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全自动实验型生产线

FULLY-AUTOMATIC PILOT PRODUCTION LINE

01

产线概述 Overview of the production line

该小试产线主要由热水罐、化料系统、杀菌系统、均质机、发酵系统、无菌灌装机、操作平台、全自动 PLC 控制系统组成。该系统应用于无蒸汽锅炉、无水处理时，实验室内可安装使用小型饮料、发酵、杀菌、灌装的试验设备；主要应用于饮料配方测试——饮料配料、杀菌、无菌灌装；酸奶高温短时发酵试验（活菌性）——配料、杀菌、发酵、降温、灌装、0-5℃储存；纯调配或发酵后调配灭菌型乳酸菌饮料：配料、杀菌、灌装；果蔬汁发酵类活菌饮料、发酵后调配灭菌类饮料实验。系统配备主机为：三联体配料处理系统——顶部高速剪切配料罐及出料系统；热水罐及供应、循环系统；发酵罐系统；杀菌、均质、灌装系统——无菌灌装工作台、微型均质机、实验型杀菌机；外围动力系统——空压系统一套、冰水一套；控制记录系统一套；

处理量：20L/H、50L/H、100L/H。

The small trial line mainly includes hot water tank, ingredients dissolving system, sterilization system, homogenizer, fermentation system, aseptic filling machine, operation platform, and automatic PLC control system. When the system is used in steam-free boilers and water-free treatment, the experimental equipment for small-scale beverages, fermentation, sterilization, and filling. It is mainly used for beverage formula test - beverage ingredients, sterilization, and aseptic filling. High temperature and short-time fermentation test on yogurt (probiotic) —— ingredients, sterilization, fermentation, cooling, filling, 0-5°C storage. Pure blending or sterilized lactobacillus drinks after fermentation: ingredients, sterilization, filling; live bacterial beverages fermented series from fruit and vegetable juice, experiments on blended and sterilized drinks after fermentation. The system is equipped with the host: triplet ingredient processing system —— the top high-speed shear dissolving tank and the discharge system; the hot water tank and water supply, circulation system; fermentation tank system; sterilization, homogenization, filling system – working table for aseptic filling, micro homogenizer, experimental sterilization machine; peripheral power system -- one set of compressed air system, one set of ice water; one set of controller record system; processing capacity: 20L/H.50L/H.100L/H.

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应用领域 Application field

饮料配方、工艺、风味测试：配料、杀菌、均质工艺测试，无菌常温灌装、高温灌装产品保质期、风味测试等；根据研发要求确定配料顺序、温度、搅拌乳化时间，配料后风味测试；确定均质温度、压力、杀菌温度、时间、灌装温度及后续处理方式等；使用前对配料罐及出料管道进行清洗；对杀菌机及灌装机进行必要的清洗、消毒；对配料工艺及温度进行控制；对物料杀菌、灌装进行必要记录及监控；

Beverage formula, process, and flavor testing: ingredients, sterilization, homogenization process test, aseptic filling at room temperature, product shelf life for high temperature filling product, taste test, etc. According to research and development requirements to determine the order of ingredients, temperature, stirring emulsification time, flavor test after proportioning ingredients. Determine homogenization temperature, pressure, sterilization temperature, time, filling temperature and subsequent processing mode etc.; Clean the dosing tank and product discharge pipe before use; Necessary cleaning and disinfection are carried on sterilization machine and filling machine; control the dosing process and temperature of the ingredients; necessary records and monitors on product sterilization and filling;

发酵酸奶、果蔬汁发酵活菌性饮料试机：根据研发要求确定配料表，准备菌种等；配料罐、发酵罐、杀菌机进行清洗消毒；进行配料——对发酵罐进料 + 配料进行 95-98℃300S 杀菌处理，进料——接种——保温或非保温发酵 + 配料罐自循环清洗——对出料管道进行消毒 + 冷却终止发酵——灌装 + 冷藏；

Testing machine for probiotic drinks fermented from yogurt, fruit and vegetable juices: according to the research and development requirements to determine the list of ingredients, prepare strains, etc. Carry out washing and disinfection of ingredients dosing tank, fermentation tank, sterilization machine. Perform ingredients dosing -- feed the fermentation tank + sterilization treatment of ingredients at 95-98°C for 300S; feed -- inoculating strain -- insulated or non-insulated fermentation + self-circulated cleaning of the ingredient dosing tank -- disinfect the product discharge pipe + cooling to end fermentation -- filling + refrigeration;

发酵酸奶、果蔬汁发酵后配料的非活菌饮料试机：用发酵原料及其他辅料进行配料——无菌杀菌机及灌装室使用前清洗杀菌——杀菌灌装；

Testing machine for non-probiotic drinks fermented from yogurt, fruit and vegetable juices: mix the fermented raw materials and other auxiliary materials for batching - wash and clean sterile sterilizer and filling room before use – sterilization and filling.

工厂学校教学、培训等；

Factory/School teaching and training;

03

产线特点 Characteristics of Production Line

●一体化设计，整体紧凑，节约空间，体积小，可灵活移动；

Integrated design, compact, save space, small in size, can move flexibly;

●设备系统内置热水发生器，根据需要可同后均质、无菌充填相连；

The equipment system has a built-in hot water generator and can be connected to post-homogenization and aseptic filling as needed;

●各种数据记录及可实现打印，在线纪录、下载、自动生成曲线分析并永久保存；

It can record various data and implement printing, online recording, downloading, generate curve analysis and permanently save the data.

●适应各种小量实验要求，最小投料量为 20KG 左右；

It can meet the requirements of various small-scale experiments with a minimum feeding amount of around 20 kg.

●实验数据记录完善，利于指导下试和规模化生产；同时可以作为小规模加工和教学使用；

The complete experimental data recording is conducive to guiding pilot and large-scale production, as well as it can be used for small-scale processing and teaching purpose.

●自动化程度高，操作简单，易于掌握；

High degree of automation, simple operation, easy to master;

●公共能源配置要求低；

Low requirements for public energy configuration.

●灭菌温度严格控制，当灭菌温度低于设定下限，计时器将终止计时并复位，严格保证设备灭菌效果；

The sterilization temperature is strictly controlled. When sterilization temperature is lower than the set lower limit, the timer will stop counting and reset to strictly ensure the sterilization effects of equipment



04 设备供应 Equipment supply

实验型杀菌机 Experimental sterilizer



T 杀菌机类型 Type of sterilization machine

- 1/ 列管式 UHT 杀菌机 ; Tubular UHT Sterilizer
- 2/ 蒸汽直喷式 Injection 杀菌机 ; Steam direct Injection Sterilizer

A 应用范围 Application scope

本装备适用于：无需蒸汽锅炉、无需水处理，实验室内可安装使用小型试验设备，主要应用于饮料配方测试；适用物料：酸性饮料、中性饮料、植物蛋白饮料、凉茶类、乳酸菌饮料、果汁饮料、乳品（纯牛奶和甜牛奶）等。

This equipment is suitable for: No needs for steam boiler and water treatment, the small-scale testing equipment can be installed and used in the laboratory. It is mainly used for beverage formula testing; applicable materials: acidic beverages, neutral beverages, plant protein beverages, herbal tea, sour milk beverages, fruit juice beverages, and dairy products (pure milk and sweet milk), etc.

工艺一：25°C进料→65°C均质→95°C杀菌（300s）→42°C出料；
Process 1: 25°C inlet→65°C Homogenize→95°C Sterilize(300s) →42°C outlet

工艺二：25°C进料→65°C均质→142°C杀菌（5/10/15s）→4~25°C出料；
Process 2: 25°C inlet→65°C Homogenize→142°C Sterilize(5/10/15s) →4~25°C outlet

P 生产能力 Processing capacity

处理量：20L/H、50L/H、100L/H；
Processing capacity: 20L/H、50L/H、100L/H

E 设备组成及应用原理 Equipment composition and application principle

设备组成：实验型杀菌系统包括机架、换热器、管路系统、平衡桶、物料泵、热水系统、控制系统等。

Equipment composition: The experimental sterilization system including frame, heat exchanger, piping system, balance tank, product pump, hot water system, control system, etc.

应用原理：由前道设备供应原料至平衡桶；通过物料泵将物料送至预热段进行加热；然后物料沿着管路流经均质机；均质后进入杀菌段，加热至杀菌温度并保温 5S/10S/15S/300S（可根据工艺选择相应杀菌时间）；杀菌后的物料沿管路经过自来水降温段、冰水降温段降低至出料温度并出料，去往下道工序。

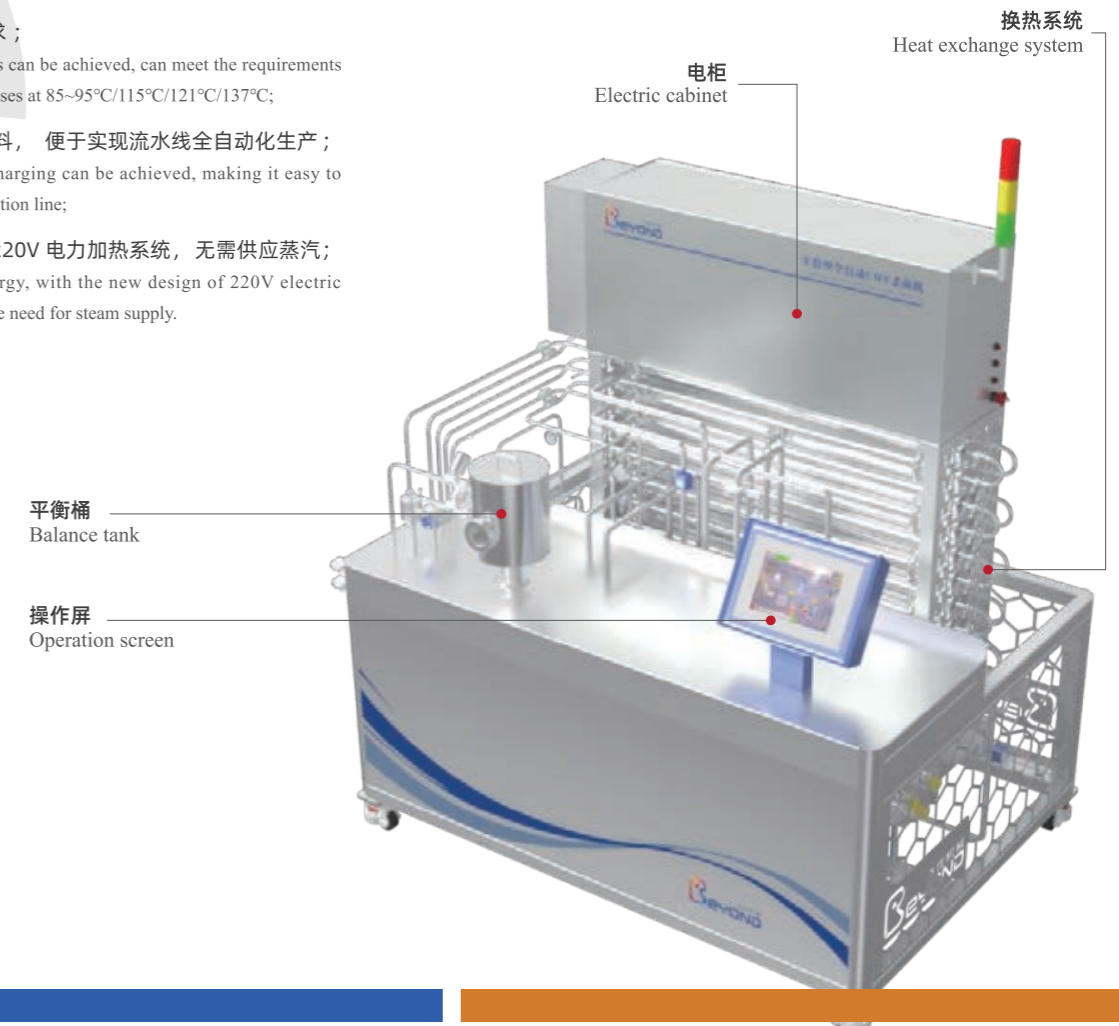
Application principle: The raw product is supplied from the front equipment to the balance barrel; the product is sent to the preheating section by the product pump for heating; then the product materials flow through the homogenizer along the pipeline; it enters the sterilization section after homogenization, heated to the sterilization temperature and holding temperature for 5S/10S/15S/300S (depending on the process, the appropriate sterilization time can be selected); After sterilization, the product material passes through the tap water cooling section and the ice water cooling section along the pipeline to be cooled down to the discharge temperature and then discharged to the next process.

E 设备优点 Equipment Advantages

- 适用物料广泛；
Wide applications to different materials;
- 杀菌机换热器可实现快速拆装，以快速减少或增加换热面积，适应不同工艺温度的要求，大大提高设备灵活性。同时快装式的设计使得保养和维修变得简单；
The heat exchanger of sterilization machine can be quickly disassembled and assembled, allowing for quick reduce or increase the heat exchange areas and adapting to different process temperature requirements, greatly improving equipment flexibility. The quick-install design also makes maintenance and repair simple;
- 一体化保温设计使得换热器热损失大大降低，提高换热效率；
Integrated insulation design greatly reduces heat loss in the heat exchanger and improves heat exchange efficiency;
- 微型均质机的均质压力：25mpa/40mpa/60mpa 可供选择；
Micro homogenizer pressure options include 25mpa/40mpa/60mpa;
- 可实现多种杀菌工艺：可满足 85~95°C/115°C/121°C /137°C多种杀菌工艺要求；
Various sterilization processes can be achieved, can meet the requirements of multiple sterilization processes at 85~95°C/115°C/121°C/137°C;
- 能够实现自动加料，排料，便于实现流水线全自动化生产；
Automatic feeding and discharging can be achieved, making it easy to realize fully automated production line;
- 公共能源需求低，首创 220V 电力加热系统，无需供应蒸汽；
Low demand for public energy, with the new design of 220V electric heating system, eliminating the need for steam supply.

D 设计标准 Design Standards

- 物料接触部分采用食品级 S31603 不锈钢；
The parts in contact with product materials are made of food-grade S31603 stainless steel;
- 平衡桶内外表面 320 目镜面抛光；
The inner and outer surfaces of the balance tank are polished to 320 mesh mirror finish;
- 所有不锈钢管均采用无缝不锈钢 BA 管；
All stainless steel pipes are made of seamless stainless steel BA pipes;
- 德国进口温控系统；
The temperature control system is imported from Germany;
- 西门子 PLC；Siemens PLC；
- 一线国产品牌阀门；
The valves are made by first-tier domestic brand;
- 杀菌精度 $\leq \pm 1^\circ\text{C}$ ；The sterilization accuracy is $\leq \pm 1^\circ\text{C}$.



C 配置表
 Configuration Table

云逸 -23 款 - 自动型配置表
 YunYi-23 Automatic Type Configuration Table

产能 L/H Capacity	20/50	接液材质 Liquid Contact Material	S31603
尺寸 mm Sizes	1800*1300*1850	卫生等级 Sanitary grade	食品级 Food grade
重量 kg Weight	700	水 Water	自来水、2°C冰水、软水 Tap water, 2°C ice water, soft water
电 Electricity	220V 50Hz 单相 220V 50Hz single phase	压缩空气 Compressed air	6bar
蒸汽 Steam	○	低液位保护 Low liquid level protection	●
自动进料 Automatic feeding	●	远程监控 Remote monitoring	●
杀菌温度自控 Sterilization temperature self-control	●	自动补水 Automatic water replenishing	●
保温时间切换 Insulation time switching	●	流量计 Flow meter:	进口电磁流量计 Imported electromagnetic flowmeter
出料温度自控 Discharge temperature self-control	●	物料泵 Product material pump	螺杆计量泵 Screw metering pump
均质温度显示 Homogenization temperature display	●	阀门 Valves	一线国内品牌 Domestic first-level brand
杀菌温度显示 Sterilization temperature display	●	温度传感器 Temperature sensor	德国进口 Imported from Germany
出料温度显示 Discharge temperature display	●	均质机 Homogenizer	二级均质 Two-stage homogenizer
均质压力显示 Homogenization pressure display	●	换热器 Heat exchanger	快装式换热器 Quick-install heat exchanger
生产压力显示 Production pressure display	●	热水泵 Hot water pump	高温涡流泵 High-temperature vortex pump
自适应出料 Adaptive discharge	●	液位计 Liquid level meter:	高温音叉液位 High-temperature forked fluid level meter
高温保护 High-temperature protection	●	脚轮 Caster	福马脚轮 Fuma Caster
温度记录 Temperature record	●	系统版本 System version:	本优杀菌 V3.0 BEYOND Sterilization V3.0
数据导出 Data export	●	专利 Patents	见专利证书 See patent Certificate

1/ ●表示有此配置；○表示无此配置；

● indicates the presence of the configuration; ○ indicates the absence of the configuration;

2/ 为更好的满足客户需求，本优不断对设备进行研发和改进，市场销售机型的部分配置及规格可能与本配置表有所不同，具体细节请以实机为准；

In order to better meet customer needs, BEYOND continuously conducts research and development and improvement on the equipment. Some configurations and specifications of the models sold in the market may differ from this configuration table. Please refer to the actual machine for specific details.

3/ 本配置表自 2023 年 2 月适用；

This configuration table is effective as since February 2023.

实验室微型均质机
 Laboratory micro homogenizer

● 进出口压力显示；

Inlet and outlet pressure display;

● 管道进料模式 CIP 清洗管道；

Pipeline feeding mode for CIP cleaning;

● 双柱塞设计 RE 型陶瓷均质阀材质；

Double plunger design, with RE-type ceramic homogenizing valve material;

● 两级均质阀，可调压力范围：0-600bar；

Two-stage homogenization valve, adjustable pressure range: 0-600 bar;

● 使用手轮，手动调节均质压力，压力连续可调。

Hand wheel for manual adjustment of homogenization pressure, with pressure continuous adjustment;

● 连续进样，标准处理量：20L/h、50L/h 可选择；

Continuous feeding, with standard processing capacity 20L/h or 50L/h optional;

● 压力 20-60MPa 可选配；

Pressure range 20-60MPa optional;

● 压缩头采用高质量、高强度和耐腐蚀的 SAF2507 特种

Compression head made of high-quality, high-strength, and corrosion-resistant SAF2507;

● 双相不锈钢制造；

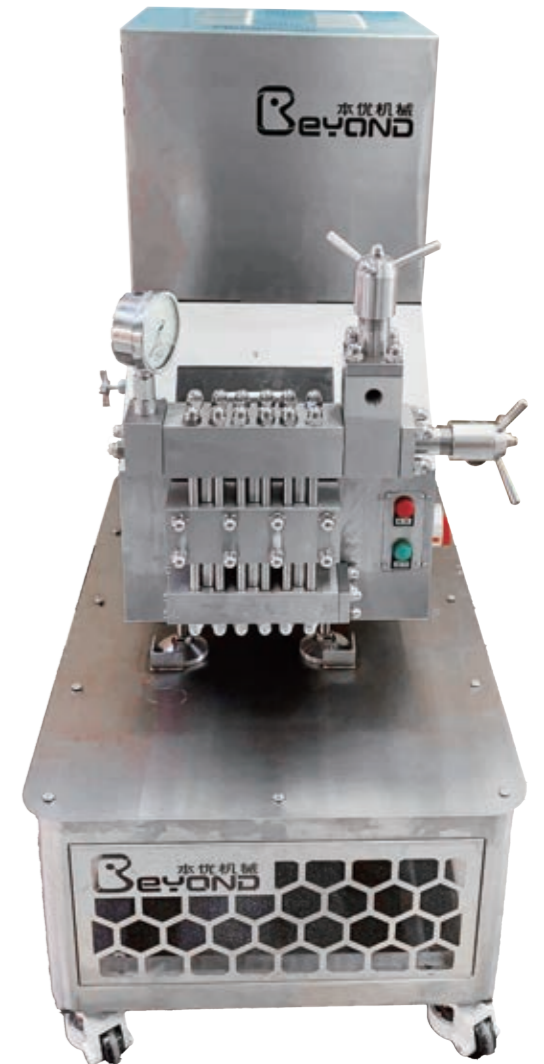
Double phase stainless steel;

● 高精度数字显示卫生型隔膜压力表；

Sanitary diaphragm pressure gauge with high-precision digital display;

● 特制的固体陶瓷柱塞，配有特制的密封及密封垫圈，无需润滑；

Specially designed solid ceramic plunger, equipped with special seals and sealing gaskets, no lubrication required;



包括

- 缓冲器

- Pt-100 温度传感器

- 压力显示

- 压力保护型手动溢流阀 - 带强制开启手柄

Including

Buffer

PT-100 temperature sensor

Pressure display

Pressure protective type manual relief valve with forced opening handle

无菌灌装机 Aseptic filling machine

F 灌装能力 Filling capacity

50-300 瓶 / 小时
50-300 bottles/hr

D 设计功率 Design power

单相电源, 220 V
Single phase power, 220V

E 设备描述 Equipment description

●本设备为垂直流形的无菌操作台，由风机、初效、高效过滤器及离子发生器组成的空气净化系统。

This equipment is vertical laminar aseptic operation bench, air purification system composed of fan, pre-filter, high-efficiency filter, and ion generator.

●工作时，外界空气经初效过滤器预过滤，再由风机送入高效过滤器，在操作区达到高超净度（百级），最后由紫外灯和离子发生器灭菌，在局部形成超净无菌状态。

During operation, the outside air is pre-filtered by the pre-filter and then sent to the high-efficiency filter by the fan to achieve high cleanliness (class 100) in the operation area. Finally, the area is sterilized by ultraviolet lamps and ion generators to form a super-clean and aseptic environment.

●工作单元独立；脚踏开关控制充填开关，操作与杀菌系统完全匹配。

The working unit is independent, and the foot switch controls the filling switch, which is fully matched with the sterilization system.

●内置 SIP 换热组块，可进行整个试验线的 CIP 和 SIP；内置产品缓冲罐，配备单头气动充填阀；可选内置式自动旋盖装置，用于批量制作样品。

Built-in SIP heat exchange blocks, can carry out CIP and SIP for the entire testing line; built-in product buffer tank, equipped with single-head pneumatic filling valve; optional built-in automatic capping device is available for batch production of samples.

P 性能指标 Performance indicators

层流方式：垂直层流
Flow pattern: vertical laminar flow

平均风速：≥0.4M/S
Average air velocity: ≥0.4M/S

洁净度：100 级
Cleanliness level: 100

高效过滤器规格：1220*610*50mm
Specifications of high-efficiency filter: 1220*610*50mm

照明灯功率：20 W
Illumination lamp power: 20 W

紫外灯功率：18 W
UV lamp power: 18 W

风机功率：140 W，震动小，噪音低。
Fan power: 140 W, low vibration, low noise.

风量：900-1400m³/H
Air volume: 900-1400m³/H

噪音：小于 60db (A)
Noise: less than 60db(A)

电源：单相 220V 50Hz
Power supply: single-phase 220V 50Hz

3L 缓冲罐一式
1 set of 3L buffer tank



调配发酵实验线 Blending and fermentation pilot line

H 热水系统 Hot Water System

用于制备工艺热水，以满足化料系统和发酵系统对温度的要求。
Used to prepare process hot water to meet the temperature requirements of the material and fermentation systems.

●一个热水罐 One hot water tank

内表面抛光，Ra≤0.4μm，外表面抛光，Ra≤0.8μm；
Inner surface polished, Ra≤0.4μm, outer surface polished, Ra≤0.8μm;

结构形式：立式形式，上平盖，下标准椭圆封头；
Structural form: vertical form, upper flat cover, lower standard elliptical head;

加热方式：电加热管加热；
Heating method: heated by electric heating tube;

液位计：浮球；
Liquid level gauge: float ball;

视镜灯、数显温度表；
Sight glass lamp, digital thermometer;

●一个热水泵 One hot water pump

●阀门 Valves

●电加热系统 Electric heating system

M 化料系统 Material dissolving system

●一个化料罐

One material dissolving tank

夹套控温，内表面抛光，Ra≤0.4μm，外表面抛光，Ra≤0.8μm；
Jacketed with temperature control, inner surface finish with Ra≤0.4μm and outer surface finish with Ra≤0.8μm;

结构形式：立式形式，上平盖，下标准椭圆封头；
Structure type: vertical type, flat top cover, standard elliptical bottom head;

空心夹套，保温材料为无氯岩棉
Hollow jacket, non-chlorine rock wool insulation materials;

搅拌装置：顶部乳化头；
Stirring device: top emulsifying head;

搅拌转速：2900r/min
Stirring speed: 2900r/min;

液位计：电极
Liquid level meter: electrode;

视镜灯、数显温度表
Sight glass light, digital temperature display;

上开盖举升机构；
Lifting mechanism with top opening cover;

●一个物料泵 One product pump

●阀门 Valves



F 发酵系统 Fermentation System

设备简介 Equipment Introduction

- 装液系数 75% ;
Liquid loading coefficient of 75%;
- 夹套控温, 内表面镜面抛光, $Ra \leq 0.4\mu m$, 外表面镜面抛光, $Ra \leq 0.6\mu m$;
Jacketed with temperature control, mirror-polished inner surface with $Ra \leq 0.4\mu m$, mirror-polished outer surface with $Ra \leq 0.6\mu m$;
- 大视角长条视镜, PH、DO、温度电极接口齐备 ;
Large-angle elongated sight glass, equipped with PH, DO, and temperature electrode interfaces;
- 罐盖配有火焰接种口和补料备用接口 ;
Tank cover has flame inoculation port and spare feeding port;
- 落地框架结构, 节省空间, 操作方便 ;
Floor-standing frame structure, saving space and easy to operate;
- 深层通气, 全不锈钢管路, 玻璃转子流量计显示, 压力显示, 手动阀门调节流量 ;
Deep aeration, all-stainless steel piping, glass rotor flowmeter display, pressure display, manual valve to adjust flow rate;
- 配备不锈钢外壳的德国 Sartorius 高效过滤器, 过滤精度 $0.01\mu m$;
Equipped with German Sartorius high-efficiency filter with stainless steel shell, filtering accuracy of $0.01\mu m$;
- 需外源压缩空气, 配备优质除水稳压装置, 持续稳定供气 ;
Requires external compressed air source, equipped with high-quality water removal and stable pressure device for continuous and stable air supply;
- 顶部排气口配置指针压力表显示罐压, 不锈钢阀门手动调节 ;
Top exhaust port with pointer pressure gauge to display tank pressure, manual stainless steel valve adjustment;
- 配进口压力传感器和自动调节阀门实现罐压的自动控制 ;
Equipped with imported pressure sensor and automatic regulation valve to realize automatic control of tank pressure;
- PT100 温度传感器, 控温与外源冷却水自动控制温度
PT100 temperature sensor for temperature control and automatic control of external cooling water temperature;
- 在线检测 DO, 范围 0-100% 或 0-200%, 进口 DO 电极, 可选与转速、通气量控制 ;
Online detection of DO, range of 0-100% or 0-200%, imported DO electrode, optional with speed and aeration control;
- 传导式消泡电极, 泡沫异常状况自动报警 ;
Conductive defoaming electrode with automatic alarm for abnormal foam conditions;
- CIP 和 SIP 在位清洗和消毒 ;
CIP and SIP in-place cleaning and disinfection.

设备特点 Equipment features

- 在位灭菌, 安全可靠, 无传动泄露风险 ;
In-situ sterilization, safe and reliable, with no risk of transmission leakage;
- 大视角纵向视镜观测清晰 ;
Large-angle longitudinal viewing mirror for clear observation;
- 接种方式多样可靠 (标配火焰接种口, 差压接种口等多种形式可选) ;
Diverse and reliable inoculation methods (standard flame inoculation port, differential pressure inoculation port, etc.);
- 罐型美观大方, 操作拆装容易, 特殊规格可以定制 ;
The tank has elegant and generous appearance, easy to operate and dismantle, customization of special specifications available;

可选配项 Optional accessories

- 多路补料 ; Multi-channel feeding;
- 全自动灭菌 ; Fully automatic sterilization;
- 补料称重 ; Feeding material weighing;
- 罐体称重 ; Tank weighing;
- 富氧旁路 ; Rich oxygen bypass;
- 氧化还原电位在线检测 ;
Oxidation-reduction potential online detection;
- 空气流量自动检测与控制 ;
Air flow automatic detection and control;
- 尾气 O_2 、 CO_2 含量在线检测、甲醇 (乙醇) 含量在线检测 ;
Exhaust gas O_2 , CO_2 content online detection, methanol (ethanol) content online detection;

公共能源设备 Public energy equipments

A 空气压缩机 Air Compressor

- 一体式机组, 无油低噪型, 自带自动控制系统
Integrated machine crew, oil-free and low-noise type, with automatic control system
- 主要核心部件机头为进口
The main core component of the machine head is imported.
- 压力 : 0-0.8MPa Pressure: 0-0.8MPa
- 内喷防锈, 维修方便、持久耐用
Internal spray rust prevention, easy maintenance, durable
- 电压 : 220V/50Hz
Voltage: 220V/50Hz
- 转速 : 1450rpm
Speed: 1450rpm
- 最大产气量 : 100L/min
Maximum air production: 100L/min
- 外形尺寸 : 420(L)*420(W)*600(H)mm
Outer dimensions: 420 (L) * 420 (W) * 600 (H) mm



R 冷干机 Refrigerated air dryer

该设备可以去除压缩空气中的水分, 保证后道设备的安全运转 ;
This equipment can remove moisture from compressed air to ensure safe operation of downstream equipment.



- 空气处理量 : $0.15m^3/min$
Air treatment capacity: $0.15m^3/min$
- 工作电压 : 220/110v, 50/60Hz
Working voltage: 220/110v, 50/60Hz
- 功率 : 240W Power: 240W
- 工作压力 : $<0.8MPa$
Working pressure: $<0.8MPa$
- 进气温度 : $<35^\circ C$
Air inlet temperature: $<35^\circ C$
- 过滤精度 : $50\mu m$
Filteration accuracy: $50\mu m$
- 产品尺寸 : $162mm*210mm*200mm$
Product size: $162mm*210mm*200mm$

C 冰水机组 Chiller unit

- 制冷量 : 9.1KW Cooling capacity: 9.1KW
- 总功率 : 3.1KW, 380V Total power: 3.1KW, 380V
- 冰水温度 : $7-15^\circ C$ Chilled water temperature: $7-15^\circ C$
- 配备自带电器控制系统, PC 电控箱、压力表和过滤器各一式
Equipped with self-contained electrical control system, including PC cabinet control box, one pressure gauge, and one filter
- 配置高低压、过载、防冻、延时、超温、流量的安全保护装置
Equipped with safety protection devices such as high and low pressure protection, overload protection, anti-freeze protection, delay protection, over-temperature protection, and flow protection
- 含冰水槽、压力表、过滤器及管路系统,
Includes chilled water tank, pressure gauge, filter, and pipeline system
- 噪音 : $\leq 60dB$ Noise level: $\leq 60dB$
- 外形尺寸 : $850(L)*720(W)*1325(H)mm$
Outer dimensions: $850(L)*720(W)*1325(H)mm$

