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中国真空带式干燥机的行业开拓者和领跑者
PIONEER & INNOVATOR OF CHINA'S VACUUM BELT DRYER INDUSTRY



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LOW-TEMPERATURE DRYING & EVAPORATION
POWDER STERILIZATION



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企业介绍

ENTERPRISE INTRODUCTION



创建于1998年的上海敏杰制药机械有限公司，是一家民营科技型企业，地处上海奉贤青港工业园区，东近洋山深水港，北临国际航空港，地理条件优越、交通便捷。公司占地面积2.5万平方米，建筑面积2.26万平方米，目前拥有固定资产8000万元。企业员工150多名，其中高级工程师8名，工程师22名，中高级技工28名。主要从事低温干燥、浓缩和灭菌设备的研发、生产及销售。拥有产品发明专利5项、实用新型专利16项，开发的真空低温连续干燥机获得上海市高新技术成果证书、上海市“诚信服务联盟企业”、上海市“科学技术奖”等多项荣誉。

20年的创业历程，敏杰人清醒认识到“做道德事，挣良心钱”的发展理念，始终牢记客户需求是我们努力目标的创新思维，认真倾听客户的心声，虚心学习国外的先进技术，努力攻克制药生物、食品保健、精细化工等行业工艺装备的技术难题，所开发的产品技术赢得了国内外客户的肯定。为确保产品质量的稳定性，公司相继投入千万元引进了国外先进的加工装备：自动氩焊机、自动激光焊机、自动激光切割机、自动抛光机、数控加工中心等。开发出有自主知识产权的五大系列、30多种规格的真空低温液体连续干燥机、真空低温固体连续干燥机、超低温真空浓缩机、灭菌设备等，企业通过了ISO9001质量管理体系认证和欧盟CE认证。

诚信的商务理念是上海敏杰对客户承诺，为确保每一家客户对设备选型正确性，公司专门为客户配置了低温干燥、浓缩和灭菌试验平台，为有意向客户提供试验服务，确保每家客户决策的可靠性。目前每年有上千家企业前来考察试验，所购设备整体运行成功率达百分之百。

目前，公司产品已遍布国内20多个省市，远销国外20多个国家，拥有500多家客户。与中石化集团、上药集团、天士力集团、康恩贝集团、葵花集团、保龄宝集团、量子高科企业、美国杜邦、韩国CM partner、印尼Konimex等国内外知名企业保持着长期合作。精益求精，不断创新是敏杰发展的宗旨，我们将以更尖端的技术欢迎国内外朋友的到来。

超越今天的技术，编织美好的明天。在这个高科技的发展时代里，上海敏杰是慧眼独具人士的选择。公司为实现企业集团化的长期战略目标，依托“深化改革、大胆创新、继续发展”十二字方针，力争在5年内实现年销售5亿元，引领敏杰人在建设“敏杰梦”的征程上，坚定信心，勇担责任，开拓进取，为谱写企业发展新篇章而努力奋斗！

Founded in 1998, Shanghai Minjie Machinery Co., Ltd. is a company specialized in research, manufacturing, sales of pharmaceutical, foodstuff, chemical and biotechnology machinery. Located in Qinggang Industrial Park, Fengxian District, Shanghai, China, Shanghai Minjie covers an area of 25,000 m² with 22,600 m² building area, the total assets reach RMB 80 million. More than 150 staff including 8 senior engineers, 22 engineers and 28 senior and medium technicians in Shanghai Minjie engages in research, manufacturing and sales of advanced drying equipment, low temperature vacuum evaporator and sterilization equipment. Minjie has 5 patents of invention, 16 patents of utility models. The developed vacuum belt dryer gained Shanghai High-tech Achievements certificate, Shanghai Trustworthy Service Enterprise Federation, Shanghai Science and Technology Award, and so on honors.

20 years history makes Minjie clearly know "doing moral things, earning conscience money" developing ideas. Client's need is the target of our efforts and our innovation source. Listening carefully to the clients, learning humbly advanced foreign technology, working hard to overcome technical difficulties of equipment in pharmaceutical, biology, food, health care, fine chemical and so on industries. Minjie developed equipment and technology win affirmation of domestic and foreign customers. To ensure product quality stability, Minjie has invested over 10 million RMB on importing advanced equipment: automatic argon arc welder, automatic laser welder, automatic laser cutter, automatic polisher, CNC machine center and so on. Minjie has developed 5 series products with self-owned intellectual property rights, more than 30 models vacuum belt dryer for liquid/paste, vacuum belt dryer for powder/particle, super low temperature evaporator, sterilization equipment, etc. Minjie has gained ISO9001 quality management system's certification and the EU CE certification.

Honesty business concept is Minjie's promise to clients. To ensure each client can choose suitable equipment from Minjie, we set up low temperature drying, concentration and sterilization equipment test platform and provide free test service for clients who are interested in our products. Now more than 1000 domestic companies every year come to Minjie for investigation and test. Our clients' satisfied comments for our machine is 100%.

Until now, Minjie's machine has been sold to over 20 provinces in China, over 20 countries around the world. Minjie maintains long-term cooperation with domestic and overseas well-known enterprises, such as Sinopec, Shanghai Pharma, Tasly Group, Conba Group, Sunflower Group, BLB Group, Quantum Hi-tech, Dupont Group from America, CM Partner from South Korea, Konimex from Indonesia. Excellence, innovation is the development of Minjie purposes, we will be more sophisticated technology to welcome friends at home and abroad.

Surpassing today's technology, preparing a bright tomorrow, in this high-tech developing era, Shanghai Minjie is discerning people's choice. For Minjie's long-term grouping strategic objectives, relying on "deepening reform, being bold and innovative, keeping developing" policy, Minjie strives to reach 0.5 billion sales amount for next 5 years. On the constructing Minjie dream journey, Minjie people proceed with confidence and write a new chapter for enterprise development.



中国真空带式干燥机的行业开拓者和领跑者
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发展历程

DEVELOPMENT HISTORY

上世纪九十年代末，在中国的东方，一颗民营科技之苗悄然诞生。创业者怀揣梦想，以微少的5万元创业启动资金，在不足几十平米的简陋小厂里，苦苦探索上海敏杰未来生存发展的方向……

一张手绘图纸、一台破旧机器，“五加二，白加黑”的拼搏精神，创业者用激情照亮了人生，成功开启了“上海敏杰”的序幕。

At the end of last century ninety's, in China's east, a private science and technology seedling was quietly born. Entrepreneur with his dream and scanty 50000 yuan start-up capital, explored Shanghai Minjie's future development direction in a humble small factory with only several dozens of square meters.

A hand painted drawing, an old machine, "seven days working a week, day and night working a day", with thus hard working spirit, the entrepreneur lighted his life by enthusiasm, successfully started "Shanghai Minjie".

- 1998年
1998Year

10月
Oct.

上海敏杰制药机械有限公司成立
Shanghai Minjie Machinery Co.,Ltd was founded
- 2000年
2000Year

12月
Dec.

中国第一台真空低温连续干燥机诞生，取名为澄明液体真空连续干燥机
Minjie developed China's first vacuum belt dryer, named: vacuum belt dryer for liquid
- 2002年
2002Year

10月
Oct.

澄明液体真空连续干燥机获得国家专利
Vacuum belt dryer for liquid won national patent certificate
- 2003年
2003Year

03月
Mar.

石家庄四药股份有限公司和公司签订订购合同，代表着中国第一台真空低温连续干燥机走入市场
Shijiazhuang No.4 Pharmaceutical Co.,Ltd purchased vacuum belt dryer from us, our first vacuum belt dryer entered market
- 2006年
2006Year

09月
Sep.

应全国客户的要求，公司成功开发了真空低温固体连续干燥机，并受到广泛的关注和欢迎
Per clients' requirements, we developed vacuum belt dryer for powder and particle, which won wide attention and welcome
- 2008年
2008Year

12月
Dec.

技术升级后的真空低温连续干燥机和纠偏技术再次获得国家专利
Technically improved vacuum belt dryer and rectifying technique won national patents again
- 2009年
2009Year

04月
Apr.

印尼PT. Mayora公司和公司签订订购合同，代表着中国第一台真空低温连续干燥机走向国外市场
PT. Mayora(Indonesia) purchased our vacuum belt dryer, China exported first vacuum belt dryer by Minjie
- 2010年
2010Year

全年
Yearly

韩国、智利、马来西亚、英国等国客户陆续与公司签订订购合同，出口了10多台干燥设备
South Korea, Chile, Maylaysia, UK, and so on purchased our vacuum belt dryer, more than 10 sets vacuum belt dryer were exported
- 2011年
2011Year

11月
Nov.

公司扩建25000平方米新厂区正式开工建设
Minjie's 25000 square meters new factory's construction was started
- 2013年
2013Year

08月
Aug.

公司新厂区竣工，整体搬迁至奉贤工业园区
Minjie moved to the new factory in Fengxian Industrial Park
- 2014年
2014Year

11月
Nov.

公司与中科院联合开发的常温灭菌机成功上市并获得国家专利
MJ series Ambient sterilizer's developed by Minjie and Chinese Academy of Sciences gained national patent
- 2015年
2015Year

10月
Oct.

低温薄层干燥机开发成功并获得国家专利
Thin-layer drying system was sucessfully developped and gained national patent
- 2016年
2016Year

03月
Mar.

公司获得“国家安全生产标准化二级企业”证书
Minjie got "National Safety Production Standard 2nd Level Enterprise"certificate
- 2017年
2017Year

10月
Oct.

气流速热灭菌机开发成功
Airflow instantaneously heating sterilizer was sucessfully developed
- 2018年
2018Year

01月
Jan.

真空带式干燥机和超低温真空浓缩机获得欧盟颁发的CE 认证证书
Vacuum belt dryer and Vacuum low-temperature evaporator CE certification issued by the EU

部分专利荣誉

SOME PATENTS & HONORS



真空低温液体连续干燥机

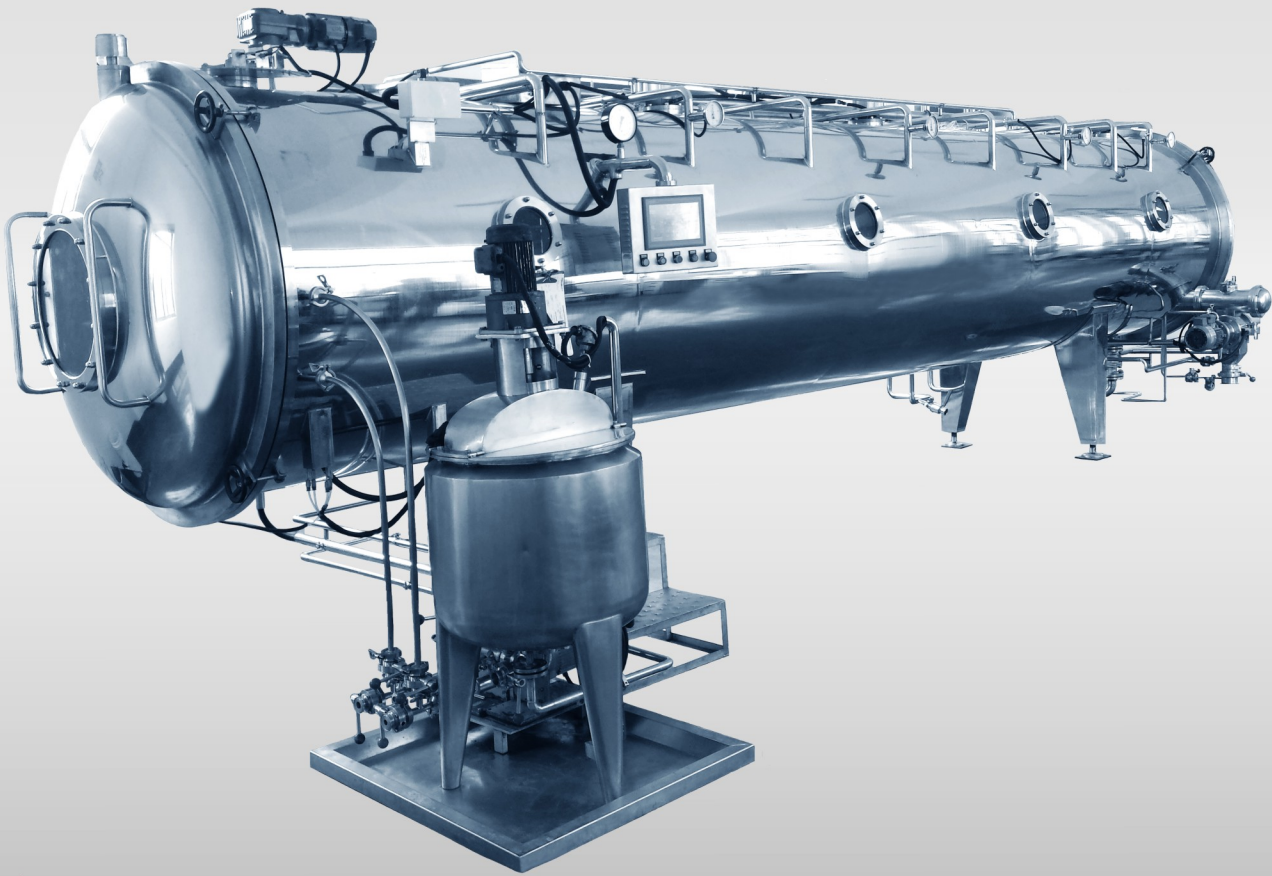
VACUUM BELT DRYER FOR LIQUID & PASTE

真空低温液体连续干燥机是一种连续进料、连续出料的真空干燥设备，液体原料通过进料泵输送至干燥机内，并通过布料器均匀的分布在传送带上，通过高真空从而降低物料沸点温度，液体原料水分直接升华为气体，传送带在加热板上匀速运转，加热板内热源可采用蒸汽、热水或电加热等方式，通过传送带的运转，从前端的蒸发、干燥至后端的冷却出料，温度段由高至低，具体根据物料特性可调，出料端配有特定的真空粉碎装置以达到不同粒度的成品，干燥后的粉料可自动包装或后续工艺。

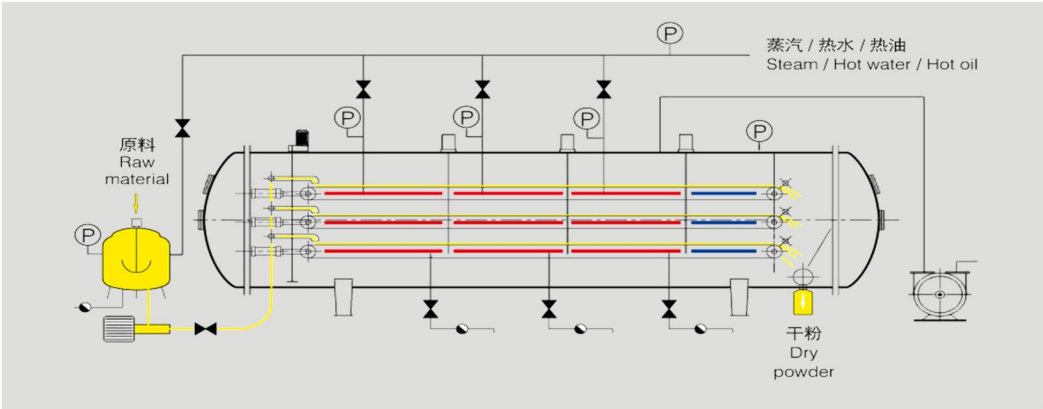
真空低温液体连续干燥机的诞生使传统的静态干燥转化为真空动态干燥，由传统的10-20小时干燥出产品，转化为30-60分钟出产品，达到了根据不同的物料调节不同的干燥温度的目标，解决了喷雾干燥温度高，传统烘箱时间长容易变性的难题。干燥后产品的色泽、溶解性、物性的保存是其他设备无法比比的。

Vacuum belt dryer is a continuous infeed and discharge vacuum drying equipment. Liquid product is conveyed into dryer body by infeed pump, evenly spread on belts by distribution device. Under high vacuum, the boiling point of the liquid is lowered; water in the liquid material is evaporated. Belts move on the heating plates evenly. Steam, hot water, hot oil can be used as heating media. With the moving of the belts, the product goes through from the beginning evaporating, drying, cooling to discharging in the end. The temperature decreases through this process, and can be adjusted for different products. Special vacuum crusher is equipped at the discharge end to produce different size end product. The dry powder or granule product can be automatically packed or continue with subsequent process.

Vacuum belt dryer turn traditional static drying to vacuum dynamic drying, reduce drying time from 10-20 hours to 30-60 minutes. In vacuum belt dryer, the drying temperature is adjustable for different products. It solves the high temperature problem with spray dryer and denaturation problem due to long drying time with traditional drying oven. Color, solubility, ingredients preservation of the dry product from vacuum belt dryer are incomparable.



工艺流程 TECHNOLOGICAL PROCESS



设备优点 EQUIPMENT ADVANTAGE

- 实现真空条件下连续进料、连续出料
- 全套工艺自动化、管道化、连续化
- 真空状态下完成干燥、粉碎、制粒工艺
- 热敏性物料不变性、不染菌
- Less labor cost and energy consumption
- Little loss of product and solvent recycling possible
- PLC automatic control system & CIP cleaning system
- GMP standards
- 能解决高粘度、难干燥的各种液体及浆体原料
- 运行成本是真空烘箱、喷雾干燥的1/3，冷冻干燥的1/6
- 操作工人最多两名，大大降低了人力成本
- 干燥温度可根据物料工艺要求可调（30-150℃）
- 30-60分钟开始连续出干粉，干粉出率99%
- 配有在线自动清洗系统，符合GMP要求
- Good solubility & excellent quality of the products
- Continuous feed-in, dry, granulate, discharge in vacuum state
- Completely closed system and no contamination
- Adjustable drying temperature（30-150℃）& drying time（30-60min）

适用范围 APPLICATION SCOPE

主要适用于中西药品、食品、生物工程、化工原料、保健品、食品添加剂等各种液体膏状类原料的低温干燥，尤其是对于粘性高、易结团、热塑性、热敏性的物料；不适于或无法采用喷雾干燥的物料，真空低温连续干燥机是最佳选择。具体如下：

制药生物行业：如中药浸膏、植物提取液、蛋胚干燥处理、PVPK系列粘合剂、发酵液等。

食品保健行业：如麦精、低聚糖、速溶固体饮料、茶粉、可可粉、玉米浆、植物蛋白、调味品等。

精细化工行业：如锂电池原料、甲维盐等。

Vacuum belt dryer (VBD) is mainly used in drying many kinds of liquid or paste raw material, such as Traditional & western medicines, food, biological products, chemical material, health foods, food additive etc, especially suitable for drying material with high-viscosity, easy agglomeration, or thermoplastic, thermal sensitivity, or material that can not be dried by traditional dryer. For above materials, VBD is the best choice:

Pharmaceutical industry : chinese medicine extract, plant extract, egg embryo, PVPK series, fermenting liquid etc.

Food industry : malt extract, carbohydrate, instant beverage, tea powder, cocoa powder, corn paste etc.

Chemical Industry : lithium battery, emamectin benzoate etc.

设备型号 EQUIPMENT SPECIFICATION

型号	直径	长度	高度	换热面积	加热温度	进料含水	干料含湿	加热介质	水蒸发量	主机功率
Model	Diameter	Length	Height	Heating area	Heating temperature	Moisture content of feeding material	Moisture content of dried product	Heating resource	water evaporation	Dryer body power
	mm	mm	mm	m²	℃	%	%		kg/h	kw
MJY30-4	1700	9800	2700	30	30-150 可调 Adjustable	20-80 有流动性 Having fluidity	0.2-5 可调 Adjustable	蒸汽、热水 或热油 Steam or Hot water or Hot oil	15-25	10.00
MJY60-6	2200	10800	3650	60					45-55	14.00
MJY80-6	2200	13500	3650	80					60-75	14.50
MJY100-6	2200	16100	3650	100					80-90	15.50
MJY120-7	2200	16100	3650	120					100-110	16.50
MJY160-8	2800	17300	4100	160					120-140	18.50
MJY200-10	2800	17300	4150	200					160-180	25.50

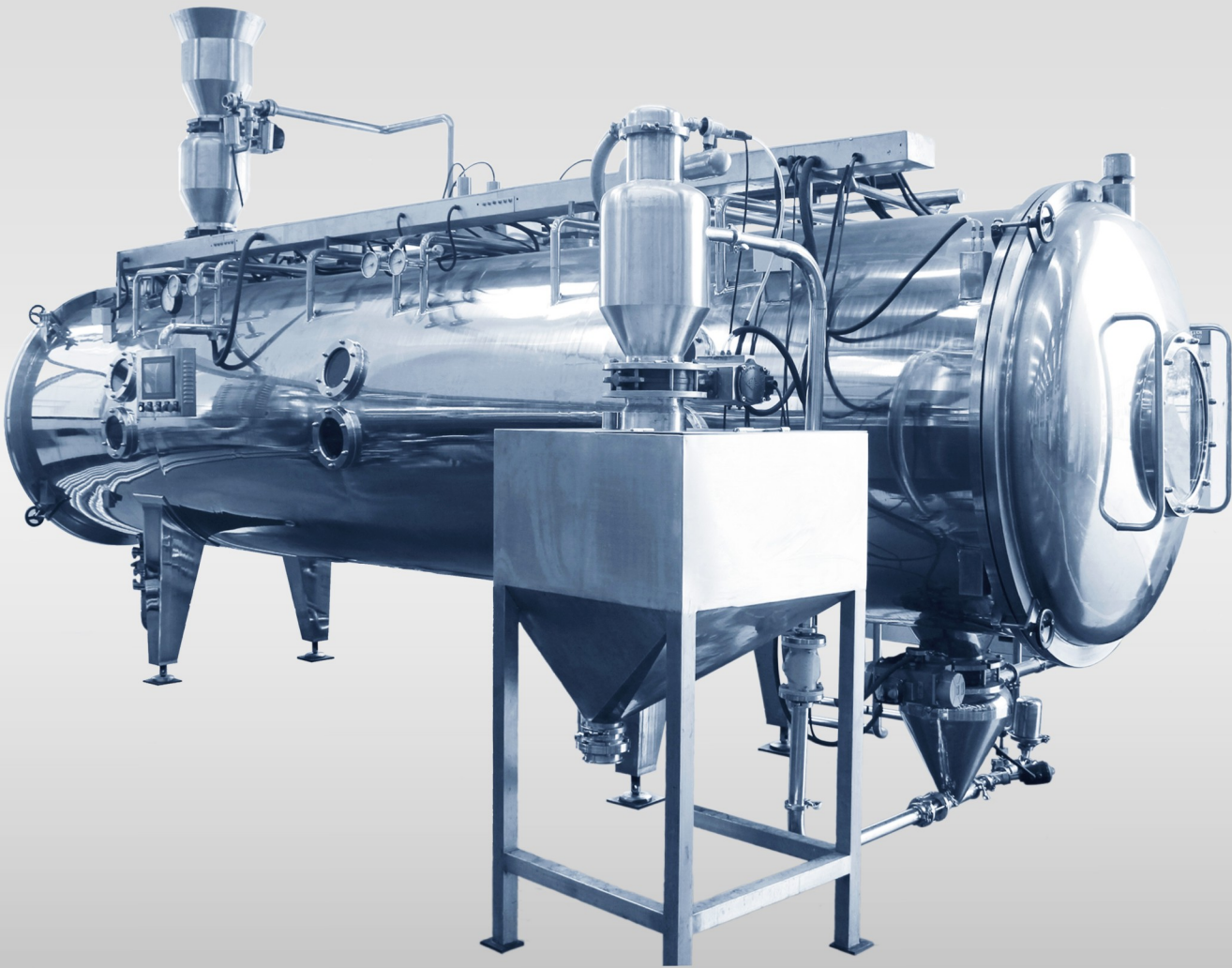
注：如干燥原料的溶剂是有机溶剂（乙醇、丙酮、甲醇等），设备的蒸发量将大大提升。If the solvent of raw material is organic (ethanol, acetone, methanol etc.),evaporation capacity would rise. 蒸发量与干燥工艺温度高低密切相关。Evaporation capacity is closely related with drying temperature.

真空低温固体连续干燥机

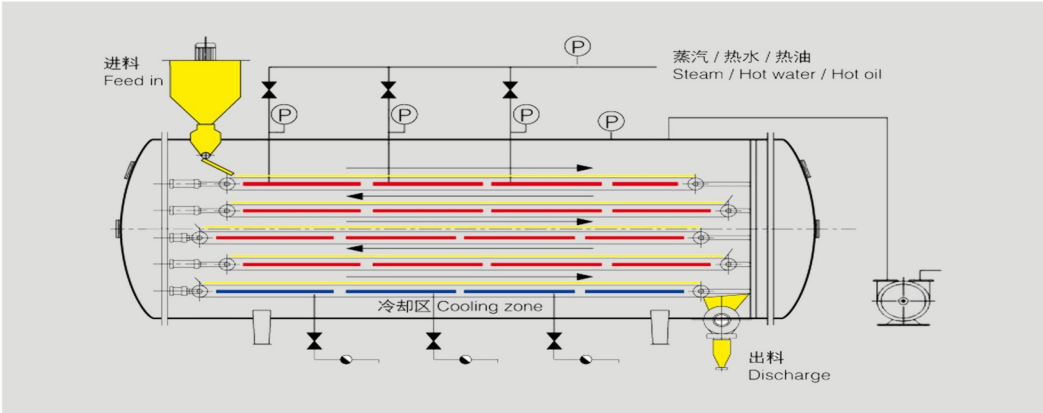
VACUUM BELT DRYER FOR POWDER & PARTICLE

根据客户产能的大小，在真空容器内设计布置3-11层传送带，通过连续固体进料器和布料器，将客户所需要干燥的原料在真空条件下实现连续送料，并均匀的布放在干燥带上，由于物料在干燥过程中不断翻动，加快了蒸发速度和时间，同时保证产品在干燥过程中的均匀性，干燥的温度在20-150℃可调，物料从进入干燥机到干燥后出料约20-80分钟可调。干燥后的产品如需粉碎工艺，可在真空条件下粉碎，避免了粉尘飞扬，增加了产品收率和解决了污染等问题。干燥后的产品通过真空连续出料器和真空收料机实现连续出料，同时可实现有机溶剂的回收，解决了环保问题并增加溶剂回收收益。

There are 3-11 layers of conveyor belts inside the cylindrical shell, the more the layers, and the larger the capacity. By feed and distributing device, the wet solid material is input continuously, and then distributed evenly on the conveyor belt under vacuum. Motion of the belt stirs the materials constantly, which speeds up evaporation, thus shortens the drying time, and also makes sure homogeneity during drying. The drying temperature and drying time (from feed-in to discharge) are adjustable (20-150℃) (20-80min) . If the dried product needs granulation, it can be comminuted under vacuum, no dust flying appears, which increases products' yielding and avoid contamination. The dried product is discharged continuously by vacuum discharging and collecting device. Organic solvent in the wet materials can be recycled by our system, removing pollution problem caused by traditional dryers, and adding profit.



工艺流程 TECHNOLOGICAL PROCESS



设备优点 EQUIPMENT ADVANTAGE

- 实现真空条件下连续进料、连续出料
 - 实现干燥工艺自动化、连续化、管道化
 - 干燥工艺温度在20-150℃可调
 - 运行成本是传统干燥工艺的三分之一
 - 产品收率达到99%以上
- 干燥时间20-80分钟可调
 - 大大降低劳动力成本
 - 采用PLC自动控制系统
 - 减少了干燥工艺复杂造成产品污染环节
 - 实现产品干燥过程中溶剂回收要求
 - 配有在线自动清洗系统，符合GMP要求
- Continuous feed-in, dry, granulate, discharge in vacuum state
 - Less labor cost and energy consumption
 - Excellent quality of the products
 - Completely closed system, simplified processes and no contamination
- Little loss of product and solvent recycling possible
 - Adjustable drying temperature (20-150℃) & drying time (20-80min)
 - PLC automatic control system & CIP cleaning system
 - GMP Standards

适用范围 APPLICATION SCOPE

主要适用于中药、西药、食品、化工等企业；各种固体、结晶体、颗粒、粉末、丸剂、果品等原料；易氧化、易爆、强刺激、剧毒物料；需要回收各种溶剂的产品。

Industries: pharmaceutical, food, chemical, biological ; Drying material state: solid, crystal, particle, powder, pills, fruit & vegetable slices or chips, leaves, etc ; Some special material: easy oxidation, easy explosion, strong stimulation, high toxicity ; Material needing solvent recycling.

设备型号 EQUIPMENT SPECIFICATION

型号	直径	长度	高度	换热面积	加热温度	进料含水	干料含湿	加热介质	水蒸发量	主机功率
Model	Diameter	Length	Height	Heating area	Heating temperature	Moisture content of feeding material	Moisture content of dried product	Heating resource	water evaporation	Dryer body power
	mm	mm	mm	m²	℃	%	%		kg/h	kw
MJG15-3	1400	7500	3000	15	20-150 可调 Adjustable	10-80 有流动性 Having fluidity	0.3-5 可调 Adjustable	蒸汽、热水 或热油 Steam or Hot water or Hot oil	8-12	6.00
MJG35-5	1600	9800	3300	35					18-25	8.00
MJG50-5	2200	11500	3800	50					25-35	12.00
MJG70-5	2200	13500	3800	70					35-45	12.00
MJG80-5	2200	15500	3800	80					40-60	12.00
MJG120-7	2300	16000	4200	120					70-90	15.00
MJG160-9	2500	16000	4500	160					90-120	17.00
MJG220-11	2800	16000	4500	220					120-150	19.00

注：如干燥原料的溶剂是有机溶剂（乙醇、丙酮、甲醇等），设备的蒸发量将大大提升。If the solvent of raw material is organic (ethanol, acetone, methanol etc.),evaporation capacity would rise. 蒸发量与干燥工艺温度高低密切相关。Evaporation capacity is closely related with drying temperature.

低温薄层干燥机

THIN-LAYER DRYING SYSTEM

低温薄层干燥机是公司开发的一种新型低温干燥设备。它采用了被国际干燥学术界称为“第四代干燥技术”的低温辐射、薄层干燥技术。产品具有“高效、高品质、低能耗”的特点，可广泛应用于食品、保健品、医药、化工等行业的产品干燥生产。

Thin-layer drying system is a new-style low temperature drying equipment which developed by Shanghai Minjie. It adopts low temperature radiation & thin layer drying technology which is called "the fourth generation drying technology" by international drying academic world. Equipment has "high efficiency, high quality, low energy consumption" features, can be widely applied in: food, health care products, pharmaceutical, chemical industries, and so on.



工作原理 WORKING PRINCIPLE

低温薄层干燥机由进料布料系统、加热干燥系统、低温排风系统、冷却系统和卸料系统组成，其构成原理如图所示。

低温薄层干燥机干燥时采用循环热流体介质作为干燥的热源，湿物料被分布到加热薄膜传送带上，形成物料薄层，传送带以设定速度运转，并保持与加热液体紧密贴合。通过辐射作用，加热介质的热量透过传送膜带进入湿物料，湿物料中的水分因此被加热蒸发。

随着干燥进行，物料水分含量逐渐减小至干燥终点，在干燥传送带末端再通过低温水冷却，有助于物料从传送带上移除，还可以减少温度对产品质量的影响。通过控制调节传送带的运行速度可调整干燥时间。

低温薄层干燥，通常以热流体作为加热介质（一般为水），热流体表面所覆盖的加热薄膜传送带是一种导热不良特殊薄膜材料，因此循环水的蒸发作用及热传导带来的热量的损失被大大减弱。当加热传送带上无湿物料时，薄膜可以将水辐射出的红外线反射回来，此时存在的只有热传导，热量散失极少；当湿物料置于此传送带上时，湿接触面类似于一个“折射窗”，“折射窗”开启让辐射热通过，此时热能同时以传导和辐射的方式传送到湿物料上，使湿物料中的水分蒸发。当物料干燥后，物料和薄膜之间的水膜变为空气薄层，空气膜较水膜产生较大的折射角，因此较易发生全反射，“折射窗”关闭，热能只能以传导的方式传送，由于加热传送带为热的不良导体，因此，避免了物料的过度加热和热量损失。物料在整个干燥过程温度与加热介质温度可保持稳定的温差（一般可稳定地控制在低于加热介质温度15~20℃的范围）。

采用薄层布料，水分脱出阻力小，同时在加热面上部空间设置抽风装置，使蒸发出水分可以及时移出，强化了脱水，因此在无需真空条件下即可达到较高的蒸发强度，满足干燥生产的要求。

Thin-layer drying system consist of feed and distributing system, heating and drying system, low temperature air exhausting system, cooling system and discharging system, and the composition principle is shown in the figure.

Thin-layer drying system use recycled heat fluid medium as heating source. Wet material is distributed on the conveyor film, form a thin layer of material. The conveyor film run at a set speed and keep in close fit with the heating liquid. By radiation, the thermal energy of the heating medium is transferred into the wet material through conveyor film, and water of the wet material is heated and evaporated.

During the drying, material's moisture content is gradually reduced till to the end of drying. At the end of the conveyor film, material be cooled though low temperature water. It helps material be removed from the conveyor film and it can reduce temperature's affect to product's quality. By controlling the running speed of the conveyor film, the drying time can be adjusted.

Thin-layer drying system, usually use hot fluid as heating medium (usually water), hot fluid surface be covered with the conveyor film which are made of a special material with poor heat conduction. So, circulating water's thermal energy loss is limited. When there is no wet material on the conveyor film, the thin film can reflect back the infrared which was radiated out by water. Because there is only heat conduction existing here and now, so thermal energy loss is very limited; when wet material is distributed on the conveyor film, the wet contacting surface is similar to a "refraction window". When "refraction window" open, the radiant thermal be allowed to pass through, at same time thermal energy be transferred to the wet material by means of conduction and radiation, the water of the wet material be evaporated. After material be dried, the water film which between material and thin film, becomes an air thin layer. The air film has a wider refraction angle than the water film, so it is easier for total reflection. When "refraction window" close, the thermal energy can only be transferred by conduction, because conveyor film is poor heat conduction, so it can avoid overheating and thermal energy loss. During the drying process, there are constantly temperature contrast between material and the heating medium (usually be stably controlled 15-20 ° C lower than the heating medium temperature).

Adopting thin layer distribution system, the moisture meet less resistance when escapes. At same time, air draft device be installed at the upper part of heating surface, in this way evaporated moisture can be removed in time, strengthen the dehydration, so even at atmospheric pressure, it can reach a larger evaporation capacity to meet the drying production requirement.

性能特点 PERFORMANCE FEATURE

主要性能参数 Main performance parameters

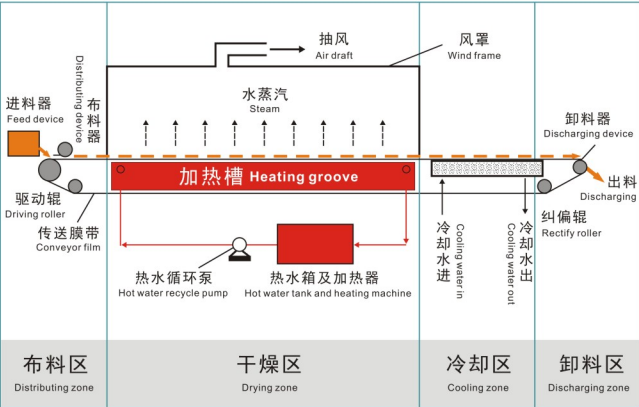
- | | | | |
|----------------------------------|--|---|--|
| ● 加热温度：50-95℃ | ● 加热介质：水 | ● 蒸发能力：3-10 kg /m ² h | ● 加热面积：6-50m ² 可选 |
| ● 布料厚度：1-5mm | ● 运行调控：自动控制 | ● 产品含水：3-8%可调 | |
| ● Heating temperature: 50-95 °C | ● Heating medium: water | ● Evaporation capacity: 3-10 kg /m ² h | ● Heating area: 6-50 m ² optional |
| ● Distribution thickness: 1-5 mm | ● Operation control: automatic control | ● Product moisture: 3-8% adjustable | |

特点与优势 Equipment and advantages

- 由于采用低温操作，并可有效控制物料温度，对于天然制品，可以较好地保持其色、香、味，得到高品质的最终产品，其产品品质与冷冻干燥产品品质基本相同。
- 由于无需真空系统，低温薄层干燥机具有结构简单，设备成本低，操作方便，运行维护费用低的特点。
- 低温操作，热损失低，热能利用率达75%以上，可利用多种能源。

- As for low temperature operation, material temperature can be controlled effectively, nature products' color, aroma and taste can be well kept, the final dried products' quality is very high. The dried products' quality is basically similar to freeze-dried products.
- Since it needn't vacuum system, Thin-layer drying system have features as follows: simple structure, low investment cost, easy to operate and low running & maintenance cost.
- Low temperature operation, low thermal energy loss, Thermal energy utilization rate of 75% or more, various energy resource can be utilized.

低温薄层干燥机工艺流程图
Thin-layer drying system flow chart



低温薄层干燥机与其他类型干燥机干燥性能比较

Drying characteristics comparison between Thin-layer drying system and other dryers

干燥器名称 Name of dryer	传热方式 Method of heat transfer	传热量 Capacity of heat transmission[W/(m²C)]
真空箱式干燥机 Vacuum oven	传导 Conduction	5-15
真空冷冻干燥机 Vacuum freeze dryer	传导 Conduction	10-15
双锥干燥机 Double cone dryer	传导/对流 Conduction/convection	20-50
流化床干燥机 Fluidized bed dryer	传导/对流 Conduction/convection	300-500
喷雾干燥机 Spray dryer	传导/对流 Conduction/convection	700-800
低温薄层干燥机 Thin-layer drying system	辐射/传导 Radiation/conduction	600-700

干燥方法 Drying method	蒸发能力 Capacity of evaporation(kg/h)	典型作业温度 Typical operation temperature(°C)	热效率 Thermal efficiency(%)
冷冻干燥 Freeze drying	非常低 Very low	~20	30-35
回转式烘干机 Rotary dryer	30-80m³	~175	25-50
喷雾干燥 Spray drying	1-30m³	80-120	20-50
桶式干燥 Drum drying	2-3m²	120-130	35-78
低温薄层干燥 Thin-layer drying	1-10m²	60-70	52-70

适用范围 APPLICATION SCOPE

低温薄层干燥机可广泛应用于食品、保健品、农副产品加工、医药、化工等行业的干燥生产。

蔬菜类：南瓜、胡萝卜、山药、紫山药、西红柿、紫薯等。

瓜果类：木瓜、枸杞、草莓、蓝莓、山莓、菠萝、芒果等。

糖类：普鲁兰多糖、β 葡聚糖等。

化工类：PVP、黄原胶等。

水产品及藻类：海带、蓝绿藻、深红球藻等。

Thin-layer drying system can be widely applied in food, health care products, agricultural products' processing, pharmaceutical, chemical and so on industries' drying production.

Vegetables: pumpkin, carrots, yam, purple yam, tomatoes, purple potato, and so on.

Fruits and vegetables: papaya, Chinese wolfberry, strawberry, blueberry, raspberry, pineapple, mango, and so on.

Sugar: pullulan polysaccharide, β glucan and so on.

Chemical material: PVP, xanthan gum, and so on.

Aquatic products and algae: kelp, blue-green algae, durum, and so on.

核心技术 CORE TECHNOLOGY

低温薄层干燥技术 Low temperature thin layer drying technology

- 中国专利：“低温薄层干燥机”ZL 2015 2 0801797.5
- Chinese patent: “Thin-layer drying system”ZL 2015 2 0801797.5

物料薄层布料技术 Raw material thin layer distributing technology

- 独有的薄层布料技术及装置, 可实现物料1-5mm厚度的均匀、连续、稳定地布料。
- Unique thin layer distributing technology and device, can achieve that material be uniformly, continuously, stably distributed to 1-5mm thickness.

加热膜带连接技术 Conveyor film joint technology

膜带可长时间稳定运行 The conveyor film can run stably in long time

- 独特的膜带连接技术及专用装置，可保证膜带连接部位的机械强度、密封性能及尺寸稳定性。
- Unique conveyor film joint technology and dedicated device, can guarantee mechanic intensity, seal performance and size stability of conveyor film's jointed part.

设备型号 EQUIPMENT SPECIFICATION

型号	换热面积	加热区数	外形尺寸	蒸发能力
Model	Heating area	Heating zone	Outline dimension	Evaporation capacity
	m²		m	kg / m³h
MJB CD-6	6	1	6.72×2.1×2	15-30
MJB CD-12	12	2	10.83×2.1×2	30-60
MJB CD-18	18	3	14.93×2.1×2	40-100
MJB CD-24	24	4	19.03×2.1×2	50-120
MJB CD-30	30	5	23.13×2.1×2	70-150

应用实例 APPLICATION CASES

典型应用实例—胡萝卜干燥

料浆中的水分：89.4%

加热温度：95℃

干燥时间：75分钟

产品干燥失重：5.9%

蒸发率：4.5-6.0 kg / m³h

Typical application case — carrot drying

Moisture content in the paste: 89.4%

Heating temperature: 95 °C

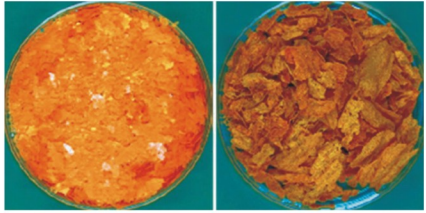
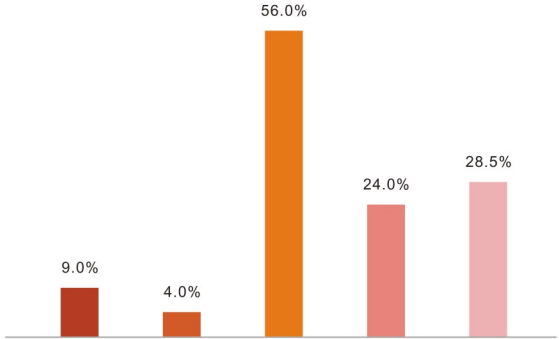
Drying time: 75 minutes

Weight loss of dried product: 5.9%

Water evaporation rate: 4.5-6.0kg / m³h

胡萝卜素损失率

The loss rate of carrot



低温薄层干燥机

Thin-layer drying system

转筒干燥机

Rotary dryer



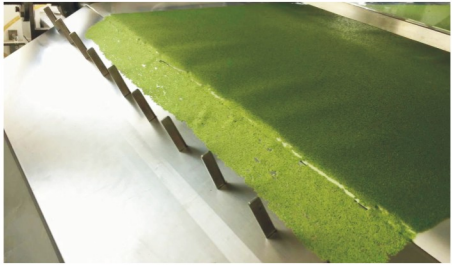
葡萄干燥

Grape drying



南瓜干燥

Pumpkin drying



黄瓜干燥

Cucumber drying



草莓干燥

Strawberry drying



哈密瓜干燥

Hami melon drying



牛奶干燥

Milk drying



鳄梨干燥

Avocado drying



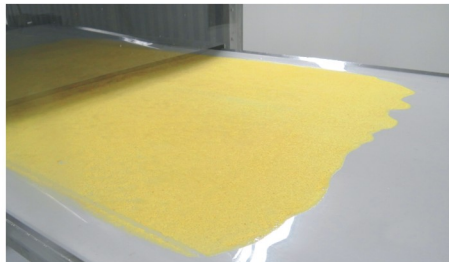
山莓干燥

Raspberry drying



菠菜干燥

Spinach drying



菠萝干燥

Pineapple drying



枸杞干燥

Wolfberry drying



山药干燥

Yam drying

气流速热灭菌机

AIRFLOW INSTANTANEOUSLY HEATING STERILIZER

我司通过三年的努力，成功开发了气流速热灭菌机。本设备的成功开发解决了中药、食品、保健品等行业粉末颗粒灭菌工艺难题。

Through three years' effort, we successfully developed airflow instantaneously heating sterilizer, which solves powder & granule material's sterilization process problems in traditional Chinese medicine, food & healthcare, and so on industries.



工作原理 WORKING PRINCIPLE

采用过热蒸气通过辅助加热，把气体温度提高到180℃以上，通过蒸气压力同时输送粉粒产品，在4秒的时间内完成灭菌，再通过气粉分离进入冷却区，完成冷却后分离出料。

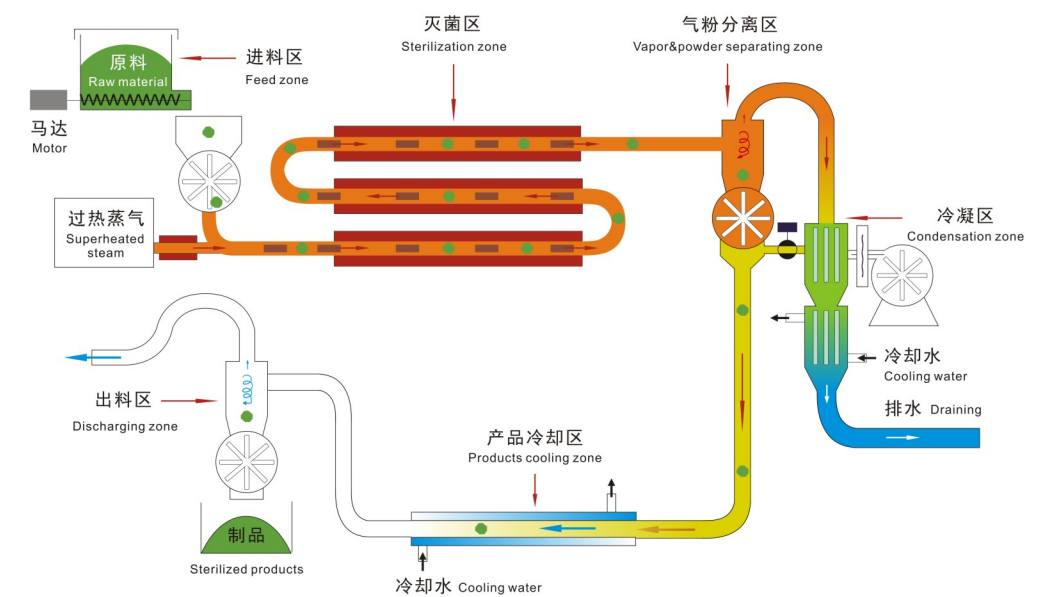
Adopting superheated steam as auxiliary heating media, raising the temperature of air to over180℃, at the same time, powder and granule material be transported by steam pressure. The sterilizing process is finished in 4 seconds, then through vapor powder separation into cooling zone. After cooling, the material will be separated with air, then discharged.

主要配置 MAIN CONFIGURATION

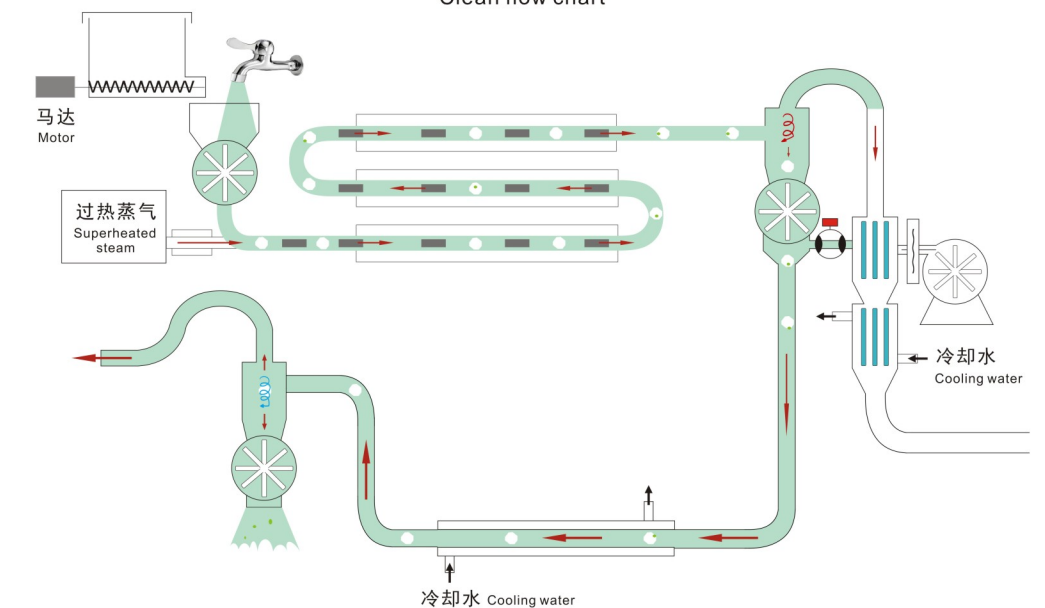
气流速热灭菌机由连续进料系统、加热灭菌系统、气粉分离系统、产品冷却系统、连续出料系统、自动清洗系统、自动控制系统组成。

Airflow instantaneously heating sterilizer consist of continuous feeding system, heating sterilization system, vapor & powder separating system, cooling system, continuous discharging system, automatic cleaning system, automatic controlling system.

工艺流程图
Process flow sheet



清洗流程图
Clean flow chart



灭菌过程简单，时间短，无残留，有效成分损失率小于2%，灭菌指标生物菌总数每克300个以下，由于压力、温度等各种处理条件可以任意调整，所以灭菌范围广泛，适用于各种粉粒状物料的杀菌。

Simple & instantaneous sterilization process, no residue, the loss rate of effective component is lower than 2%, sterilization indicator- the total number of biological bacteria per gram is less than 300. Due to pressure, temperature and every treatment condition can be freely adjusted, so the sterilization application is very wide, can be applied to various powder & granule material's sterilization.

灭菌测试数据STERILIZATION TEST DATA

[叶茎类] [leaf & roots]	灭菌处理条件 Sterilization treatment condition	处理前 Before sterilization treatment		处理后 After sterilization treatment	
	原料供给速度 Feeding speed of material	一般生菌数 Number of bacteria	大肠菌群数 Number of coliform bacteria	一般生菌数 Number of bacteria	大肠菌群数 Number of coliform bacteria
	kg/hr	个/g	个/g	个/g	
大麦若叶 Barley leaf	50-75	7.5×10 ⁴	1.3×10 ²	<300	阴性 Negative
抹茶 Matcha	60	3.0×10 ³	5.6×10 ²		阴性 Negative
台湾黄麻 Taiwan jute	40	7.0×10 ⁴	阳性 Positive		阴性 Negative
[谷类豆类] [Cereals legumes]					
米粉 Rice powder	100	1.0×10 ⁴	阴性 Negative	<300	阴性 Negative
全脂米糠 Rice Bran	130	1.5×10 ⁶	阳性 Positive		阴性 Negative
大豆类 Soybean	100	1.0×10 ⁴	阴性 Negative		阴性 Negative
[菌菇类] [Mushrooms]					
猴头菌 Hericium erinaceus	50	1.0×10 ⁴	阴性 Negative	<300	阴性 Negative
[菜根类] [Root &vegetable]					
生姜 Ginger	50	1.0×10 ³⁻⁵	阳性 Positive	<300	阴性 Negative
玛卡 Maca	70	9.0×10 ⁴	1.5×10 ²		阴性 Negative
[海藻类] [Seaweed]					
石莼 Ulva lactuca L	60	7.8×10 ³	阴性 Negative	<300	阴性 Negative
螺旋藻 Spirulina	60	5.0×10 ⁴	阴性 Negative		阴性 Negative
[鱼介类] [Fish]					
鳀节粉末 Bonito stick powder	200	2.0×10 ⁴	阴性 Negative	<300	阴性 Negative
鳀节粒 Bonito stick granule	220	2.7×10 ⁵	阴性 Negative		阴性 Negative

产品规格PRODUCT SPECIFICATIONS

主要材质 Main material		不锈钢 SS 304	
尺寸 Size *1		mm	3500W×800D×2300H
重量 Weight		kg	1800
实用量 Real consumption	电源 Power source	kw	3φ×AC200V×25KW
	蒸汽 Steam *2	kg/hr	100(0.2MPa)-150(0.3MPa) 洗净时 after cleaning 200
	空气 Air	NL/min	20L
	冷却水(冷却塔水) Cooling water(cooling tower water)	L/min	200
能力 Capacity *3	产品处理量 Material treatment capacity	kg/hr	50-200
	加热温度 Heating temperature	℃	140-200
	加热时间 Heating time	sec	4-8
	冷却后产品温度 Material's temperature after cooling	℃	30-40
附带设备 Auxiliary *4	控制柜（电源、程序编辑器）Control cabinet(power source、program editor) 1200W×300D×900H 组合combination		
	控制柜（触摸屏）Control cabinet(touch screen) 500W×200D×400H 组合combination		
	蒸汽*5（用户提供）Steam*5（provided by user）900W×900D×1980H 单独型 solitary		
	冷却水*5（用户提供）Cooling water *5（provided by user）风扇 electric fan:0.2kw、泵 pump：2.2kw		

- *1 尺寸、重量根据加料装置以及回收方式的不同有区别。所表示尺寸，仅仅是除去供给装置的机器本身的尺寸。
- *2 加热管部是第二种压力容器。
- *3 处理量、加热温度、加热时间根据材料、物性不同会有区别。
- *4 控制柜以及触摸屏作为标准规格组合在设备中。不同规格根据实际情况确定。
- *5 蒸汽、冷却水由用户提供。
- *6 以上参数产量在50-150公斤/时，规格、大小、产量根据不同型号确定。

- *1 Size and weight will be different with different method of feed device and the recycle method. This size is the machine's size except feed device.
- *2 Heating pipe part is class II pressure vessel.
- *3 Treatment's capacity, heating temperature and heating time is different according to different material and physical property.
- *4 Control cabinet and touch screen will be installed in the equipment as standard unit. Various standard's confirmation depends on the reality.
- *5 Steam and cooling water are supplied by users.
- *6 When the above capacity is 50-150kg/hr, the specification, size and capacity will be ascertained according to different models.

技术参数TECHNOLOGY PARAMETER

- 加热灭菌温度：180℃
- 灭菌产量：50-150公斤/小时
- 装机功率：25kw
- 蒸汽消耗：200公斤/小时
- 冷却水消耗：10吨/小时
- 压缩空气消耗：20升/分钟
- 外形尺寸：根据不同型号确定

- Heating sterilization temperature：180℃
- Sterilization capacity：50-150kg/hr
- Installed power：25kw
- Steam consumption：200kg/hr
- Cooling water consumption：10ton/hr
- Compressed-air consumption：20L/min
- Size：be ascertained according to different models



超低温真空浓缩机

VACUUM LOW-TEMPERATURE EVAPORATOR

超低温真空浓缩机是公司近几年开发的一款新型低温浓缩设备，通过高真空从而降低物料的蒸发温度，在蒸发器内部设计了旋转辊筒，蒸发器底部和辊筒内部采用热水加热，通过辊筒不断旋转，增加了设备的蒸发面积和蒸发能力，形成薄膜蒸发原理，当物料不断接触旋转的辊筒表面而受热蒸发，并实现了真空条件下连续进原料，连续出浓液的浓缩过程。本设备的成功开发彻底改变了传统浓缩工艺出现的温度高、时间长、物料易变性、浓缩过程容易结垢干涸、物料浓度提高后流动性差无法浓缩等现象，由于低温，极大地保存了物料的有效活性成分。

Vacuum low-temperature evaporator is new concentrating equipment developed by our company. It realizes low temperature evaporation through high vacuum degree. There is a spinning roller inside the evaporator. Hot water is used to heat the bottom of the evaporator and the spinning roller. Continuous spinning of the roller increases evaporation area and speed, resulting in thin film evaporation. By continuous contact with the surface of the spinning roller, the raw thin material is heated to evaporate. From feed to discharge, the whole concentration process is continuous under vacuum state. Vacuum low temperature evaporator conquers many problems met by traditional evaporator, such as, high concentrating temperature, long concentrating time, denaturation of raw material, easy scale formation during concentration, poor fluidity after concentration and no further concentration. Because of the low evaporation temperature in our equipment, active ingredients of the raw material are kept.

设备优点 EQUIPMENT ADVANTAGE

- 真空条件下实现连续进料、连续出料
 - 浓缩工艺实现管道化、连续化、自动化
 - 超低温的蒸发保存了产品有效成分
 - 工艺温度在（20-50℃）可调
 - 物料浓度在有流动性的条件下不受限制
 - 在线浓度监测，到时自动排料
 - 在线自动清洗，速度快、无死角、清洗彻底
 - 运行过程中可回收各种溶剂
 - 整套设备符合GMP要求
- Continuous feed and discharge under vacuum state
 - Automatic, continuous, closed process
 - Protection of active ingredients of raw material under low temperature
 - Adjustable concentration temperature (20-50℃)
 - No limitation of density, as long as with fluidity
 - Online density monitor, automatic discharge of finished materials
 - CIP system, quick & thorough cleaning, no dead corner
 - Solvents recycling
 - GMP Standards

适用范围 APPLICATION SCOPE

主要适用于制药、食品、化工行业的低浓度、热敏性的液体物料，要求在低温（20-50℃）条件下浓缩。
例如：果汁、奶制品、速溶茶、中药原料、发酵液、乳酸菌、蛋白酶、植物提取液、生物制品等。

Suitable for thin, heat-sensitive liquid material that requires low temperature (20-50℃) in pharmaceutical, food, chemical industries.
such as: Fruit juice, milk products, instant tea liquid, Chinese traditional medicine raw material, fermentation broth, lactic acid bacteria, protease, plant extract, biological products, etc.



设备型号 EQUIPMENT SPECIFICATION

型号	换热面积	蒸发能力	工作真空	加热介质	蒸发温度	浓缩比重	主机功率	设备重量	外形尺寸
Model	Heating area	Evaporation capacity	Vacuum degree	Heating resource	Evaporation temperature	Density before concentration	Dryer body power	Weight	Outline dimension
	m²	kg/h	MPa		℃		kw	kg	m
MJ-NS-3	3	60-100	-0.098	热水 Hot water	20-50 可调 Adjustable	只要有流动性, 浓缩比不受限制 With fluidity, density not restricted	3.9	1500	3.8×1×3.6
MJ-NS-5	5	150-200					5.2	2200	5.2×1×4.2
MJ-NS-10	10	300-400					6	3000	6.5×1.2×4.2
MJ-NS-15	15	500-600					8.5	3800	6.5×1.2×4.5
MJ-NS-20	20	600-800					11	5000	6.5×1.4×4.6

注：1. 规格中的3、5、10、15、20代表加热面积，工作温度20-50℃根据用户要求可调。3、5、10、15、20 stands for heating area in the specifications , working temperature can be adjusted 20-50℃ per clients' requirement. 2. 上述用电功率不包括真空机组、冷水机组、热水泵等。The power consumption listed above do not include the vacuum units, water chilling unit, hot water pump.

超细粉碎机

FINE CRUSHER

- 进料装置与锤式粉碎设备无尘密封，独立电气控制
 - 具备冷却装置，解决生产过程升温现象
 - 根据需要，本设备既可粉碎，也可干法制粒
 - 根据要求能做到防水、防尘和防爆的选项
 - Feed Device is dust free sealed with hammer type crushing equipment, independent electrical control
 - Rotor and screen mesh can be easily taken down and installed through front cover
 - Equipped with cooling device, solving heating up problem during producing
 - Easy operated control board, controlling rotor speed and dosing device
 - Crushing or dry granulating according to clients' requirement
 - Fast lock connection, easy to take apart and clean
 - Waterproof, dustproof or explosionproof according to clients' requirement
 - Made of SUS304
- 通过前盖可以快速方便拆装转子与筛网
 - 易于操作的控制台，用于控制转子转速与定量装置
 - 快卡连接，方便拆卸清洗
 - 设备材质全部采用304不锈钢制造



设备优点 EQUIPMENT ADVANTAGE

- 灵活的模块化设计
 - 高转速、高效率、高产量
 - 物料不会在外壳上粘附，清洗方便
 - 低噪音，达到环保的要求
 - 适用于各种食品、药品、化工原料的粉碎式制粒
 - 转子有粉碎刀和制粒刀两种工作方式可选
 - 热保护措施，操作安全性高
- Flexible modular design
 - High rotating speed, high efficiency,high output
 - No product sticky on shell, easy to clean
 - Low noise, environment friendly
 - For food, medicine, chemical products crushing or granulating
 - Two working models to be chosen for rotor:crushing blade and granulating blade
 - Heat protection, safe

适用范围 APPLICATION SCOPE

广泛适用于制药、食品、化工等行业，特别适用于处理硬块、结晶块和纤维状的物料。
Pharmaceutical,food, chemical and so on industries, especially for products of gelosis, ingots or threadiness form.



设备型号 EQUIPMENT SPECIFICATION

设备规格	产品目数	产量	用电功率	设备重量
Model	Mesh	Output	Power	Weight
	目/mesh	公斤/kg	千瓦/kw	公斤/kg
MJFS-320	20-120	100-300	5.5	800
MJFS-500	20-120	200-500	7.5	1400

实干创新的技术团队

PRACTICAL & INNOVATIVE TECHNICAL TEAM



生产现场

PRODUCTION SITE



优质的干燥成品

HIGH QUALITY DRY PRODUCTS



战略合作伙伴

STRATEGIC PARTNERS

凝聚20年案例经验，与500多家国内外知名企业保持着长期合作。

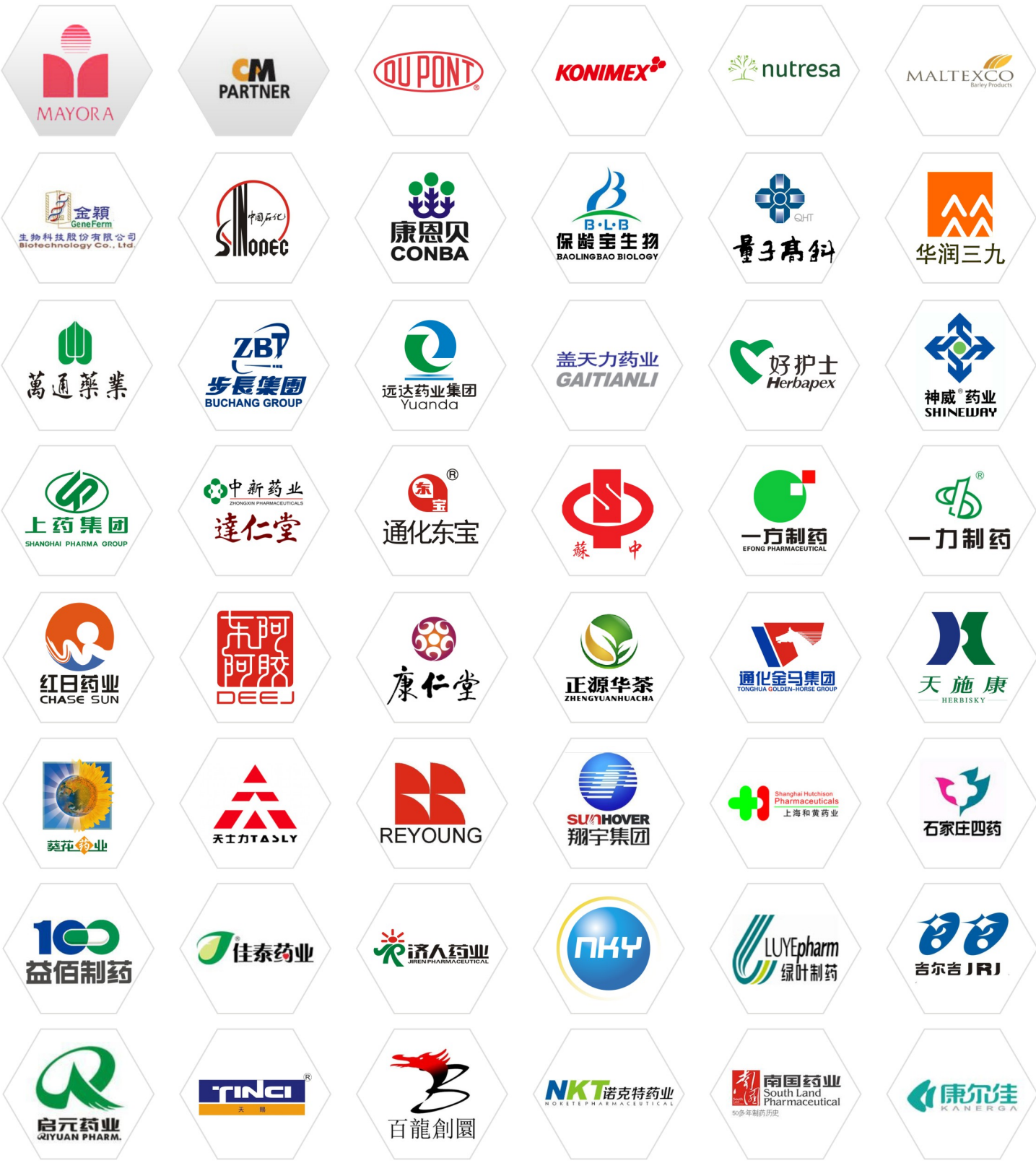
20years experience , maintain long term business cooperation relationship with more than 500 famous enterprises at home and abroad.

部分客户列表（排名不分先后）
List of some clients (In a random list order)

印尼PT.MAYORA INDAH TBK公司
PT.MAYORA INDAH TBK (ID)
韩国CM Partner公司
CM Partner (SOUTH KOREA)
哥伦比亚Nutresa集团
COLOMBIA Nutresa Group
智利Maltexco S.A.公司
Maltexco S.A. (CHILE)
杜邦（北京）丹尼斯克有限公司
Dupont (Beijing) Co.,Ltd
台湾金颖生物科技有限公司
GeneFerm Biotechnology Co.,Ltd
中石化集团
Sinopec
黑龙江葵花药业集团
Sunflower Pharmaceutical Group
康恩贝集团
Conba Group
吉林万通药业集团
Jilin Wantong Pharmaceutical Group
天津士力制药集团
Tianjin Tasly Pharmaceutical Group
山东保龄宝集团
Shandong Baolingbao Group
广东量子高科集团
Guangdong Quantum Hi-Tech Group
步长制药集团
Buchang Pharmaceutical Group
广东正源华茶集团
Guangdong Authentea Group
华润三九药业
CR Sanjiu Pharmaceutical
远达药业集团
Yuanda Pharmaceutical Group
江西天施康药业有限公司
Jiangxi Herbisky Pharmacy Co.,Ltd
启东盖天力药业有限公司
Gai Tian Li Pharmaceutical Co.,Ltd

通化金马药业集团
Tonghua Golden-horse Group
北京康仁堂药业有限公司
Beijing Tcmages Pharmaceutical Co.,Ltd
苏中药业集团股份有限公司
SZYY Group Pharmaceutical Limited
通化东宝药业股份有限公司
Tonghua Dongbao pharmaceutical Co.,Ltd
博爱新开源制药股份有限公司
BOAI NKY Pharmaceuticals Ltd
湖北孝昌诺克特药业有限公司
Hubei Nuokete Pharmaceutical Co.,Ltd
云南麦瑞科生物科技有限公司
Yunnan Mairuike Biopharmaceutical Co.,Ltd
山东翔宇健康制药有限公司
Shandong Sunhover pharmaceutical Co.,Ltd
广东广发制药有限公司
Guangdong GF Pharmaceutical Co., Ltd
安徽济人药业有限公司
Jiren Pharmaceutical Co.,Ltd
天津中新药业集团股份有限公司达仁堂制药厂
Tianjin Darentang Pharmaceutical Factory
上海和黄药业有限公司
Shanghai Hutchison Pharmaceuticals Co.,Ltd
辽宁好护士药业有限公司
Liaoning Herbapex Pharmaceutical Co.,Ltd
安徽绿叶制药有限公司
Anhui Luye Pharmaceutical Co.,Ltd
山东瑞阳制药股份有限公司
Shandong Reyoung Pharmaceutical Co.,Ltd
新疆康元生物科技股份有限公司
Xinjiang Kangyuan Biotechnology Co.,Ltd
四川广汉西城生化有限公司
Guanghan Xicheng Biochemistry Co.,Ltd
云浮市新金山生物科技有限公司
New Francisco Biotechnology Corporation
山东京博农化有限公司
Jingbo Agrochemicals Technology Co.,Ltd

天津红日药业股份有限公司
Tianjin Chase Sun pharmaceutical Co.,Ltd
广东一力罗定制药有限公司
Guangdong Yili Luoding Pharmaceutical Co.,Ltd
广东泰和制药有限公司
Guangdong Taihe Pharmaceutical Co.,Ltd
江西杏林白马药业有限公司
Xinglin Baima Pharmaceutical Co.,Ltd
广东一方制药有限公司
Guangdong Efong Pharmaceutical Co.,Ltd
河北神威医药科技股份有限公司
Hebei Shineway Pharmaceutical Co.,Ltd
广东南国制药有限公司
South Land Pharmaceutical Co.,Ltd
贵州益佰女子大药厂有限责任公司
Guizhou Yibai Pharmaceutical Co.,Ltd
陕西华光实业有限公司
Jinduicheng Molybdenum Group Co.,Ltd
广西百琪药业集团有限公司
Guangxi Baiqi Pharmaceutical Group Co.,Ltd
石家庄东方药业有限公司
Shijiazhuang East Pharmaceutical Co., Ltd
广东九和制药有限公司
Guangdong Jiuhe Pharmaceutical Co.,Ltd
贵州太和制药有限公司
Guizhou Taihe Pharmaceutical Co.,Ltd
江西心正药业有限责任公司
Jiangxi Xinzheng Pharmaceutical Co.,Ltd
深圳佳泰药业股份有限公司
Shenzhen Jiatai Pharmaceutical Co.,Ltd
上虞颖泰精细化工有限公司
Shangyu Yingtai Fine Chemical Co.,Ltd
东阿阿胶股份有限公司
DEEJ Co.,Ltd
宁夏启元国药有限公司
Ningxia Qiyuan Pharmaceutical Co.,Ltd
广东台城制药股份有限公司
Guangdong Taicheng Pharmaceutical Co.,Ltd



部分工程现场

SOME PROJECT SITES



广东量子高科集团
Guangdong Quantum Hi-Tech Group



印尼PT.MAYORA INDAH TBK公司
PT.MAYORA INDAH TBK (ID)



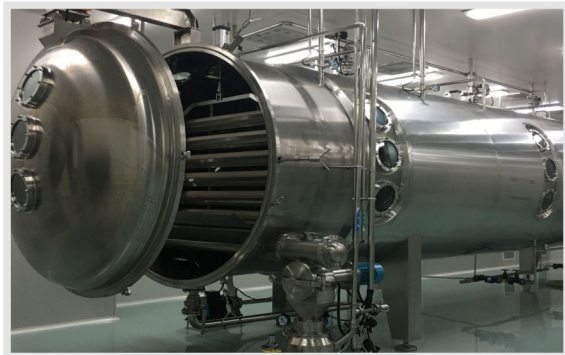
哥伦比亚Nutresa集团
COLOMBIA Nutresa Group



黑龙江葵花药业集团
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山东保龄宝集团
Shandong Baolingbao Group



华润三九药业
CR Sanjiu Pharmaceutical



康恩贝集团
Conba Group



中石化集团
Sinopec



天津天士力制药集团
Tianjin Tasly Pharmaceutical Group



吉林万通药业集团
Jilin Wantong Pharmaceutical Group