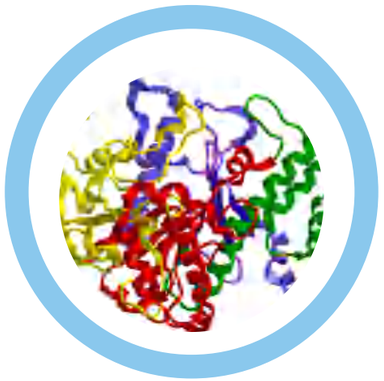

Automatic tangential flow filtration system

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About us

Yocell Biotechnology was founded in 2016, with a team of energetic young scientists and engineers. We are committed to providing biotech scientists and engineers around the world with the most reliable solutions and specialized, dependable equipment for biotech downstream processes. Our main products include bioreactors/fermenters, centrifuges, high pressure homogenizers, filtration systems, chromatography systems as well as finished product filling and general laboratory equipment. Yocell relies on a professional technical service team and sales team to provide efficient and high quality services to customers. Accepting the challenge of constant innovation in biotechnology and solving problems from multiple perspectives are the most impressive qualities of the team.

Pragmatic

Always listen carefully to your needs and provide the most competitive solutions.

Efficient

Respond quickly and have a strong supply chain to ensure fast delivery.

Focus

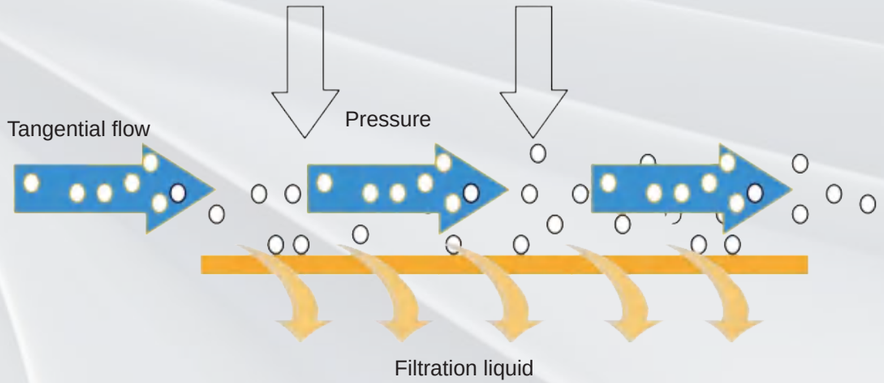
Continuous attention and passion for innovation in the field of biotechnology control.

System Overview

Tangential flow filtration (TFF) system is a high-efficiency separation device based on membrane separation technology. By leveraging the synergistic effect between the tangential flow of feed liquid along the membrane surface and the perpendicular filtration flow through the membrane, it continuously scours the membrane surface during filtration. This mechanism effectively suppresses concentration polarization and membrane fouling, thereby maintaining stable filtration flux.

TFF Principle

1. Solution was driven to flow through the membrane by pressure
2. Tangential flow flashs away the remains on the membrane surface
3. The filtration media is the membrane with different pore size
4. The products were separated based on different pore size of membrane



Core advantage

- **High efficiency & stability, sustained flux**
  Tangential flow design reduces membrane fouling, boosting flux stability by over 50% and efficiency by 30%-60% vs. dead-end filtration for continuous production with minimal batch variations.
- **Energy conservation & cost optimization**
  Low-pressure operation reduces energy consumption by 25%-35% compared to conventional filtration. Membrane modules have a long service life of 1-3 years with low replacement frequency. The CIP function minimize reagent/water use, delivering over 30% operational cost reduction.
- **High-Efficiency Recovery**
  With a material recovery rate of up to 70%-85%, the equipment enables high-multiple concentration of target components, minimizing material loss and waste. Crafted from acid- and alkali-resistant, anti-fouling materials, it operates stably across a pH range of 2-12.
- **Flexible adaptation, wide applications**
  Single-system throughput can be customized from 18L/h to 10000L/h, supporting parallel/series configuration of multiple membrane modules to meet diverse production capacity requirements. It adapts to various material viscosities and properties, easily addressing separation needs across different industries.
- **Intelligent & Convenient, compliant & secure**
  Full automation control minimizes manual input for intuitive operation. Key parameters are real-time monitored/traceable (exportable data, GMP/FDA compliant) with a user-friendly structure for easy maintenance.
- **Customized services, full-cycle support**
  We provide end-to-end services from equipment customization, and installation commissioning to personnel training and after-sales maintenance. Solutions are optimized based on customers' specific production needs to ensure seamless integration of the system with production processes.

Applicable scenario

- Cell collection / harvesting
- Plasmid purification
- Latex and nanoparticle fractionation & washing
- Dealcoholization of blood products and removal of metalions
- Clarification of cell culture and lysis fluids
- Purification of viral samples
- Liposome purification
- Biological samples, antibiotic active pharmaceutical ingredients
- UF&DF for samples
- Polysaccharide separation, purification & concentration
- Buffer, Animal Cell Culture Media Endotoxin Removal

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Technical Parameters

No.	Function	Description
1	Consistant volume	Feeding pump would automatically pump in material, controlled by weighing module on the cycling tank, to maintain a consistant volume, such as for diafiltration
2	Consistant TMP	1. 2 or 3 pressure sensor equiped based on user's requirements
		2. Keep the flow rate, adjust the recycle valve manually or automatically, based on the pressure feeedback. Recommended method.
		3. Or, keep the recycle valve adjustment, change the flow rate according to TMP feedback.
3	Consistant flow rate	Keep the system flow rate by dual feedback from the flow meter at recycle tube and flow through tube.
4	Auto feeding	Automatically supply the material by feeding pump according to weighting modual feedback
5	Weighting	1. Weighting modual available
		2. Tank can do the autozero due to connected by soft tubes
6	Temp control	1. Cold water to be supplied by user
		2. Temperature automatically controlled by switch on the pump and flow rate of the cold water in the tank jacket, by feedback of the temperature sensor
7	Stirring	Equipped with imported magnetic stirrer at bottom and lower solution level protection/alarm
8	Gas exchange	Equipped with gas filter, 0.22 μm. Optional electric heating function available
9	Sampling	Sampling port and valve available
10	Tank CIP	CIP by spray port, optional pH and Cond probe
11	Water flow through test	Automatically generate the water flow through curve according to date from flow through flow meter
12	Integrity test	Integrity test connecting port availble
13	System CIP	All conponents compliance with CIP. Automatical CIP by programmmed CIP method
14	Software	Programming, monitoring, data analysis

Type	Proflow180	Proflow0800	Proflow1200	Proflow2500	Proflow5000	Proflow10000
Tube size	3/8”	1/2”	3/4”	1”	1-1/2”	2”
Flow rate range	18-180L/h	80-800L/h	120-1200L/h	250-2500L/h	500-5000L/h	1000-10000L///h
Membrane area	0.1-0.5m^2	0.5-2m^2	0.5-3m^2	0.5-5m^2	1-10m^2	5-20m^2
Flow accuracy	Recommended operation flow rate, 10-90% of the maximum value, ±2% accuracy					
pH accuracy	Monitor range 2-12. Test accuracy ±0.1. Display ±0.01					
Cond accuracy	Standard: range 1μs/cm-300ms/cm, accuracy±3% at 1μs/cm-100ms/cm, accuracy ±5% at 100ms/cm-300ms/cm					
	Optional: range 0-850ms/cm, accuracy±2% at 0-500ms/cm					
Tube material	AIAI 316L, ASME BPE, Ra≤0.38μm, SF4 Polished					
Cycling tank	Designed according to URS					
Pressure	6Bar					
Valve	Air driven diaphragm valve, air supply pressure 5-7bar					
Power supply	220VAC 50Hz	220VAC 50Hz	220VAC 50Hz	380VAC 50Hz	380VAC 50Hz	380VAC 50Hz
Power	1.5KW	2.0KW	2.5KW	4.0KW	6.0KW	8.0KW