



TRUKING's Overall Solution for APIs

原料药整体解决方案

让世界制药工业插上智慧的翅膀

Equip global pharmaceutical manufacturing industry with intelligent wings.





原料药整体解决方案 - 01 -
Overall Solution for APIs Production

全自动 CIP 系统 - 08 -
Automatic CIP system

全自动配液系统 - 09 -
Fully Automatic Preparation System

过滤洗涤干燥机 - 10 -
Filter Washing and Drying Machine

真空冷冻干燥机 - 12 -
Vacuum Freeze-dryer

冻干出料系统 - 15 -
Freeze Drying Unloading System

铝桶清洗灭菌混合分装系统 - 19 -
Aluminum Drum Cleaning, Sterilization, and Mixing-Filling System

铝桶清洗机 - 19 -
Aluminum Drum Washer

脉动真空蒸汽灭菌柜 - 21 -
Pulsating Vacuum Steam Sterilization Cabinet

单锥混合机 - 22 -
Vertical Agitator Machine

提升混合机 - 24 -
Lifting Mixer

铝桶自动转运、分装、轧盖系统 - 26 -
Aluminum drum Automatic Conveying, Filling, and Capping System





楚天科技股份有限公司成立于 2000 年，是中国医药装备行业的领军企业，也是世界医药装备行业的知名企业之一。主营业务系医药装备及其整体技术解决方案，并率先推动智慧医药工厂的研究与开发。公司系中国 A 股上市公司。旗下拥有德国 ROMACO 集团、楚天华通、四川省医药设计院、楚天飞云、楚天源创、楚天微球、楚天思优特、楚天思为康、楚天华兴、楚天长兴、楚天科仪、楚天净邦、楚天派特、楚天博源、楚天新材料、楚天智能机器人等十多家全资或控股子公司，全球员工总数 9000 余人，总资产 110 亿元。

公司已有长沙和德国两大运营总部，建有长沙中央技术研究院、欧洲技术研究院和四川省医药设计院等研发机构。设有国家级企业技术中心，国家级创新基地，博士后科研工作站，院士专家工作站等多个技术与创新平台。截至 2023 年 12 月 31 日，共提出 5466 项中国专利申请，授权专利 4313 项，有效专利 3090 项。另提出 54 件 PCT 国际专利申请，在美国、俄罗斯、印度、韩国、德国、印尼、日本、欧洲等多国获得 26 项专利授权。牵头制订了本系统国家行业产品技术标准 20 多项。集团产品与服务已累计覆盖 180 多个国家和地区，国际市场占有率正逐年快速提升。

Founded in 2000, Truking Technology Limited has become a leading pharmaceutical equipment company in China and renowned worldwide. The company specializes in pharmaceutical equipment and integrated solutions and takes the initiative to push forward the R&D of smart pharmaceutical factories. It is a listed A-share company with multiple wholly-owned or holding subsidiaries, such as Germany-based Romaco Group, Truking Watertown, Sichuan Pharmaceuticals Design Institute, Truking Feiyun, Truking Ingenuity, Truking Micro-Sphere, Truking SUT, Truking Gene, Wachine, Truking Changxing, Truking Scientific Instrument, Truking Jingbang Engineering Technology, Truking Pitide Biotechnology, Truking Boyuan Intelligent Technology, Truking New Material, Truking Intelligent Robot etc. Truking has over 9000 employees around the globe, with a total asset of over 11 billion RMB.

Truking has two operational headquarters in Changsha, China, and Germany, with research and development institutions including Changsha Central Technology Research Institute, Europe Technology Research Institute, and Sichuan Pharmaceuticals Design Institute. It has established many platforms for technology innovation, such as the National Enterprise Technology Center, National Innovation Center, Post-Doctoral Scientific Research Station, and Academician Expert Workstation. By December 31, 2023, a total of 5,466 patent applications from China have been submitted, with 4,313 patents granted and 3,090 patents currently in force. Additionally, 54 PCT international patent applications were filed, resulting in 26 patents granted in multiple countries including the United States, Russia, India, South Korea, Germany, Indonesia, Japan, and Europe. The company has led the development of over 20 national industry product technical standards for this system. The products and services of the group have now reached over 180 countries and regions, with its international market share steadily increasing year by year.

原料药整体解决方案

Overall Solution for APIs Production

- ◎ 楚天科技作为中国生产工艺系统整体解决方案供应商，可为用户提供：概念设计、项目实施、现场安装调试、系统验证一体化等全生命周期的服务。
- ◎ 楚天原料药产品线，专注于原料药整体解决方案，为客户提供从研发、中试到商业化生产的全过程的专业、定制化原料药核心工艺装备和服务。我们可提供包括原料药冻干整体解决方案、原料药溶媒结晶整体解决方案、原料药混粉解决方案等。提供服务包含整体设备选型、设备设计及制造、工程安装调试、工艺技术咨询、厂房设计咨询、节能环保咨询、智能化车间设计咨询和法规符合性咨询，能提供符合各体系 GMP、FDA、WHO、EUGMP 要求设备及配套文件。
- + As an overall solution provider of production process systems in China, Truking Technology can provide users with full-lifecycle services such as conceptual design, project implementation, on-site installation and commissioning, and system verification and integration.
- + Truking APIs product line focuses on the overall solution for APIs and provides customers with professional and customized APIs core process equipment and services required in the whole process from R&D, pilot test to commercialized production. We can provide overall solutions for APIs freeze-drying, APIs solvent crystallisation and APIs powder mixing. The services provided include overall equipment selection, equipment design and manufacturing, engineering installation and commissioning, process technology consulting, plant design consulting, energy conservation and environmental protection consulting, intelligent workshop design consulting, and regulatory compliance consulting. We can provide equipment and supporting documents that meet the requirements of GMP, FDA, WHO and EUGMP.

冻干机：主要用于原料药、制药领域，实现冻干过程，达到干燥目的。

Freeze dryer: it is mainly used in the pharmaceutical field such as APIs, to realize freeze-drying and drying.

隔离器：出料隔离

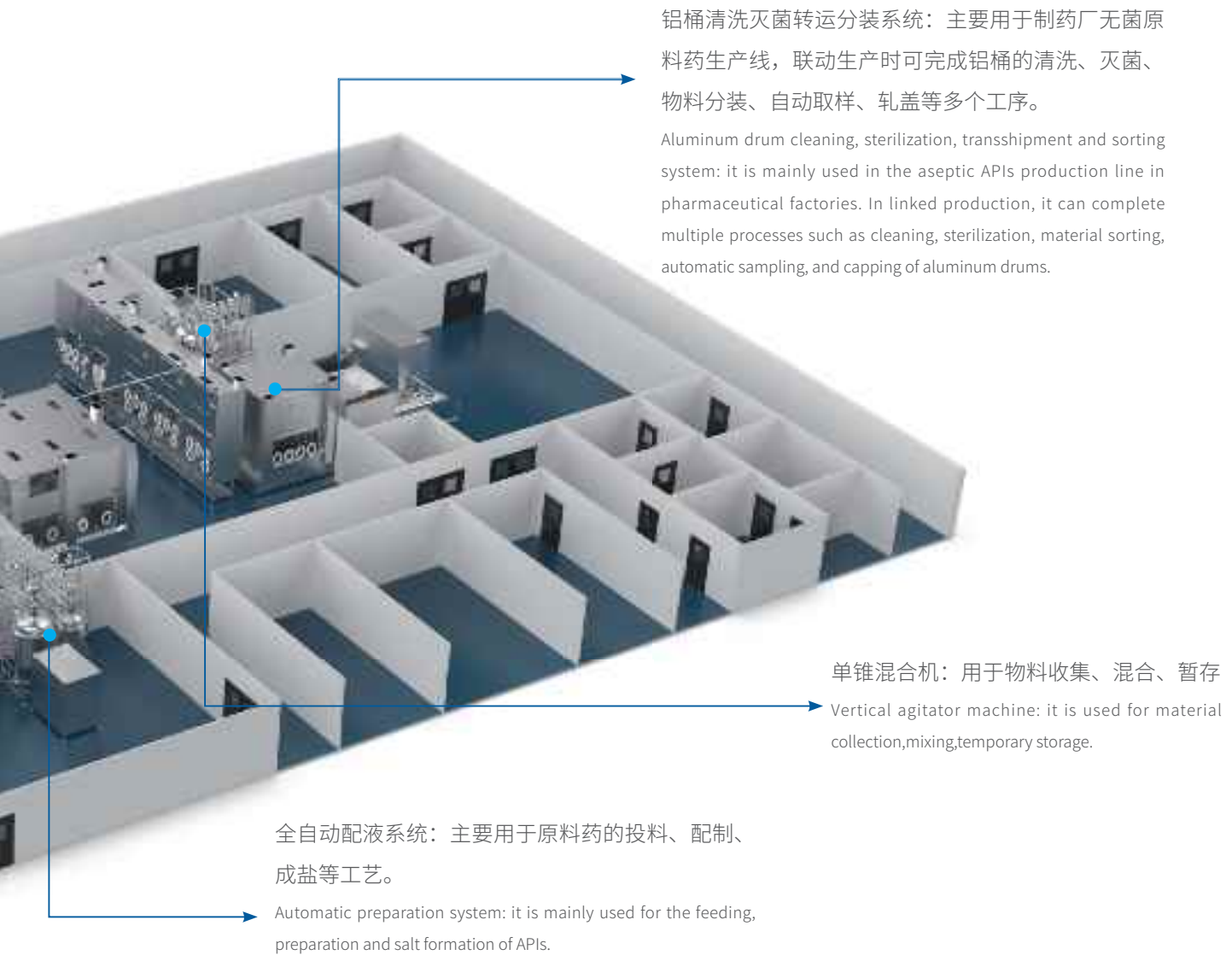
Isolator: Autoclave unloading Isolator

真空泵组：提供负压

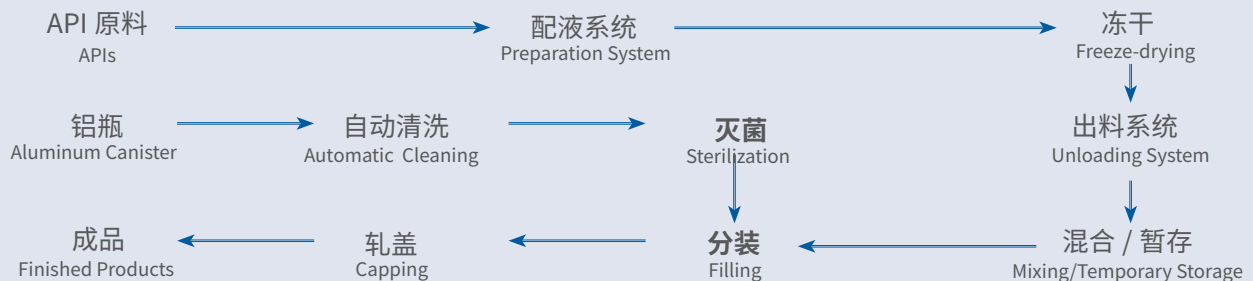
Vacuum pump set: provide negative pressure

CIP 清洗站：用于各种配制系统、冻干机，各类反应结晶罐的罐体、管道清洗。

CIP station: it is mainly used to clean the tank bodies and pipes of various preparation systems, freeze dryers, and reaction crystallization tanks.



无菌原料药冻干精干包整体解决方案 Overall Solution for Freeze-drying, Refining, Drying and Packaging of Aseptic APIs



过滤洗涤干燥机：可以实现包括加料、过滤、洗涤、干燥、冷却、卸料和在线清洗灭菌等功能，主要用于药品中间体及原料药生产，生物制药、精细化工领域的使用。

Filtering, washing and drying machine: it can function feeding, filtering, washing, drying, cooling, unloading, online cleaning and sterilization, etc. It is mainly used in the production of pharmaceutical intermediates and APIs, bio-pharmaceuticals and fine chemicals.

CIP 清洗站：用于各种配制系统、过滤洗涤干燥机，各类反应结晶罐的罐体、管道清洗。

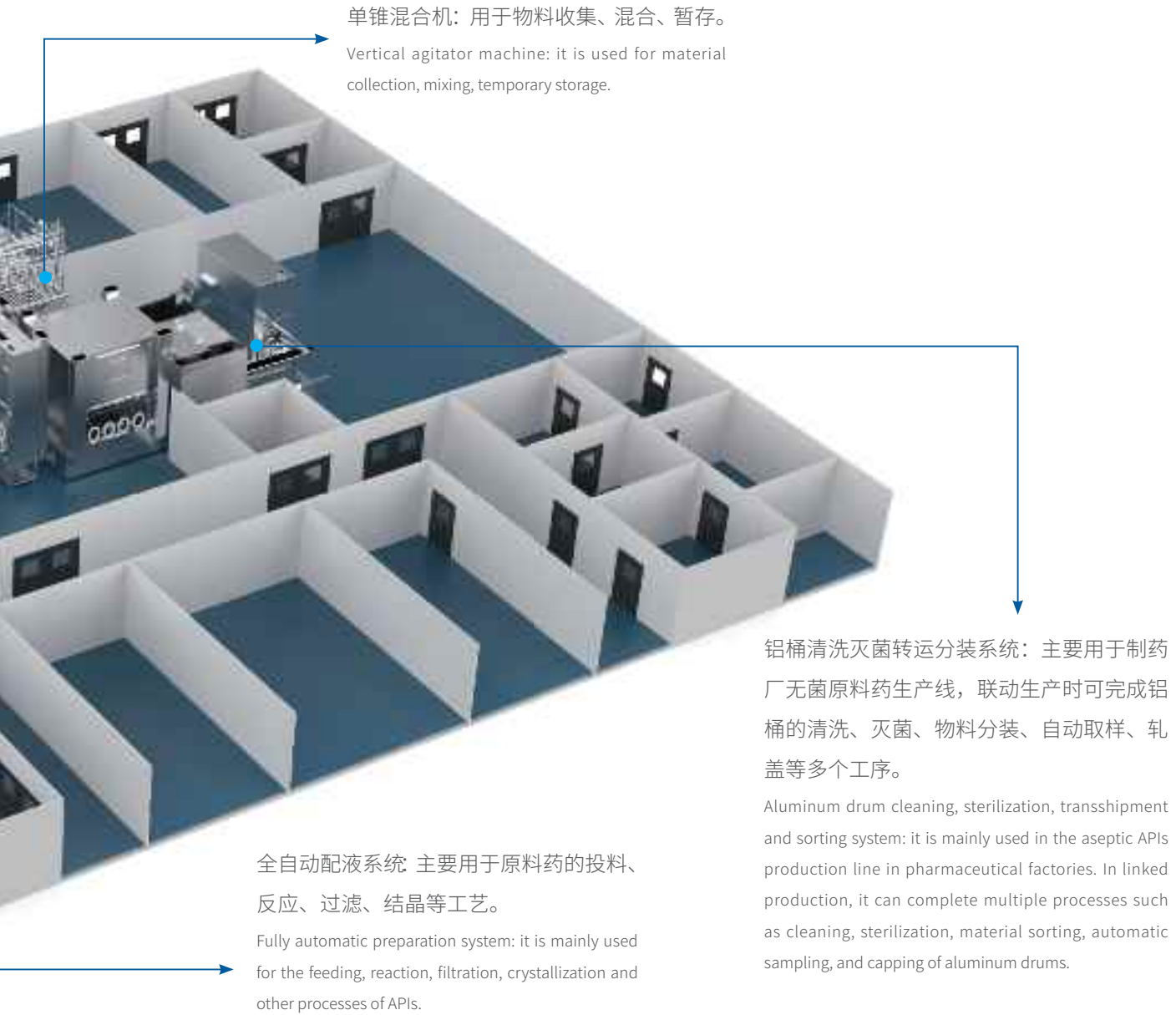
CIP cleaning station: it is mainly used to clean the tank bodies and pipes of various preparation systems, filtering, washing and drying machines, and reaction crystallization tanks.

结晶罐：用于物料搅拌混合，升降温，成品结晶等。

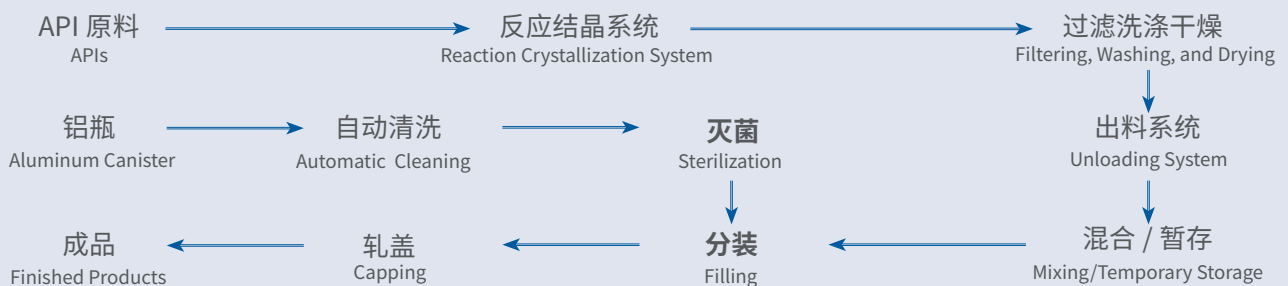
Crystallization tank: it is used for material stirring and mixing, heating and cooling, finished product crystallization, etc.

真空泵组：提供负压

Vacuum pump set: provide negative pressure



无菌原料药溶媒结晶精干包整体解决方案 Overall Solution for Crystallization, Refining, Drying and Packaging of Aseptic APIs



真空泵组：提供负压。

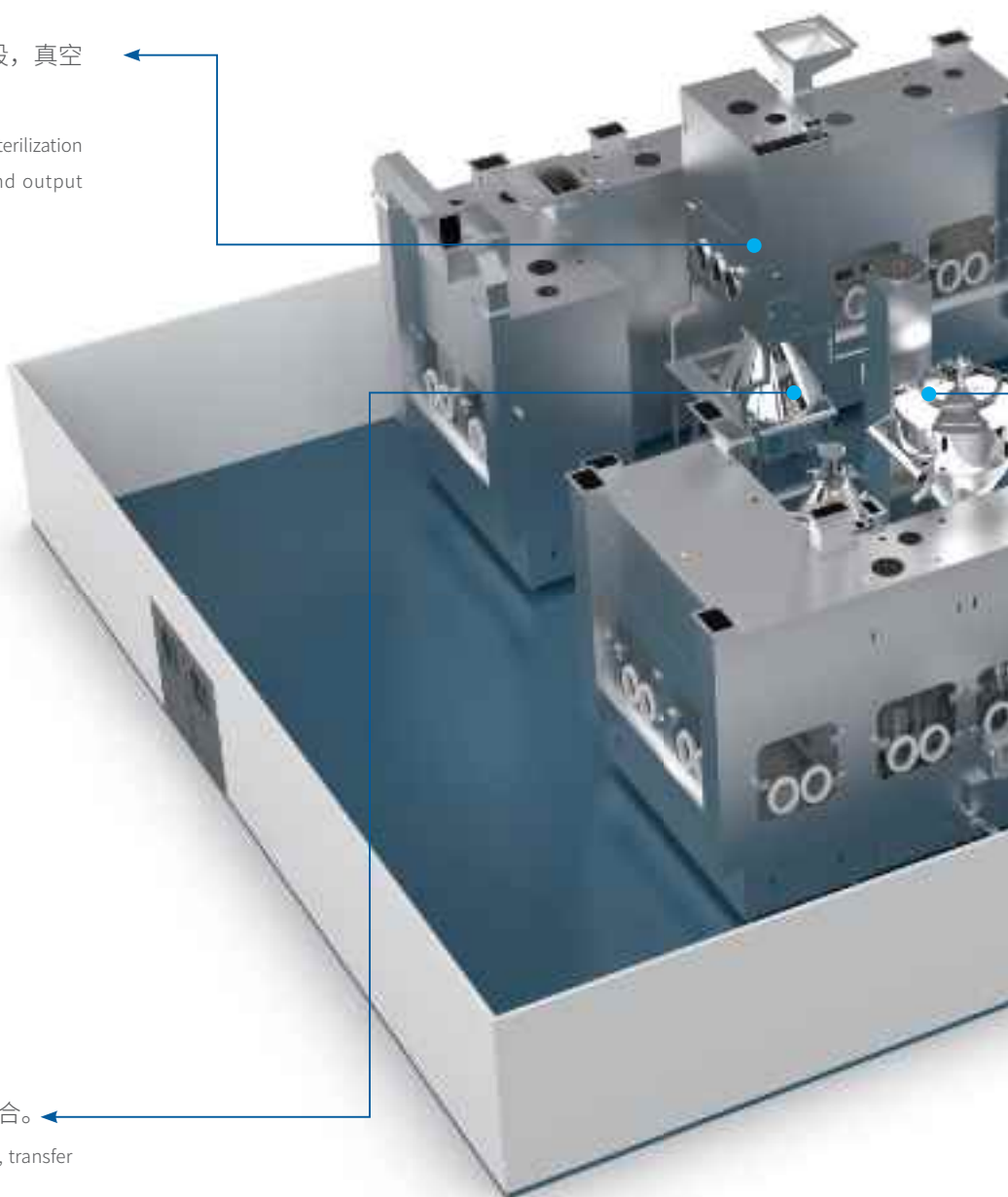
Vacuum pump set: provide negative pressure.

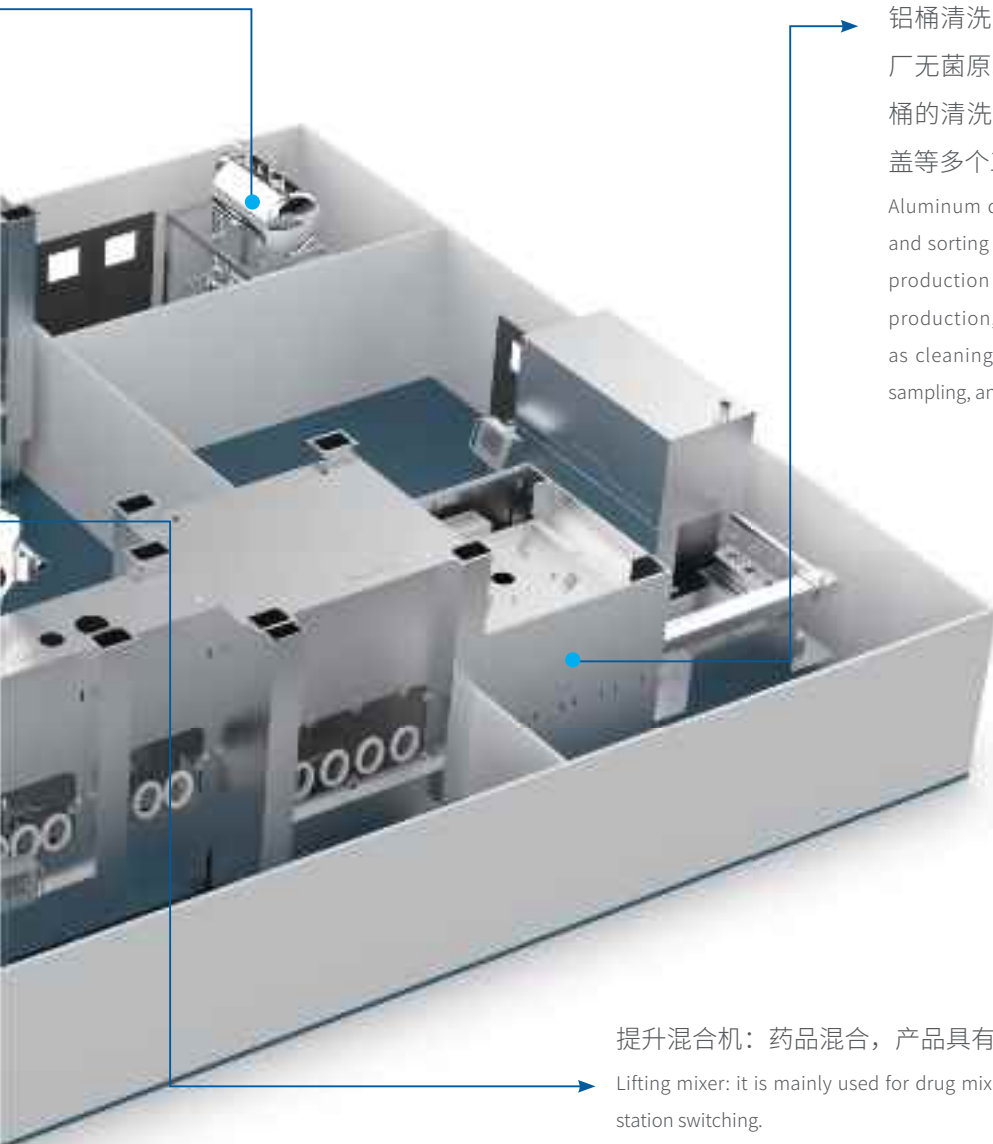
配料隔离器：包含 VHP 灭菌段，真空上料段，出缓存段。

Compounding isolator: including VHP sterilization section, vacuum feeding section, and output buffering section.

料桶：用于物料暂存，转移、混合。

Drum: mainly used for temporary storage, transfer and mixing of materials.





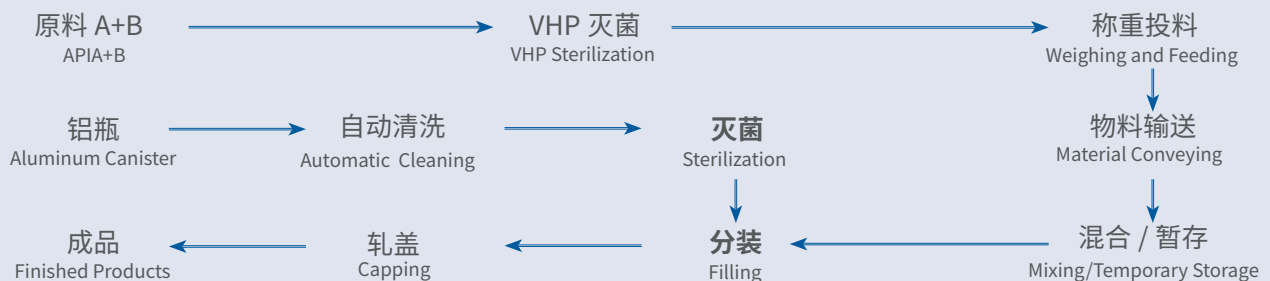
铝桶清洗灭菌转运分装系统：主要用于制药厂无菌原料药生产线，联动生产时可完成铝桶的清洗、灭菌、物料分装、自动取样、轧盖等多个工序。

Aluminum drum cleaning, sterilization, transshipment and sorting system: it is mainly used in the aseptic APIs production line in pharmaceutical factories. In linked production, it can complete multiple processes such as cleaning, sterilization, material sorting, automatic sampling, and capping of aluminum drums.

提升混合机：药品混合，产品具有提升、混合、工位切换等功能。

Lifting mixer: it is mainly used for drug mixing, with such functions as lifting, mixing, and station switching.

无菌原料药配料混粉分装整体解决方案 Overall Solution for Compounding, Powder Mixing and Sorting of Aseptic APIs



全自动 CIP 系统 Automatic CIP system



主要用途 / Main Application

- 主要用于各种配置系统、冻干机，过滤洗涤干燥机，各类反应结晶罐的罐体、管道清洗。
- + It is mainly used to clean the tank bodies and pipes of various configuration systems, freeze dryers, filtering, washing and drying machines, and reaction crystallization tanks.



性能特点 / Features

- 根据使用情况提供不同配置的在线清洗站，运行稳定、安全、精确；
- 根据清洗对象数量、特性、生产排班，可提供单罐、双罐、多罐清洗站；
- 根据客户厂房布局及控制要求，对于清洗站，既可以单独控制，也可以集成控制；
- 具有自动配置清洗液、自动控温、自动判定清洗终点、液位报警等功能；
- 灵活的配方管理功能，电子签名、电子记录及审计追踪等功能。
- + Provide online cleaning stations in different configurations according to application, with stable, safe and precise operation;
- + Provide single-tank, double-tank and multi-tank cleaning stations according to the number, characteristics and production schedule of cleaning objects;
- + Realize individual or integrated control over cleaning stations according to the customer's plant layout and control requirements;
- + Function automatic preparation of cleaning fluid, automatic temperature control, automatic determination of cleaning end point, and liquid level alarm;
- + Flexible formula management, electronic signature, electronic record, audit trial and other functions.

全自动配液系统

Fully Automatic Preparation System



应用领域 / Application

- 配液系统是按照客户的个性化要求进行设计，由理念先进的团队和专业的制造、现场施工、验证团队来实施，符合中国新版 GMP、EUGMP、FDA、cGMP 等的要求。
- 化学制药领域
 - (1) 无菌原料药配液系统
 - (2) 冻干配液系统
 - (3) CIP/SIP
- + The preparation system is designed according to the customer's individual requirements, and manufactured by an advanced concept team and a professional manufacturing, on-site construction, and verification team. It meets requirement of latest version of GMP, EUGMP, FDA and cGMP.
- + Chemical Pharmaceutical Field
 - Aseptic APIs production system
 - Freeze-drying products preparation system
 - CIP/SIP

过滤洗涤干燥机 Filter Washing and Drying Machine



应用领域 / Application

多功能过滤洗涤干燥机是在密闭的反应容器内先后完成过滤、洗涤、干燥、出料等工艺过程。具有简化工艺流程、提高生产效率、防止物料污染、可在线清洗（CIP）、蒸汽灭菌（SIP）、物料更换方便、机电一体化等特点。

广泛应用于无菌原料药、化工、食品、电子等行业。

The multifunctional filter washing and drying machine completes the processes of filtration, washing, drying, and outfeed sequentially within a sealed reaction vessel. It features a simplified process flow, enhanced production efficiency, prevention of material contamination, online cleaning capability (CIP), steam sterilization (SIP), convenient material replacement, and electromechanical integration.

It finds extensive applications in sterile API, chemical, food, electronics, and other industries.

性能特点 / Features

- 采用内置液压油管，使设备外观更加简洁；
- 滤网采用 SUS316L 金属编织多层烧结网，可支持定制最小孔径 2μm 的金属烧结网；采用压滤或真空抽滤增加过滤速度；

- + Using built-in hydraulic tubing for a sleeker exterior design;
- + The filter adopts SUS316L metal woven multi-layer sintered mesh, supporting customized sintered metal mesh with a minimum pore size of 2μm; increasing filtration speed with pressure filtration or vacuum filtration;

- 采用 7 层金属烧结网，取消了多孔板，金属烧结网采用卡扣连接，滤网清洁、更换方便；
- 采用激光自动焊接技术焊接烧结网；
- S 型搅拌桨，桨叶可旋转升降，桨叶内设置全加热通道，增强干燥效果；
- 底盘自动卡扣结构，可自动锁紧底盘，降低因人工锁紧顺序及锁紧力差异导致的系统泄漏问题；
- 更窄的出料阀设计，更低的搅拌桨和滤网间隙，使得出料率高于行业标准；
- 选配电导率仪、TOC 探头，可对清洗水和有机碳进行在线监测；
- 溶媒结晶整体解决方案，上游可搭配楚天配液工程的溶解反应、结晶系统，下游可搭配楚天原料药铝桶清洗、灭菌搬运、混合、分装、轧盖整线。

- Seven layers of metal sintered mesh are used, eliminating porous plates. The metal sintered mesh is connected by snap fasteners, making cleaning and replacement of the filter convenient;
- Utilizing laser automatic welding technology for welding the sintered mesh;
- The S-shaped agitator blade with rotatable lifting capability and a fully heated channel inside the blade enhances drying efficiency;
- The chassis features an automatic snap-lock structure, which automatically locks the chassis, reducing system leaks caused by differences in manual locking sequence and locking force;
- Narrower outfeed valve design and lower clearance between the agitator blade and the filter mesh result in a outfeed rate higher than industry standards;
- Optional conductivity meters and TOC probes enable online monitoring of cleaning water and organic carbon;
- A solvent crystallization turnkey solution, upstream can be matched with Truking's liquid preparation engineering for dissolution reactions, crystallization systems, and downstream can be matched with Truking's API aluminum drum cleaning, sterilization, handling, mixing, filling, and capping assembly line.



技术参数 / Technical Specification

型号 NFD Area	200	400	500	600	800	1000	1200	1400	1600	1800	2000	2300	2600
过滤面积 (m ²) Filtration Area (m ²)	0.03	0.13	0.20	0.28	0.50	0.79	1.13	1.54	2.01	2.54	3.14	4.15	5.31
总容积 (m ³) Total Volume (m ³)	0.015	0.07	0.15	0.22	0.46	0.95	1.20	1.90	2.59	3.20	4.50	6.40	9.00
搅拌电功率 (KW) Mixing Power (KW))	0.37	0.55	2.2	2.2	3	5.5	7.5	11	15	15	18.5	22	22
容器设计压力 (Mpa) Vessel Design Pressure (Mpa)	- 0.1~0.35												
装液系数 Liquid Filling Coefficient	40%~70%												
容器设计温度 (°C) Vessel Design Temperature (°C)	容器设计温度：0~150 Vessel Design Temperature: 0~150												
搅拌转速 (rpm) Mixing Speed (rpm)	0~15												
有效容积 (m ³) Effective Volume (m ³)	0.01	0.05	0.11	0.15	0.32	0.67	0.84	1.33	1.81	2.24	3.15	4.48	6.30
滤饼厚度 (mm) Filter Cake Thickness (mm)	50	120	140	180	200	220	250	300	300	350	400	400	400
搅拌桨行程 (mm) Mixing Blade Stroke (mm)	60	150	160	200	220	250	300	350	350	400	450	450	450

真空冷冻干燥机 Vacuum Freeze-dryer



主要用途 / Main Application

- ◉ 主要用于生物制品、原料药（天然药物、热敏性药物、抗生素等）等制药领域，实现冻干过程，达到干燥目的。
- + It is mainly used in pharmaceutical fields such as biological products, APIs (natural medicines, heat-sensitive medicines, antibiotics, etc.), to realize the freeze-drying and drying.



性能特点 / Features

- ◎ 箱体：一次加工成型，减少泄漏风险。箱体采用方形结构，箱体所有被加工面和孔采用先进加工装备一次成型，达到当前国际先进水平；采用 $R>20\text{mm}$ 的大圆角结构；箱体底部单角倾斜更有利排水；所有内部材料采用 316L 材料；内表面抛光至镜面 $<0.4\text{mRa}$ ；
- ◎ 板层：板层由 AISI 316L 不锈钢制成；采用真空钎焊，保证良好的板层平整度及密封性；
- ◎ 采用 316L 不锈钢软管；表面抛光至 $0.4 - 0.6\text{mRa}$ 并做钝化处理，单板及板层组件的氦质谱泄露测试以保证无泄漏；
- ◎ 冷阱：冷阱可以设计为立式或卧式，并可被安装在箱体的侧部、后部或底部；采用蘑菇阀设计以达到最佳的水蒸气流动及捕冰均匀性；所有内部材料采用 316L 材料；内表面抛光至镜面 $<0.4\text{mRa}$ 。冷阱盘管表面积与板层面积 1:1，以保证在大量升华时冷阱的强有力运行。保证在大量升华时冷阱的强有力运行；
- ◎ 箱门：特殊的铰链设计保证主门的轻松开启，并装有 D 型密封圈保证密封良好。
- + Chamber: Formed at one time to reduce the risk of leakage. The chamber adopts square structure, and all processed surfaces and holes are formed by advanced processing equipment at one time, reaching the current international advanced level; Adopts large rounded corner structure of $R>20\text{mm}$; the single-angle tilt of the bottom is more favorable for drainage; 316L material for all inner material; inner surface polished to mirror surface $<0.4\text{mRa}$;
- + Product shelves: The shelf is made of AISI 316L stainless steel; Adopts vacuum brazing to ensure good flatness and sealing of the shelf;
- + 316L stainless steel hose with braided mesh is used; the surface is polished to $0.4-0.6\text{mRa}$ and passivated, and adopts the helium mass spectrometer leak detection to ensure no leakage;
- + Condenser: The Condenser can be designed as a vertical type or a horizontal type, also it can be placed on the side/back/bottom of the chamber; Mushroom valve design for best vapour flow and ice distribute; 316L material for all inner material, inner surface polished to mirror surface $<0.4\text{mRa}$. The ratio of condenser coil surface area to shelf area is 1:1 to guarantee reliable operation of the condenser during substantial sublimation;
- + Chamber door: Special hinge design to ensure the Main door opens easily, and equipped with D-form gasket for good sealing.

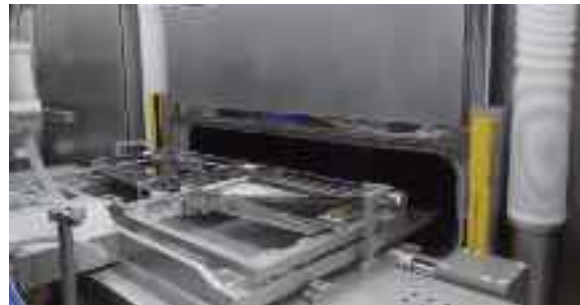


不同冻干形式 / Different freeze-drying forms



膜冻干

Membrane freeze-drying



不锈钢盘进出料系统

Stainless steel tray loading and unloading



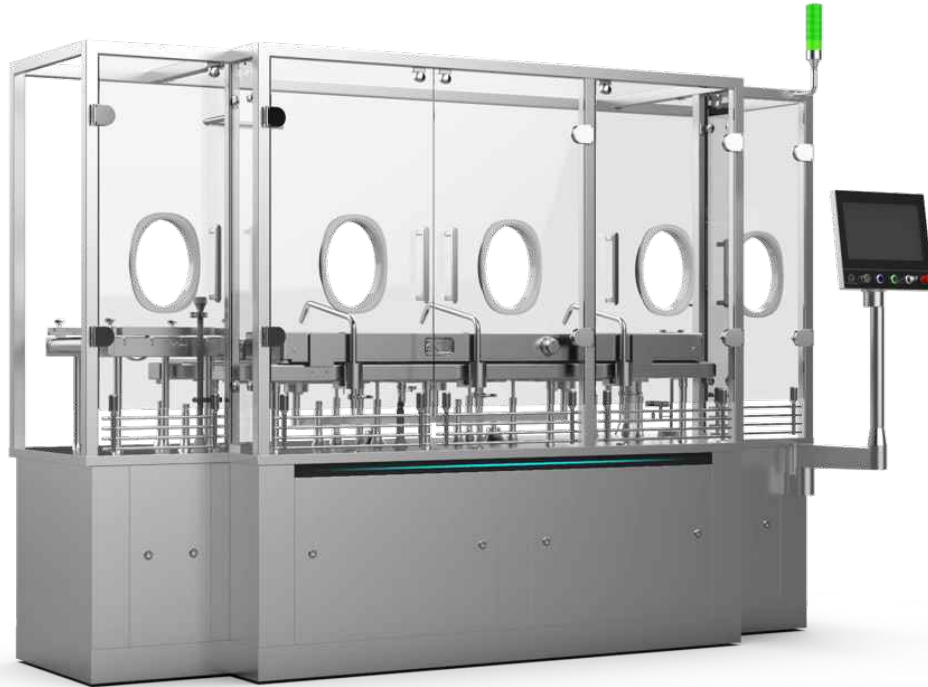
技术参数 / Technical specification

面积 Area	1	3	5	10	15	20	30	40
有效面积 (m ²) Effective area (m ²)	1.00	2.88	5.00	9.51	15.80	20.21	30.10	40.12
隔板数量 (个) Number of separators (pcs)	3+1	4+1	6+1	6+1	10+1	13+1	12+1	16+1
隔板温度范围 (°C) Separator temperature range (°C)	(-55°C~ +8°C)							
冷凝器温度 (°C) Condenser temperature (°C)	≤ -75°C							
极限真空 (mbar) Ultimate vacuum (mbar)	0.005							
系统泄漏率 (mbar.L/s) System leakage rate (mbar.L/s)	0.01							

备注：特殊尺寸可定制

Notes: Special size can be customized.

托盘冻干出料系统 Tray Freeze-Drying Unloading System



主要用途 / Main Application

- 托盘原料药冻干出料系统，适用于高端生物制剂的生产。
- + Tray APIs Freeze-Drying Unloading System, suitable for the production of high-end biopharmaceuticals.



性能特点 / Features

- 托盘进料，高收率；
- 无波纹管结构，便于清洁，无菌风险小；
- 无前后推结构，布局灵活，占地面积小。
- + Tray loading, high yield;
- + No bellows structure, easy to clean, low sterility risk;
- + No push-pull mechanism, flexible layout, small footprint.

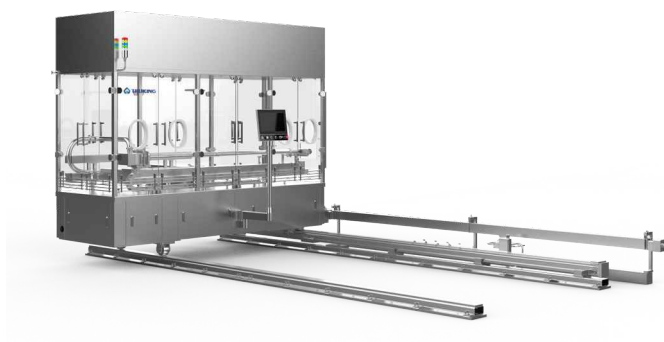


技术参数 / Technical specification

型号 Model	N-LALUTK-09	N-LALUTK-12	N-LALUTK-15
配套冻干机 Matched Freeze Dryer	LYOTK03-10	LYOTK03-20	LYOTK03-40

折边板层冻干出料系统

Flanged-Shelf Freeze-Drying Unloading System



主要用途 / Main Application

- ◉ Orabs 原料药全自动真空吸料输送出料系统，适用于规模化大生产。自动出料可一套系统对应对多台冻干机。
- ◉ Isolator 原料药全自动真空吸料输送出料系统，适用于致敏性、带毒及含水率要求较高的产品
- + Orabs APIs Fully Automatic Vacuum Suction Feeding and Unloading System, suitable for large-scale production. One automatic unloading system can correspond to multiple freeze dryers.
- + Isolator API Fully Automatic Vacuum Suction Feeding and Unloading System, suitable for sensitizing, toxic, and high-moisture-requirement products.



性能特点 / Features

- ◉ 大规模生产，全自动解决方案；
- ◉ 可实现一对多处理；
- ◉ 开小门等高出料，配合充氮处理，可有效控制成品含水率。
- + Mass production with a fully automated solution;
- + Enables one-to-many processing;
- + Features uniform height unloading with pizza door openings, combined with nitrogen processing to effectively control the moisture content of the final product.



技术参数 / Technical specification

	型号 Model	配套冻干机 Model
Orabs 系统 Orabs System	API-RGV-09	LYOTK05-10
	API-RGV-12	LYOTK05-20
	API-RGV-15	LYOTK05-40
Isolator 系统 Isolator System	API-RGVS-09	LYOTK05-10
	API-RGVS-12	LYOTK05-20
	API-RGVS-15	LYOTK05-40

铝桶清洗机 Aluminum Drum Washer



主要用途 / Main Application

铝桶清洗机主要应用于原料铝桶的清洗。

楚天铝桶清洗机是一种全自动清洗设备，由自动进桶滚轮组、超声波清洗池、纯化水清洗 + 压空吹扫、注射水清洗 + 压空吹扫等组成，清洗过程无需人为干预，降低了人为干预的风险。

The Aluminum Drum Washer is primarily used for cleaning raw aluminum drums.

The Truking Aluminum Drum Washer is a fully automatic cleaning device, consisting of automatic barrel feeding rollers, an ultrasonic cleaning tank, purified water rinse + compressed air blowing, injection water cleaning, and compressed air blowing. The cleaning process requires no manual intervention, thus reducing the risk of human error.



性能特点 / Features

- 清洗过程自动化，超洗、初洗、精洗在同一个设备完成，无需人为干预；
 - 超声波清洗时，铝桶在水下翻转 180 度，铝桶倒立排水，方便脏污排出，铝桶在超洗池翻转，超声波覆盖更高；
 - 初洗、精洗工位，喷嘴直线布局，铝桶 360 度自动旋转，可无死角全覆盖冲洗，相比喷淋球，更节约用水，冲洗压力更集中；
 - 超洗、初洗、精洗各工序分别隔离工作，无交叉污染风险；
 - 整机直线式布局，占地面积更小；
 - 运动结构简单，维修维护简单方便；
 - 可选铝桶自动暂存系统。
- + Automated cleaning process, both ultrasonic wash, primary wash and precision wash are completed in the same equipment without manual intervention;
 - + During ultrasonic cleaning, the aluminum drum rotates 180 degrees underwater, allowing for easy discharge of dirt as the drum inverts to drain. In the ultrasonic tank, the drum flips, ensuring greater ultrasonic coverage;
 - + The primary wash and precision wash station features a linear nozzle layout, enabling a 360-degree automatic rotation of the aluminum drum for thorough coverage without blind spots. Compared to spray balls, this method conserves water and concentrates washing pressure;
 - + Ultrasonic wash,prewash and precision wash processes are isolated, minimizing the risk of cross-contamination;
 - + The straight-line layout of the entire machine occupies less floor space;
 - + The motion structure is simple, facilitating easy maintenance and repair;



技术参数 / Technical specification

型号 Model	ACW-15	ACW-30
使用铝桶规格 Specifications for Aluminum Drums	15L	30L

脉动真空蒸汽灭菌柜 Pulsating Vacuum Steam Sterilization Cabinet



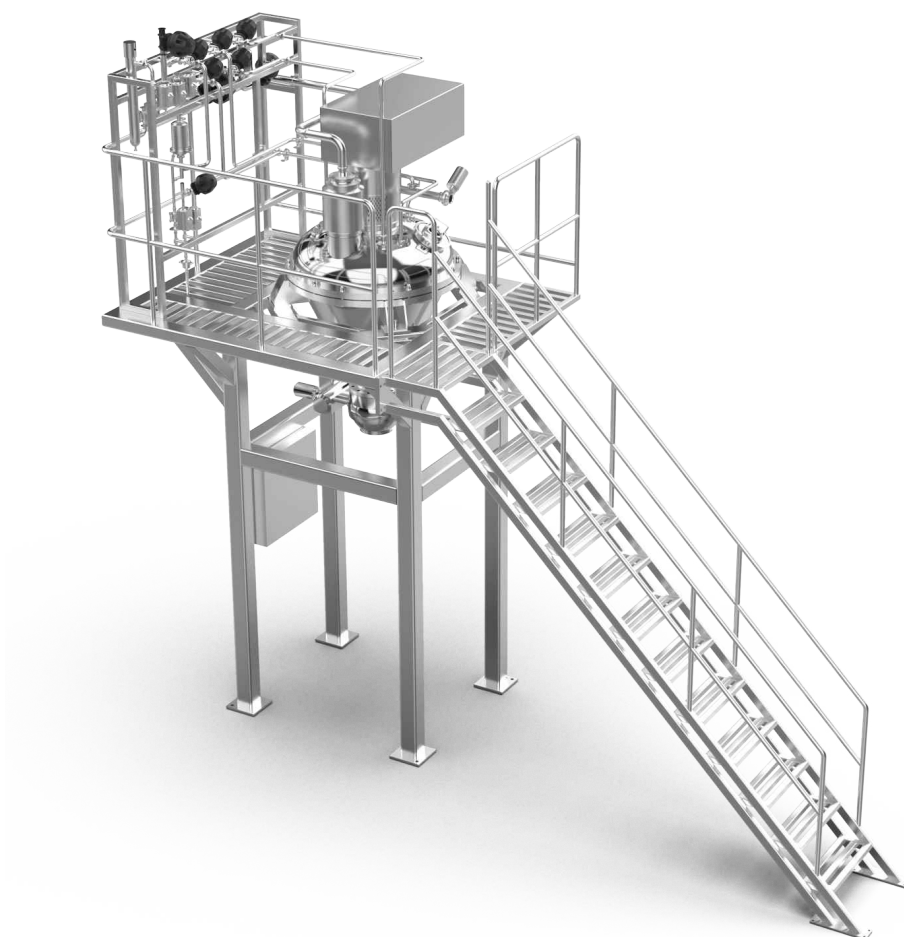
主要原理 / Main Principles

脉动真空蒸汽灭菌柜是集真空技术、流体技术于一体的机器，它由箱体、门、机架、外钣金、真空系统、进汽系统、排汽系统、压缩空气系统、转运系统、过滤器在线灭菌系统、热风系统、控制系统和其他功能分支系统组成。脉动真空蒸汽灭菌工艺能够有效移除腔室内不凝性气体，从而确保蒸汽能快速有效的穿透至多孔疏松负载内部，并且确保柜内各处温度均匀一致。灭菌后，通过抽真空并补入洁净干燥空气，出去腔内水汽，实现产品干燥。

工艺流程：预热 - 脉动 - 升温 - 灭菌 - 干燥及冷却

Pulsating vacuum steam sterilization cabinet is a machine integrating vacuum technology and fluid technology. It is composed of box, door, frame, outer sheet metal, vacuum system, steam inlet system, exhaust system, compressed air system, transfer system, filter online sterilization system, hot air system, control system and other functional branch systems. The pulsating vacuum steam sterilization process can effectively remove the non condensable gas in the chamber, so as to ensure that the steam can penetrate into the porous loose load quickly and effectively, and ensure that the temperature in the cabinet is uniform. After sterilization, the product is dried by vacuumizing and adding clean and dry air to remove water vapor in the cavity. Process flow: preheating - pulsating - heating - sterilization - drying and cooling

» 单锥混合机 Vertical Agitator Machine



主要用途 / Main Application

楚天 VAM 型单锥混合机，集混合、干燥功能一体，可实现真空上料，在线 CIP、SIP，可搭配重力分装或者振动分装系统。

The Truking VAM type single cone mixer integrates mixing and drying functions into one unit. It enables vacuum feeding, online CIP (Cleaning In Place), SIP (Sterilization In Place), and can be paired with gravity or vibration dosing systems for filling.



性能特点 / Features

- 本机搅拌桨采用铲式或螺带结构，桨叶与罐体间距 5~8mm；最底部桨叶与半球阀配做，确保混合均匀；
 - 可选带反吹的半球阀，可针对最底部物料，进行局部反吹。
 - 封头上各管口均陷入式制作，更易于清洗干净；
 - 钢平台采用不锈钢方管满焊而成，外表面光滑无清洁死角；
 - CIP/SIP 集成于钢平台，整洁美观；
 - 配置双端面机械密封，带收集槽，使用可靠；
 - 可配置真空上料系统，吸料拦截滤网采用 SUS316L 金属编织多层烧结网，可支持定制最小孔径 2um 的金属烧结网；
 - 电机、阀门等自动控制，无需人为干预；
 - 整机密闭设计，带自动检漏功能，符合无菌产品生产要求。
- + The agitator of this machine adopts a shovel-type or ribbon structure, with a clearance of 5~8mm between the blades and the tank body; the bottommost blade is paired with a hemispherical valve to ensure uniform mixing;
 - + An optional hemispherical valve with reverse blowing is available for localized reverse blowing of the material at the bottom;
 - + The openings on the end caps are all recessed, making them easier to clean thoroughly;
 - + The steel platform is welded from stainless steel square tubes, with a smooth surface and no dead corners for cleaning;
 - + CIP/SIP systems are integrated into the steel platform, presenting a neat and aesthetically pleasing appearance;
 - + Equipped with double-end mechanical seals with collection grooves, ensuring reliable performance;
 - + A vacuum feeding system can be configured, with the suction material interception filter screen made of SUS316L metal woven multi-layer sintered mesh, supporting customization with a minimum pore size of 2um;
 - + Automatic control of motors, valves, etc., eliminating the need for manual intervention;
 - + The entire machine is designed to be airtight, with an automatic leak detection function, meeting the requirements for sterile product production.



技术参数 / Technical specification

型号 Model	VAM-100	VAM-300	VAM-500	VAM-800	VAM-1000	VAM-1500	VAM-2000	VAM-3000
全容积 Total volume (L)	100	300	500	800	1000	1500	2000	3000

提升混合机 Lifting Mixer



主要用途 / Main Application

主要用于制药厂药品混合，产品具有提升、混合、工位切换等功能。

一台提升混合机可以匹配不同规格的移动混合料斗，满足大批量、多品种的混合要求。

The main purpose of this equipment is for drug mixing in pharmaceutical factories, with functions including lifting, mixing, and workstation switching.

A lifting mixer can be equipped with mixing hoppers of different specifications to meet the mixing requirements of large quantities and multiple varieties.



性能特点 / Features

- 电动升降、料桶电动混合、底盘电动旋转，采用全伺服系统，相比液压站更干净整洁；
 - 易清洁，无泄漏，适合于无菌室；
 - 升降采用电动丝杆驱动，无液压油的泄露而带来的料桶沉降的风险；
 - 升降配置丝杆和抱闸伺服电机；
 - 混合电机采用伺服电机，可设置正反转时间及转速，达到最佳的混合效果。
- + Electric lifting, electric mixing of barrels, and electric rotation of the chassis are achieved through a fully servo system, which is cleaner and tidier compared to hydraulic stations;
 - + Easy to clean, leak-free, suitable for sterile environments;
 - + The lifting mechanism is driven by an electric screw rod, eliminating the risk of barrel settling caused by hydraulic oil leakage;
 - + The lifting system is equipped with a screw rod and brake servo motor;
 - + The mixing motor employs a servo motor, allowing for adjustable mixing time and speed, achieving optimal mixing effects.



技术参数 / Technical specification

型号 Model	LM-H50	LM-H100	LM-H200	LM-H300	LM-H400	LM-H500	LM-H600	LM-H800
全容积 Total volume (L)	50	100	200	300	400	500	600	800

铝桶自动转运、分装、轧盖系统

Aluminum Drum Automatic Conveying, Filling, and Capping System



主要用途 / Main Application

主要应用于原料药生产线，可对接铝桶清洗机、进出灭菌柜机械手、分装系统、轧盖等多个工序。

Primarily designed for use in API product lines, this system seamlessly interfaces with various processes including aluminum drum cleaning machines, sterilization cabinet robotic arm, filling systems, capping, and more.



性能特点 / Features

- ⊙ 自动对接铝桶清洗机和灭菌柜，整线自动化
可选重力分装系统或振动分装系统；
 - ⊙ 集成在线称重系统；
 - ⊙ 可选自动放内盖 + 红外自动监测内盖系统；
 - ⊙ 可选自动放外盖 + 红外自动监测外盖系统；
 - ⊙ 可选自动取样系统；
 - ⊙ 集成浮动式弹簧轧盖头；
 - ⊙ 可选 ORABS、隔离器系统；
 - ⊙ 可搭配自动进出灭菌柜机械手，减少人为干预，
保护无菌环境。
- + Automatically interfaces with aluminum drum washing machine and sterilization cabinet, achieving full line automation;
 - + Optional gravity filling system or vibratory filling system;
 - + Integrated online weighing system;
 - + Optional automatic inner cap placement + infrared automatic inner cap monitoring system;
 - + Optional automatic outer cap placement + infrared automatic outer cap monitoring system;
 - + Optional automatic sampling system;
 - + Integrated floating spring roller cap head;
 - + Optional ORABS, isolator system;
 - + Can be paired with automatic in-and-out sterilization cabinet robotic arm, reducing human intervention and safeguarding sterile environment.



技术参数 / Technical Specification

产能 Production capacity	1 桶 < 3min 1 barrel < 3min
适用包材 Applicable packaging materials	15L、30L
可选功能 Optional functions	在线取样、自动加内盖、自动轧外盖 Online sampling, automatic inner cap adding, automatic cap rolling

冻干工艺服务 Freeze-drying Process Service

- 楚天冻干实验室对制品冻干的整个过程进行深入的研究，提供满足 GMP 要求的最佳冻干工艺解决方案，诠释药品的生产质量、效率及法规之间的关系。



冻干显微镜
Freeze-drying Microscope



差示扫描量热仪
Differential scanning calorimeter

- Truking freeze-drying laboratory conducts in-depth research on the entire process of freeze-drying of products. It provides the best freeze-drying process solution which meets the requirements of GMP, and interprets the relationship between the production quality, efficiency and regulations.



实验型冻干机
Laboratory Freeze Dryer



提供的服务 / Service can be Provided:

- 工艺开发：帮助客户开发冻干曲线；
 - 处方设计：帮助客户开发药品冻干的处方；
 - 工艺放大：为需要从小规模生产或实验小试转变为大规模生产的客户提供帮助；
 - 工艺优化：帮助已拥有原始工艺曲线且需要进一步完善的客户，优化工艺曲线，提升药品冻干速率，缩短冻干周期。
- Process development: Help user to develop freeze-drying curve;
 - Recipe design: Help user to develop recipe of freeze-drying product;
 - Process scale up: Offer help to user who need to transform from small scale production or laboratory to large scale production;
 - Process optimization: Help user who has original process curve, but need to optimize, to optimize the process curve, improve freeze-drying speed, and reduce freeze-drying cycle.



服务理念

400-9988-900



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，国家级无菌制药工艺的验证专家、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，产出最大化。

- 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



Service Concept

400-9988-900



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, national-level 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



地址 Add: 国家级宁乡经济技术开发区楚天科技工业园 邮编 P.C: 410600
Truking Technology Industrial Park, Ningxiang National Economic and Technological Development Zone
电话 Tel: 0731-87938288 传真 Fax: 0731-87938201
邮箱 E-mai: truking@truking.cn

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