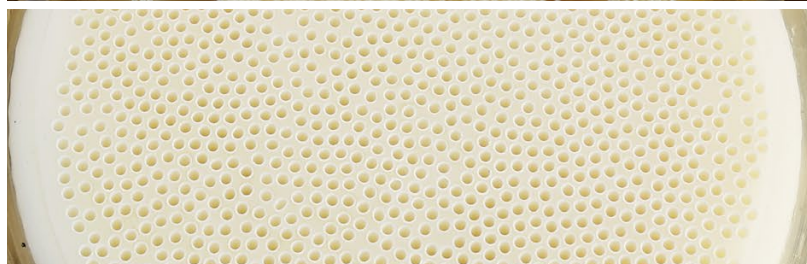
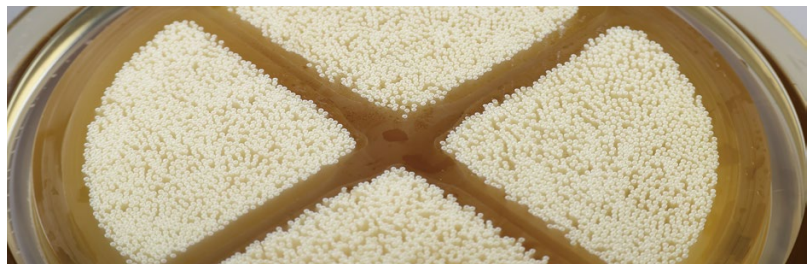
Application

Perfusion cell culture process, including

- N-1 high cell density seed culturing
- Medium exchanging and target product harvesting in dynamic/continuous perfusion cell culturing
- Medium exchanging in concentrated fed-batch cell culturing
- Cell lysis clarification and concentration

Multiple fields of cell/ microbial culture including

- Bio-pharmaceuticals such as antibody, vaccine and CGT.
- Food industries such as culture meat and wine-making.



Basic Information

	ATF 2	ATF 6	ATF 10
Culture volume	1-10 L	50-200 L	200-1000 L
Format	Stainless-steel, Single-use		
Membrane	Polyethersulfone (PES)		
Resolution	50kd, 0.2µm		
Fiber count	75	1440	6720
Effective filtration area	0.13 m ²	2.5 m ²	11 m ²
Length	60 cm		
Volume exchanged	0.1 L	1.3 L	6 L
Flow range	0.3-1.5 LPM	5-20 LPM	20-90 LPM
Recommended flow rate	5-15 ml/min/fiber 3-8 L/min/m ²		

Quality Assurance

- ISO 9001:2015 quality management system
- ISO class 7 manufacturing site
- 100% product integrity test
- ADCF raw material, meets the requirement of FDA 21CFR177-182 indirect food additives
- Meets the requirement of ISO 11137 sterilization validation
- Meets the requirement of USP <87> in Vitro Biological Reactivity Test
- Meets the requirement of USP <88> Biological Reactivity Test, in Vivo for Class VI plastics
- Aqueous extraction contains < 0.25 EU/mL as determined by Limulus Amebocyte Lysate (LAL), USP <85>
- Particulate matter in the product eluent meets the requirement in USP <788> for large volume parenterals
- Product validation guide and CoA available

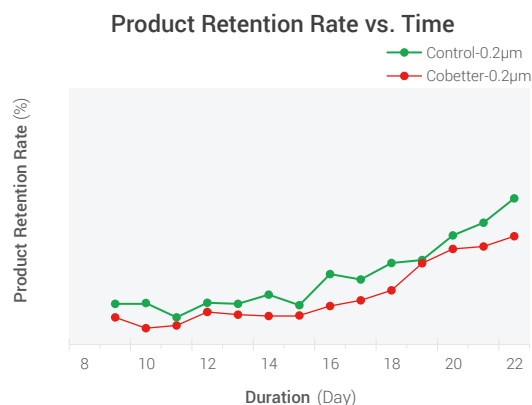
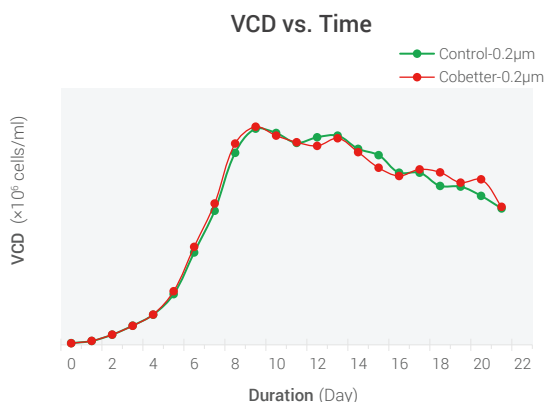
Order Information

Stainless-steel (autoclavable) Part No.	ATF Diaphragm Part No.	Single-use Part No.	Resolution	Culture Volume	Culture Duration	Culture Stage	Product Model
HFEF2M20R1060AP		SAH02001	0.2 µm		5-10 day	N-1	
HFEF2M20A1060AP	SUF2VP-D	SAH02101	0.2 µm	1-10 L	>10 day	N-1/N	ATF2
HFEF2050T1060AP		SAH02201	50 kd		/	N	
HFEF6M20R1060AP		SAH06001	0.2 µm		5-10 day	N-1	
HFEF6M20A1060AP	SUF6VP-D	SAH06101	0.2 µm	50-200L	>10 day	N-1/N	ATF6
HFEF6050T1060AP		SAH06201	50 kd		/	N	
HFEFXM20R1060AP		SAH10001	0.2 µm		5-10 day	N-1	
HFEFXM20A1060AP	SUFXVP-D	SAH10101	0.2 µm	200-1000L	>10 day	N-1/N	ATF10
HFEFX050T1060AP		SAH10201	50 kd		/	N	

Note: 1. The above table shows the standard ATF products order information. For more ATF products requirement, please contact Cobetter's sales and technician.

2. The part number of Stainless-steel products should be quoted when ordering the single-use products.

Typical Case Study



Cell growth and protein retention of N Stage dynamic perfusion cell culture process with 0.2um ATF2

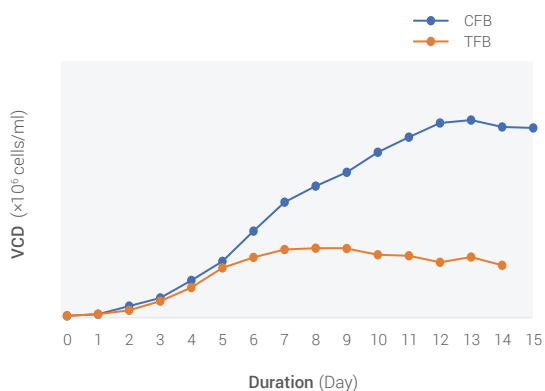
Material & Method

Hollow Fiber	Cobetter 0.2um ATF2 HFEF2M20A1060A
Cell Culture System	3L glass bioreactor
Cell-line	CHO-K1
Culture process	N stage dynamic perfusion
Control	Competitor's 0.2um ATF2

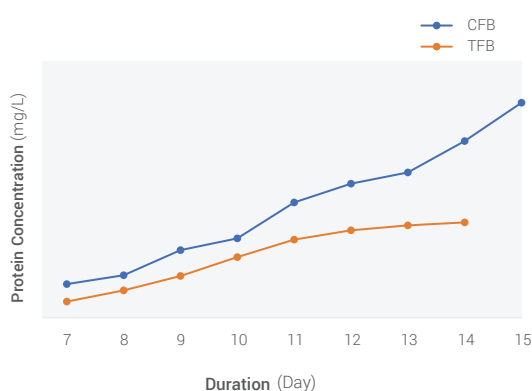
Results

Peak VCD reached 70E6 cells/ml. Comparable cell growth and metabolism. Cobetter's shows a lower protein retention rate.

VCD of CFB with Cobetter 50KD ATF2 and TFB



Protein Concentration vs. Time



Cell growth and protein concentration of N Stage CFB cell culture process with 50kd ATF2 comparing with TFB cell culture process

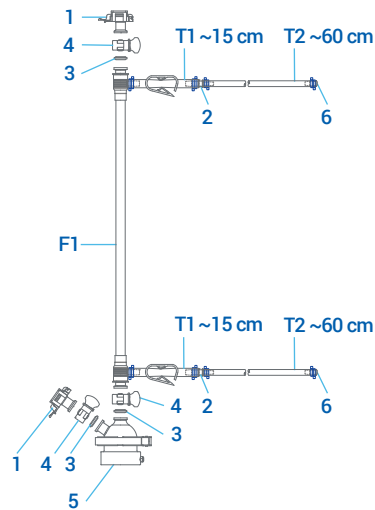
Material & Method

Hollow fiber	Cobetter 50KD ATF2
Culture system	3L glass bioreactor
Cell line	CHO-K1

Results

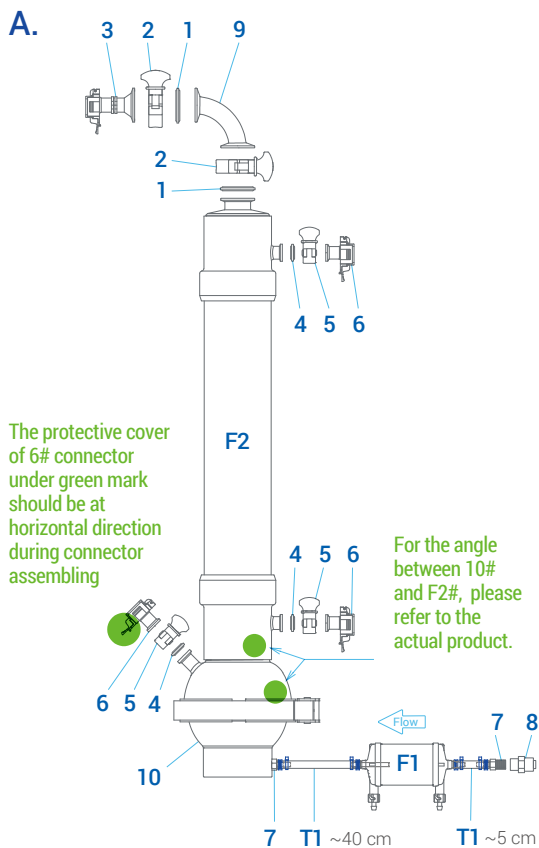
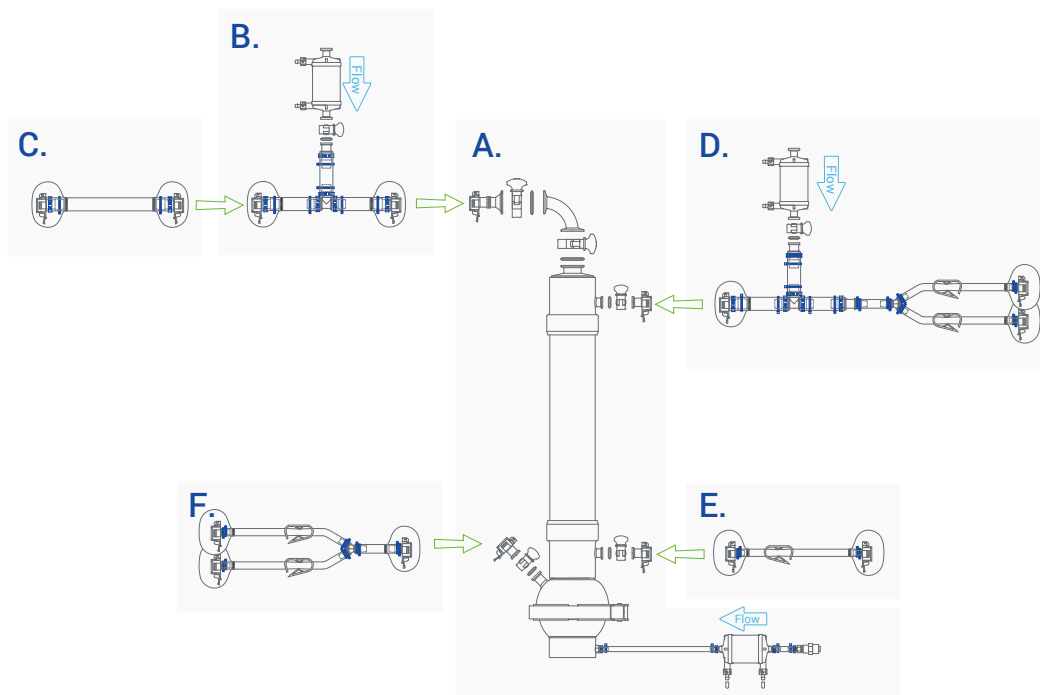
CFB process: Peak VCD reached 60E6 cells/ml, Viability ≥ 95%, Protein concentration in bioreactor reached 6.5g/L, which is 2 times higher than TFB process (Peak VCD: 25E6 cells/ml, Protein concentration: 3g/L). No target product detected in permeate (100% protein retention)

Single-use ATF 2 Schematic Diagram



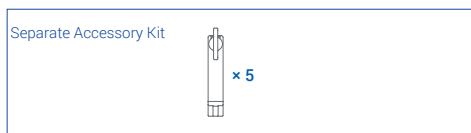
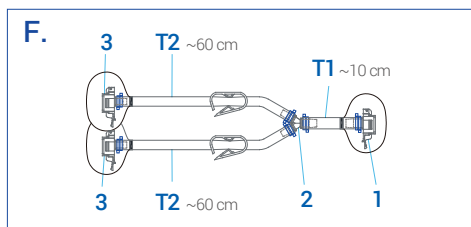
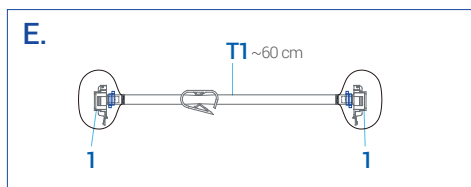
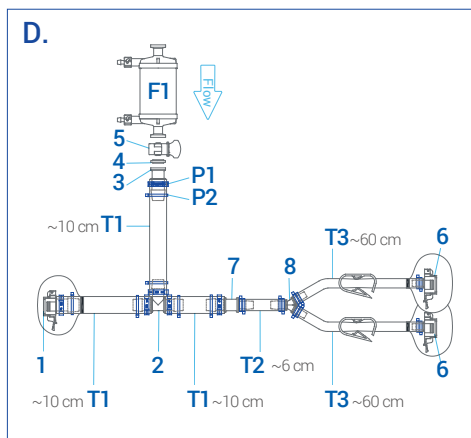
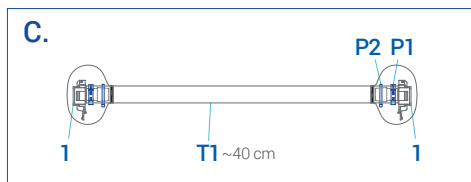
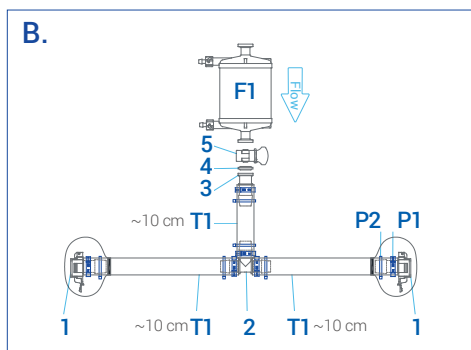
NO.	DESCRIPTION	SUM
6	Tubing Plug, ¼"HB	2 pcs
5	Single use Vac Pump, F2	1 pcs
4	TC Clamp, ¾"TC	3 pcs
3	Silicone Gasket, ¾"TC	3 pcs
2	Straight Fitting, ¼"HB to ⅜"HB	2 pcs
1	AseptiQuik™ G Connector, ¾"TC	2 pcs
F1	F2 Hollow Fiber Filter	1 pcs
T2	Lifemeta™ STF TPE Tubing, ID¼"×OD⅞"	120 cm
T1	Lifemeta™ STT Pt-cured Silicone Tubing, ID⅜"×OD⅝"	30 cm

Single-use ATF6 Schematic Diagram I



NO.	MODEL	DESCRIPTION	SUM
A.			
T1	T8HR	Lifemeta™ ST8H High Pressure Silicone, Tubing, ID $\frac{1}{4}$ "*OD $\frac{7}{16}$ "	45 pcs
F1	C03BBAPBBG1P	Bricap™ C03 Capsule Filter with Cobetter Corevital™ APB 0.2 μ m. Cat.No: C03BBAPBBG1P	1 pcs
F2	HFEF6M20R1060G	F6 Hollow Fiber Filter, Typical Pore Size 0.2 μ m, Fiber Inner Lumen 1.0mm, Effective Surface Area 2.5m ² Cat.No.: HFEF6M20R1060G	1 pcs
1	TCGSS	Silicone Gasket, 1- $\frac{1}{2}$ "TC	2 pcs
2	TCCNS	TC Clamp, 1- $\frac{1}{2}$ "TC	2 pcs
3	AQG33024HT	AseptiQuik™ G Connector, 1- $\frac{1}{2}$ "TC	1 pcs
4	TCGST	Silicone Gasket, $\frac{3}{4}$ "TC	3 pcs
5	TCCNT	TC Clamp, $\frac{3}{4}$ "TC	3 pcs
6	AQG33012HT	AseptiQuik™ G Connector, $\frac{3}{4}$ " TC	3 pcs
7	A4-4PP-QC	$\frac{1}{4}$ "HB to $\frac{1}{4}$ "NPT Male connector	2 pcs
8	A6FC4-MG	OD $\frac{3}{8}$ " to $\frac{1}{4}$ "NPT Female connector	1 pcs
9	SUF6-S-P	Bend Fitting, 1- $\frac{1}{2}$ "TC	1 pcs
10	SUF6-V-P	Single use Vac Pump, adaptation F6	1 pcs

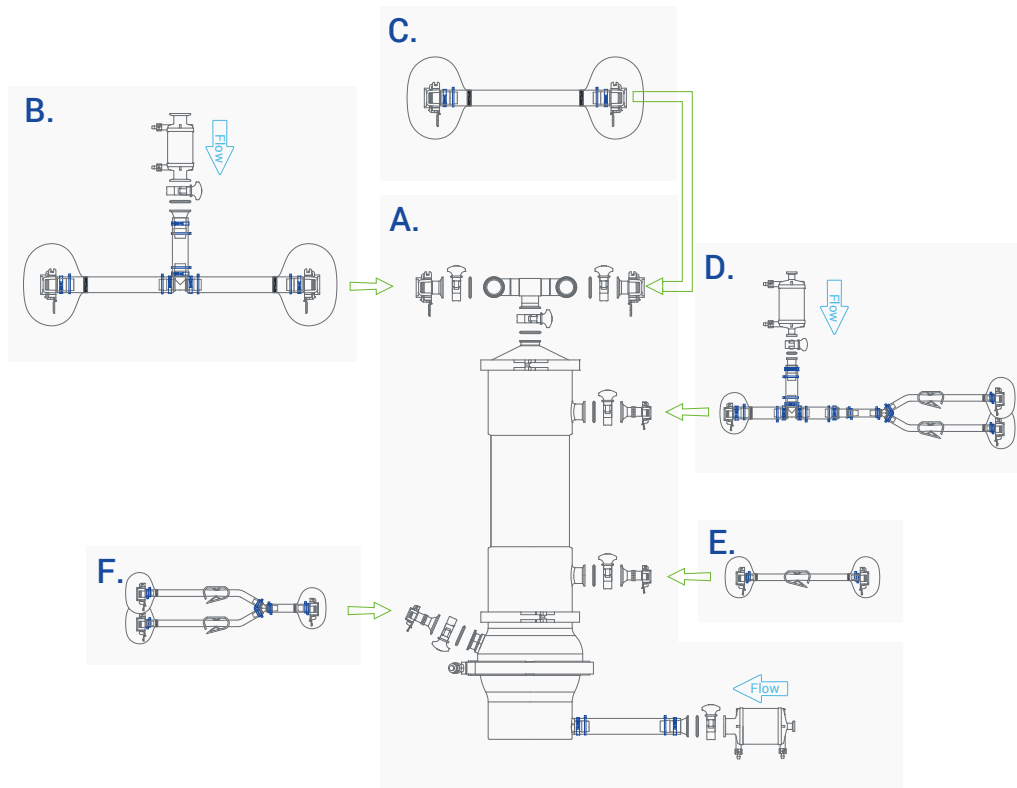
Single-use ATF6 Schematic Diagram II



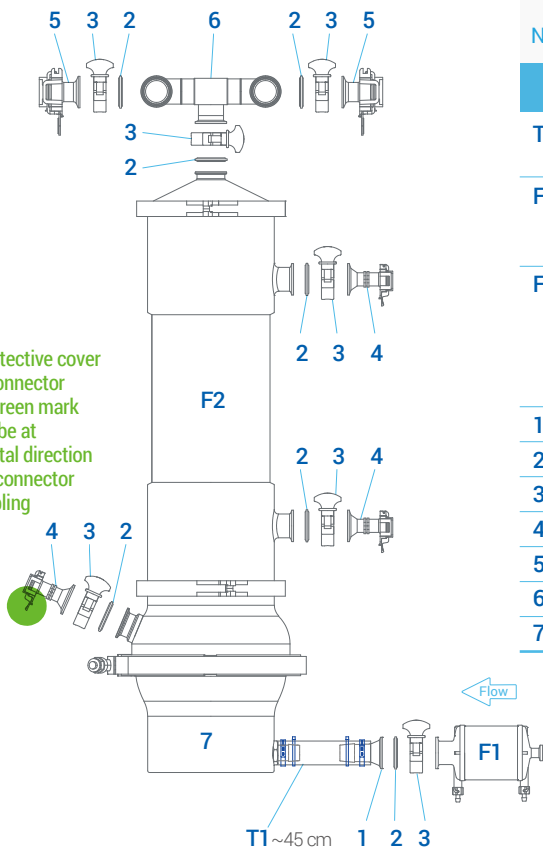
Note: This accessory is packaged separately.

NO.	MODEL	DESCRIPTION	SUM
B.			
T1	TTM	Lifemeta™ STT Pt-cured Silicone, Tubing, ID $\frac{3}{4}$ "*OD1- $\frac{1}{8}$ "	30cm
F1	CO3TT APBBG1P	Bricap™ CO3 Capsule Filter with Cobetter Corevital™, APB 0.2 μ m, Cat.No.:CO3TTAPBBG1P	1pcs
1	AQG17012HT	AseptiQuik™ G Connector, $\frac{3}{4}$ "HB	2pcs
2	SFTMMM	T-Fitting, $\frac{3}{4}$ "HB	1pcs
3	SFLMT	TC Fitting, $\frac{3}{4}$ "HB to $\frac{3}{4}$ "TC	1pcs
4	TCGST	Silicone Gasket, $\frac{3}{4}$ "TC	1pcs
5	TCCNT	TC Clamp, $\frac{3}{4}$ "TC	1pcs
P1	P3T301	StepLess™ Ear Clamps, 30.1mm (For assembly reference only)	6pcs
P2	HAT36	Cable Tie, 3.6 mm	A/R
C.			
T1	TTM	Lifemeta™ STT Pt-cured Silicone, Tubing, ID $\frac{3}{4}$ "*OD1- $\frac{1}{8}$ "	40cm
1	AQG17012HT	AseptiQuik™ G Connector, $\frac{3}{4}$ "HB	2pcs
P1	P3T301	StepLess™ Ear Clamps, 30.1mm (For assembly reference only)	2pcs
P2	HAT36	Cable Tie, 3.6 mm	A/R
D.			
T1	TTM	Lifemeta™ STT Pt-cured Silicone, Tubing, ID $\frac{3}{4}$ "*OD1- $\frac{1}{8}$ "	30cm
T2	TTH	Lifemeta™ STT Pt-cured Silicone Tubing, ID $\frac{1}{2}$ "*OD $\frac{3}{4}$ "	6cm
T3	TFY	Lifemeta™ STF TPE Tubing, ID $\frac{3}{8}$ "*OD $\frac{5}{8}$ "	120cm
F1	CO3TT APBBG1P	Bricap™ CO3 Capsule Filter with Cobetter Corevital™ APB 0.2 μ m, Cat.No.:CO3TTAPBBG1P	1pcs
1	AQG17012HT	AseptiQuik™ G Connector, $\frac{3}{4}$ "HB	1pcs
2	SFTTM MM	T-Fitting, $\frac{3}{4}$ "HB	1pcs
3	SFLMT	TC Fitting, $\frac{3}{4}$ "HB to $\frac{3}{4}$ "TC	1pcs
4	TCGST	Silicone Gasket, $\frac{3}{4}$ "TC	1pcs
5	TCCNT	TC Clamp, $\frac{3}{4}$ "TC	1pcs
6	AQG17006HT	AseptiQuik™ G Connector, $\frac{3}{8}$ "HB	2pcs
7	SFLHM	Straight Fitting, $\frac{1}{2}$ "HB to $\frac{3}{4}$ "HB	1pcs
8	SFYYH	Y-Fitting, $\frac{3}{8}$ "- $\frac{3}{8}$ "- $\frac{1}{2}$ "HB	1pcs
P1	P3T301	StepLess™ Ear Clamps, 30.1mm (For assembly reference only)	6pcs
P2	HAT36	Cable Tie, 3.6 mm	A/R
E.			
T1	TFY	Lifemeta™ STF TPE Tubing, ID $\frac{3}{8}$ "*OD $\frac{5}{8}$ "	60cm
1	AQG17006HT	AseptiQuik™ G Connector, $\frac{3}{8}$ "HB	2pcs
F.			
T1	TTH	Lifemeta™ STT Pt-cured Silicone Tubing, ID $\frac{1}{2}$ "*OD $\frac{3}{4}$ "	10cm
T2	TFY	Lifemeta™ STF TPE Tubing, ID $\frac{3}{8}$ "*OD $\frac{5}{8}$ "	120cm
1	AQG17008HT	AseptiQuik™ G Connector, $\frac{1}{2}$ "HB	1pcs
2	SFYYH	Y-Fitting, $\frac{3}{8}$ "- $\frac{3}{8}$ "- $\frac{1}{2}$ "HB	1pcs
3	AQG17006HT	AseptiQuik™ G Connector, $\frac{3}{8}$ "HB	2pcs

Single-use ATF10 Schematic Diagram I

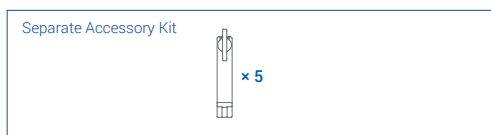
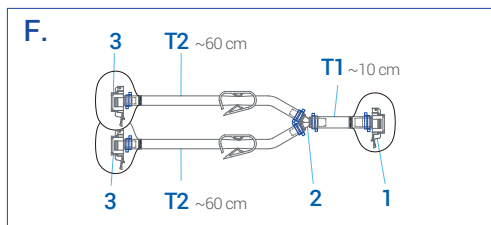
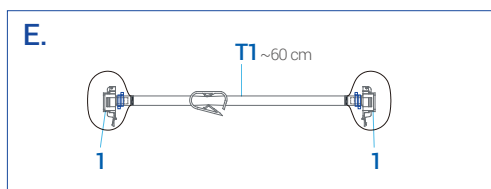
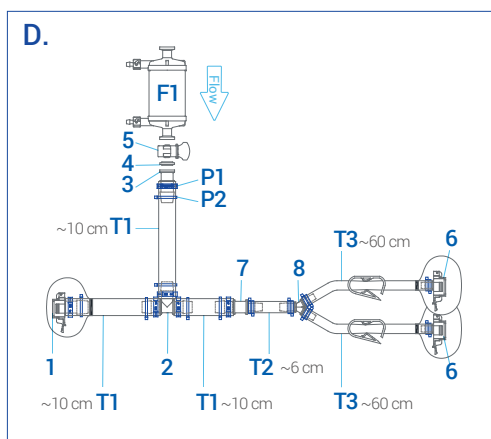
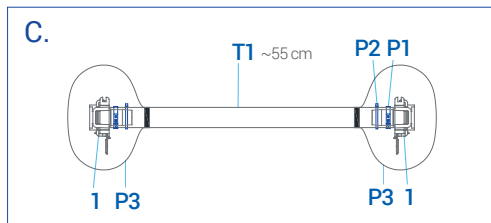
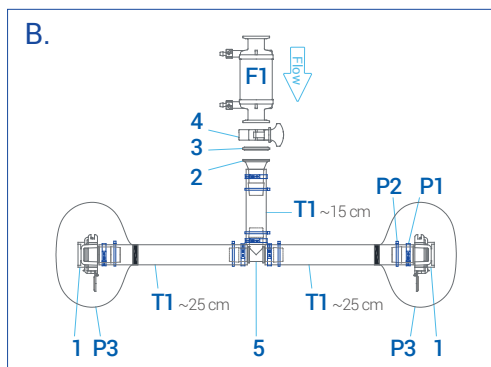


A.



NO.	MODEL	DESCRIPTION	SUM
A.			
T1	T8HD	Lifemeta™ ST8H High Pressure Silicone Tubing, ID1"OD1-3/8"	45cm
F1	LO5TS APBBG1P	Bricap™ LO5 Capsule Filter with Cobetter Corevital™, APB 0.2um, Cat.No.: LO5TSAPBBG1P	1pcs
F2	HFEFXM20R 1060G	FX Hollow Fiber Filter, Typical Pore Size 0.2µm, Fiber Inner Lumen 1.0mm, Effective Surface Area 10m², Cat.No.: HFEFXM20R1060G	1pcs
1	SFLDS	TC Fitting, 1"HB to 1-1/2"TC	1pcs
2	TCGSS	Silicone Gasket, 1-1/2"TC	7pcs
3	TCCNS	TC Clamp, 1-1/2"TC	7pcs
4	AQG33024HT	AseptiQuik™ G Connector, 1-1/2"TC	3pcs
5	AQL33024HT	AseptiQuik™ L Connector, 1-1/2"TC	2pcs
6	SUFX-T-P	Tee Fitting, 1-1/2"TC	1pcs
7	SUFX-VP	Single use Vac Pump, adaptation FX	1pcs

Single-use ATF10 Schematic Diagram II



Note: This accessory is packaged separately.

NO.	MODEL	DESCRIPTION	SUM
B.			
T1	TTD	Lifemeta™ STT Pt-cured Silicone Tubing, ID1"×OD1-3/8"	65cm
F1	CO3TT APBBG1P	Bricap™ CO3 Capsule Filter with Cobetter Corevital™, APB 0.2µm, Cat.No.: CO3FFAPBBG1P	1pcs
1	AQL17016HT	AseptiQuik™ L Connector, 1"HB	2pcs
2	SFLDS	TC Fitting, 1"HB to 1-1/2"TC	1pcs
3	TCGSS	Silicone Gasket, 1-1/2"TC	1pcs
4	TCCNS	TC Clamp, 1-1/2"TC	1pcs
5	SFTDDD	T-Fitting, 1"HB	1pcs
P1	P3T381	StepLess™ Ear Clamps, 38.1mm (For assembly reference only)	6pcs
P2	P33	Large Cable Tie	6pcs
P3	P44+P51	Large Dust Cover	2pcs
C.			
T1	TTD	Lifemeta™ STT Pt-cured Silicone Tubing, ID1"×OD1-3/8"	40cm
1	AQL17016HT	AseptiQuik™ L Connector, 1"HB	2pcs
P1	P3T381	StepLess™ Ear Clamps, 38.1mm (For assembly reference only)	2pcs
P2	P33	Large Cable Tie	A/R
P3	P44+P51	Large Dust Cover	
D.			
T1	TTM	Lifemeta™ STT Pt-cured Silicone Tubing, ID3/4"×OD1-1/8"	30cm
T2	TTH	Lifemeta™ STT Pt-cured Silicone Tubing, ID1/2"×OD3/4"	6cm
T3	TFY	Lifemeta™ STF TPE Tubing, ID3/8"×OD5/8"	120cm
F1	CO3TT APBBG1P	Bricap™ CO3 Capsule Filter with Cobetter Corevital™ APB 0.2µm, Cat.No.: CO3TTAPBBG1P	1PCS
1	AQG17012H	AseptiQuik™ G Connector, 3/4"HB	1PCS
2	SFTMMM	T-Fitting, 3/4"HB	1PCS
3	SFLMT	TC Fitting, 3/4"HB to 3/4"TC	1PCS
4	TCGST	Silicone Gasket, 3/4"TC	1PCS
5	TCCNT	TC Clamp, 3/4"TC	1PCS
6	AQG17006H	AseptiQuik™ G Connector, 3/8"HB	2PCS
7	SFLHM	Straight Fitting, 1/2"HB to 3/4"HB	1PCS
8	SFYYYH	Y-Fitting, 3/8"-3/8"-1/2"HB	1PCS
P1	P3T301	StepLess™ Ear Clamps, 30.1mm (For assembly reference only)	6PCS
P2	HAT36	Cable Tie, 3.6mm	A/R
E.			
T1	TFY	Lifemeta™ STF TPE Tubing, ID3/8"×OD5/8"	60cm
1	AQG17006HT	AseptiQuik™ G Connector, 3/8"HB	2pcs
F.			
T1	TTH	Lifemeta™ STT Pt-cured Silicone Tubing, ID1/2"×OD3/4"	10cm
T2	TFY	Lifemeta™ STF TPE Tubing, ID3/8"×OD5/8"	120cm
1	AQG17008HT	AseptiQuik™ G Connector, 1/2"HB	1pcs
2	SFYYYH	Y-Fitting, 3/8"-3/8"-1/2"HB	1pcs
3	AQG17006HT	AseptiQuik™ G Connector, 3/8"HB	2pcs



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Ver. 01-b

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Specifications subject to change without notice. **CBPATFHF2501b E2507**