



# 让世界制药工业插上智慧的翅膀

Equip global pharmaceutical manufacturing industry with intelligent wings.

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### 公司简介 Company Profile



楚天科技股份有限公司成立于 2000 年,现已成为世界医药装备行业的主要企业之一。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、四川医药设计院、楚天飞云、楚天源创、楚天华兴、楚天智能机器人等多家全资或控股子公司,全球员工总数 6500 人,总资产 80 余亿元。

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医药设计研究院三大研发机构。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。截止 2022 年 1 月 31 日,共提出 4005 项中国专利申请,有效专利 2427 项。另提出 40 件 PCT 国际专利申请,在美国、俄罗斯、印度、韩国、德国、印尼、欧洲等多国获得 20 项专利授权。牵头制订了本系统国家行业产品技术标准 17 项。 楚天本部产品已出口到亚洲、欧洲、南美洲等 40 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 one of the major pharmaceutical equipment suppliers in the world. The company specializes in pharmaceutical equipment and the corresponding integrated solutions, and takes the initiative to push forward the R&D of smart pharmaceutical factory. It is a listed A-share company with multiple whollyowned or controlling subsidiaries, namely Germany based Romaco Group, Truking Watertown, Sichuan Phamaceutical Degisn Institute, Truking Feiyun, Truking Ingenuity Biotechnology, Truking Wachine, Truking Intelligent Robot, etc. The company has over 6500 employees around the global, a total asset of RMB 6.9 billion and annual output value of RMB 8 billion.

TRUKING has two operation headquarters respectively in Changsha, China and Germany; 3 big research institutes, namely Changsha Centra I Technology Research Institute, Europe Technology Research Institute, and Sichuan Pharmaceutical Design Institute. Truking has establishe d National Enterprise Technology Center, National Innovation Center, Post-Doctoral Research Center, Academician Expert Workstation and many more technology and innovation platforms. To better respond to the needs of global customers, Truking has been setting up sales and service centers in many countries including India, Italy, Greece, Russia, Uzbekistan, Turkey, Egypt, Bangladesh, Korea, Vietnam, Thailand, etc. By Jan. 31, 2022, Truking has submitted 4005 patent applications, and been granted with 2427 patents. Beyond China, Truking has applied for 40 PCT international patents, and been granted with 20 patents in USA, Russia, India, Korea, Germany, Indonesia, and many more European countries. Truking also took the lead in formulating 17 national industrial product technical standards. Our products have been exported to more than 40 coun ties and regions to Asia, Europe, and South America. The international market share is increasing rapidly each year.

## 预灌封无菌分装系统简介

**Introduction of Nested Container Primary Packaging System** 



## 主要用途 / Main Application

预灌封无菌分装系统是以巢式免洗免灭预充针、卡 式瓶与西林瓶为对象,完成拆外包、拆内包、灌装、 加塞及物料输送,同时可实现 IPC 取样称重、充氮、 真空灌装、真空加塞和废品剔除等一系列动作,实 现药品的无菌分装。采用预灌封分装系统进行药品 的无菌分装,可以减少药品额外灌装量,提高药品 使用率,从而有效的降低成本。预灌封分装系统采 用巢式免洗免灭预充针、卡式瓶与西林瓶,无需对 包材进行清洗、灭菌,因此不必配置洗瓶机、烘箱 等设备,不仅可以降低设备运行维护成本,而且也 可以降低污染风险。灌装工位紧临加塞工位,可实 现灌装后即加塞,药品暴露时间短,污染风险更小。 亦可采用真空加塞、真空充氮方式,加塞完后残留 空气少,可以满足对氧气残留量要求极高的药品, 实现残氧量小于1%。预灌封无菌分装系统主要由 拆外包机、拆内包机、灌装加塞机构成, 楚天同时 可以提供完整的灯检及后道包装设备构成完整解决 方案。

Nested container primary packaging system is used for syringe, cartridge and vial. Complete de-bagging, de-lidding, filling, stoppering and material transportation. At the same time, it can realize a series of actions such as IPC, nitrogen filling, vacuum filling, vacuum stoppering and waste rejection, so as to realize the aseptic packaging of medicines. RTU nested container solution can reduce the amount of extra filling volume of medicines, increase the utilization rate of medicines, and effectively reduce costs. The system uses nested, ready-to-use syringes, cartridges and vials, without the need to wash and sterilize the containers, so there is no need to configure washing machines, tunnel and other equipment, which can not only reduce maintenance costs, but also can reduce the risk of contamination. After filling, it will be stopped immediately, the product exposure time is shorter and the risk of contamination is reduced. Vacuum filling and stoppering, nitrogen flushing methods can also be used. After vacuum stoppering, there is less residual air, which can meet the requirements of extremely low oxygen residual content, less than 1%. The nested container primary packaging system consists of de-bagging machine, de-lidding machine, filling and stoppering machine, Truking can also provide downstream machines such as inspection and secondary packaging system to form an integrated solution.

## SMART-N 系列 SMART-N Series



# TRUKNO

## 主要用途 / Main Application

SMART-N系列预灌封无菌分装线是一种适用于中试生产、小批量产能的预灌封分装解决方案。灵活的模块化设计能够进一步满足小批量,多批次的生产需要。同时整体结构紧凑,空间占用小,整线可根据需求灵活配置隔离系统,包含:ORABS、CRABS、ISOLATOR。可以完全兼容卡式瓶、西林瓶及预充针等不同规格的巢式包材,通过拆外包、拆内包、灌装及加塞,实现药品的无菌分装,可配置充氮、真空加塞、真空灌装等功能。系列下可选机型包括:PDBM手动拆外包机,PDLM手动拆内包机,PFSS 预灌封中试灌装加塞机。

SMART-N series is a nested container primary packaging solution for the trial phase and small batch production. The flexible modular can meet the production needs of small and multiple batches. At the same time, the overall structure is compact, and the space occupation is small, the entire line can be configured with ORABS, CRABS and ISOLATOR. It can be fully compatible with different container such as nested cartridges, nested vials and PFS. Not only the common process as de-bagging, de-lidding, filling and stoppering, but also the nitrogen filling/stoppering, vacuum filling/stoppering and other customized functions the system can provide. Optional models under the series include: PDBM(maunal de-bagging machine), PDLM(manual de-lidding machine), PFSS(filling and stoppering machine for trial).

### 优势特点 / Performance Features

- ◎ 占地面积小,使用更灵活
- ◎ 伺服驱动,精度高
- 兼容性高,可适用目前市面上所有的巢式预充针、 卡式瓶与西林瓶
- ◎ 人员需求少
- ◎ 故障率低,稳定性高,维护时间少
- ◎ 污染风险小,安全系数高
- ◎ 生产速度可无极调节
- ◎ 配置灵活,可根据需求选择灌装及加塞系统
- ◎ 功能丰富,可配置充氮、真空灌装、真空加塞等功能
- ◎ 灵活配置隔离系统: ORABS、CRABS、ISOLATOR
- ◎ 适用于混悬液、高粘度等特殊产品

- + More compact, more flexible
- + Full servo driven, high precision
- + High compatibility, applicable to all nested container currently on the market
- + Few personnel requirements
- + Low failure rate, high stability, less maintenance time
- + Low risk of contamination, high safety
- + Production speed can be adjusted steplessly
- + Flexible configuration, filling and stoppering system can be selected
- + Rich functions, can be configured with nitrogen filling, vacuum filling, vacuum stoppering, etc
- + Suitable for ORABS, CRABS, ISOLATOR
- + Suitable for special products such as suspension and high viscosity

# TRUKING

## 主要技术参数 / Technical Data

| 机型<br>Model | 最大产能<br>Max Capacity | 灌装头数<br>Filling Heads | 能耗<br>Power | 重量<br>Weight | 外形尺寸<br>(LxWxH)Dimension(LxWxH) |
|-------------|----------------------|-----------------------|-------------|--------------|---------------------------------|
| PFSS2       | 4100pcs/h            | 2                     | 14kW        | 1500kg       | 2300×1150×1900mm                |
| PFSS5       | 7300pcs/h            | 5                     | 16kW        | 1500kg       | 2300×1150×1900mm                |

## ULTRA-N 系列 ULTRA-N Series





## 主要用途 / Main Application

ULTRA-N 系列预灌封无菌分装线是一种适用于血液制品、生物药等中等批量商业化生产的预灌封分装解决方案。整线全伺服控制,运行稳定,高度自动化,可以有效减少人员干预,进一步提高药品生产的无菌保障,整线可根据需求灵活配置隔离系统,包含:ORABS、CRABS、ISOLATOR。适用于巢式预充针、卡式瓶与西林瓶,通过拆外包、拆内包、灌装、加塞,实现药品的无菌分装,同时可以配置IPC取样称重、充氮、真空灌装、真空加塞等功能。系列下可选机型包括:PDBA自动拆外包机/PDBS半自动拆外包机,PDLA自动拆内包机,PFSA预灌封中高速自动灌装加塞机。

ULTRA-N series is a nested container primary packaging solution suitable for medium-batch commercial production of blood products and biological drugs. The whole line is fully servo controlled, stable in operation, and highly automated, which can effectively reduce human intervention and further improve the sterility guarantee of pharmaceutical production. The entire line can be configured with ORABS, CRABS and ISOLATOR. It can be fully compatible with different container such as nested cartridges, nested vials and PFS. Not only the common process as de-bagging, de-lidding, filling and stoppering, but also the nitrogen filling/stoppering, vacuum filling/stoppering and other customized functions the system can provide. Optional models under the series include: PDBA(Automatic de-bagging machine)/ PDBS(semi-auto de-bagging machine), PDLA(automatic de-lidding machine), PFSA(filling and stoppering machine).

### 优势特点 / Performance Features

- ◎ 采用直线布局,操作维护便捷
- ◎ 伺服驱动,动作灵敏、定位精度高
- ◎ 故障率低,稳定性高,维护时间少
- 兼容性高,可适用目前市面上所有的巢式预充针、 卡式瓶与西林瓶
- ◎ 自动化程度高,人员配置少,少至2人
- ◎ 污染风险小,安全系数高
- ◎ 生产速度可无极调节
- ◎ 配置灵活,可根据需求选择灌装及加塞系统
- ◎ 功能丰富,可实现 IPC 取样称重、充氮、真空灌装、 真空加塞
- ◎ 灵活配备隔离系统: ORABS、CRABS、ISOLATOR
- ◎ 适用于混悬液、高粘度等特殊产品

- + Straight-line layout is adopted, which is convenient for operation and maintenance
- + Full servo driven, sensitive action, high positioning accuracy
- + Low failure rate, high stability, less maintenance time
- + High compatibility, applicable to all nested container currently on the market
- + High degree of automation, less staffing, as few as 2 people
- + Low risk of contamination, high safety
- + Production speed can be adjusted steplessly
- + Flexible configuration, filling and stoppering system can be selected
- + Rich functions, can be configured with IPC nitrogen filling, vacuum filling, vacuum stoppering, etc
- + Suitable for ORABS, CRABS, ISOLATOR
- + Suitable for special products such as suspension and high viscosity

# TRUKING

### 主要技术参数 / Technical Data

| 机型<br>Model | 最大产能<br>Max Capacity | 灌装头数<br>Filling Heads | 能耗<br>Power | 重量<br>Weight | 外形尺寸<br>(LxWxH) Dimension(LxWxH) |
|-------------|----------------------|-----------------------|-------------|--------------|----------------------------------|
| PFSA2       | 4800 pcs/h           | 2                     | 21kW        | 3000kg       | 2400×1200×1900mm                 |
| PFSA5       | 9800 pcs/h           | 5                     | 23kW        | 3000kg       | 2400×1200×1900mm                 |
| PFSA10      | 15000pcs/h           | 10                    | 27kW        | 3000kg       | 2400×1200×1900mm                 |

## ROBOTIC-N 系列

**ROBOTIC-N Series** 



# TRUKNO

## 主要用途 / Main Application

ROBOTIC-N 系列预灌封无菌分装线是一种适用于CDMO等高柔性使用场景的分装线。整线采用两台智能无菌机器人,功能高度集成,极大降低设备的复杂度的同时,可以保障环境的无菌性,提供卓越的运行稳定性,整线可根据需求灵活配置隔离系统,包含:ORABS、CRABS、ISOLATOR。适用于巢式预充针、卡式瓶与西林瓶,通过拆外包、拆内包、灌装及加塞,实现药品的无菌分装,同时可以配置IPC 取样称重、充氮、真空灌装、真空加塞等功能。系列下可选机型包括:PDBA 自动拆外包机 /PDBS 半自动拆外包机,PDLR 机器人拆内包机,PFSR 预灌封机器人自动灌装加塞机。

ROBOTIC-N series is a nested container primary packaging solution suitable for medium-batch commercial production of blood productions and biological drugs. The whole line adopts two intelligent sterile robots with highly integrated functions, which greatly reduces the complexity of the equipment, while ensuring the sterility of the environment and providing excellent operational stability. The entire line can be configured with ORABS, CRABS and ISOLATOR. It can be fully compatible with different container such as nested cartridges, nested vials and PFS. Not only the common process as de-bagging, de-lidding, filling and stoppering, but also the nitrogen filling/stoppering, vacuum filling/stoppering and other customized functions the system can provide. Optional models under the series include: PDBA(automatic de-bagging machine)/ PDBS(semi-auto de-bagging machine), PPLR(robotic de-lidding machine), PFSR(robotic filling and stoppering machine).

### 优势特点 / Performance Features

- ◎ 采用直线布局,操作维护便捷,美观大方
- ◎ 机器人驱动,动作灵敏、定位精度高
- ◎ 结构极大简化,进一步提高无菌保障
- 兼容性高,可适用目前市面上所有的巢式预充针、 卡式瓶与西林瓶
- ◎ 自动化程度高,人员配置少,少至2人
- ◎ 故障率低,稳定性高,维护时间少
- 采用超洁净无菌机器人,机构更简洁,污染风险更小, 安全系数高
- 灌装精度高,配置高精度柱塞泵或蠕动泵进行灌装, 每个泵可独立微调
- ◎ 配置灵活,可根据需求选择灌装及加塞系统
- 功能丰富,可实现 IPC 取样称重、充氮、真空灌装、 真空加塞
- ◎ 灵活配置隔离系统: ORABS、CRABS、ISOLATOR
- ◎ 适用于混悬液、高粘度等特殊产品

- + Straight-line layout is adopted, which is convenient for operation and maintenance, beautiful and generous
- + Robot driven, sensitive movement and high positioning accuracy
- + The structure is greatly simplified, and the sterility guarantee is further improved
- + high compatibility, applicable to all nested container currently on the
- + High degree of automation, less staffing, as few as 2 people
- + Low failure rate, high stability, less maintenance time
- + Using ultra-clean sterile robots, the mechanism is more concise, the pollution risk is smaller, and the safety factor is high
- High filling accuracy, equipped with high-precision plunger pump or peristaltic pump for filling, each pump can be fine-tuned independently
- + Flexible configuration, filling and stoppering system can be selected
- + Rich functions, can be configured with IPC nitrogen filling, vacuum filling, vacuum stoppering, etc
- + Suitable for ORABS, CRABS, ISOLATOR
- + Suitable for special products such as suspension and high viscosity

# THUMPNO

### 主要技术参数 / Technical Data

| 机型<br>Model | 最大产能<br>Max Capacity | 灌装头数<br>Filling Heads | 能耗<br>Power | 重量<br>Weight | 外形尺寸<br>(LxWxH) Dimension(LxWxH) |
|-------------|----------------------|-----------------------|-------------|--------------|----------------------------------|
| PFSR2       | 4800 pcs/h           | 2                     | 26kW        | 4000kg       | 2750×1200×1900mm                 |
| PFSR5       | 9800 pcs/h           | 5                     | 27kW        | 4000kg       | 2750×1200×1900mm                 |
| PFSR10      | 15000pcs/h           | 10                    | 29kW        | 4000kg       | 2750×1200×1900mm                 |

# EXTREME-N 系列

**EXTREME-N Series** 



# TRUKPIG

## 主要用途 / Main Application

EXTREME-N 系列预灌封无菌分装线是一种适用于疫苗、GLP-1等大批量商业化生产的高速预灌封分装线。拆内包机采用洁净无菌机器人撕膜,提高设备的运行稳定性及无菌保障,同时去盒盖纸及内衬纸分工位设计,满足整线高速运行需求。整线可根据需求灵活配置隔离系统,包含:ORABS、CRABS、ISOLATOR,通过拆外包、拆内包、灌装及加塞,实现药品的无菌分装,同时可以配置 IPC 取样称重、充氮、真空灌装、真空加塞等功能。系列下可选机型包括:PDBH高速自动拆外包机,PDLH高速自动拆内包机,PFSH 预灌封高速自动灌装加塞机。

EXTREME-N series is a high-speed nested container primary packaging solution suitable for large-scale commercial production of vaccines and GLP-1. The de-lidding machine adopts a clean aseptic robot to tear the lid to improve the operation stability and aseptic guarantee of the equipment. At the same time, the separate station removing lid and the liner are designed to meet the needs of high-speed operation of the entire line. The entire line can be configured with ORABS, CRABS and ISOLATOR. Not only the common process as de-bagging, de-lidding, filling and stoppering, but also the nitrogen filling/stoppering, vacuum filling/stoppering and other customized functions the system can provide. Optional models under the series include: PDBH(high speed de-bagging machine), PDLH(high speed de-lidding machine), PFSH(high speed filling and stoppering machine).



### 优势特点 / Performance Features

- ◎ 采用直线布局,操作维护便捷,美观大方
- ◎ 伺服加机器人驱动,动作灵敏、定位精度高
- ◎ 自动化程度高,人员配置少,少至2人
- ◎ 故障率低,稳定性高,维护时间少
- ◎ 采用超洁净无菌机器人,提供更好无菌保障
- ◎ 产能高至 57000pcs/h, 生产速度可无极调节
- ◎ 配置灵活,可根据需求选择灌装及加塞系统
- 功能丰富,可实现 IPC 取样称重、充氮、真空灌装、 真空加塞;
- ◎ 灵活配置隔离系统: ORABS、CRABS、ISOLATOR
- ◎ 适用于混悬液、高粘度等特殊产品

- + Straight-line layout is adopted, which is convenient for operation and maintenance, beautiful and generous
- + Servo and robot drive, sensitive movement and high positioning accuracy
- + High degree of automation, less staffing, as few as 2 people
- + Low failure rate, high stability, and less maintenance time
- + Using ultra-clean aseptic robots to provide better aseptic protection
- The production capacity is as high as 57000pcs/h, and the production speed can be adjusted steplessly
- + Flexible configuration, filling and stoppering system can be selected
- + Rich functions, can be configured with IPC nitrogen filling, vacuum filling, vacuum stoppering, etc
- + Suitable for ORABS, CRABS, ISOLATOR
- + Suitable for special products such as suspension and high viscosity

# TRUKING

### 主要技术参数 / Technical Data

| 机型<br>Model | 最大产能<br>Max Capacity | 灌装头数<br>Filling Heads | 能耗<br>Power | 重量<br>Weight | 外形尺寸<br>(LxWxH)Dimension(LxWxH) |
|-------------|----------------------|-----------------------|-------------|--------------|---------------------------------|
| PFSH10      | 32000pcs/h           | 10                    | 29kW        | 6000kg       | 4700×1200×1900mm                |
| PFSH1001    | 36000pcs/h           | 10                    | 29kW        | 6000kg       | 4700×1200×1900mm                |
| PFSH16      | 52000pcs/h           | 16                    | 31.5kW      | 6000kg       | 4700×1200×1900mm                |
| PFSH1601    | 57600pcs/h           | 16                    | 31.5kW      | 6000kg       | 4700×1200×1900mm                |



### 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。



### ◎ 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。



### ◎ 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。



### ◎ 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



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.

#### 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.

- 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.

### 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.

# 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.

- + 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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