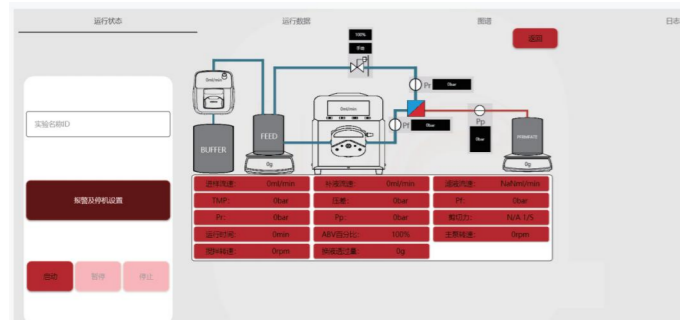


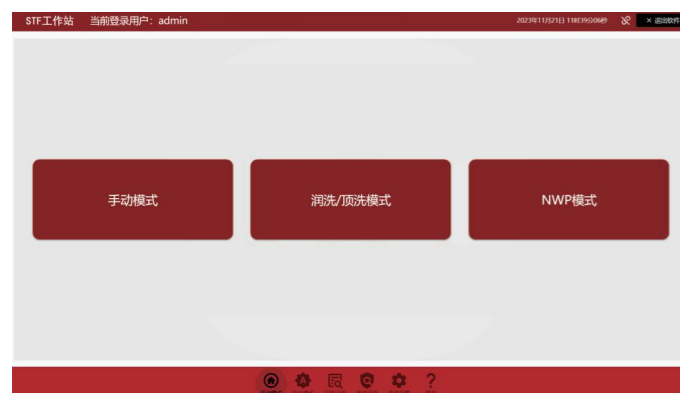
# Software features

The STF tangential flow filtration system is a flexible, fully automated desktop tangential flow filtration system, mainly suitable for downstream process separation. The STF workstation can realize a completely unattended tangential flow process. It has perfect multi-level user management authority and complete audit tracking function. At the same time, it meets the requirements of GMP and 21CFR Part 11 and other regulations. Intelligent Human-machine interface, equipped with patented control software, ensures stable and repeatable process.



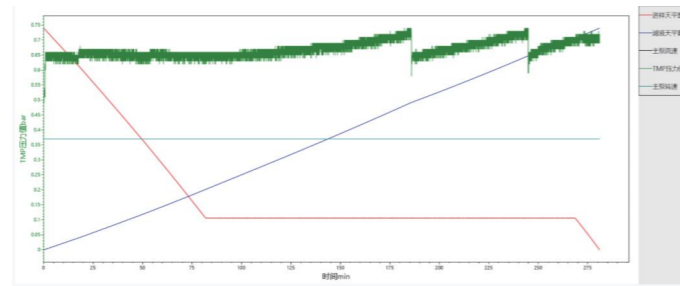
## Data collection and monitoring

- Real-time parameter monitoring: Real-time collection of various parameters during system operation, such as inlet pressure, reflux pressure, filtrate pressure, trans-membrane pressure, filtration flux, flow rate, etc. Intuitively reflects the operating status of the filtration system, helping users to understand the system's working status.
- Data recording and storage: record and store the collected data. For subsequent analysis and processing. Users can view historical data at any time. Understand the different operation status of a certain period of time, providing a basis for process.



## Process Control

- Automated operation: Users can set filtering time, pressure, flow rate and other parameters. The software will automatically run according to the set program, reducing the tediousness and errors of manual operation and improving the efficiency and stability of filtration.
- Mode selection: Provides multiple operation modes, such as manual mode, rinse mode, top wash mode, NWP mode, cleaning mode, etc. Users can select the filter mode according to different filtering needs. Select the appropriate mode.
- Feedback control: Based on real-time monitored data, the software can automatically adjust the system's operating parameters to maintain the stability and efficiency of the filtration process.



## Graphical interface and data analysis

- Graphical display: Display the operating data and status of the filtration system through an intuitive graphical interface, such as pressure curve, flow rate curve, filtration flux curve, etc., So that users can more clearly understand the changing trends of the filtration process.
- Data analysis: It can conduct statistical analysis and trend analysis on the collected data, helping users to evaluate filtration effects and optimize filtration processes. For example, filtration recovery rate and purity indicator.

ID	名称	类型	状态	开始时间	结束时间	备注
000001	进液压力	压力	正常	2022-10-24 10:00:00	2022-10-24 10:00:00	
000002	回流压力	压力	正常	2022-10-24 10:00:00	2022-10-24 10:00:00	
000003	跨膜压力	压力	正常	2022-10-24 10:00:00	2022-10-24 10:00:00	
000004	过滤流量	流量	正常	2022-10-24 10:00:00	2022-10-24 10:00:00	
000005	回收率	百分比	正常	2022-10-24 10:00:00	2022-10-24 10:00:00	

## Security and Rights Management

- Safety alarm: When the system has abnormal conditions, such as high pressure, low flow rate, a fault in the equipment, the software will send out an alarm signal in time to remind the user to handle it to ensure the safe of the system.
- Permission management: Support multi-level permission management, different users can have different operation rights. For example, administrators can perform system settings and parameter adjustments, while ordinary users can only do basic operations and data viewing to ensure the security of the system and the confidentiality of data .



## Compatibility and scalability

- Compatibility: Can be used with hollow fiber, flat membrane and other filter modules of major brands. At the same time, data can be interacted and integrated with other laboratory equipment or software. Effectively improve the automation level of the laboratory.
- Scalability: It has good scalability and can expand functions according to user needs to meet the experimental and production needs.



# Tangential Flow Filtration System

protein | antibody | vaccine | polypeptide | virus





- 1 Injection stirring balance
- 2 Organizer box
- 3 Liquid replenishment auxiliary Pump
- 4 Main control integrated pump
- 5 Controlling software
- 6 Automatic back pressure control valve
- 7 Conductivity and temperature detector
- 8 Filter balance

### Core advantages

- **Localization:** The entire system is domestically produced, from the single-chip microcomputer to the main hardware, with stable delivery time and reliable quality.
- **Compatibility:** The disposable flow path system is ready to use and can be used with both flat membrane modules and hollow fiber columns.
- **Flexibility:** The system can process sample solutions ranging from as low as milliliters to as high as several liters, suitable for biomolecule separation and purification needs of various scales.
- **Precision:** Self-developed high-precision pressure sensor provides pressure protection to ensure safe and stable purification process.
- **Safety:** Luer connector design, seamless flow path, supports disposable use and meets hygiene standards.
- **Stability:** The advanced microprocessor controller is integrated into the main pump chip. Direct communication is established between software and hardware, making parameter control and data feedback fast and stable.
- **Modular design:** Split design, fast assembly, easy expansion, convenient pipeline construction, and can be used on a laboratory table or a clean workbench.
- **Automatic control:** The system provides automatic control and real-time recording to achieve the selection and optimization of tangential flow filtration.

### Russia and CIS Distributor



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## Tangential Flow Filtration System

The Tangential Flow Filtration System is a flexible, fully automated desktop tangential flow filtration system designed for laboratory pilot and R&D scale small and medium volume High concentration application. The system includes a main control integrated pump, mobile control terminal, digital pressure sensor, injection stirring balance, filter balance, automatic back pressure control valve, liquid replenishment auxiliary Pump, component holder, operating software STF workstation. The UF system allows the execution of complex UF processes with increased precision and efficiency.

System Module		STF 01	
Hardware Configuration Details	Equipment parameters	Temperature and humidity range	0-40°C, ≤90%
		size	920*600*650 mm ; 25 kg
		power supply	220VAC±10%,50Hz
	Sample injection stirring balance	Range	0-6200g
		Readable	0.1g
		Stirring speed	0-500 rpm
		quantity	One
	Filter balance	Range	0-20000g
		Readable	0.1g
		quantity	One
	Master control integrated pump	Speed range	0-650 rpm
		Recommended maximum flow rate	700 ml / min (match the corresponding pipeline)
		Matching pipe number	#13 , #14 , #16 , #19
		Roller Material	316L Stainless Steel
		Maximum inlet pressure	3 bar
		quantity	One
	Fluid infusion auxiliary pump	Speed range	0-350 rpm
		Maximum flow rate	500 ml / min (match the corresponding pipeline)
		quantity	One
	Pressure Sensors	Range	0-5.00 bar
		Accuracy	0.01 bar
		Material	PES
		Connection	Luer male and female connectors
quantity		Three	
Automatic back pressure valve	journey	7 mm	
	quantity	one	
Controller	brand	HUAWEI Matebook E	
	parameter	i5+16G+1Tb	
Conductivity Temperature Detector	Range	0-300 ms / cm	
	Accuracy	±2%	
	Resolution	0.001 ms / cm	
	quantity	one	
Control Software	STF Workstation		
		Displays the sample flow rate, filtrate flow rate, inlet pressure, reflux pressure, permeate pressure, pressure difference and transmembrane pressure, real-time conductivity ; real-time shear rate, concentration multiple and volume, The liquid multiple and volume can be flexibly set, the data collection time point and time interval can be set, and the operation of the automated method can be set.	
Control Methods		Fully compliant with 21 CFR part 11 requirements, audit trails, rights management, role assignment, data integrity	
		Constant inlet flow rate, controlled transmembrane pressure ( TMP ) operation	
		Constant reflux flow rate, controlled transmembrane pressure ( TMP ) operation	
		Transmembrane pressure (TMP) control time: ≤1min	
		Transmembrane pressure (TMP) control accuracy: ±1psi	
Control alarm		Constant volume liquid replacement accuracy: ±1g	
		Three pressure alarms	
		Balance weight alarm	