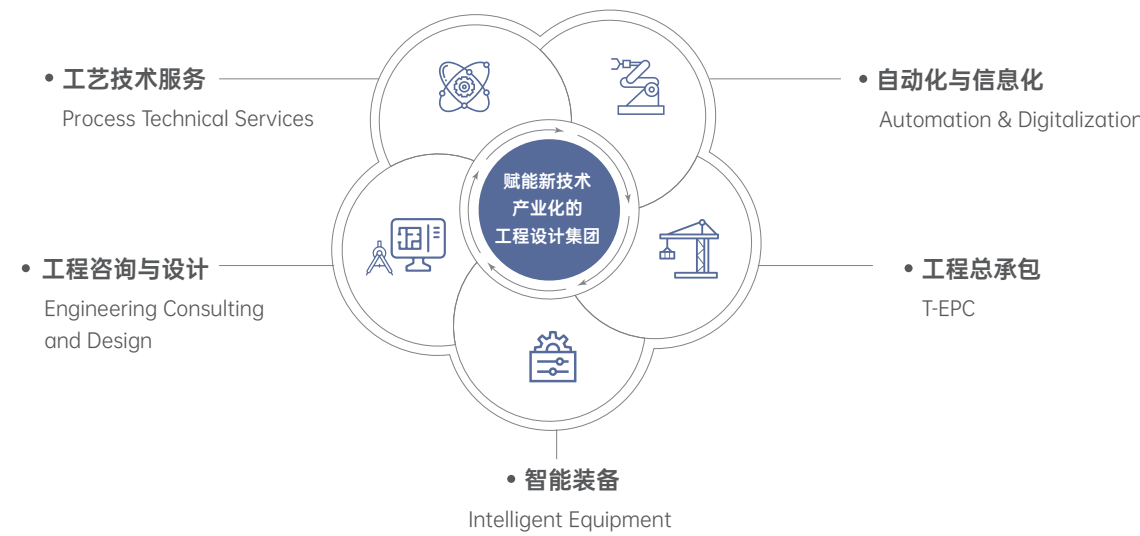


天俱时始创于1998年，是一家赋能新技术产业化的工程设计集团，依托先进的设计理念和前瞻性的国际视野，为全球客户提供工艺技术服务、工程咨询与设计、工程总承包、智能装备、自动化与信息化于一体的综合解决方案，帮助客户实现 From Lab to Fab 的产业化转化。业务涵盖精细化工、电子化学品、合成生物、生物医药、化学制药、食品健康、冶金矿山等高科技行业领域。

TIAN'S Engineering Technology Group Co., Ltd., founded in 1998, is an engineering design group empowering industrialization of new technologies. Based on advanced design concept and forward-looking global perspective, we provide comprehensive solutions involving process technical services, engineering consulting and design, EPC, intelligent equipment and automation & digitalization to help our clients achieving a From Lab to Fab industrialization transformation. Our business spans many high-tech fields, including fine chemical engineering, electronic chemicals, synthetic biology, bio-pharmaceutical, chemical pharmaceutical, healthy food and metallurgy & mining.



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IDENTIFY QR CODE TO SEE TIAN'S WECHAT ACCOUNT
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全流程自动化发酵技术解决方案

FULL PROCESS AUTOMATION FERMENTATION TECHNOLOGY SOLUTION

面对发酵工业产业结构升级的要求,双碳背景下节能减排的压力,以及智能化发酵的需求,天俱时提供从发酵配料、物料连续灭菌、发酵罐实消/空消、无菌管路灭菌、菌株培养到系统清洗的全流程自动化发酵技术解决方案,有效降低染菌率、节能降耗、减少人员操作、提高生产效率、提高发酵水平。可广泛应用于生物医药、生物材料、食品健康、医美、天然健康产物、农兽药等领域。

天俱时集团深耕行业KNOW-HOW,拥有精通发酵生产的工艺技术专家团队、双行业甲级资质的发酵工厂设计团队与丰富的自控项目经验及现场调试经验的自动技术专家团队,为客户提供与生产场景紧密结合、高性价比、高实用性、创造真实价值的全流程自动化发酵技术解决方案。

Faced with the requirements of upgrading the fermentation industrial structure, the pressure of energy conservation and emission reduction under the background of dual carbon, and the demand for intelligent fermentation, TIAN'S provides full process automation fermentation technology solution from fermentation ingredients, continuous sterilization of materials, sterilization of fermenters/empty consumption, sterilization of sterile pipelines, strain culture to system cleaning, effectively reducing the sterilization rate, saving energy and consumption, reducing personnel operation, improving production efficiency and fermentation level. It can be widely used in biomedicine, biological materials, food health, medical beauty, natural health products, agricultural and veterinary drugs and other fields.

TIAN'S Group is deeply engaged in the industry KNOW-HOW, with a team full of process and technology experts who are proficient in fermentation production, a fermentation plant design team with Grade A qualification in dual industries, and an automatic technical expert team with rich experience in automatic control projects and on-site commission experience, providing clients with full process automation fermentation technology solution that is closely integrated with production scenarios, cost-effective, highly practical and valueable.

打造高效智慧发酵新模式

Build A New Model of High-effective & Intelligent Fermentation.



全流程自动化发酵技术核心模块

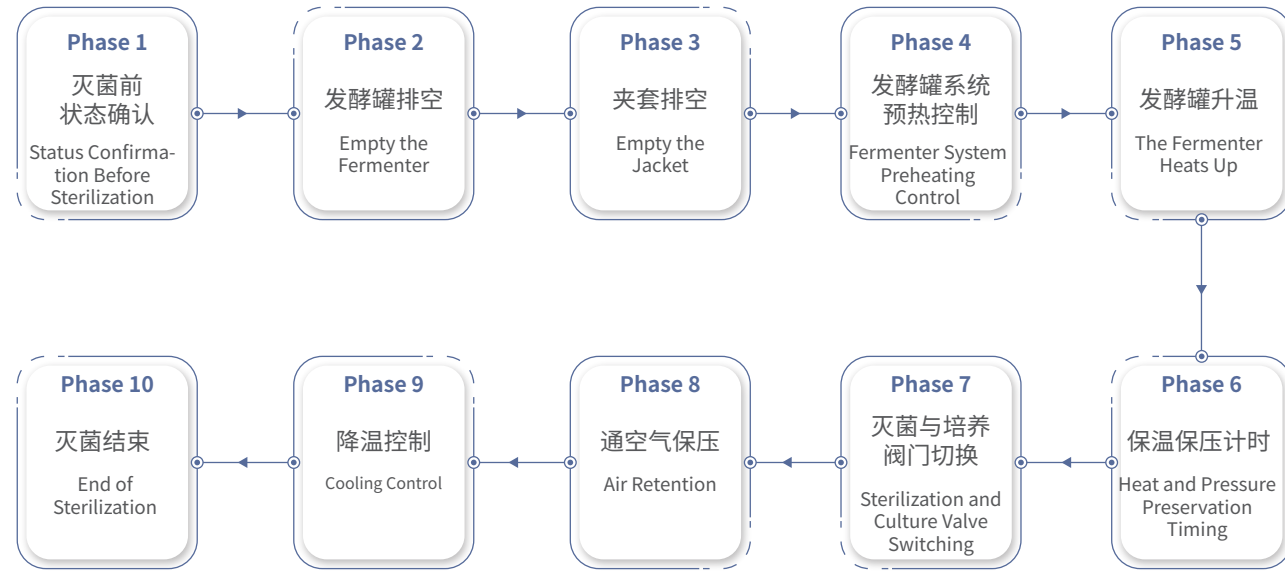
CORE MODULE OF FULL PROCESS AUTOMATION FERMENTATION TECHNOLOGY

发酵生产自动灭菌过程控制

Automatic Sterilization Process Control for Fermentation Production

根据发酵罐消毒工艺和路线设计,实现消毒过程的罐体排空、夹套排空、预热、升温、保压、计时、通气、降温等过程的自动化精准控制,保证无菌率、节约蒸汽消耗的同时减少人员操作,为微生物发酵生产提供可靠环境,实现节能减排。

Combined with the fermentation tank disinfection process and route design, it realizes the automatic precise control of tank emptying, jacket emptying, preheating, heating, pressure holding, timing, aeration, cooling and other processes in the disinfection process, ensuring sterility, saving steam consumption while reducing personnel operation, providing a reliable environment for microbial fermentation and cultivation, and achieving energy saving and emission reduction.



物料连续灭菌过程控制

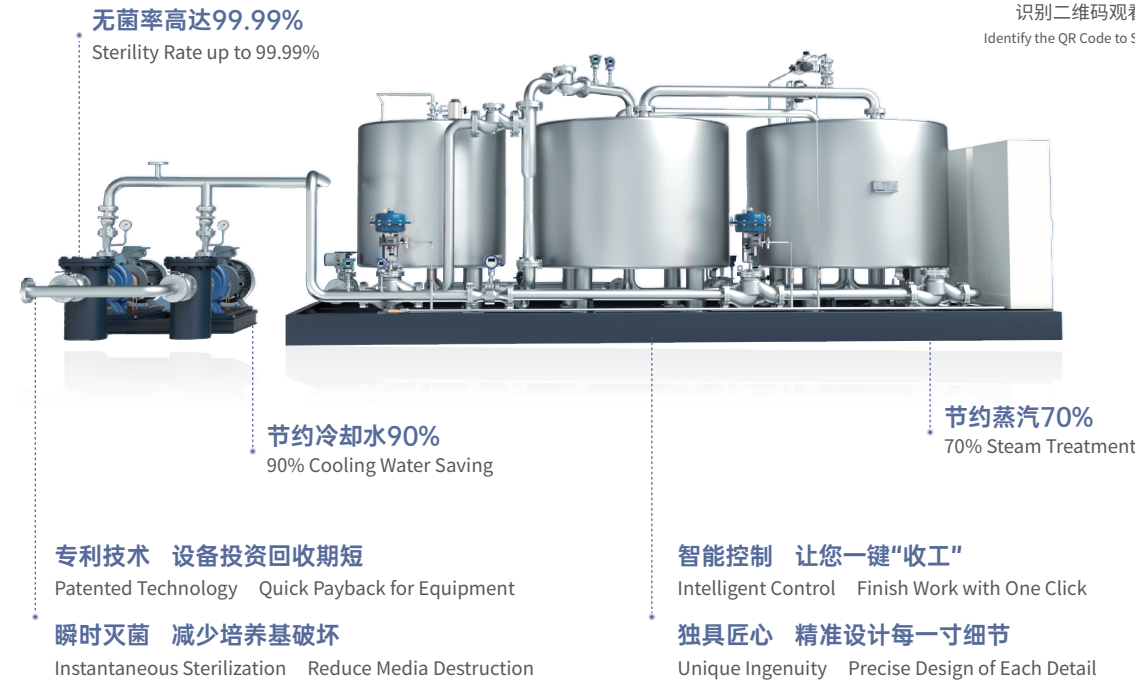
Material Continuous Sterilization Process Control

实际消毒时间长对培养基成份破坏较大,蒸汽用量大,天俱时基于阿伦尼乌斯公式和等效灭菌理论,应用智能瞬时连消技术将配制好的培养基向发酵罐等培养装置输送的同时进行加热、保温灭菌和冷却等操作过程,从而有效提高生产效率,节约能源。

While the disinfection time of sterilization in real tanks is long, which destroys the components of the culture medium and the amount of steam is large, based on Arrhenius equation and equivalent sterilization principle, TIANS applies intelligent instantaneous disinfection technology to deliver the prepared medium to the fermenter and other cultivation devices while heating, heat preservation and sterilization, cooling and other operations, so as to effectively improve production efficiency and save energy.

智能瞬时连消机

Intelligent Instantaneous Sterilizing Equipment

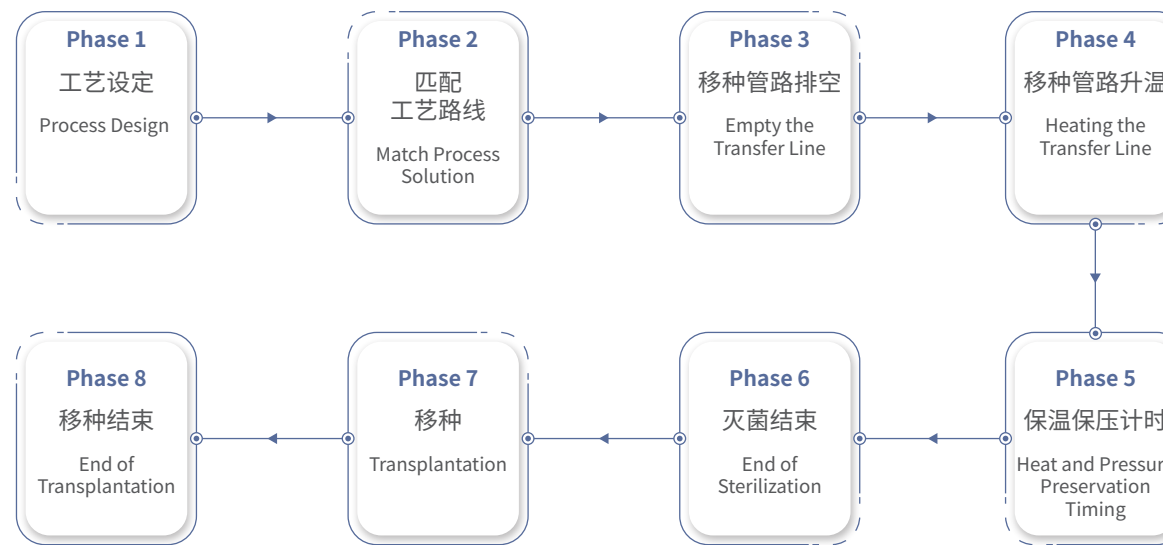


移种站全自动过程控制

Fully Automatic Process Control of Transplanting Station

根据工艺设定,自动匹配移种路线,对移种管路进行自动清洗、排空、升温、保温消毒、降温、移种等操作,实现移种过程全自动控制。

According to process design, automatically select the seeding line, and carry out automatic cleaning, emptying, heating, heat preservation and disinfection, cooling, transplantation and other operations on the transplantation pipeline, so as to realize the automatic control of the transplantation process.



发酵培养过程控制

Process Control of Fermentation Culture

根据微生物生长特性,结合生产经验和专家数据库,建立控制模型,对发酵过程的补料、温度、PH、DO、进气流量、罐压、消泡实现培养过程精准控制,从而保证生产稳定,提高发酵单位,提升产品品质。

Based on the microbial growth characteristics, combined with production experience and expert database, a cultivation control model is established to achieve precise control of feeding, temperature, PH, DO, inlet air flow, tank pressure and defoaming of the fermentation process, so as to ensure stable production, improve fermentation units and improve product quality.



全流程自动化发酵技术系统功能

SYSTEMATIC FUNCTIONS OF FULL PROCESS AUTOMATION FERMENTATION TECHNOLOGY

- 可模块化半自动控制,也可通过配方搭建,实现发酵过程一键全自动控制。
It can be modular semi-automatic control, and can also be built through recipe construction to realize one-key automatic control of the fermentation process.
- 具备完善的电子签名、趋势报表、报警、审计追踪等功能,实现生产过程数据的可追溯性。
With complete electronic signature, electronic batch record, alarm, audit tracking and other functions, to achieve the traceability of production process data.
- 发酵车间轻量化生产过程管理系统,实现生产过程的电子化管理,形成完整而准确的电子批记录。
The lightweight production process management system of the fermentation workshop realizes the electronic management of the production process and forms a complete and accurate electronic batch record.