



Integrated solution for separation and purification

分离纯化整体解决方案

楚天源创生物技术(长沙)有限公司

TRUKING INGENUITY BIOTECHNOLOGY (CHANGSHA) CO.,LTD.

让世界制药工业插上智慧的翅膀

Equip global pharmaceutical manufacturing industry with intelligent wings



Lab型层析系统 Lab Purification Process型层析系统 Auto Purification 连续流层析系统 Multiple Column Continuous Purification 一次性层析系统 Auto Purification-Single Use 配液型层析系统 Auto Inline Conditioning Chromatography 灵巧型层析系统 Smart Purification	层析系统 Purification -09-	行业整体解决方案 -04- Industry Overall Solutions
Lab型超滤系统 Lab TFF Process型超滤系统 Auto TFF 手动超滤系统 Easy TFF 微滤&深层过滤系统 Depth Filtration 一次性超滤系统 Auto TFF-Single Use 除病毒过滤系统 Virus Filtration	过滤系统 Filtration -21-	大分子纯化系列 -08- Macromolecule Purification Series
在线配液系统 Auto Inline Conditioning	配液系统 Conditioning -33-	谐波输送泵 -43- Harmonic Delivery Pump
全自动层析柱 Auto Column 手动层析柱 Easy Column 装柱工作站 Auto Packing station 匀浆罐 Slurry Tank	层析柱 Column -35-	配件 -45- Accessories
		PuriCAT 软件 -47- PuriCAT software
		楚天微球层析填料 -51- Truking Micro-Sphere
		验证服务 -53- Authentication service
		服务理念 -55- Service Concept



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FROM

公司自2012年开始进行
各类层析、配液、超滤等设
备的研发与制造。

Since 2012, the company has carried out various
types of chromatography, liquid preparation,
ultrafiltration and other equipment.
Development and manufacturing of equipment.

TRUKING

企业简介

COMPANY PROFILE

楚天源创生物技术(长沙)有限公司(简称:楚天源创)是楚天科技股份有限公司控股子公司(股票代码:楚天科技 300358),是楚天科技与科众源创共同合资成立的一家为全球生物制药企业提供分离纯化整体解决方案和服务的供应商,坐落于湖南宁乡楚天工业园。

楚天源创作为国内最早从事大分子分离纯化设备生产的公司之一,产品线涵盖下游纯化、超滤、在线配液等设备。公司核心团队来自航天科工集团,同时引进MILLIPORE和GE的国际顶尖人才加盟,并与日本JNC株式会社进行技术与产品合作,共建中日技术合作工艺实验室。公司通过吸收国际顶尖人才并结合楚天科技平台强大设计及加工制造能力,目前能为客户提供从厂房概念设计到施工的下游纯化整体解决方案,服务广大生物医药行业。

目前公司已与国内外数百家企业建立良好的合作关系,产品已出口至日本、印度、巴西、俄罗斯、柬埔寨等多个国家,产品性能稳定、安全可靠、使用便捷,荣获客户的广泛好评。

Truking Ingenuity Biotechnology (Changsha) Co.,Ltd. (hereinafter referred to as Truking Ingenuity) is a holding subsidiary of Truking Technology Limited. Co-founded by Hunan United Ingenuity Technology Co., Ltd. (Stock code:Truking 300358)Truking Ingenuity positions itself as a comprehensive separation and purification solution provider for the global biopharmaceutical enterprises. It is located at the Truking Industrial Park in Ningxiang City, Hunan Province, China.

The core team of Truking Ingenuity originated from China Aerospace Science and Industry Corporation (CASIC), later was introduced in with international top talents from MILLIPORE and GE, and at the same time cooperated on technology and products with JNC Corporation, by jointly establish the China-Japan Technology Cooperation Process Lab. Truking Ingenuity was the earliest professional manufacturer of the separation and purification equipment of biological macromolecules in China. By now, Truking Ingenuity has enriched its product matrix to cover separation & purification, ultrafiltration, and Auto Inline Conditioning for labs from pilots to large-scale production. Process and auxiliary process development guidance is also available whenever the customer needs.

So far, Truking Ingenuity has established good cooperation with hundreds of companies home and abroad, with its products exported to many countries like Japan, India, Brazil, Russia, Cambodia, etc. The reliability, safety, stability, and convenience to use have been well recognized by our customers.



层析纯化系统 Purification



过滤系统 Filtration



配液系统 Conditioning



耗材&器件 Consumables & Parts



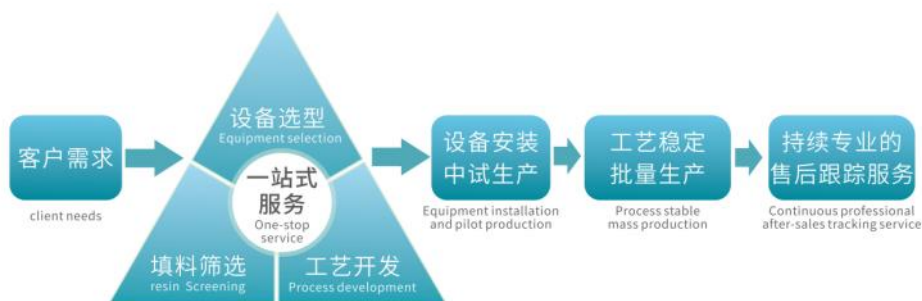
行业整体解决方案

INDUSTRY INTEGRATED SOLUTIONS

分离纯化整体解决方案 / Separation and purification

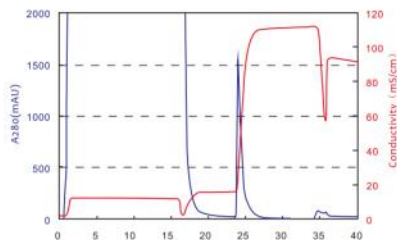
楚天源创生物技术(长沙)有限公司致力于为全球客户提供行业领先的层析设备和技术服务,同时与日本JNC株式会社联手合作,在长沙建立工艺开发实验室,为客户提供从色谱层析填料筛选、纯化工艺开发,层析设备选型及定制化等整体解决方案。

Truking Ingenuity Biotechnology (Changsha) Co.,Ltd. is committed to providing industry-leading chromatography equipment and technical services for global customers. At the same time, it has established a process development laboratory in Changsha in cooperation with JNC CORPORATION, to provide customers with overall solutions from chromatographic packing screening, purification process development, chromatographic equipment selection and customization.



工艺开发案例 / Process development case

Cellufine Sulfate流感病毒纯化工艺



样品:灭活流感病毒(H7N7)
上样量:15毫升(总计153600HAU)
色谱柱:内径6.6毫米x长1.5厘米
平衡缓冲液:10mMPB(pH7.4)
洗涤缓冲液:
10mMPB+0.15MNaCl(pH7.4)
洗脱缓冲液:
10mMPB(pH7.4)+1.5MNaCl
流速:0.5ml/min(90cm/h)

	目标病毒 Target virus	蛋白 Protein	DNA
上样 Loading	100	100	100
流穿 Flow through	1	83	57
洗脱 Elution	83	10	19

抗体纯化工艺/Actual process "process of Mabs"

抗体药物能够与特定靶点结合的高度特异性和亲和力，以及目的蛋白序列易于人源化和全人源化的特性导致这类生物制品的爆炸性增长。最近20年该类产品发展迅猛，目前已有超过300种单抗处于临床试验阶段。单抗已被批准广泛用于恶性肿瘤、免疫学疾病和罕见病等多个适应症。

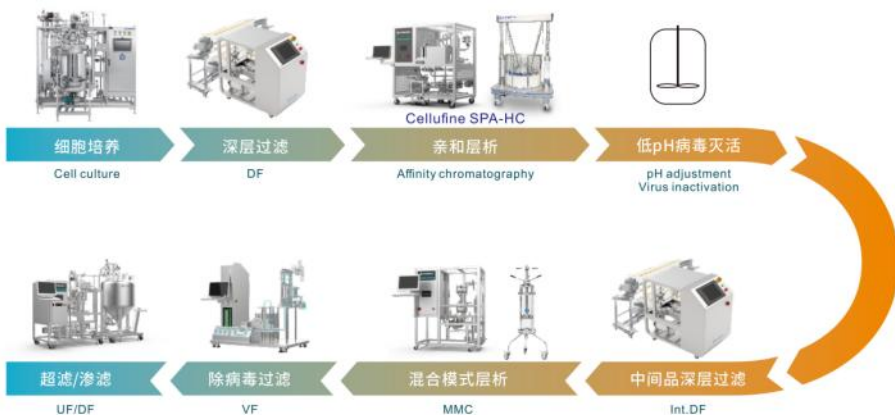
The high specificity and affinity of antibody drugs that can bind to specific targets, and the easy humanization and fully humanization of the target protein sequence have led to the explosive growth of such biological products. This type of product has developed rapidly in the past 20 years, and more than 300 monoclonal antibodies are currently in clinical trials. Monoclonal antibodies have been approved for multiple indications such as malignant tumors, immunological diseases and rare diseases.

常见的抗体纯化工艺，首先将反应器收获液经过离心和过滤，去除细胞和细胞碎片，然后经过ProteinA层析捕获抗体，捕获后的抗体经低pH病毒灭活后，通过两个离子交换层析进行精纯，然后进行病毒过滤，最后通过超滤和渗滤进行抗体浓度调整与换液，得到抗体原液。

The common antibody purification process is to first centrifuge and filter the harvested liquid from the reactor to remove cells and cell debris, and then pass the ProteinA chromatography to capture the antibody. After the captured antibody is virus inactivated by the low pH, it is passed through two ion exchange chromatography. Then filter the virus, and finally adjust the antibody concentration and change the liquid through ultrafiltration and diafiltration to obtain the antibody stock solution.

楚天源创新型层析工艺，是在传统纯化工艺基础上用一步混合模式层析代替两步离子交换层析，达到分离纯化效果。

Truking Ingenuity's new chromatographic process is based on the traditional purification process with one-step mixed mode chromatography instead of two-step ion exchange chromatography to achieve the separation and purification effect.





人用病毒疫苗工艺/Actual process "process of vaccine for Human Use"

疫苗是用人工方法处理过的微生物或其产物,接种到体内后可以刺激免疫系统产生抗体和专门作用于特定的病毒或细菌的细胞,使人体产生对该病原体的抵抗力。人用病毒类疫苗主要包括减毒活疫苗、灭活疫苗,以及病毒载体疫苗,这些类型的疫苗生产工艺类似。

Vaccines are microorganisms or their products that have been artificially treated. After being inoculated into the body, they can stimulate the immune system to produce antibodies and cells that specifically act on specific viruses or bacteria, so that the human body can develop resistance to the pathogen. Human virus vaccines mainly include live attenuated vaccines, inactivated vaccines, and viral vector vaccines. The production processes of these types of vaccines are similar.

病毒分离纯化主要是利用病毒颗粒远大于蛋白和肽类分子的特征,通过膜分离技术以及层析分离技术的组合模式进行分离,最终获得高纯度病毒颗粒。

Virus separation and purification mainly uses the feature that virus particles are much larger than protein and peptide molecules, and is separated through membrane separation technology and chromatographic separation technology, and finally high-purity virus particles are obtained.

常见的病毒颗粒纯化工艺,首先通过微孔过滤将发酵液中细胞碎片去除后,通过超滤进行浓缩以减少样品量以及去除HCP等杂质,再通过凝胶过滤层析以及阴离子层析精纯后,经超滤和渗滤浓度调整与换液,得到原液。

The common virus particle purification process is to first remove the cell debris from the fermentation broth by microfiltration, then concentrate by Ultrafiltration to reduce the amount of sample and remove impurities such as HCP, and then pass Gel Filtration Chromatography and Anion Chromatography, After Ultrafiltration and Diafiltration concentration adjustment and liquid exchange, the stock solution is obtained.

楚天源创新型纯化工艺,是在传统纯化工艺基础上用一步亲和和层析代替凝胶过滤层析以及阴离子层析,达到病毒颗粒分离纯化效果。

Truking Ingenuity's new purification process uses one-step affinity chromatography instead of gel filtration chromatography and anion chromatography on the basis of the traditional purification process to achieve the separation and purification effect of virus particles.



血液制品工艺 / Actual process process of blood products

血液制品主要是以健康人血浆为原料，采用生物学工艺或分离纯化技术制备的生物活性制剂，包括白蛋白、免疫球蛋白、各种凝血因子等。在生产工艺方面，血液制品主要以传统的低温乙醇法进行纯化，但其中的免疫球蛋白和各类凝血因子近年生产工艺则逐步升级采用层析和超滤进行分离纯化。

Blood products are mainly a biologically active product prepared from healthy human plasma using biological processes or separation and purification technologies. Blood products include albumin, immunoglobulin, and various coagulation factors. In terms of production process, most blood products are purified by the traditional low-temperature ethanol method. In recent years, the production process of immunoglobulin and various coagulation factors has been gradually upgraded to use chromatography and ultrafiltration for separation and purification.

球蛋白是一种存在于人体血浆中的血清蛋白，具有免疫作用，又称免疫球蛋白。升级后的免疫球蛋白生产工艺中应用较多的是离子交换层析法，主要采用阳离子与阴离子结合的两步离子交换柱层析，通过两步层析和超滤纯化以达到工艺要求。

Globulin is a serum protein that exists in human plasma and has an immune effect. It is also called immunoglobulin. The upgraded immunoglobulin production process is mostly used in ion chromatography, which mainly adopts two-step ion exchange column chromatography combining cation chromatography and anion chromatography, through two-step chromatography and ultrafiltration purification to meet the process requirements.

人凝血因子是人血浆中一种非常重要的凝血因子，其缺失或缺乏会引起不同程度的甲型血友病，甲型血友病是一种终生性疾病，目前仍没有根治的方法，只能通过输注 F VIII 产品进行替代性治疗。目前人凝血因子 F VIII 生产工艺主要采用一步离子交换及超滤纯化法。

Human coagulation factor VIII is a very important coagulation factor in human plasma. Human coagulation factor VIII absence or deficiency can cause varying degrees of hemophilia. Hemophilia A is a lifelong disease, and there is still no cure. Hemophilia A can only be treated by infusion of FVIII products. At present, the production process of human coagulation factor FVIII mainly adopts one-step ion exchange and ultrafiltration.



免疫球蛋白纯化工艺

Immunoglobulin purification process



凝血因子VIII纯化工艺

Coagulation factor VIII purification process

安全在于细心事故

产品介绍

Product introduction

大分子 纯化系列

Macromolecule
purification series



● 层析系统

Purification

● 过滤系统

Filtration

TRUKING

● 配液系统

Conditioning

● 层析柱

Column



层析系统

PURIFICATION

Lab型层析系统

LAB PURIFICATION



优势特点 / Performance advantages

- ◎ 所有阀门、泵、检测器均采用模块化设计，拆卸简单，维护方便；
- ◎ 高精度二元柱塞泵，流量精准，重复性好；
- ◎ 多元化配置，最多8路缓冲液、8路样品入口、8路出口和8根层析柱；
- ◎ 选配自动收集器和上样泵，完全实现全自动上样与收样；
- ◎ 安全可靠的计算机管理系统，确保数据的完整性、真实性与可追溯性；
- ◎ 合理的流路设计，死体积小，液体流动稳定，数据测量精准；
- ◎ 功能强大的方法编辑器，全自动上样、收集、监测等；
- ◎ 多套管路可替换式设计，流量范围大，用途广泛；
- ◎ 远程监控功能，随时随地监测设备运行状态。

- + Adopt modular design for all valves, pumps and detectors, easy to dismantle and maintain;
- + Equip high accuracy binary piston pump with accurate flow flux and good repeatability;
- + Diversified configuration: with the most 8 channels buffer, 8 channels sample inlets, 8 channels outlets and 8 chromatography columns;
- + Optional automatic collector and sample loading pump to realize fully automatic sample loading and collecting;
- + Reliable computer managing system to ensure completeness, authenticity and traceability of the data;
- + Reasonable flow path design with small dead volume, stable liquid flow and accurate data measuring;
- + Powerful method editor to enable automatic sample loading, collection, monitoring, etc;
- + Multiple pipelines replaceable design with large range of flux and wide application;
- + Remote monitoring function to monitor the operation of equipment at any time anywhere.



主要技术参数 / Main technical parameters

产品型号 Product model	LP100M	LP200M	LP100H	LP200H
流量(ml/min) Flow rate (ml/min)	0.01~100	0.01~200	0.01~100	0.01~200
流量精度 Flow Accuracy	±0.5%	±0.5%	±0.5%	±0.5%
上样方式 Sample loading method	手动上样 / 自动上样 manual / automatic			
层析柱接口 Column interface	1 路 1 channel		8 路 8 channel	
气泡检测 Bubble detection	1 个气泡传感器 1bubble sensor		2 个气泡传感器 2 bubble sensor	
溶剂入口 Solvent inlet	1 个入口或 8 路自动上样 1 inlet or 8 channels automatic sample loading			
出口 Exit	2 路、8 路或自动收集器 2 channels,8channels or automatic collector			
压力传感器范围 Pressure Sensor Range	0~10 bar			
pH范围 pH Range	0~14, 精度 accuracy ±0.06			
电导范围 Conductance Range	0-300 (or 0-500)mS/cm			
UV范围 UV Range	200~400nm, 双波长 dual wavelength, 0~5AU 精度 accuracy ±1nm			
自动收集器 Automatic collector	尺寸 size: 350x240x320mm 15ml l/50ml 两种规格试管/离心管, 数量 40 及 100 两种 15ml/50ml two specification test tube/Centrifuge tube/ centrifuge tube,quantity 40 or 100 (2 types)			
防护级别 Protection class	IP54			
接液材质 Wetted material	316L、PEEK、EPDM、PP、PTFE			
工作温度范围(°C) Operating Temperature Range	2~40			
最大操作压力 Operating pressure max.	柱前 20bar, 柱后 6bar, 选配高压 before column 20 bar,before column 20 bar, option high voltage			
供电 Power Supply	AC, 200~240V, 50/60Hz			
尺寸(L×W×H) Dimensions (L×W×H)	530×520×740mm			

层析系统 PURIFICATION

Process型层析系统

AUTO PURIFICATION



主要技术参数 / Main technical parameters

产品型号 Product model	AP010S(D)	AP030S(D)	AP100S(D)	AP200S(D)
流量(L/min) Flow rate (L/min)	0.02~1	0.05~3	0.3~10	0.5~20
主管路尺寸 Main piping size	DN08(1/4")	DN10(3/8")	DN15(1/2")	DN20(3/4")
标配气泡阱体积(ml) Standard Bubble Trap Volume(ml)	100	300	1500	1500
流量精度 Flow Accuracy	检测精度±0.5%, 系统流量精度±2% Detection accuracy is ±0.5%, flow accuracy is ±2%			
压力传感器范围 Pressure Sensor Range	测量范围:0~10 bar, 精度 ≤ 0.5% Measuring range: 0~10 bar, accuracy ≤ 0.5%			
pH范围 pH Range	测量范围:0~14; 最小分辨率:0.01; 精度±0.06 Measuring Range: 0~14; min. resolution: 0.01; accuracy ±0.06			
电导范围 Conductance Range	测量范围:1 μS/cm ~ 300 mS/cm; 1 μS/cm to 100 mS/cm 精度Accuracy ±3% 100 to 300 mS/cm, 精度Accuracy ±5%			
UV范围 UV Range	波长范围:200~400 nm或190~700 nm, 检测范围:0~6AU, 精度±1nm; 可选:固定和可调, 单通道, 双通道, 四通道 Wavelength Range: 200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ±1nm; Optional: FIX or DAD, 1 channel, double channel, four channel			
防护级别 Protection class	IP54			
接液材质 Wetted material	316L、PP、EPDM、高硼硅玻璃 high borosilicate glass、PEEK			
工作温度范围 Operating Temperature Range	2~40°C			
最大操作压力 Max. Operating Pressure	6 bar			
供电 Power Supply	AC, 200~240V, 50/60Hz			
功率 Power(KW)	1	1	1.5	2(3)
尺寸(L×W×H) Dimensions (L×W×H)	1300×740×1200 mm 琴式Piano style / 1500×700×1770 mm 旋臂式Swivel			
设备重量(kg) Weight (kg)	235/520	250/525	260/680	270/700

优势特点 / Performance advantages

- 结构紧凑, 堆叠式管路设计, 管路死体积小;
 - 专利阀反馈设计, 实时监测阀门开、关, 确保生产安全可靠;
 - 专利自主研发控制软件, 多代升级, 功能强大, 稳定可靠;
 - 简洁、直观的软件操作界面, 菜单化功能操作, 操作有序更易快速掌握;
 - 灵活而强大的方法编辑功能, 可基于时间、体积、柱体积进行自动流程生产;
 - 远程监控功能, 随时随地监测设备运行状态。
- + With compact structure, stack type design and small dead volume;
 - + With patented valve feedback design, which could realize real-time monitoring for valve opening and closing, to ensure the safety production;
 - + Stable, reliable and powerful functional self independent research and development patented control software with multiple generation upgrade;
 - + Concise and intuitive software operation interface with menu function operation to enable orderly operation and easy to fast master;
 - + Flexible and powerful method editing function enables automatic process production based on time, volume and column volume;
 - + Remote monitoring function to monitor the running status of equipment at any time anywhere.

产品型号 Product model	AP400S(D)	AP800S(D)	AP1600S(D)	AP2500S(D)
流量(L/min) Flow rate (L/min)	2.5~40	5~80	10~160	20~250
主管路尺寸 Main piping size	DN25(1")	DN40(1.5")	DN50(2")	DN65(2.5")
标配气泡陷阱体积(ml) Standard Bubble Trap Volume(ml)	4000	8000	16000	25000
流量精度 Flow Accuracy	检测精度±0.5%, 系统流量精度±2% Detection accuracy is ±0.5%, flow accuracy is ±2%			
压力传感器范围 Pressure Sensor Range	测量范围:0~10 bar, 精度 ≤ 0.5% Measuring range: 0~10 bar, accuracy ≤ 0.5%			
pH 范围 pH Range	测量范围:0~14 ;最小分辨率0.01;精度±0.06 Measuring Range: 0~14; min. resolution: 0.01; accuracy ±0.06			
电导范围 Conductance Range	测量范围Measuring Range:1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度Accuracy±3% 100 to 300 mS/cm, 精度Accuracy±5%			
UV范围 UV Range	波长范围:200~400 nm或190~700 nm, 检测范围:0~6AU, 精度±1nm; 可选:固定和可调, 单通道, 双通道, 四通道 Wavelength Range:200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ±1nm; Optional: FIX or DAD, 1 channel, double channel, four channel			
防护级别 Protection class	IP54			
接液材质 Wetted material	316L、PP、EPDM、高硼硅玻璃 high borosilicate glass、PEEK			
工作温度范围 Operating Temperature Range	2~40℃			
最大操作压力 Max. Operating Pressure	6 bar			
供电 Power Supply	AC, 200~240V, 50/60Hz		3AC, 340V~420V, 50/60Hz	
功率 Power(KW)	3 (4)	4 (7)	5 (8)	6 (11)
尺寸(L×W×H) Dimensions (L×W×H)	1300×740×1200 mm 琴式 1500×700×1770 mm 旋臂式	2340×1350×2300 mm 旋臂式Swivel	2475×1580×2650 mm 旋臂式Swivel	2475×1580×2650 mm 旋臂式Swivel
设备重量(kg) Weight (kg)	550/900	1200	1600	2000

层析系统 PURIFICATION

连续流层析系统

MULTIPLE COLUMN
CONTINUOUS PURIFICATION



优势特点 / Performance advantages

- 通过层析柱的串联, 实现满载上样, 提高填料利用率;
- 减少配液和对应的储罐设计, Buffer用量节省50%, 设备小型化;
- 提高产品的纯度和收率。

- + Through the series connection of chromatography columns, full load loading is realized, and the utilization rate of fillers is improved;
- + Reduce the liquid preparation and the corresponding storage tank design, save 50% of the buffer consumption, and miniaturize the equipment;
- + Improve the purity and yield of the product.



主要技术参数 / Main technical parameters

产品型号 Product model	MCC010T	MCC030T	MCC100T	MCC200T
流量精度 Flow Accuracy	0.02~1	0.05~3	0.3~10	0.5~20
主管路尺寸 Main piping size	DN08(1/4")	DN10(3/8")	DN15(1/2")	DN20(3/4")
标配气泡陷阱体积(mL) Standard Bubble Trap Volume(ml)	105	300	1500	1500
出入口数量 Number of Inlets and Outlets	每组1~8路 1~8 Channels per group			
流量精度 Flow Accuracy	检测精度±0.5%, 系统流量精度±2% Detection accuracy is ±0.5%, flow accuracy is ±2%			
压力传感器范围(bar) Pressure Sensor Range(bar)	测量范围:0~10 bar, 精度 ≤ 0.5% Measuring range: 0~10 bar, accuracy ≤ 0.5%			
pH 范围 pH Range	测量范围:0~14 ;最小分辨率0.01;精度±0.06 Measuring Range: 0~14; min. resolution: 0.01; accuracy ±0.06			
电导范围 (ms/cm) Conductance Range (ms/cm)	测量范围Measuring Range:1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度Accuracy±3% 100 to 300 mS/cm, 精度Accuracy±5%			
UV范围 UV Range	波长范围:200~400 nm或190~700 nm, 检测范围:0~6AU, 精度±1nm; 可选: 固定和可调, 单通道, 双通道, 四通道 Wavelength Range:200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ±1nm; Optional: FIX or DAD, 1 channel, double channel, four channel			
密封及保护级别 Protection class	IP54			
接液材质 Wetted material	316L, PP, EPDM、高硼硅玻璃 high borosilicate glass、PEEK			
最大操作压力 Operating pressure max.	2~40°C			
工作温度范围 Operating Temperature Range	5 bar			
供电 Power Supply	AC, 200~240V, 50/60Hz			
功率 Power(KW)	1	1.5	3	4
尺寸(L×W×H) Dimensions (L×W×H)	530×520×740 mm		1230×790×1920 mm	
设备重量(kg) Weight (kg)	260	265	290	300

层析系统 PURIFICATION

一次性层析系统

AUTO
PURIFICATION-SINGLE USE



优势特点 / Performance advantages

- 产品系列化, 丰富了客户选择, 可根据客户需求进行定制;
- 图形界面显示, 全触控操作;
- 人性化的电气元件和电路布局;
- 无需进行CIP和SIP;
- 管件拆装方便;
- 自主研发的控制软件, 符合FDA和cGMP;
- 以GE Unicorn软件为模板进行全新研发, 可实现灵活的方法编辑。

- + The series design of products enriches the choices of customers and can be customized according to customer requirements;
- + Graphical interface display, full touch operation;
- + Humanized electrical components and circuit layout;
- + Device does not require CIP/SIP;
- + Pipe fittings are easy to disassemble;
- + Self-developed control software, in line with FDA and cGMP;
- + Newly developed with GE Unicorn software as a template for flexible method editing.

主要技术参数 / Main technical parameters

产品型号 Product model	APU010S(D)	APU030S(D)	APU100S(D)	APU200S(D)	APU400S(D)
流量(L/min) Flow rate (L/min)	0.02~1	0.05~3	0.3~10	0.5~20	2.5~40
主管路尺寸 Main piping size	6.4 mm	9.5 mm	12.7 mm	15.9 mm	25.4 mm
系统泵 System Pump	耐压 4bar; 泵头Gamma射线消毒, 一次性安装; 接液材质: PP、TPE、EPDM Resistant to pressure 4 bar, pump head gamma radiation sterilization, one-time installation; wetted materials: PP, TPE, EPDM				
一次性更换器件 Disposable Size Parts	泵头、管道、pH 探头、电导率探头、压力探头、紫外流通池、气泡陷阱、过滤器 (选配) Pump head, pipeline, pH detector, conductance detector, pressure detector, UV flow cell, bubble trap, filter (optional)				
流量精度 Flow Accuracy	±2%				
压力传感器范围 (bar) Pressure Sensor Range(bar)	-0.48~5.2 bar				
pH 范围 pH Range	测量范围: 3~10; 最小分辨率: 0.01; 精度 ±0.06 Measuring Range: 3~10; min. resolution: 0.01; accuracy ±0.06				
电导传感器 Conductance Sensor	测量范围 Measuring Range: 1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度 Accuracy ±3% 100 to 300 mS/cm, 精度 Accuracy ±5%				
UV 范围 UV Range	波长范围: 200~400 nm 或 190~700 nm, 检测范围: 0~6AU, 精度 ±1nm; 可选: 固定和可调, 单通道, 双通道, 四通道 Wavelength Range: 200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ±1nm; Optional: FIX or DAD, 1 channel, double channel, four channel				
密封及保护级别 Protection class	IP54				
接液材质 Wetted material	316L、PP、EPDM、高硼硅玻璃 high borosilicate glass				
工作温度范围 Operating Temperature Range	2~40°C				
最大操作压力 Operating pressure max.	4bar (波纹管路), 1 bar (硅胶管路) 4 bar (corrugated pipeline), 1 bar (silicone pipeline)				
供电 Power Supply	AC, 200~240V, 50/60Hz				
功率 Power(KW)	0.8	1	1.5	2	3
尺寸 (L × W × H) Dimensions (L × W × H)	1850 × 1100 × 2100 mm				
设备重量 (kg) Weight (kg)	240	240	250	260	400

层析系统 PURIFICATION

配液型层析系统

AUTO INLINE CONDITIONING
CHROMATOGRAPHY



优势特点 / Performance advantages

- ◎ 仅需高浓度母液，大量节省占地面积和空间；
- ◎ Buffer的精确配置；
- ◎ 不同批次的高重复性；
- ◎ 由计算机进行自动控制，内置6路动态控制器，不同批次的配置均可完美复现。

- + Only high concentration stock solution is needed, which saves a lot of floor space and space;
- + Precise configuration of Buffer;
- + High repeatability of different batches;
- + Automatic control by computer, built-in 6-way dynamic controller, the configuration of different batches can be perfectly reproduced.

主要技术参数 / Main technical parameters

产品型号 Product model	ICC030Q	ICC100Q	ICC200Q	ICC400Q	ICC800Q	ICC1600Q	ICC2500Q
流量(L/min) Flow rate (L/min)	0.05~3	0.3~10	0.5~20	2.5~40	5~80	10~160	20~250
主管路尺寸 Main piping size	DN10(3/8")	DN15(1/2")	DN20(3/4")	DN25(1")	DN40(1.5")	DN50(2")	DN65(2.5")
标配气泡陷阱 体积(ml) Standard Bubble Trap Volume(ml)	300	1500	1500	4000	8000	1600	25000
流量精度 Flow Accuracy	检测精度±0.5%, 系统流量精度±2% Detection accuracy is ±0.5%, flow accuracy is ±2%						
压力传感器范围 Pressure Sensor Range	测量范围:0~10 bar, 精度 ≤ 0.5% Measuring range:0~10 bar, accuracy ≤ 0.5%						
pH范围 pH Range	测量范围:0~14; 最小分辨率0.01; 精度±0.06 Measuring Range: 0~14; min. resolution: 0.01; accuracy ±0.06						
电导范围 Conductance Range	测量范围Measuring Range:1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度Accuracy±3% 100 to 300 mS/cm, 精度Accuracy±5%						
UV范围 UV Range	波长范围:200~400 nm或190~700 nm, 检测范围:0~6AU, 精度±1nm; 可选: 固定和可调, 单通道, 双通道, 四通道 Wavelength Range:200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ±1nm; Optional: FIX or DAD, 1 channel, double channel, four channel						
防护级别 Protection class	IP54						
接液材质 Wetted material	316L、PP、EPDM、高硼硅玻璃 High borosilicate glass、PEEK						
工作温度范围 Operating Temperature Range	2~40°C						
最大操作压力 Operating pressure max.	6 bar						
供电 Power Supply	AC, 200~240V, 50/60Hz			3AC, 340V~420V, 50/60Hz			
功率 Power(KW)	1.5	2	4	5	10.5	12	16
尺寸(L×W×H) Dimensions (L×W×H)	1900×930×1650 mm			1600×800 ×1850 mm	2340×1350 ×2300 mm	2475×1580×2650 mm	
设备重量(kg) Weight (kg)	550	705	725	950	1200	1600	2000

层析系统 PURIFICATION

灵巧型层析系统

SMART PURIFICATION



优势特点 / Performance advantages

- ◎ 结构紧凑简洁,小巧轻便,运转方便;
 - ◎ 管路多种搭配,灵活选择,拆卸、维护方便;
 - ◎ 搭配手动四通阀,长寿命,低温不漏,高温可SIP;
 - ◎ 手动四通阀可实现气泡陷阱旁路和在线,同时能实现层析柱正、反向和旁路;
 - ◎ 拥有调速模式、流量模式、压力模式三种泵控模式,实现多样化操作;
 - ◎ 自主研发控制软件,简洁、直观的软件操作界面,菜单化功能操作,操作有序更易快速掌握;
 - ◎ 集数据采集、显示、存储于一身,符合GMP要求。
- + Compact and simple structure design, small in size and convenient for operation;
 - + Multiple choices for pipelines, convenient for dismantling and maintenance;
 - + Equip patented manual four-way valve with long life span, no leakage under low temperature and SIP is available in high temperature;
 - + Manual four-way valve to realize the bypass and on-line of bubble trap, as well as the forward, reverse and bypass of chromatographic column;
 - + Three pump control modes: speed regulation mode, flow mode and pressure mode are available to realize diversified operation;
 - + Self research and developed control software with concise and intuitive software operation interface and menu operation to enable orderly operation and easy to master quickly;
 - + Integrated data collection, display, storage as a whole meeting the requirements of GMP.



主要技术参数 / Main technical parameters

产品型号 Product model	SP010	SP030	SP100	SP200
流量(L/min) Flow rate (L/min)	0.05~1	0.15~3	0.3~10	0.5~20
主管路尺寸 Main piping size	DN08(1/4")	DN10(3/8")	DN15(1/2")	DN20(3/4")
流量精度 Flow Accuracy	±2%			
压力传感器范围(bar) Pressure sensor Range(bar)	测量范围:0~10 bar, 精度 ≤ 0.5% Measuring range: 0~10 bar, accuracy ≤ 0.5%			
pH 范围 PH Range	测量范围:0~14 ;最小分辨率:0.01;精度±0.06 Measuring Range: 0~14; min. resolution : 0.01; accuracy ± 0.06			
电导 范围 (mS/cm) Conductance Range(mS/cm)	测量范围Measuring Range:1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度Accuracy±3% 100 to 300 mS/cm,精度Accuracy ±5%			
UV范围 UV Range	波长范围:200~400 nm或190~700 nm, 检测范围:0~6AU, 精度±1nm; 可选: 固定和可调, 单通道, 双通道, 四通道 Wavelength Range:200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ±1nm; Optional: FIX or DAD, 1 channel, double channel, four channel			
防护级别 Protection class	IP54			
接液材质 Wetted material	316L、PP、EPDM、高硼硅玻璃 High borosilicate glass			
工作温度范围 Operating Temperature Range	2~40°C			
最大操作压力 Operating pressure max.	6 bar			
供电 Power Supply	AC, 200~240V, 50/60Hz			
功率 Power(kw)	1	1	1.5	2
尺寸(L×W×H) Dimensions (L×W×H)	460×420×1000 mm			
设备重量(kg) Weight (kg)	40			

过滤系统

FILTRATION

Lab型超滤系统

LAB TFF



优势特点 / Performance advantages

- ◎ 便利的操作模式，图形化界面显示，全新体验；
 - ◎ 软件符合新版FDA和cGMP规范；
 - ◎ 稳定可靠的数据库管理，实时记录，断电数据无丢失；
 - ◎ 采用进口生物专用隔膜泵，低剪切力；
 - ◎ 比例调节，自动控制TMP；
 - ◎ 兼容性高，切向流膜包或中空纤维滤柱灵活选择；
 - ◎ 自动称重系统，自动精确控制浓缩体积与补料速度；
 - ◎ 储液罐拥有呼吸器和防漩涡功能，可选流加补液模块；
 - ◎ 自排净和在线清洗(CIP)。
- + Convenient operation mode and graphical interface display showing one a brand new experience;
 - + The software complies with the requirements of the new version FDA and cGMP;
 - + Stable and reliable data storage management to record in real time ensuring no data lost during blackout;
 - + Adopting imported biological diaphragm pump to lower down the breakage rate of protein;
 - + Proportional adjustment, automatic control TMP;
 - + High compatibility, flexible choice of tangential flow membrane package or hollow fiber filter column;
 - + Automatic weighing system to control the concentration volume and feeding speed automatically and accurately;
 - + Equip storage tank with respirator and anti-whirlpool function;
 - + Self draining and clean in progress(CIP) function are available.



主要技术参数 / Main technical parameters

产品型号 Product model	LF100
流量(L/min) Flow rate (L/min)	0.3~10
主管路尺寸 Main piping size	DN15(0.5")
最大膜面积(m ²) Max.Membrane(m ²)	0.5
压力传感器范围 Pressure Sensor Range	测量范围:0~10 bar, 精度 ≤ 0.5% Measuring range: 0~10 bar, accuracy ≤ 0.5%
pH 范围 pH Range	测量范围:0~14 ;最小分辨率:0.01;精度±0.06 Measuring Range: 0~14; min. resolution : 0.01; accuracy ± 0.06
电导范围 Conductance Range	测量范围Measuring Range:1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度Accuracy±3% 100 to 300 mS/cm,精度Accuracy ±5%
UV 范围 UV Range	波长范围:200~400 nm或190~700 nm, 检测范围:0~6AU, 精度±1nm; 可选:固定和可调, 单通道, 双通道, 四通道 Wavelength Range:200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ± 1nm; Optional: FIX or DAD, 1 channel, double channel, four channel
控制模式 Control Model	恒TMP、恒压、恒流、恒速、恒重自动补液、自动水通量测试 Constant TMP, constant pressure, constant current, constant speed, constant weight automatically replenishes the liquid, ultrafiltration Membrane water flux testing
防护级别 Protection class	IP54
接液材质 Wetted material	316L、PP、EPDM
工作温度范围 Operating Temperature Range	2~40°C
最大操作压力 Operating pressure max.	5bar
供电 Power Supply	AC, 200~240V, 50/60HZ
功率 Power(kW)	1.5
尺寸(W × D × H) Dimensions (W × D × H)	455 × 780 × 750 mm
设备重量(kg) Weight (kg)	45



process型超滤系统

AUTO TFF



优势特点 / Performance advantages

- ◎ 匹配知名品牌超滤膜包的标准超滤膜夹具；
- ◎ 产品系列化、模块化设计，可根据客户工艺需求量身定制；
- ◎ 全部卫生型结构设计，堆叠式管路，结构紧凑，管路死体积行业最小；
- ◎ 配置触控一体机，图形化界面显示、全触控模式操作；
- ◎ 自主开发控制软件，符合FDA和cGMP规范；
- ◎ 软件界面简洁、直观，菜单化功能设置，操作更有顺序；
- ◎ 安全可靠的计算机管理系统，确保数据的完整性、真实性与可追溯性；
- ◎ 远程监控功能，随时随地监测设备运行状态。

- + Adopting ultrafiltration membrane clamp matching the well-known brand ultrafiltration membrane standards;
- + Product design is in series and modular, which can be customized according to customer process requirements;
- + All structures adopt sanitary structure design and pipeline is stacked type with features of compact structure and the smallest dead volume of pipeline in the industry;
- + Configured with touch all-in-one machine, available for graphical interface display and full touch operation;
- + Self developed control system which is comply with the requirements of FDA and cGMP;
- + The software interface is concise and intuitive with menu function setting to enable more orderly operation;
- + Reliable computer managing system to ensure completeness, authenticity and traceability of the data;
- + Remote monitoring function to monitor machine running status at any time anywhere.



主要技术参数 / Main technical parameters

产品型号 Product model	AF0050	AF0100	AF0200	AF0300	AF0400	AF0800	AF1000
流量(L/min) Flow rate (L/min)	5~50	10~100	20~200	30~300	40~400	80~800	100~1000
主管路尺寸 Main piping size	DN25(1")	DN40(1.5")	DN50(2")	DN65(2.5")	DN80(3")	DN100(4")	DN100(4")
最大膜面积(m ²) Max. Membrane (m ²)	5	10	20	30	40	80	100
压力传感器范围 Pressure Sensor Range	测量范围:0~10 bar, 精度 ≤ 0.5% Measuring range: 0~10 bar, accuracy ≤ 0.5%						
pH范围 pH Range	测量范围:0~14 ;最小分辨率0.01;精度±0.06 Measuring Range: 0~14; min. resolution: 0.01; accuracy ±0.06						
电导范围 Conductance Range	测量范围Measuring Range:1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度Accuracy±3% 100 to 300 mS/cm, 精度Accuracy ±5%						
UV范围 UV Range	波长范围:200~400 nm或190~700 nm, 检测范围:0~6AU, 精度±1nm; 可选: 固定和可调, 单通道, 双通道, 四通道 Wavelength Range:200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ±1nm; Optional: FIX or DAD, 1 channel, double channel, four channel						
控制模式 Control Model	恒TMP、恒压、恒流、恒速、恒重自动补液、自动水通量测试 Constant TMP, constant pressure, constant current, constant speed, constant weight automatically replenishes the liquid, ultrafiltration Membrane water flux testing						
防护级别 Protection class	IP54						
接液材质 Wetted material	316L、PP、EPDM、高硼硅玻璃 High borosilicate glass、PEEK						
工作温度范围 Operating Temperature Range	2~40°C						
最大操作压力 Operating pressure max.	6 bar						
供电 Power Supply	3AC, 340V~420V, 50/60Hz						
功率 Power(KW)	3	6	6	9	9	9	17
尺寸(L × W × H) Dimensions (L × W × H)	1800 × 800 × 1800 mm	1500 × 1100 × 1900 mm	2100 × 1500 × 2300 mm	2500 × 1500 × 2500 mm	2500 × 1500 × 2500 mm	2000 × 2000 × 3500 mm	2200 × 2200 × 3500 mm
设备重量(kg) Weight (kg)	700	950	1500	1700	1800	2300	2500



手动超滤系统

EASY TFF



优势特点 / Performance advantages

- ⊙ 设备整体设计简洁紧凑，方便维护和转移；
 - ⊙ 配置手动单阀，可手动控制调节TMP；
 - ⊙ 可匹配多种品牌膜包的夹具；
 - ⊙ 路最短化设计，系统无残留，清洗更简单；
 - ⊙ 全部卫生型结构设计，符合FDA要求的材质。
- + The overall design of the equipment is simple and compact, which is convenient for maintenance and transfer;
 - + Equipped with manual single valve, which can manually control and adjust TMP;
 - + Holder can match various brands of Membranes; Shortest pipeline design, no residue in the system, easier cleaning;
 - + All hygienic structural design, in line with FDA requirements.



主要技术参数 / Main technical parameters

产品型号 Product model	EF0050	EF0100	EF0200
流量(L/min) Flow rate (L/min)	5~50	10~100	20~200
主管路尺寸 Main piping size	DN25(1")	DN40(1.5")	DN50(2")
最大膜面积 (m ²) Max.Membrane (m ²)	5	10	20
管路死体积 (L) Pipeline Dead Volume (L)	2	3	4.5
压力传感器范围 Pressure Sensor Range	测量范围0~10 bar, 精度 ≤ 0.5% Measuring range 0~10 bar, accuracy ≤ 0.5%		
防护级别 Protection class	IP54		
接液材质 Wetted material	316L、EPDM		
工作温度范围 Operating Temperature Range	2~40℃		
最大操作压力 Operating pressure max.	6 bar		
供电 Power Supply	3AC, 340V~420V, 50/60Hz		
功率 Power(KW)	3	6	6
尺寸(L×W×H) Dimensions (L×W×H)	1400×600×1600 mm	1400×600×1600 mm	1600×800×1750 mm
设备重量(kg) Weight (kg)	250	300	400



微滤&深层过滤系统

DEPTH FILTRATION



优势特点 / Performance advantages

- ◎ 产品系列化, 丰富客户选择, 可根据客户需求量身定制;
- ◎ 控制柜材质为304/316L不锈钢材质, 具有防水防锈易清洗等特点;
- ◎ 专利阀反馈设计, 实时监测阀门开、关, 确保生产万无一失;
- ◎ 人性美观化电气元件及线路布局;
- ◎ 软件界面简洁、直观, 菜单化功能设置, 操作更有序;
- ◎ 稳定可靠的数据管理, 实时记录、追溯, 断电数据无丢失;
- ◎ 全部卫生型结构设计, 符合FDA要求的材质。

- + The series design of products enriches the choices of customers and can be customized according to customer requirements;
- + The control cabinet is made of 304/316L stainless steel, which is waterproof, rust-proof and easy to clean;
- + Patented valve feedback design, real-time monitoring of valve opening and closing to ensure safe production;
- + Humanized and beautiful electrical components and circuit layout;
- + The software interface is simple and intuitive, and the menu-based function settings make the operation more orderly;
- + Stable and reliable data management, real-time recording and traceability, no data loss after power failure;
- + All hygienic structural design, in line with FDA requirements.



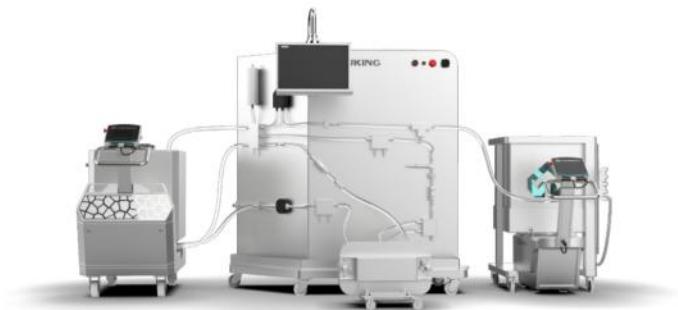
主要技术参数 / Main technical parameters

产品型号 Product model	DF0020	DF0040	DF0080	DF0160
流量(L/min) Flow rate (L/min)	1~20	5~40	10~80	20~160
最大膜面积(m ²) Max.Membrane (m ²)	两级过滤, 每级5m ² Two-stage filtration, each stage is 5m ²	两级过滤, 每级10m ² Two-stage filtration, each stage is 10m ²	两级过滤, 每级20m ² Two-stage filtration, each stage is 20m ²	两级过滤, 每级40m ² Two-stage filtration, each stage is 40m ²
适配过滤膜品牌 Membrane brand	Millipore、Sartorius、3M、PALL			
压力传感器范围 Pressure Sensor Range	测量范围Measuring range:0~10 bar, 精度accuracy ≤ 0.5%			
电导范围 Conductance Range	测量范围Measuring Range:1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度Accuracy ± 3% 100 to 300 mS/cm, 精度Accuracy ± 5%			
选配: 光学浊度计 Optional: optical turbidimeter	双通道Dual channel, 0~100NTU			
控制模式 Control Model	恒压、恒流、恒速 Constant pressure, constant current, constant speed			
防护级别 Protection class	IP54			
接液材质 Wetted material	316L、PP、EPDM、高硼硅玻璃 High borosilicate glass、PEEK			
工作温度范围 Operating Temperature Range	2~40°C			
最大操作压力 Operating pressure max.	6 bar			
供电 Power Supply	AC, 200~240V, 50/60Hz		3AC, 340V~420V, 50/60Hz	
功率 Power(kw)	2	3	4	5
尺寸(L×W×H) Dimensions (L×W×H)	1400×600×1600 mm		1600×800×1750 mm	
设备重量(kg) Weight (kg)	300	400	550	600



一次性超滤系统

AUTO TFF-SINGLE USE



优势特点 / Performance advantages

- ◎ 产品系列化丰富了客户的选择, 可以根据客户需求定制;
- ◎ 图形界面显示, 全触控操作;
- ◎ 人性化的电气元件和电路布局;
- ◎ 无需进行CIP和SIP;
- ◎ 可配备完整性测试功能;
- ◎ 自动测试水通量;
- ◎ 可适配多种品牌的膜包;
- ◎ 管件拆装方便;
- ◎ 自主研发的控制软件, 符合FDA和cGMP;
- ◎ 以GE Unicorn软件为模板进行全新研发, 实现灵活的方法编辑。

- + The series design of products enriches the choices of customers and can be customized according to customer requirements;
- + Graphical interface display, full touch operation;
- + Humanized electrical components and circuit layout;
- + Device does not require CIP/SIP;
- + It can be equipped with integrity test function;
- + Automatically test water flux;
- + Compatible with various brands of membrane;
- + Pipe fittings are easy to disassemble;
- + Self-developed control software, in line with FDA and cGMP;
- + New research and development using GE Unicorn software as a template to achieve flexible method editing.



主要技术参数 / Main technical parameters

产品型号 Product model	AFU0050	AFU0100
流量(L/min) Flow rate (L/min)	5~50	10~100
主管路尺寸 Main piping size	1"	1.5"
最大膜面积 (m ²) Max.Membrane (m ²)	5	10
一次性更换器件 Disposable Size Parts	泵头、管道、pH 探头、电导率探头、压力探头、紫外流通池 pump head, pipeline, pH detector, conductivity detector, pressure detector, UV flow cell	
压力传感器范围 Pressure Sensor Range	-0.48~5.2 bar	
pH 范围 pH Range	测量范围:3~10;最小分辨率0.01;精度±0.06 Measuring Range:3~10; min. resolution: 0.01; accuracy ±0.06	
电导传感器 Conductance Sensor	测量范围 Measuring Range: 1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度 Accuracy ±3% 100 to 300 mS/cm, 精度 Accuracy ±5%	
UV 范围 UV Range	波长范围:200~400 nm或190~700 nm, 检测范围:0~6AU, 精度±1nm; 可选: 固定和可调, 单通道, 双通道, 四通道 Wavelength Range:200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ±1nm; Optional: FIX or DAD, 1 channel, double channel, four channel	
控制模式 Control Model	恒TMP、恒压、恒流、恒速、恒重自动补液、自动水通量测试 Constant TMP, constant pressure, constant current, constant speed, constant weight automatically replenishes the liquid, ultrafiltration Membrane water flux testing	
密封及保护级别 Protection	IP54	
接液材质 Wetted material	316L、PP、EPDM	
工作温度范围 Operating Temperature Range	2~40°C	
最大操作压力 Operating pressure max.	4bar (波纹管路), 1 bar (硅胶管路) 4 bar (corrugated pipeline), 1bar (silicone pipeline)	
供电 Power Supply	3AC, 340V~420V, 50/60Hz	
功率 (kw) Power (kw)	3	6
尺寸 (L × W × H) Dimensions (L × W × H)	1125 × 750 × 1800 mm	
重量 (Kg) Weight (Kg)	500	700



除病毒过滤系统

VIRUS FILTRATION



优势特点 / Performance advantages

- ◎ 安全与自动化;
 - ◎ 产品系列化, 选配不锈钢和一次性系统, 根据客户需求进行定制适用于单克隆抗体和真核重组蛋白等产品;
 - ◎ 匹配不同的泵功率和批次;
 - ◎ 匹配不同的病毒清除过滤器和过滤系统;
 - ◎ 自动化操作、数据管理、计算机自动化;
- + Safety & Automation;
 - + suitable for monoclonal antibody and eukaryotic recombinant products etc;
 - + match different pump power and batch;
 - + match different virus removal filters and filtration systems;
 - + automatic operation, data management, computer automation.



主要技术参数 / Main technical parameters

产品型号 Product model	VF0100	VF0200	VF0400	VF0800
流量(L/min) Flow rate (L/min)	0.3~10	0.5~20	2.5~40	2.5~80
最大膜面积 (m ²) Max.Membrane (m ²)	0.5~2	1~4	2~8	4~16
适配过滤膜品牌 Membrane brand	Millipore、Sartorius、PALL、旭化成Asahi KASEI			
压力传感器范围 Pressure Sensor Range	测量范围0~10 bar,精度 ≤ 0.5% Measuring range 0~10 bar, accuracy ≤ 0.5%			
电导范围 Conductance Range	测量范围Measuring Range:1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm,精度Accuracy ± 3% 100 to 300 mS/cm,精度Accuracy ± 5%			
控制模式 Control Model	恒压、恒流、恒速 Constant pressure, constant current, constant speed			
防护级别 Protection class	IP54			
接液材质 Wetted material	316L、PP、EPDM、PEEK			
工作温度范围 Operating Temperature Range	2~40°C			
最大操作压力 Operating pressure max.	6 bar			
供电 Power Supply	AC, 200~240V, 50/60Hz			3AC, 340V~420V, 50/60Hz
功率 Power(kw)	1.5	2	3	4
设备重量(kg) Weight (kg)	250	260	300	350

配液系统

CONDITIONING

在线配液系统

AUTO INLINE CONDITIONING



优势特点 / Performance advantages

- ◎ 高度定制化, 准确、高效;
- ◎ 由计算机代替人工进行计算和调节配制;
- ◎ 可按照客户要求实现三路、四路或多路在线配液需求;
- ◎ 实时在线监测, 精准参数反馈控制; 降低人力成本, 极大降低人工操作时间与误差, 提高效率;
- ◎ 全方位降低企业成本, 最大化便捷程度;
- ◎ 专利阀反馈设计, 实时监测阀门开启状态, 确保生产安全稳定;
- ◎ 最优的PID控制, 科学的逻辑设计;
- ◎ 安全可靠的计算机管理系统, 确保数据的完整性、真实性与可追溯性。

- + Support customized design, accurate and high efficiency;
- + Using computer instead of human to calculate and adjust solution preparation;
- + Available for three channels, four channels or multiple channels online solution preparation requirements according to customer requests;
- + Real time online detection to enable accurate parameter feedback and control, which can reduce the labor cost and manual operating time and error to improve efficiency;
- + To reduce enterprise costs in great extent and maximize convenience;
- + Patented valve feedback design monitoring the open and close of the valve in real time to ensure safe production;
- + Optimal PID control, scientific logic design;
- + Safe and reliable computer managing system to ensure completeness, authenticity and traceability of the data.

主要技术参数 / Main technical parameters

产品型号 Product model	AIC030Q	AIC100Q	AIC200Q	AIC400Q	AIC800Q	AIC1600Q	AIC2500Q
流量(L/min) Flow rate (L/min)	0.05~3	0.3~10	0.5~20	2.5~40	2.5~80	10~160	20~250
主管路尺寸 Main piping size	DN10(3/8")	DN15(1/2")	DN20(3/4")	DN25(1")	DN40(1.5")	DN50(2")	DN65(2.5")
配液路数 Solution Preparation Channels	3~6						
稳定时间 Stabilization Time	< 2min						
稀释倍数 Dilution Ratio	3~100						
流量精度 Flow Accuracy	检测精度±0.5%,系统流量精度±2% Detection accuracy is ±0.5%, flow accuracy is ±2%						
压力传感器范围 Pressure Sensor Range	测量范围:0~10 bar,精度 ≤ 0.5% Measuring range: 0~10 bar, accuracy ≤ 0.5%						
pH范围 pH Range	测量范围:0~14 ;最小分辨率0.01;精度±0.06 Measuring Range: 0~14; min. resolution: 0.01; accuracy ±0.06						
电导范围 Conductance Range	测量范围Measuring Range:1 μS/cm - 300 mS/cm; 1 μS/cm to 100 mS/cm, 精度Accuracy ±3% 100 to 300 mS/cm,精度Accuracy ±5%						
UV范围 UV Range	波长范围:200~400 nm或190~700 nm,检测范围:0~6AU,精度±1nm; 可选:固定和可调,单通道,双通道,四通道 Wavelength Range:200~400 nm/190~700 nm, Measuring Range: 0~6AU, accuracy ±1nm; Optional: FIX or DAD, 1 channel, double channel, four channel						
防护级别 Protection class	IP54						
接液材质 Wetted material	316L、PP、EPDM、PVDF、高硼硅玻璃 high borosilicate glass						
工作温度范围 Operating Temperature Range	2~40°C						
最大操作压力 Operating pressure max.	6 bar						
供电 Power Supply	AC, 200~240V, 50/60Hz			3AC, 340V~420V, 50/60Hz			
功率 Power(kw)	1.5	2	4	5	10.5	12	16
尺寸(L×W×H) Dimensions (L×W×H)	1150×740×1700 mm			1300×840 ×1700 mm	2340×1350 ×2300 mm	2475×1580×2650 mm	
设备重量(kg) Weight (kg)	525	680	700	900	1200	1600	2000

层析柱

COLUMN

全自动层析柱

AUTO COLUMN



优势特点 / Performance advantages

- ◎ 专利流体仿真分配器设计, 分配均匀, 柱效高, 对称性好, 重现性好;
- ◎ 双电机驱动设计, 同步监测对比, 防止电机故障, 更可靠;
- ◎ 专利结构力学设计, 精简设备结构, 强化整体强度, 体积更小, 强度更高, 高度更低;
- ◎ 电机隐藏式设计, 更高卫生等级全四氟防尘罩设计, 可靠性更高, 整体更美观;
- ◎ 专利创新筛板固定结构设计, 排气便利, 更换方便, 成本极低;
- ◎ 专利柱管拆卸结构设计, 极大提高清洗维护效率, 占地面积小;
- ◎ 专利的正压装柱方式, 柱床高度高, 杜绝匀浆液气泡产生, 极大提高填料利用率, 填料损耗行业最低。

- + Dual motor drive design, more reliable compared with single motor drive, available for synchronous monitoring and comparison to avoid motor failure.
- + Patented structural mechanics design to simplify equipment structure and strengthen whole equipment strength, enabling the equipment with less weight, high strength, small volume and lower height.
- + With motor concealed design and higher hygienic grade full PTFE dust cover design, the machine is more reliable and having a good appearance.
- + Patented fluid simulation distributor design, with features of uniform distribution, high column efficiency, good symmetry and reproducibility.
- + Patented innovative sieve plate fixed structure design, convenient for air exhaust and changeover with very low cost.
- + Patented column tube dismantling structure design, which greatly improves cleaning and maintenance efficiency and small space is needed.
- + Patented positive pressure column packing method, the column bed height designed to be higher to prevent the generation of slurry bubbles and greatly improve the utilization rate of filler. The filler consumption is the lowest in the industry.

注: 以上专利采用实用新型专利: ZL202020398595.1
实用新型专利: ZL201820028656.8
发明专利: ZL202010966206.5

 主要技术参数 / Main technical parameters

产品型号 Product model	柱管尺寸 Column size ID×H (mm)	柱床高度 Bed height (mm)	最大装填体积 Bed volume Max.(L)	运输高度 Transport height	最大操作高度 operating height Max.(mm)	最大维护高度 maintenance height Max.(mm)	净重量 Weight (kg)	长×宽 L×W (mm)	最大操作压力 operating pressure (bar)
AC0300AI0500	300×500	80-300	21.2	1450	2100	2350	300	760*490	5
AC0300AI0750	300×750	150-500	35.3	1740	2700	2900	310	760*490	5
AC0300AI0950	300×950	300-700	49.5	1950	3000	3200	325	760*490	5
AC0400AI0550	400×500	80-300	37.7	1400	2100	2300	400	890*570	5
AC0400AI0750	400×750	150-500	62.8	1650	2550	2600	410	890*570	5
AC0400AI01000	400×950	300-700	87.9	1890	2800	3050	440	890*570	5
AC0450AI0550	446×550	80-300	47.7	1400	2100	2300	410	890*570	5
AC0450AI0750	446×750	150-500	79.5	1650	2550	2600	420	890*570	5
AC0450AI01000	446×1000	300-700	111.3	1890	2800	3050	450	890*570	5
AC0600AI0550	600×550	80-300	84.8	1550	2300	2500	720	1150*736	5
AC0600AI0750	600×750	150-500	141.3	1750	2650	2850	770	1150*736	5
AC0600AI01000	600×1000	300-700	197.8	2000	3000	3200	820	1150*736	5
AC0800AI0550	800×550	80-300	151	1650	2450	2650	1300	1430*960	5
AC0800AI0750	800×750	150-500	251	1900	2900	3100	1350	1430*960	5
AC0800AI01000	800×1000	300-700	352	2250	3250	3450	1400	1430*960	5
AC1000AI0550	1000×550	80-300	236	1850	2660	2860	2000	1740*1200	5
AC1000AI0750	1000×750	150-500	393	2100	3000	3200	2050	1740*1200	5
AC1000AI01000	1000×1000	300-700	550	2450	3700	3900	2100	1740*1200	5
AC1200AI0550	1200×550	80-300	339	1860	2660	2860	2500	1940*1400	4
AC1200AI0750	1200×750	150-500	565	2100	3000	3200	2680	1940*1400	4
AC1200AI01000	1200×1000	300-700	791	2450	3700	3900	2800	1940*1400	4
AC1400AI0550	1400×550	80-300	462	2100	2950	3150	4000	2350*1650	4
AC1400AI0750	1400×750	150-500	769	2350	3300	3500	4100	2350*1650	4
AC1400AI01000	1400×1000	300-700	1077	2700	4000	4200	4200	2350*1650	4
AC1600AI0550	1600×550	80-300	603	2100	2950	3150	5000	2550*1850	4
AC1600AI0750	1600×750	150-500	1005	2350	3300	3500	5280	2550*1850	4
AC1600AI01000	1600×1000	300-700	1407	2700	4000	4200	5450	2550*1850	4
AC1800AI0550	1800×550	80-300	763	2250	2800	3000	6800	2750*2100	4
AC2000AI0550	2000×550	80-300	942	2200	3050	3100	8000	3000*2300	4

Note: The material of the column tube is divided into two types: acrylic and stainless steel. Acrylic is divided into two types: imported from the UK and imported from Japan, and relevant material certificates can be provided.



层析柱 COLUMN

手动层析柱

EASY COLUMN



优势特点 / Performance advantages

- ◎ 专利的柱头密封方式, 较气动密封可靠, 较弹簧驱动密封持久;
- ◎ 专利的柱头侧滑偏转设计, 装卸维护方便;
- ◎ 配备专利的防低温泄露四通阀, 无惧温差变化, 安全可靠;
- ◎ 316L不锈钢筛板设计, 强度更高, 无变形;
- ◎ 最小化密封结构形式, 性能可靠, 寿命持久;
- ◎ 可靠的筛板固定方式, 最大化有效分配面积;
- ◎ 专利的流体仿真分配器设计, 确保最优分配效果;
- ◎ 径向、轴向多重固定, 专用轴向密封设计, 安全可靠;
- ◎ 符合GMP要求的完整的验证文件及服务。

- + Adopting patented column head sealing method which is more reliable than pneumatic sealing and lasting longer than spring-driven sealing;
- + Patented column head side-sliding and deflection design, convenient for dismantling and maintenance;
- + Equipped with a patented anti-low temperature leakage four-way valve, no fear of temperature difference, safe and reliable;
- + 316L stainless steel mesh design, with features of higher strength and no deformation;
- + Minimum sealing structure, with features of reliable performance and long life span;
- + Reliable sieve plate fixing method to maximize the effective distribution area;
- + Patented fluid simulation distributor design to ensure optimal distribution effect;
- + Multiple way fixed radial and axial directions, professional axial seal design, safe and reliable;
- + Complete verification documents and services meet GMP requirements.

主要技术参数 / Main technical parameters

产品型号 Product model	柱管材质 Column tube material	柱床高度 Bed height(mm)	装填体积 Bed volume(L)	最大操作高度 Operating height Max.(mm)	空柱重量 Weight(kg)	最大操作压力 Operating pressure Max.(bar)	外形尺寸 Dimensions (mm)
EC0070GI0500 EC0070AI0500	肖特玻璃/进口亚克力	50—300	0.2-1.4	1770	28/27	5	ø618*1240
EC0070GI0750 EC0070AI0750	肖特玻璃/进口亚克力	300—500	1.2-2.3	2070	30/29	5	ø618*1490
EC0070GI0950 EC0070AI0950	肖特玻璃/进口亚克力	500—700	2.3-3.1	2320	33/31	5	ø618*1690
EC0100GI0500 EC0100AI0500	肖特玻璃/进口亚克力	50—300	0.4-2.8	1770	33/32	5	ø641*1222
EC0100GI0750 EC0100AI0750	肖特玻璃/进口亚克力	300—500	2.3—3.9	2070	35/34	5	ø641*1472
EC0100GI0950 EC0100AI0950	肖特玻璃/进口亚克力	500—700	3.9—5.5	2320	38/36	5	ø641*1672
EC0140GI0500 EC0140AI0500	肖特玻璃/进口亚克力	50—300	0.8—5.4	1770	38/36	5	ø667*1222
EC0140GI0750 EC0140AI0750	肖特玻璃/进口亚克力	300—500	4.6—7.7	2070	35/33	5	ø667*1472
EC0140GI0950 EC0140AI0950	肖特玻璃/进口亚克力	500—700	7.7-10.8	2320	45/41	5	ø667*1662
EC0200GI0500 EC0200AI0500	肖特玻璃/进口亚克力	50—300	1.6—11	1770	58/54	5	ø700*1269
EC0200GI0750 EC0200AI0750	肖特玻璃/进口亚克力	300—500	9.4—15.7	2070	63/57	5	ø700*1517
EC0200GI0950 EC0200AI0950	肖特玻璃/进口亚克力	500—700	15.7—22	2320	68/60	5	ø700*1719
EC0300GI0500 EC0300AI0500	肖特玻璃/进口亚克力	50—300	3.5-24.7	1770	88/82	3/5	ø820*1286
EC0300GI0750 EC0300AI0750	肖特玻璃/进口亚克力	300—500	21.2—35.4	2070	98/90	3/5	ø820*1536
EC0300GI0950 EC0300AI0950	肖特玻璃/进口亚克力	500—700	35.4—49.5	2320	108/96	3/5	ø820*1736
EC0450AI0550	进口亚克力	50—300	7.8-54.6	2000	150	5	ø993×1420
EC0450AI0750	进口亚克力	300—500	21.2-35.4	2300	165	5	ø993×1572
EC0450AI1000	进口亚克力	500—700	78-110	2600	180	5	ø993×1870

Description: The manual chromatography column can be equipped with a column extender to increase the height of the column, and can be customized according to customer needs.



层析柱 COLUMN

装柱工作站

AUTO PACKING STATION



优势特点 / Performance advantages

- ◎ 全自动向导式操作方式:装、卸柱,柱管清洗,柱管拆卸均有向导指示,简化操作,轻松上手;
- ◎ 多种操作模式灵活选择:能对层析柱进行绝对定位运行,也能进行相对移动运行,同时在全自动向导操作模式中进行手动流路控制,简单方便;
- ◎ 多种稳定性安全保护监测功能:装柱工作站拥有多种监测设置,在设备发生报警时可进行相应信息查看,全方位保护设备安全稳定运行。

- + Automatic guided operation mode: there are guided instructions for column packing, unpacking, cleaning, and disassembly, which simplifies the operation and makes it easy to get started;
- + Flexible selection of various operation modes: the column can be operated with absolute positioning and relative movement, and at the same time, the manual flow path control can be performed in the automatic guided operation mode, which is simple and convenient;
- + Various stability and safety protection monitoring functions: The packing station has various monitoring settings, and the corresponding information can be viewed when the equipment alarms, so as to fully protect the safe and stable operation of the equipment.

 主要技术参数 / Main technical parameters

型号 Product model	APS050	APS100	APS200
最大流量(L/min) Maximum flow (L/min)	50	100	200
主管路尺寸 Main piping size	DN20(3/4")	DN25(1")	DN40(1.5")
防护级别 Protection class	IP54		
接液材质 Wetted material	316L、PP、EPDM		
工作温度范围 Operating Temperature Range	2~40°C		
最大操作压力 Operating pressure max.	6 bar		
适配层析柱 Adaptive Column	300/400/450/600	450/600/800/1000/1200	1200/1400/1600 /1800/2000
尺寸(L×W×H) Dimensions (L×W×H)	650×560×1130 mm	650×560×1130 mm	1100×740×1130 mm
设备重量(kg) Weight (kg)	145	185	265



匀浆罐

SLURRY TANK



优势特点 / Performance advantages

- ◎ 自带控制及显示系统,可独立实现填料的匀浆、阀门的自动切换、匀浆保存液的体系置换、显示实时匀浆重量等功能;
- ◎ 可与全自动装柱工作站配套使用,实现全自动层析柱填料的匀浆、自动装填和卸载;
- ◎ 双螺旋搅拌桨设计,低转速、低剪切、快速混匀;
- ◎ 深层进气口设计,通过洁净压缩空气对填料进行预混匀;
- ◎ 配置自动称重系统,精确显示罐内实时重量;
- ◎ 双重可拆卸筛板设计,便于酒精的置换、筛网的清洗维护;
- ◎ 双喷淋球设计,在线CIP清洗,无死角。

- + Configured with control and display system, it can realize the functions of packing slurry, valve automatic switching, slurry preservation solution system replacement and real-time slurry weight display;
- + It can be used with the automatic packing station to realize the slurry, automatic packing and unpacking of the full-automatic chromatographic column media;
- + Double screw impeller design with features of low rotary speed, low shear and fast mixing;
- + Depth air inlet design to pre-mix the media through clean compressed air;
- + Equip automatic weighing system to display real time weight inside of the tank accurately;
- + Double removable mesh, easy for alcohol replacement and mesh cleaning and maintenance;
- + Double spray ball design, online CIP cleaning, no dead corner.

主要技术参数 / Main technical parameters

产品型号 Product model	ST300	ST500	ST1000	ST1500
搅拌体积(L) Stirring volume (L)	20~280	40~450	60~900	100~1200
筒体内径尺寸 Cylinder ID	Φ800×550 mm	Φ1000×550 mm	Φ1200×800 mm	Φ1200×1000 mm
主体材质 Body material	316L, 内表面电抛光Ra≤0.4 μm, 外表面抛光Ra≤0.6 μm 316L, inner surface electropolished Ra≤0.4 μm, outer surface polished Ra≤0.6 μm			
搅拌转速 Stirring speed	0~100rpm			
筛板 Sieve plates	316L, 20 μm, 进口NICHIDAI筛网 316L, tapered design, 20 μm, imported NICHIDAI screen			
防护级别 Protection class	IP54			
接液材质 Wetted material	316L			
最大操作温度 Operating Temperature max.	135°C			
最大操作压力 Operating pressure max.	4 bar			
供电 Power Supply	AC, 200~240V, 50/60Hz			
功率 Power(kW)	1.5	1.5	2	4
尺寸(L×W×H) Dimensions (L×W×H)	1150×900×2100 mm	1400×1200×2200 mm	1600×1400×2550 mm	1600×1400×2800 mm
设备重量(kg) Weight (kg)	400	500	800	1000

说明: 可根据客户需求进行定制化设计。

Description: Customized design can be made according to customer needs.



谐波输送泵 Harmonic delivery pump

谐波输送泵可用于实验室研发、医药业、食品业、化工业等多个制造领域，其能够温和而安全可靠地输送对剪切力敏感的水溶液和生物制品。

Harmonic delivery pumps can be used in many manufacturing fields such as laboratory research and development, pharmaceutical industry, food industry, chemical industry, etc. They can gently, safely and reliably deliver shear-sensitive aqueous solutions and biological products.



主要技术参数 / Main technical parameters

产品型号 Product model	UFP018-S	UFP180-S	UFP1000-S
最大流量 (L/min) Maximum flow (L/min)	0.3	3	16
最小流量 (L/min) Minimum flow (L/min)	0.005	0.05	0.25
压力范围(bar) Pressure range (bar)	0-2	0-2	0-2
最大转速(rpm) Maximum speed (rpm)	1800	1000	1000
工作温度(°C) Working temperature(°C)	2-40	2-40	2-40
连接器 Connector	M8 (内螺纹) 或宝塔接头 M8 internal thread or pagoda joint	Tc卡箍Clamp (φ25)	TC卡箍Clamp (φ25)
接液材质 Wetted material	卫生级PP, PEEK, BPT管 (品牌: 圣戈班, 符合FDA认证) Sanitary PP, PEEK, BPT pipes (Brand: Saint Gobain, FDA compliant)	卫生级PP, BPT管 (品牌: 科尔帕默, 符合FDA认证) Sanitary PP, BPT pipe (brand: Cole-Parmer, FDA compliant)	卫生级PP, BPT管(品牌: 圣戈班, 符合FDA认证), 密封圈 (EPDM70) Sanitary PP, BPT pipe (brand: Saint-Gobain, FDA compliant), sealing ring (EPDM70)
泵腔体积(ml) Pump chamber volume (ml)	0.6	6.6	35
功率(W) Power (W)	100	100	1000
电源(V) Power (V)	AC220V	AC220V	AC220V
重量(Kg) Weight(Kg)	泵头Pump head: 0.6 整机Whole machine: 4	泵头Pump head: 1.4 整机Whole machine: 4.8	泵头Pump head: 8.1 整机Whole machine: 29
其他说明 Other explanations	CIP、SIP	CIP、SIP	CIP、SIP
长宽高 Length width height	泵头Pump head 71*50*124 整机Whole machine 222*181*204	泵头Pump head 129*93*182 整机Whole machine 236*181*204	泵头Pump head 285*130*380 整机Whole machine 305*328*448

优势特点 / Performance advantages

- | | |
|-------------------|---|
| ◎ 流态均匀稳定, 剪切力低; | + The flow status is even and stable with low shear force; |
| ◎ 流量精度高, 可正反输送; | + High flow flux accuracy, available to transmitted forwardly and backwardly; |
| ◎ 寿命超长, 免维护; | + Long life span, maintenance free; |
| ◎ 安全性高, 不会超压损坏; | + High safety, no damage under over voltage situation; |
| ◎ 自关断, 防虹吸, 防自流; | + Self closing, anti siphon and anti gravity flow. |
| ◎ 卫生等级高, 符合GMP标准。 | + High hygienic level, comply with GMP standard; |

产品型号 Product model	UFP180SU-S	UFP1000SU-S	UFP180M	UFP1000M
最大流量 (L/min) Maximum flow (L/min)	3	16	3	16
最小流量 (L/min) Minimum flow (L/min)	0.05	0.5	0.05	0.25
压力范围(bar) Pressure range (bar)	建议不带压 No pressure is recommended		0-6	0-6
最大转速(rpm) Maximum speed (rpm)	1000	1000	3000	2000
工作温度(°C) Working temperature(°C)	2-40	2-40	2-40	2-40
连接器 Connector	Y型三通Y type tee (Y064)	Y型三通Y type tee (Y127)	Tc卡箍TC clamp (φ25)	
接液材质 Wetted material	卫生级软管 Sanitary hose		卫生级PP, PEEK, 密封圈 (EPDM70) BPT管(品牌: 圣戈班, 符合FDA认证) Sanitary PP, PEEK, sealing ring (EPDM70) BPT pipe (brand: Saint-Gobain, FDA-compliant)	
泵腔体积(ml) Pump chamber volume (ml)	6.6	30	6.9	43
功率(W) Power (W)	100	1000	200	1000
电源(V) Power (V)	AC220V	AC220V	AC220V	AC220V
重量(Kg) Weight(Kg)	泵头Pump head: 3.4 整机Whole machine: 7	泵头Pump head: 14.1 整机Whole machine: 27	/	/
其他说明 Other explanations	易换管 Easy change tube		CIP, SIP	CIP, SIP
长宽高 Length width height	泵头Pump head 126*99*217	泵头Pump head 205*210*335	/	/
	整机Whole machine 245*193*275	整机Whole machine 360*300*385	/	/

说明: 可根据客户需求进行定制化设计, 更多详细信息请咨询楚天源创生物技术(长沙)有限公司

Remark: Customized design is available according to customer requests. For more information, please contact Truking Ingenuity Biotechnology (Changsha) Co., Ltd.



四通阀 / Four way valve

- ◎ 专利结构设计，杜绝低温漏液；
- ◎ 密封面精密研磨，表面光洁度 $Ra \leq 0.02$ 以内，密封可靠。

+ Patented structure design to prevent low temperature leakage;
+ Precision grinding of sealing surface, surface finish within $ra0.02$, reliable sealing.



产品型号 Product model	MV020404L	MV020406L	MV020408L	MV020410L
通径 (mm) Drift diameter (mm)	4.57	6	7.75	9.4

特点 Characteristics

最大操作压力5bar，过程连接采用Tri-Clamp连接，介质温度为4-75℃；
接液材质为316L、EPDM、PTFE。
Maximum operating pressure 5bar, process connection Using Tri-Clamp connection, the medium temperature is 4-75℃; Wetted material is 316L, EPDM, PTFE.

匀浆器 / Homogenizer

- ◎ 非旋转式手动匀浆，法兰孔式结构，对填料无损伤，匀浆效率高；
- ◎ PP材质，符合FDA卫生级要求。

+ Non rotating manual homogenization, flange hole structure, no damage to media, high homogenization efficiency;
+ The material of PP meets the requirements of FDA.



产品型号 Product model	M001	M002
直径 (mm) Diameter (mm)	80	140

特点 Characteristics

长度1000 mm；PP材质；
可增加500 mm延长段；
Length 1000 mm; PP material;
500 mm extension can be added;



夹具 / Holder

- ◎ 适配Millipore、Sartorius、Pall 各大品牌盒式平板膜；
- ◎ 316L材质，残留体积小，无清洗死角；
- ◎ 表面及内孔精密研磨，粗糙度Ra0.4；
- ◎ 德国电抛及钝化相结合的表面处理工艺。

+ Suitable for millipore, sartorius, Pall membrane;
 + 316L material, small residual volume, no cleaning dead corner;
 + Precision grinding of surface and inner hole, roughness Ra0.4;
 + The surface treatment technology of combining electropolishing and passivation in Germany technology.



产品型号 Product model	CH003	CH025	CH050	CH200
最大可夹持膜包面积 (m ²) Maximum clampable Membrane area(m ²)	0.3	2.5	5	20
进料 (inch) Feed (inch)	1/2"	3/4"	1"	1.5"
回流 (inch) Reflow (inch)	1/2"	3/4"	1"	1.5"
透过 (inch) Penetration (inch)	3/8"	1/2"	3/4"	1"
重量 (kg) Weight (kg)	6	18	32	50
长*宽*高(mm) Length*width*height(mm)	210*135*280	260*250*200	390*300*220	830*335*248
特点 Characteristics	表面光洁度Ra 0.4 电抛；接液材质316L；过程连接采用Tri-Clamp 连接；Millipore、Sartorius、Pall 盒式平板膜 Surface finish Ra 0.4 electropolished; wetted material 316L; process connection using Tri-Clamp Ligation; Millipore, Sartorius, Pall cassette plate membranes			

PuriCAT软件简介

PURICAT SOFTWARE INTRODUCTION

楚天源创所有层析系统、超滤系统和配液系统均采用自主开发控制软件PuriCAT, 从小试到中试至放大, 延续性好。

软件多代升级, 操作简单, 使用方便, 稳定性好, 上手极快。

可安装到任何装有Windows操作系统的PC机上, 接受键盘或触摸屏输入。

PuriCAT为楚天源创生物技术(长沙)有限公司软件商标。

All the chromatography system, ultrafiltration system and preparation system of Truking Ingenuity adopt self developed control software - PuriCAT software from laboratory level to production level with good continuity.

Software with multiple generation upgrade, easy for operation, convenient for usage, good stability and easy to master.

Available to install on any personal computer(PC) which has windows operation system, compatible with keyboard or touch screen.

PuriCAT is the software trade mark of Truking Ingenuity Biotechnology (Changsha) Co., Ltd.

除了支持单机运行的PuriCAT软件, 楚天源创所有纯化设备均支持整厂DCS Batch自动化解决方案。

下位机程序均按照ISA88标准编写, 对控制编程和工艺编程进行解耦, 实现批量控制和生产过程的全自动化。

目前已有艾默生DeltaV、罗克韦尔PlantPAX、西门子PCS7等实施案例, 并可实现通过网络接口或者OPC方式接入任意工厂DCS系统、MES系统, 或者SCADA系统。

In addition to PuriCAT software that supports stand-alone operation, all purification equipment supports DCS batch automation solution of the whole plant.

The PLC/DCS programs are written in accordance with ISA88 standard to decouple control programming and process programming, so as to realize batch control and full automation of production process.

In addition to PuriCAT software that supports stand-alone operation, all At present, there are Emerson DeltaV, Rockwell PlantPAX, SIEMENS PCS7 and other implementation cases, and can be connected to any plant DCS system, MES system or SCADA system through network interface or OPC.



Puricat软件主界面分为三个区域:系统功能区,过程控制区和状态显示区;

整个界面简单明了,菜单化操作模式,极易上手;

过程控制区对阀门、泵、检测器等进行直接控制,并观测所有传感器的值和状态;

不同系统的过程控制区流路模型有所不同,其它界面均保持一致。

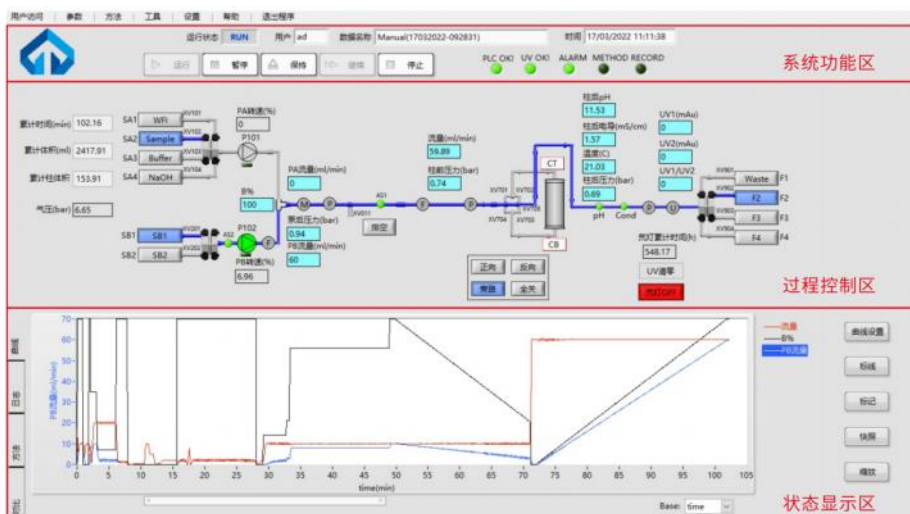
The main interface of Puricat software has divided into 3 areas: System function area, process control area, status display area;

The whole interface is concise and intuitive with menu operation mode, which is easy to master;

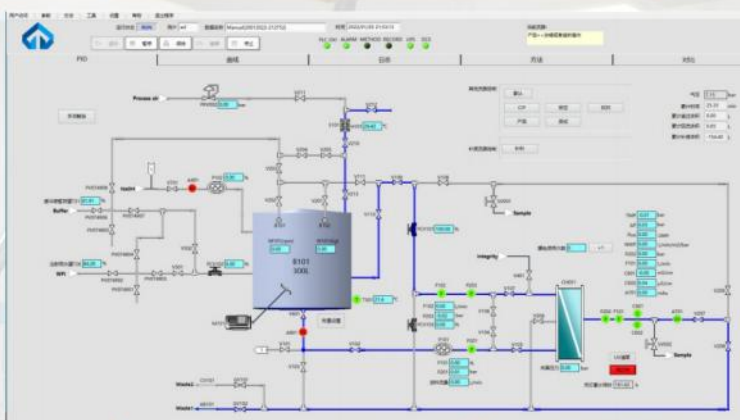
The process control area is responsible to control the valve, pump and detector directly and to check all sensors value and status;

Different system control area with different flow path model, the other interfaces remain the same.

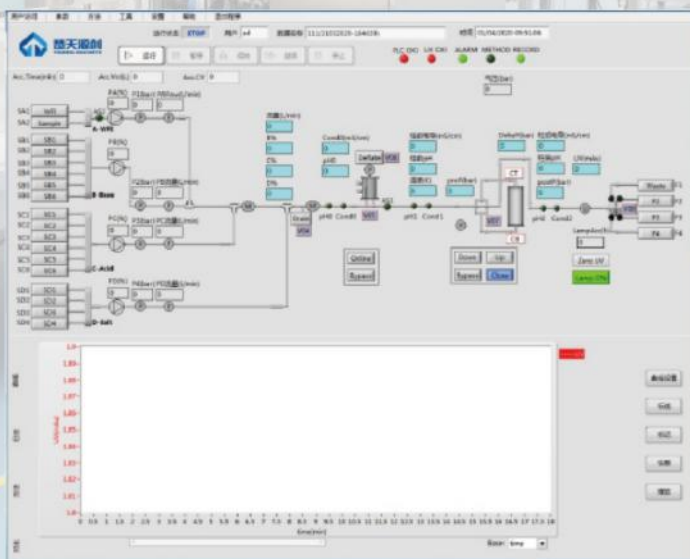
生产级层析系统软件界面 | Production Chromatography System Software Interface



生产级超滤系统软件界面 | Production Ultrafiltration System Software Interface



在线配液层析系统软件界面 | Automatic Inline Conditioning Chromatography System Software Interface



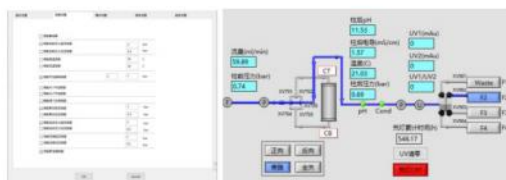
控制模式 / Control Mode

- 拥有泵速、流量、压力、TMP、pH/电导等多种控制模式。
- Own multiple control modes, like control of pump speed, flow rate, pressure, TMP, pH and conductance, etc.



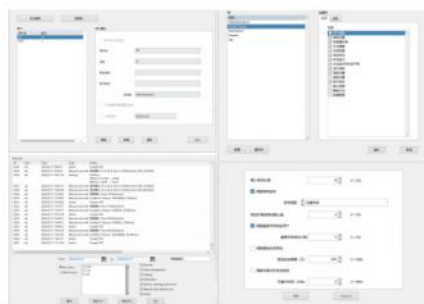
安全性设计 / Safety Design

- 强大的报警功能；
- 全面安全便利考虑；
- 流路实时颜色变化显示。
- Powerful alarming system;
- Comprehensive consideration of safety and convenience;
- Real time color change display of flow path.



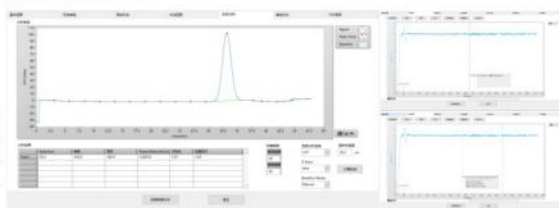
完善的用户管理 / Complete User Management

- 五级用户管理, 13项权限分配; 审计追踪, 电子签名等。
- Five levels user management, 13 rights distribution, audit trace, electronic signature, etc.



强大的后处理功能 / Powerful Post-processing Function

- 虚实标线, 查看详细信息; 曲线对比; 自动计算柱效等。
- Fictitious and actual marking. Dotted and solid lines to check the detailed information, curve comparison, automatic calculation of column efficiency, etc.





楚天微球层析填料

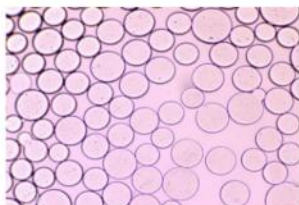
TRUKING MICRO-SPHERE

楚天微球生物技术(长沙)有限公司(简称“楚天微球”)为楚天科技控股子公司,成立于2021年9月。公司专注于高精度、高性能和高附加值层析微球的研究和生产,为抗体、疫苗、血液制品、基因/细胞治疗、重组蛋白等生物医药企业及研发机构提供国际品质的产品与服务。

楚天微球公司可以精准制造多种层析介质,包括琼脂糖、葡聚糖以及硅胶材质产品,擅长微球表面功能化修饰、配基与基架的偶联,拥有规模化生产能力。产品主要用于天然有机物、抗体、疫苗、血液制品、基因/细胞治疗、重组蛋白等生物制品的分离纯化领域。

Truking Micro-Sphere Biotechnology (Changsha) Co., Ltd. (referred to as Truking Micro-Sphere) is a subsidiary of Truking Science and Technology Holdings, established in September 2021. The company focuses on the R&D and production of high-precision, high-performance and high-value-added chromatography microspheres, and provides international-quality products and services for biopharmaceutical companies and R&D institutions such as antibodies, vaccines, blood products, gene/cell therapy, and recombinant proteins.

Truking Microsphere Company can precisely manufacture a variety of chromatography media, including agarose, dextran and silica products. Truking Microsphere Company specializes in the functional modification of the surface of microspheres, the coupling of ligands and scaffolds, and has large-scale production capacity. Products are mainly used in the field of separation and purification of natural organics, antibodies, vaccines, blood products, gene/cell therapy, recombinant proteins and other biological products.



性能优势 / Performance Advantage

- ④ 材料具有生物安全性, 广泛应用于食品、化妆品、医药等领域的生物分子纯化;
- ④ 产品机械性能优良, 能耐受压力和碱处理;
- ④ 产品种类多, 能满足实验室工艺开发和工厂规模化生产等不同客户的需求。

- + The materials have biosafety and are widely used in the purification of biomolecules in food, cosmetics, medicine and other fields;
- + The product has excellent mechanical properties and can withstand pressure and alkali treatment;
- + There are many kinds of products, which can meet the needs of different customers such as laboratory process development and factory scale production.

产品应用 / Product application

产品 Product	层析原理 Principle of chromatography	应用 Application
TD-G25	分子筛 Size-Exclusion	脱盐、缓冲液置换 Desalting, buffer exchange
TA-4FF/6FF	分子筛 Size-Exclusion	病毒、大分子蛋白纯化 Virus, macromolecular protein purification
TA-Q	离子交换 Ion exchange	血清白蛋白 serum albumin
TH-MC	离子交换 Ion exchange	单克隆抗体 Monoclonal antibodies
TA-Butyl	疏水 Hydrophobic	免疫球蛋白G IgG
TA-Phenyl FF (HS)	疏水 Hydrophobic	人血清白蛋白 Human serum albumin
TA-Ni	亲和 Affinity	适合大规模纯化His标签重组蛋白 Suitable for large-scale purification of His-tagged recombinant proteins
TH-PYSH (HS)	亲和 Affinity	超螺旋质粒DNA Supercoiled plasmid DNA

产品目录 / Product catalog

凝胶过滤填料 Gel Filtration resin		离子交换填料 Ion exchange resin		亲和层析填料 Affinity chromatography resin		亲和层析填料 Affinity chromatography resin	
TA-4系列		Q 强阴离子交换介质		Pro A		PYSH	
TA-4B	200μm	TA-Q FF	90μm	TH-Protein A	75μm	TA-PYSH HP	34μm
TA-4 FF	90μm	TA-Q HP	34μm	TA-rProtein A 4FF	80μm	TH-PYSH	40μm
TA-6系列		TA-Q BB	200μm	TH-rProtein A	80μm	TH-PYSH(HS)	40μm
TA-6 B	200μm	TA-Q XL	90μm	TH-Protein A plus	80μm	TH-PYSH(LS)	40μm
TA-6 FF	90μm	TH-Q	90μm	Pro G		Blue	
TA-6 HP	34μm	TH-Q Fine	40μm	TA-Protein G	90μm	TA-Blue FF	90μm
TA-GF系列		Sp强阳离子交换介质		Ni		TA-Blue HP	34μm
TA-GF30	34μm	TA-SP FF	90μm	TA-Ni FF	90μm	TH-Blue	75μm
TA-GF75	34μm	TA-SP HP	34μm	TA-Ni HP	34μm	TH-Blue Fine	40μm
TA-GF200	34μm	TA-SP BB	200μm	IMAC		Heparin	
TD-G25系列(干粉)		TA-SP XL	90μm	TA-IMAC FF	90μm	TA-Heparin FF	90μm
TD-G25 C	200μm	TH-SP	90μm	TA-IMAC HP	34μm	TA-Heparin HP	34μm
TD-G25 M	100μm	TH-SP Fine	40μm	Chelating		Benzamidine	
TD-G25 F	50μm	DEAE弱阴离子交换介质		TA-Chelating FF	90μm	TA-Benzamidine 4F	90μm
TD-G25 SF	35μm	TA-DEAE FF	90μm	GST		Lysine	
TH-HF3.1	75μm	TH-DEAE	90μm	TA-GST 4FF	90μm	TA-Lysine 4FF	90μm
疏水层析填料 Hydrophobic chromatography resin		CM弱阳离子交换介质		TA-GST 4B	90μm	CNBr	
Butyl		TA-CM FF	90μm	复合型层析填料 Multimodal chromatography resin		TA-CNBr 4B	90μm
TA-Butyl 4FF	90μm	Octyl		MA复合型强阴离子交换介质		TA-CNBr 4FF	90μm
TA-Butyl HP	34μm	TA-Octyl 4FF	90μm	TH-MA	75μm	NHS	
TA-Butyl S	90μm	TA-Octyl HP	34μm	TH-MA Fine	40μm	TA-NHS 4FF	90μm
TH-Butyl	75μm	TH-Octyl	75μm	Mc复合型弱阳离子交换介质		Epoxy	
TH-Butyl Fine	40μm	TH-Octyl Fine	40μm	TH-MC	75μm	TA-Epoxy 6B	90μm
Phenyl		TH-Phenyl (HS)		TH-MC Fine	40μm		
TA-Phenyl FF(HS)	75μm	TH-Phenyl (LS)	75μm				
TA-Phenyl FF(LS)	75μm	TH-Phenyl Fine	40μm				
TA-Phenyl HP	34μm						

验证服务

AUTHENTICATION SERVICE

产品文件

PRODUCT DOCUMENTATION

专业团队 professional team

我们拥有深厚的专业知识、法规知识和多年实践经验，为您深度制定验证策略。

We have deep expertise, regulatory knowledge and many years Practical experience to develop a verification strategy for you in depth.

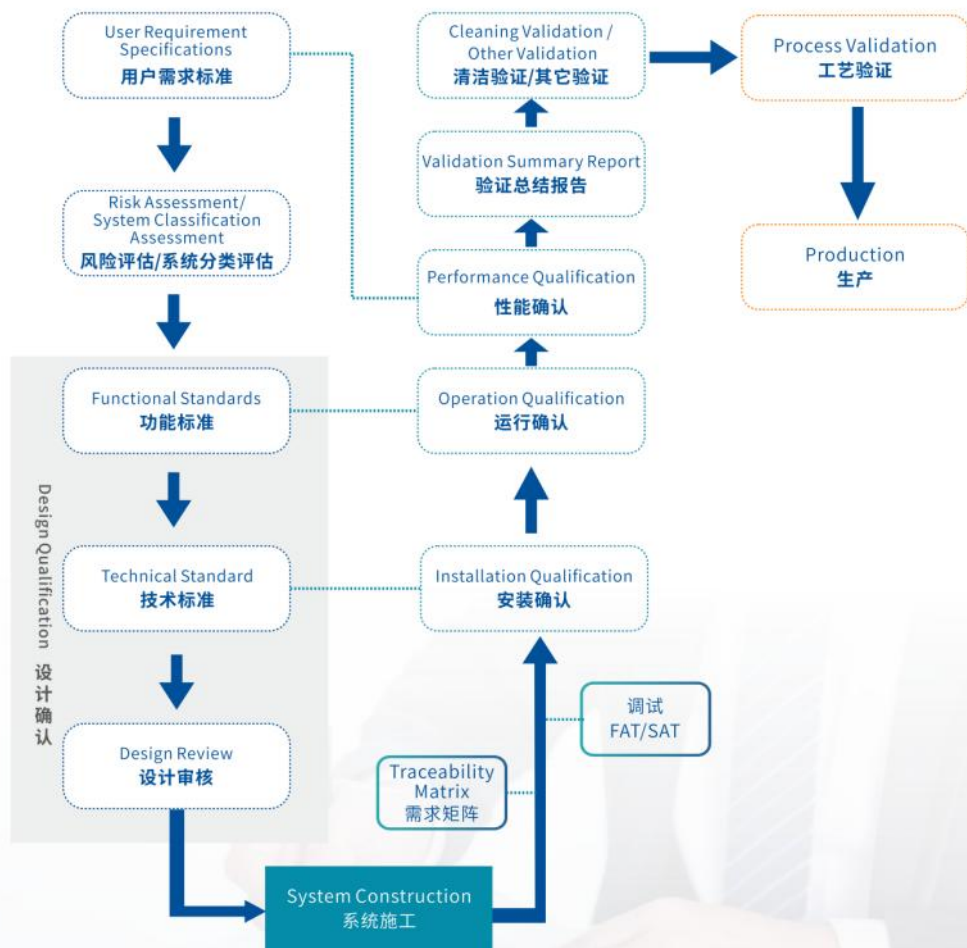
体系完善 Perfect system

完整的验证文件体系，基于客户定制的验证文件（中文/英文），符合欧盟、美国、中国GMP、澳大利亚TGA、WHO等全球GMP法规要求。

Complete verification document system, based on customer-specific verification Certificate documents (Chinese/English), in line with EU, US, ChinaGMP, Australian TGA, WHO and other global GMP regulations Require.



验证流程 / Verification process



服务理念

秉承“一切为客户着想，为一切客户着想，为客户着想一切”的理念，以“为客户创造价值”为己任，楚天专注于打造一流的研发、设计、销售、制造、服务团队及服务管理体系，为客户提供高效、优质的产品与服务。



■ 项目规划支持

楚天科技拥有系列专业医药设计院、产品研究院，一批行业资深科研技术人员，无菌制药领域的专家、教授等，为客户的项目提供科学、有效的技术规划支持。



■ 过程保障服务

楚天科技推出的医药装备整体解决方案，实现药品生产过程的全自动化、无菌化，智能检测、分选，以及计算机验证保障，生产出让市场“放心”的产品。



■ 走进园区服务

楚天科技作为设备供应商，不仅仅将行业法规标准融入到产品设计、制造中，还让法规标准以讲座、交流的形式走进园区，与药企的工艺、生产形成互动与融合。



■ 设备管理咨询服务

楚天科技致力于满足客户效益最大化需求，提供一揽子的设备管理模式，协同药厂实现投入最小化，产出最大。

■ 坚持“以客户为中心”，以匠人之心打造极致服务体验，为客户创造更多价值

34 全国34个省（市）

365 全年365天

7x24 7x24小时服务时间

■ 我们随时待命为客户单位设备正常运行保驾护航

- + 现场安装、调试、验收
- + 设备工艺、操作、维护等相关培训
- + 周期性的定期上门维护与回访
- + 设备各部件性能的检测与保养
- + 备品备件的及时供应
- + 产品技术升级与技术二次开发
- + 设备大修

0731-85051996 

Service Concept

Adhering to concept of "all for customers, for all customers", and with the mission of "creating value for customers", TRUKING focuses on building first-class R&D, design, sales, manufacturing, service teams and service management system to offer high-efficient and high-quality products and services for the customers.



Project Planning Support

TRUKING has a series of professional medical and pharmaceutical design institutes, product research institutes, a group of senior scientific research and technical personnel, aseptic pharmaceutical process verification experts, professors, etc. to provide scientific and effective technical planning support for customers' projects.



Process Assurance Service

TRUKING launched the overall solution for medical & pharmaceutical equipment realizing the full automation and aseptic production process, intelligent detection and sorting of the drug, as well as computer verification assurance so as to produce assured products for market.



Service In The Park

As an equipment supplier, TRUKING not only integrates industrial regulations and standards into product design and manufacturing, but also introduces the industrial regulations and standards into Truking industrial park in the form of lectures and exchanges to interact and integrate with the technology and production of pharmaceutical enterprises.



Equipment Management Consultation Service

TRUKING aims to satisfy the maximum benefited demands of the customer and to provide a package of equipment management services to realize minimization investment and maximization production output together with pharmaceutical factories.

■ Adhere to the philosophy of "customer-centric", TRUKING creates the extraordinary service experience with the spirit of the craftsman, to create more value for customers.

■ We are always ready to escort the normal operation of the customer's equipment.

- + Onsite equipment installation, commissioning, acceptance
- + Training for equipment process, operation and maintenance
- + Periodic door-to-door maintenance and return visit
- + Performance test and maintenance for machinery parts
- + Timely supply of spare parts
- + Product technology upgrading and secondary development
- + Equipment overhaul



www.truking.com



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Economic and Technological Development Zone

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