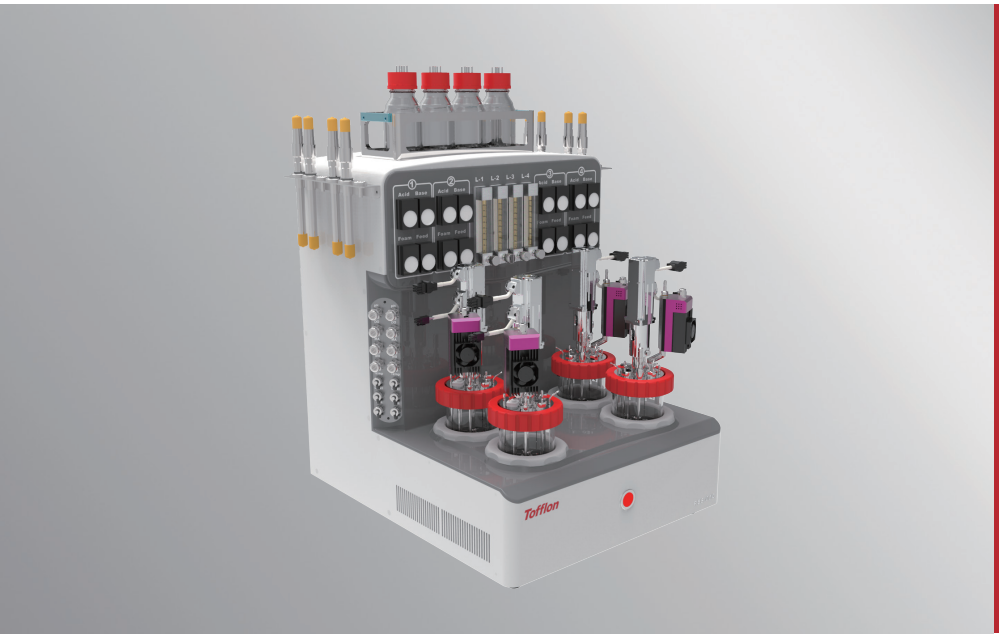
Tofflon



PBS Parallel Bioreactor

EXPERTISE IN BIO-PHARMACEUTICAL

Tofflon
Life Science Co.,Ltd.

Founded in 1993, Tofflon Science and Technology Group Co., Ltd. (SZ:300171) is a pioneering Chinese enterprise in the field of biotechnology, with a rich history of 30 years. With annual sales reaching 5.4 billion RMB in 2022 and a global workforce of 5,500 employees, Tofflon has established over 50 offices worldwide, embodying a globalized business and team.

Tofflon Life Sciences Co., Ltd., the flagship subsidiary within the group, plays a pivotal role in their portfolio. It focuses on the research and development of cutting-edge technologies in the biopharmaceutical and life science industries. As a strategic division Tofflon life science provides one-stop solutions and services that integrate bioprocessing equipment, core consumables like sterile bags, culture media, resins to further enquickly and professionally.

- In the realm of cell therapy, we offer complete solutions for the preparation and production of immune cell pipelines, stem cell pipelines, tumor cell vaccines, and more.
- For gene therapy, we provide overall solutions for the research, development, and industrialization of nucleic acid drugs (mRNA/DNA) and viral vector drugs.
- In the field of biological sample banking, we conduct research and development of automatic sample storage management systems to provide comprehensive solutions for cell seed and tissue samples.
- In the consumables sector, we have developed a complete range of products including disposable bags (culture bags, mixing bags, storage bags), bio-reagents (culture media, cryoprotectants, Ficoll, growth factors), resin (GFC, AC, AEX, CEX, HIC, MMC), filtration (microfiltration, deep filtration, TFF, cassette), and hard packaging materials.
- We also focus on disinfection, offering comprehensive solutions for clean room disinfection, surface and external disinfection, infection control, terminal disinfection, and multi-drug resistant microorganism disinfection, ensuring effective environmental disinfection.

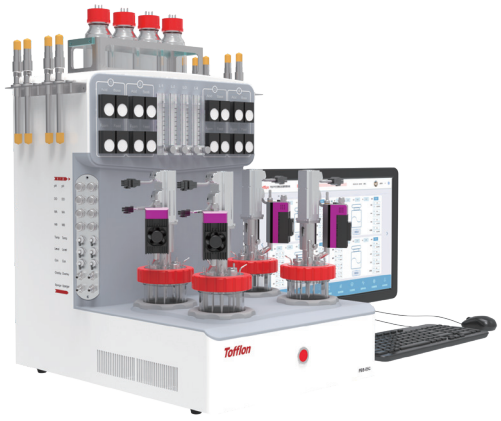
Leveraging Tofflon Group's extensive expertise in design, manufacturing, engineering construction, and after-sales service worldwide, Tofflon Life Sciences Division is committed to serving the biopharmaceutical industry with enhanced speed and professionalism.

PBS Parallel Bioreactor

PBS parallel bioreactor system is widely used in many fields, such as process screening and verification, initial culture of bacteria or cells, and it can create an application system composed of the "convenient, efficient and safe" biological fermentation process and the relevant comparative data. The system is mainly composed of monitoring computer, reactor, electrical components, controler, peristaltic pump, flowmeter, pH electrode, DO electrode and other components. Each reactor can be flexibly combined and is equipped with independent temperature control module, stirring system and other component units to ensure that each reactor works independently at different temperatures and stirring speeds and to speed up the screening and verification of test conditions and the optimization of reaction conditions. The reactor and the temperature control module can be completely separated, which greatly facilitates the installation and disassembly of the reactor and improves the work efficiency.

Product Application

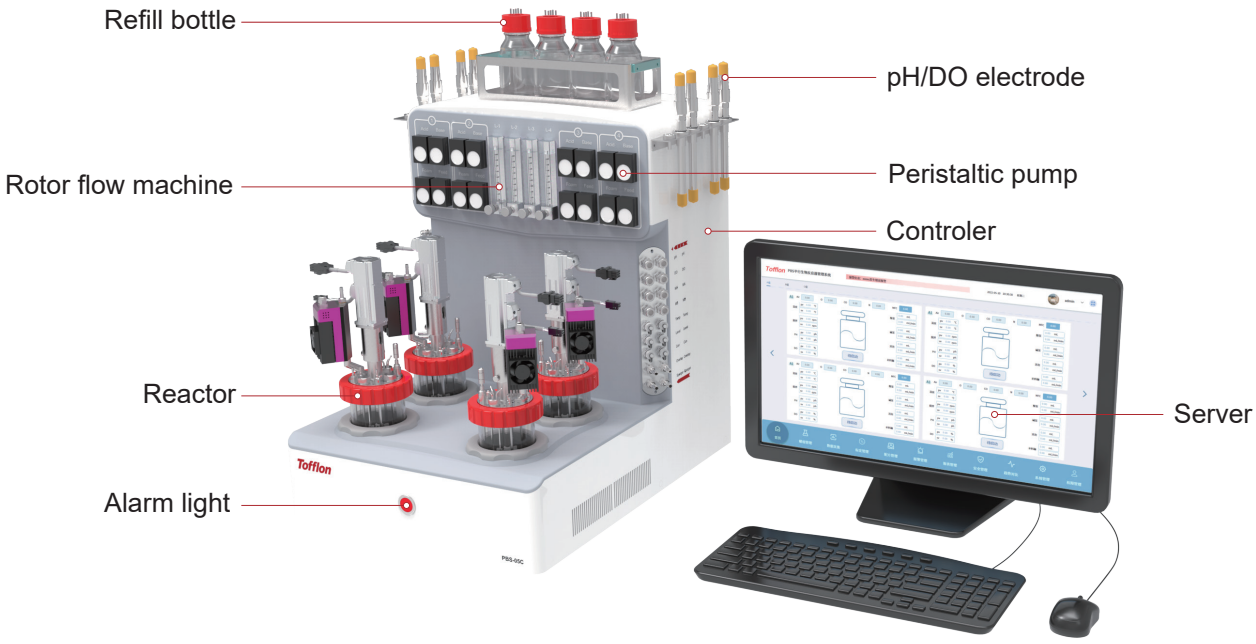
- Research and development of cell, microorganism and photosynthetic bacteria culture applications.
- Culture of mammalian, insect and human cell lines.
- Laboratory-scale aerobic and anaerobic bacteria, yeast and fungal fermentation.
- Special applications, such as process research of stem cell culture, bio-fuels and biological polymers.



Product Advantages

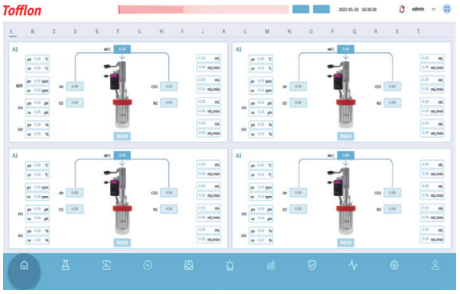
- **Reliability** - the data management complies with cGMP and other regulatory requirements, shortening the data processing time.
- **Integration** - less floor space in limited space, reducing the space demand for laboratories on the premise of meeting the demand.
- **High efficiency** - at the early stage of research and development, the environment for the growth of microorganisms or systems can be quickly determined to reduce the waiting time for experiments.
- **Ease of use** - turn "complexity" into "simplicity", take "highly automatic parallel control concept" as the core, and the system will automatically make compensation or optimization according to the parameters set by the users.
- **Extensibility** - easy to expand, number of non-tank bodies from 1 group of 4-tank to 26 groups of 4-tank, to perform high-flux experiments.
- **Future-oriented** - remote monitoring, process flow and possibility of continuous exploration.
- **Dry-type** - abandon the conventional temperature control mode of heating with water bath and cooling with cooling water in the tank, based on the new structure, each reactor unit can provide independent dry-type temperature control and exhaust cooling.

Introduction to the complete equipment



PBS software control system

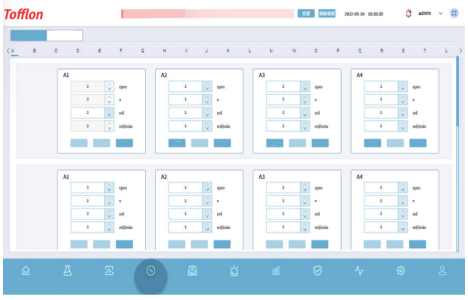
Login interface



Home interface

Trend interface

Record interface



Parameter interface

Alarm interface

Technical Parameters of PBS

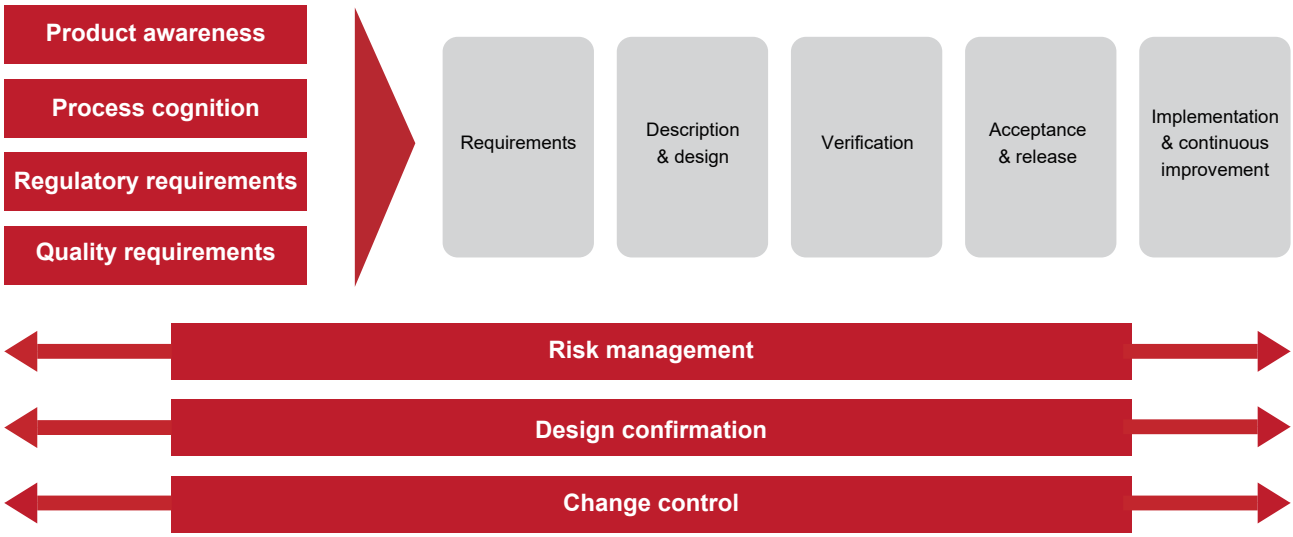
Object	Parameter	250mL parametric description	500mL parametric description	1000mL parametric description
Tank body	Total volume	350mL×4 (Four in one group)	750mL×4 (Four in one group)	1500mL×4 (Four in one group)
	Culture volume	Default filling coefficient 70%		
	Maximum working volume	250mL	500mL	1000mL
	Minimum working volume	80mL	150mL	300mL
	Sterilization mode	Off-position high-temperature sterilization		
Stirring system	Control range	30~300rpm		
	Control accuracy	±1rpm		
	Stirring mode	Top mechanical stirring	Top magnetic coupled stirring	
Temperature control	Electrode	PT100 Sensor		
	Control range	15~50℃		
	Control accuracy	±0.1℃		
pH	Control range	0~14		
	Control accuracy	±0.1		
	Control mode	Associated control of CO_2 and alkali pump		
DO	Control range	0-100%		
	Control accuracy	±5%		
	Control mode	Associated control of air, O_2 and stirring speed		
Information about water and electricity	Voltage	220V/50Hz		
	Power	1.8kW	2.2kW	2.5kW
Equipment size	Footprint size of equipment (width*depth*height)	0.5*0.66*0.7 m		0.7*0.9*0.7 m
	Recommended experimental table size (1 set of 4 can bodies)	1*0.7*0.75 m		1.2*1*0.75 m

Project Management

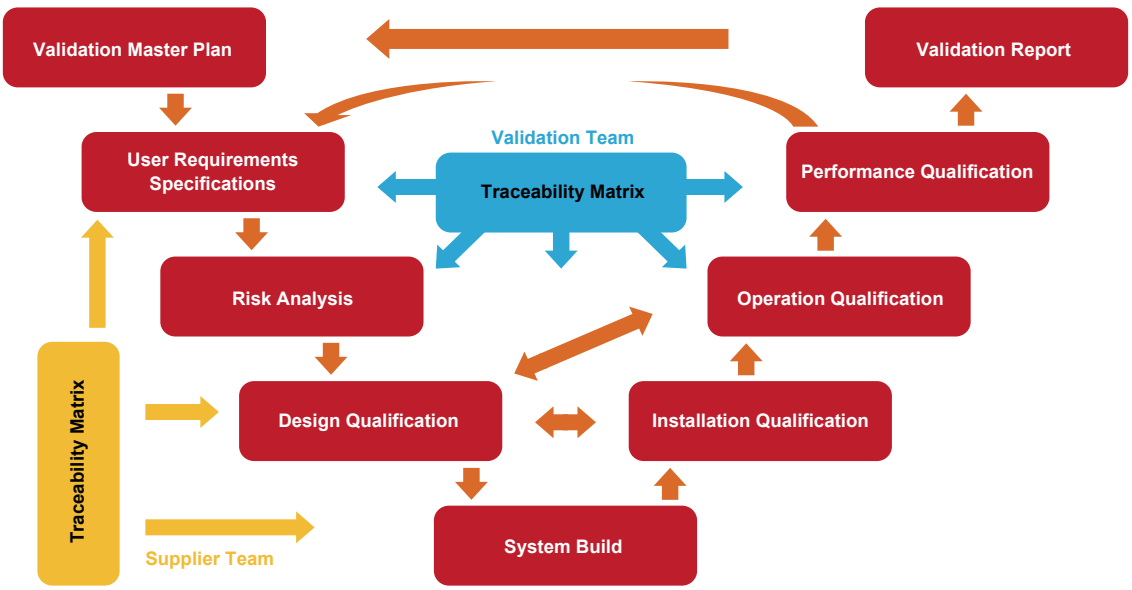
Three main factors determine the success of the project. Our organizational mode has been making constant update and improvement to enable you to fully achieve these goals. Through cooperation with us, you can minimize the direct resources required to manage the selection, purchase, installation, startup and verification of new production equipment.

- Reliable quality
- Short cycle
- Focus on cost

Good Engineering Practice - GEP

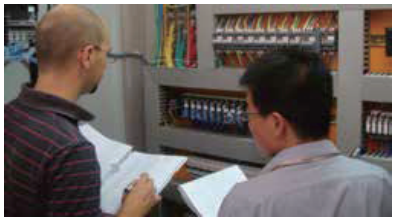


Validation Support



Verification Document System

- Complete document system
- Strict quality guarantee process
- Comply with cGMP confirmation scheme
- Ensure the stability and reliability of product quality



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Tofflon Science and Technology Group Co.,Ltd.

Address: No.1509,Duhui Road,Shanghai,China 201108
Tel: +86 21 6490 1123 / 6490 6201
Fax: +86 21 6490 5148 / 6490 6202
E-mail: lifescience.info@tofflon.com
www.tofflon.com