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**TIAN'S** 天俱时

# 自动化与信息化工程 解决方案

AUTOMATION AND INFORMATION ENGINEERING  
TECHNOLOGY SOLUTIONS

天俱时工程科技集团有限公司

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深耕行业KNOW-HOW  
助力企业数字化转型

DEEPLY ROOTED IN INDUSTRY-SPECIFIC KNOW-HOW  
EMPOWERING THE ENTERPRISE A DIGITAL MAKEOVER

TJS-2307-CE1000-20230508

## 智周万物

02

天俱时集团  
自动化与信息化工程

### Intelligence for All Things

TIANS Group  
Automation and Information Engineering

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# Intelligence for All Things

## 智周万物

自动化与信息化工程  
Automation and Information Engineering

天俱时集团  
TIANS Group

 自动化与信息化工程 Automation and Informationize Engineering	 工程总承包 T-EPC	 工程咨询与设计 Engineering Consulting & Design	 施工总承包 General Construction Contracting
 洁净工程 Clean Room Engineering	 环保技术与工程 Environmental Technology and EPC	 智能装备 Intelligent Equipment	

化学合成工艺过程自动化工程中国领先  
自动化工程单合同规模制药行业领先

Leading in China:  
Automation Engineering of Chemical Synthesis Process  
Leading in Pharmaceutical Industry:  
Single Contract Scale of Automation Engineering

### 25年

始创于1998年,国内领先的先进智能装备制造商、工程技术服务商。总部位于石家庄,上海、天津、苏州、济南、武汉设分公司及办事处;瑞士设生物医药咨询创新中心。

Founded in 1998, TIANS is a leading domestic advanced intelligent equipment manufacturer and engineering technology service provider. Headquartered in Shijiazhuang, with branches and offices in Shanghai, Tianjin, Suzhou, Jinan and Wuhan; and a biomedical consulting and innovation center in Switzerland.

### 60+百强

中国医药工业百强企业战略合作伙伴, 已为60多家医药百强企业提供服务。

It is a strategic partner of top 100 enterprises in China's pharmaceutical industry, and has provided services to more than 60 top 100 pharmaceutical enterprises.

### 500+客户

涉及生物医药、化学医药、新能源、新材料、冶金矿山、工业环保、食品健康等工程科技领域。

Customers are involved in the fields of engineering science and technology such as biopharmaceutical, chemical pharmaceutical, new energy, new material, metallurgy, environmental protection, food and health.

### 2000+项目

覆盖全国20多个省、市、自治区, 数十项国家级、省级优质工程。

The projects cover more than 20 provinces, cities and autonomous regions, and dozens of national and provincial quality projects.

天俱时集团自动化与信息化工程以自动化、信息化技术为核心,深耕行业Know-How,掌握生产过程中主要生产工艺及生产辅助过程的自动化核心技术,结合行业特点为客户提供满足工艺需求的从系统设计、集成开发、工程实施到项目管理的一站式个性化、定制化自控系统解决方案。

拥有电子与智能化工程专业承包壹级等20余项资质。20年来,致力于以前沿的技术、出众的品质、令人信赖的技术及定制化解决方案助力企业打造数字化工厂。

TIANS Group focuses on automation and information technology in its automation and information engineering projects. The Group possesses industry know-how and the main manufacturing techniques as well as core technology for automation of the auxiliary production process. The Group provides customers with one-stop customized automatic control system solutions that cover system design, integrated development, engineering implementation and project management based on process needs in conjunction with the industry characteristics.

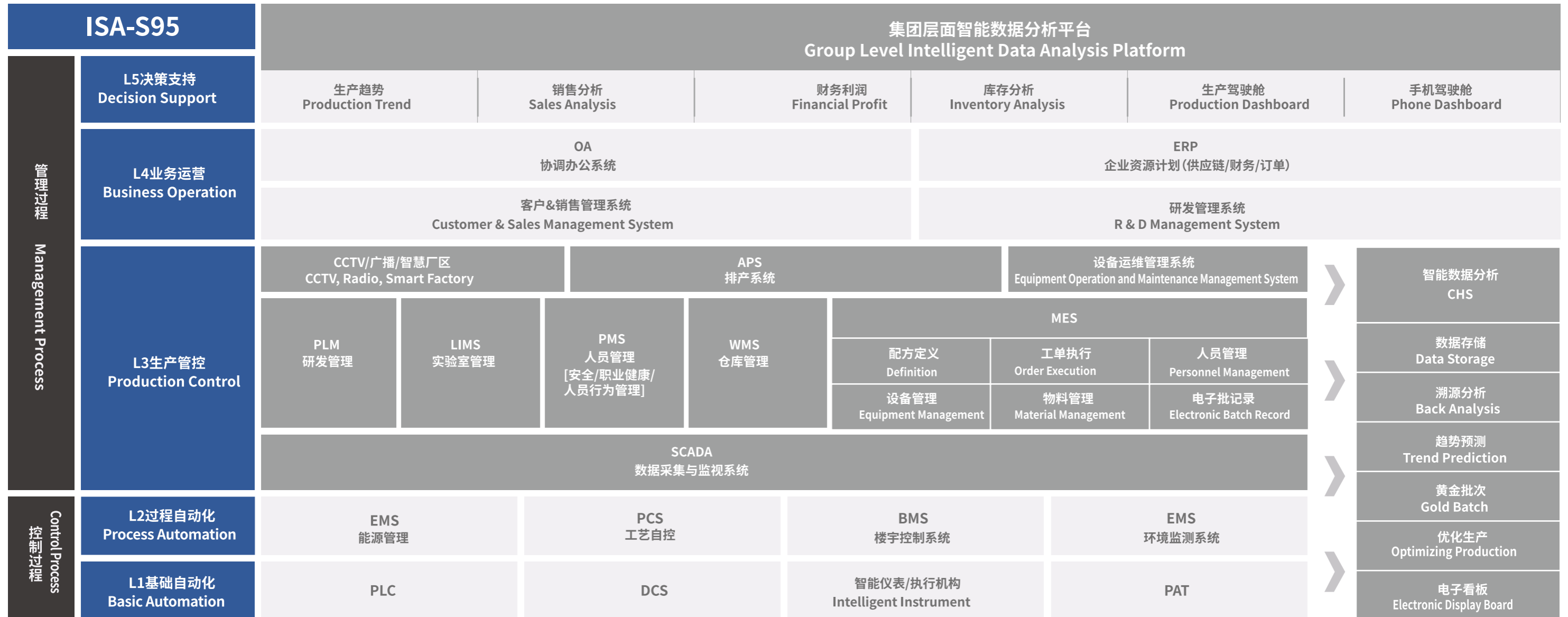
The Group owns over 20 pieces of qualifications such as grade A qualifications for electronic and intelligent engineering contracting projects. For 20 years, the Group has been committed to helping businesses build digital factories with cutting-edge technology, superior quality, trusted technology and customized solutions.

# 2

# Intelligence for the Future

## 智慧未来

### 我们的能力 Our Ability



## 2.1

### 工艺过程自动化 Process Automation

工艺过程控制系统设计应紧密结合工艺需求，选择最优控制方案，结合DCS+ BATCH控制方案，实现生产过程自动化和柔性生产。

The design of the process control system should closely combine the process requirements, select the optimal control scheme, and combine the DCS+BATCH control scheme to realize the automation and flexible production of the production process.

#### 合成工艺过程自动化 Automation of Synthesis Process



识别二维码，观看化学合成原料药工艺过程自动化3D演示

Identify two-dimensional code and watch chemical synthetic API process3D demonstration of process automation



#### 典型工艺单元 Typical Process Unit

- 罐区过程控制
- 溶解反应单元
- 萃取分相单元
- 结晶单元
- 浓缩单元
- 精制(精烘包)单元
- 溶媒回收过程控制
- 在线清洗(CIP)/灭菌(SIP)系统
- 辅助单元(真空系统、TCU等)
- 安全仪表系统(SIS)
- Tank Process Control
- Dissolution Reaction Unit
- Multi-Phase Extraction Unit
- Crystallization Unit
- Concentration Unit
- Refining Unit
- Process Control of Solvent Recovery
- Online Cleaning (CIP)/Sterilization (SIP) System
- Auxiliary Unit (vacuum system, TCU, etc.)
- Safety Instrumentation System



#### 关键控制点 Critical Control Point

- 可单元化自动控制，也可通过Batch搭建所需配方，实现工艺全流程自动化控制。
- 合成反应剧烈，温度、PH控制结合工艺、生产经验，建立控制模型。
- 萃取分相结合在线分析仪表(电导率/密度计)技术与先进控制算法，结合生产工艺完美的模拟了人工操作过程实现全自动化精确分相。
- 减压浓缩结合生产工艺实现抽真空、釜温控制、浓缩终点判定、破真空等自动化的蒸馏过程，节约能耗的同时保证了产品质量。
- 通过在线分析仪表实现析晶点自动判定、自动控制养晶条件、减少晶型批间差异、提高产品质量。
- 具备趋势报表、电子签名、审计追踪等功能，满足验证需求。
- Based on customer's requirement, automatic control can be applied to certain unit, or to the whole process through BATCH system with required formula pre-established.
- Establishing control model for Intense synthesis reaction with the control of temperature and PH based on process and production experience.
- Extraction phase separation combination on-line analytical instrument (conductivity/density meter) technology and advanced control algorithm, combined with production process, perfectly simulated the manual operation process to realize fully automatic and accurate phase separation.
- Vacuum concentration combination production technology can realize automatic distillation process such as vacuumizing, kettle temperature control, concentration end point determination, vacuum breaking, etc., saving energy consumption and ensuring product quality at the same time.
- Automatic determination of crystallization point, automatic control of crystal growth conditions, reduction of batch differences of crystal forms and improvement of product quality are realized by on-line analyzer.
- Functions, to meet the verification requirements, of electronic batch record, electronic signature, audit tracking, etc.

## 发酵工艺过程自动化

### Automation of Fermentation Process



#### 典型控制单元

Typical Control Unit

- 发酵配料过程控制
- 连续灭菌过程控制
- 发酵补料过程控制
- 发酵生产自动灭菌过程控制
- 种子罐培养过程控制
- 移种站过程控制
- 发酵罐培养过程控制
- Fermentation Blending Process Control
- Continuous Sterilization Process Control
- Fermentation Feeding Process Control
- Automatic Sterilization Process Control for Fermentation
- Seed Tank Cultivation Process Control
- Transplanting Station Process Control
- Fermenter Culture Process Control



#### 关键控制点

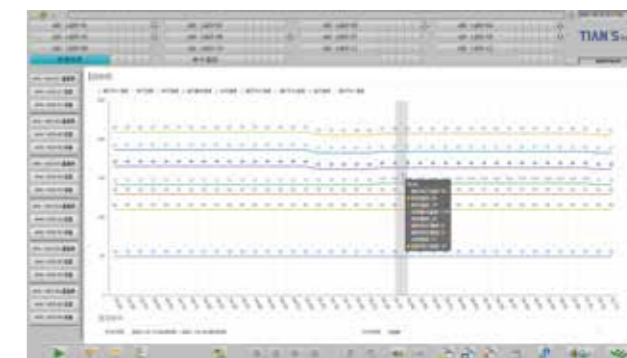
Critical Control Point

- 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。
- 结合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、降温等过程的自动控制,减少人员操作、保证无菌同时节约蒸汽消耗,为微生物发酵培养提供可靠环境,实现节能减排。
- 移种控制,自动选择移种线路,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。
- 发酵过程培养,结合产品工艺特点、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、消泡实现精确控制,从而保证生产稳定,提高发酵单位,提升产品品质。
- 具备趋势报表、电子签名、审计追踪等功能,满足验证需求。
- Modular semi-automatic control; one-key automatic control of fermentation process through formula construction.
- Realize the automatic control of tank emptying, jacket emptying, preheating, heating, pressure maintaining timing, ventilation, cooling and other processes in the disinfection process in conjunction with the fermenter disinfection process and route design; reduce manual operation and ensure sterility while reducing steam consumption, provide a reliable environment for microbial fermentation and cultivation, and achieve energy saving and emission reduction.
- Transplanting control; automatic selection of transplanting routes; automatic cleaning, emptying, heating, heat preservation and disinfection, cooling, transplanting and other operations on the transplanting pipeline; automatic control of the transplanting process.
- Fermentation process cultivation; establish a control model based on product process characteristics, production experience and expert pool to achieve precise control of feeding, temperature, PH, DO, inlet air flow, tank pressure and defoaming during the fermentation process, so as to ensure stable production, improve fermentation titer and enhance product quality.
- It serves functions such as trend report, electronic signature, and audit trail, thereby meeting the needs of verification.

## 2.2

## 公用工程自动化 (BMS/EMS系统)

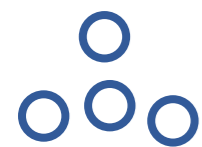
### Utility Automation (BMS/EMS System)



- 空调机组开机顺序控制
- 温湿度自动控制、送风风量/风压自动控制、房间压差自动控制
- 模式控制 (生产模式、非生产模式、消毒模式)
- 系统连锁
- 关键房间温湿度、压差、尘埃粒子、浮游菌监测
- 报警、趋势、报表
- 用户管理
- 电子记录及签名
- Start-up Sequence Control of Air Conditioning Unit
- Automatic control of temperature and humidity, automatic control of air supply volume/air pressure, automatic control of room pressure difference
- Mode control (production mode, non-production mode, sterilization mode)
- System interlocking
- Monitoring of temperature and humidity, pressure difference, dust particles and planktonic bacteria in critical rooms
- Alerts, Trends, Reports
- User Management
- Electronic Records and Signatures

## 2.3 工厂信息化系统 Information System for Factory

### 制造执行系统MES Manufacturing Execution System (MES)



物料管理  
Material Management

制造BOM管理  
物料追溯  
称量管理  
生产容器管理  
材料暂存  
物料平衡  
生产批次管理

Manufacturing BOM management  
Material traceability  
Weighing management  
Production container management  
Material temporary storage  
Material balance  
Production batch management



工艺管理  
Process Management

独立的参数管理, 参数管理模块化  
通过关键参数与电子工艺流的灵活匹配, 实现不同产品的柔性化生产  
按工艺要求设计电子SOP流程设计

Independent parameter management, modular parameter management  
Realization of flexible production for different products through the flexible matching of key parameters and electronic process flow  
Electronic SOP Process Design based on Process Requirements



现场管理  
Site Management

生产批指令管理  
生产执行  
全生命周期设备管理

Batch Instruction Management for Production  
Production Execution  
Full life cycle Management for Equipment



电子批记录  
Electronic Batch Record

审计追踪  
电子签名  
电子记录  
人脸识别签名

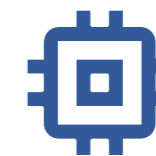
Audit trail  
Electronic signature  
Electronic record  
Face recognition and signature



质量管理  
Quality Management

偏差管理  
电子批记录审核  
检验流程电子化管理

Deviation management  
Electronic batch record audit  
Electronic management of inspection process



系统集成  
System Integration

MES与自动化层的集成  
MES与ERP的集成  
电子批记录集成

Integration of MES and Automation Layer  
Integration of MES and ERP  
Integration of Electronic batch record



透明工厂  
Transparent Factory

智能看板  
可视化看板  
多维度报表

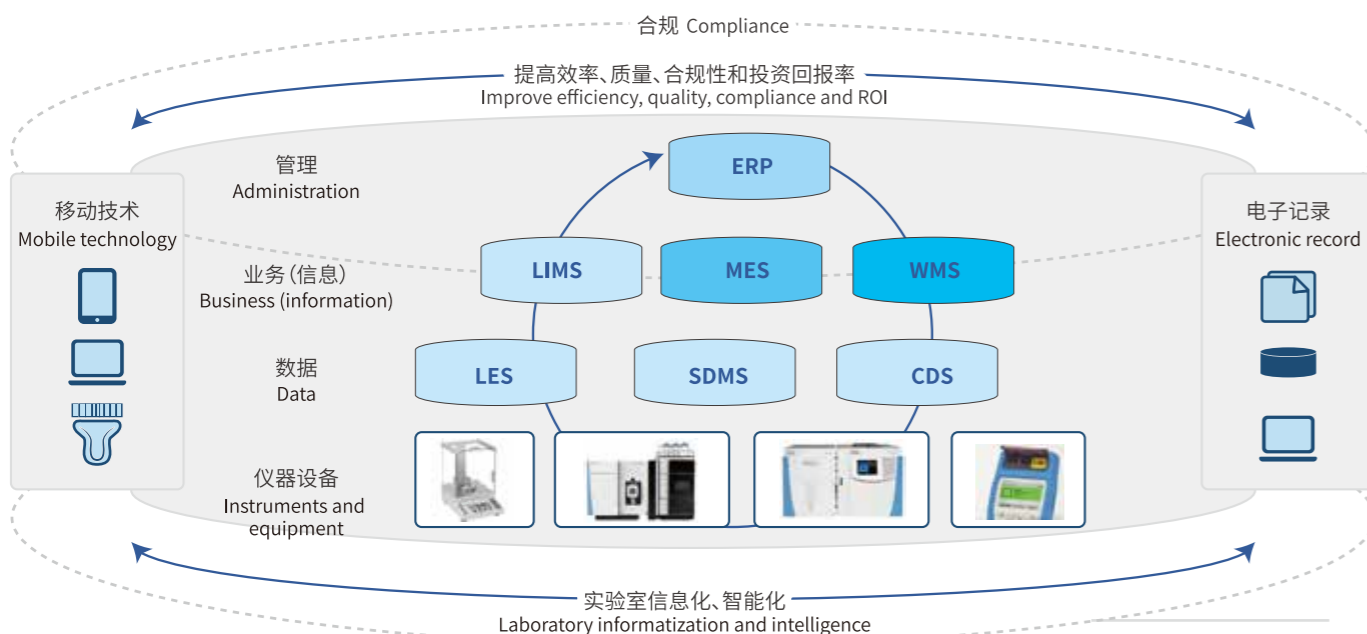
Intelligent Dashboard  
Visual kanban  
Multi-dimensional reports

## 实验室信息管理系统 (LIMS)

Laboratory Information Management System



- 符合FDA 21 CFR Part11, NMPA, ISO 17025等法规要求
- 使实验室样品监测业务流程“精细化”
- 按顺序指导用户完成SOP规定的每个实验步骤
- 与仪器集成, 实时抓取数据
- 支持法规要求的电子签名
- 审计追踪记录整个执行过程
- 灵活移动端简便日常操作
- Comply with regulatory requirements such as FDA 21 CFR Part11, NMPA, ISO 17025, etc.
- “Refined” process of laboratory sample monitoring
- Instruct users completing experimental steps specified by SOP
- Real time data collection via integrated instruments
- Legitimate electronic signature supported
- Every step recorded through the Audit trail
- Mobile app supported for portability



## SCADA系统

SCADA System

1

单个车间或整个厂区生产过程数据采集、监视、归档

工艺过程自动化DCS系统、BMS系统、EMS系统、SIS系统等

Data collection, monitoring, and archiving of the production process for a single workshop or the whole factory area

Process automation DCS system, BMS system, EMS system, SIS system, etc.

2

生产设备关键数据采集、监视、归档

离心机、三合一、单锥、冷冻机组、热水机组、真空系统、制水设备、纯蒸汽发生器

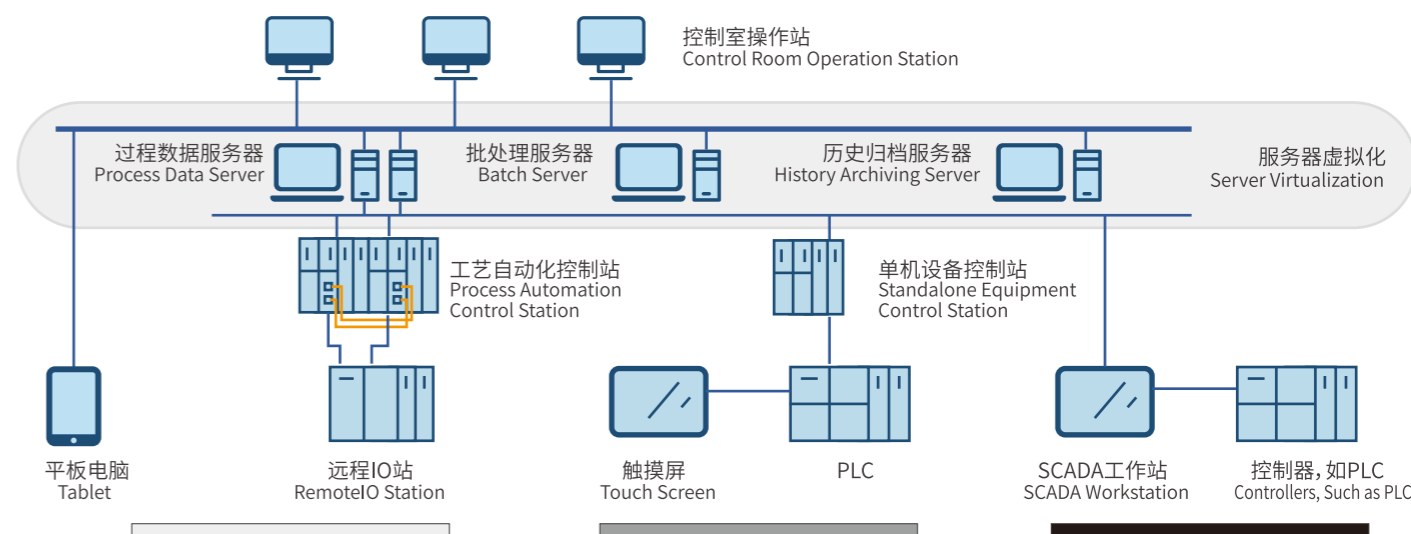
Data collection, monitoring and archiving of key data for production equipment

Centrifuge, triangle, Single cone, Refrigeration unit, hot water unit, vacuum system, water making equipment, pure steam generator, filling equipment, etc.

3

数据分析、报表生成、可视化

Data Analysis, Report Generation, Visualization



第一类: 白色设备, 集中控制  
如合成反应, 溶剂回收, 罐区等  
Category 1: white equipment, centralized control  
Such as synthetic reaction, solvent recovery, tank area etc.

第二类: 灰色设备, 单机控制  
如离心机、三合一、单锥等  
Category: gray equipment, single machine control  
Such as centrifuge, three in one, single cone etc.

第三类: 黑色设备, 自成系统  
如冷冻机、进口设备等  
Category 3: Black equipment self-contained systems  
Such as refrigerators, imported equipment, etc





- 数据采集: 按配置实时采集企业各种能源:水、气(汽)、电的详细使用过程数据,支持市面上主流通讯协议,采集过程及时,高效,稳定,不丢失数据。
- 数据分析: 运用各种数学模型分析整个企业能耗数据,实现能源成本透明化、跟踪CO<sub>2</sub>排放、提高能效利用。
- 数据展示: 按日、月、年或自定义时段对数据进行汇总或单个数据进行同比、环比数据分析,以多维报表、数据大屏等形式进行展示,帮助企业进一步优化工艺,降低单位能耗成本

- Data Collection: Collect the detailed usage process data of various energy sources including water, gas (steam), and electricity in real-time according to the configuration to support the mainstream communication protocols in the market. The collection process is timely, efficient, and stable without any data missing.
- Data Analysis: Apply various mathematical models to analyze the energy consumption data of the enterprise to realize energy cost transparency, track CO<sub>2</sub> emissions, and improve energy efficiency utilization.
- Data Display: Summarize data or analyze single data on a daily, monthly, annual, or customized basis, and display them in the form of multidimensional reports and large data screens to help enterprises further optimize processes and reduce unit energy consumption costs.

## 2.4 计算机化系统验证 Computer System Validation

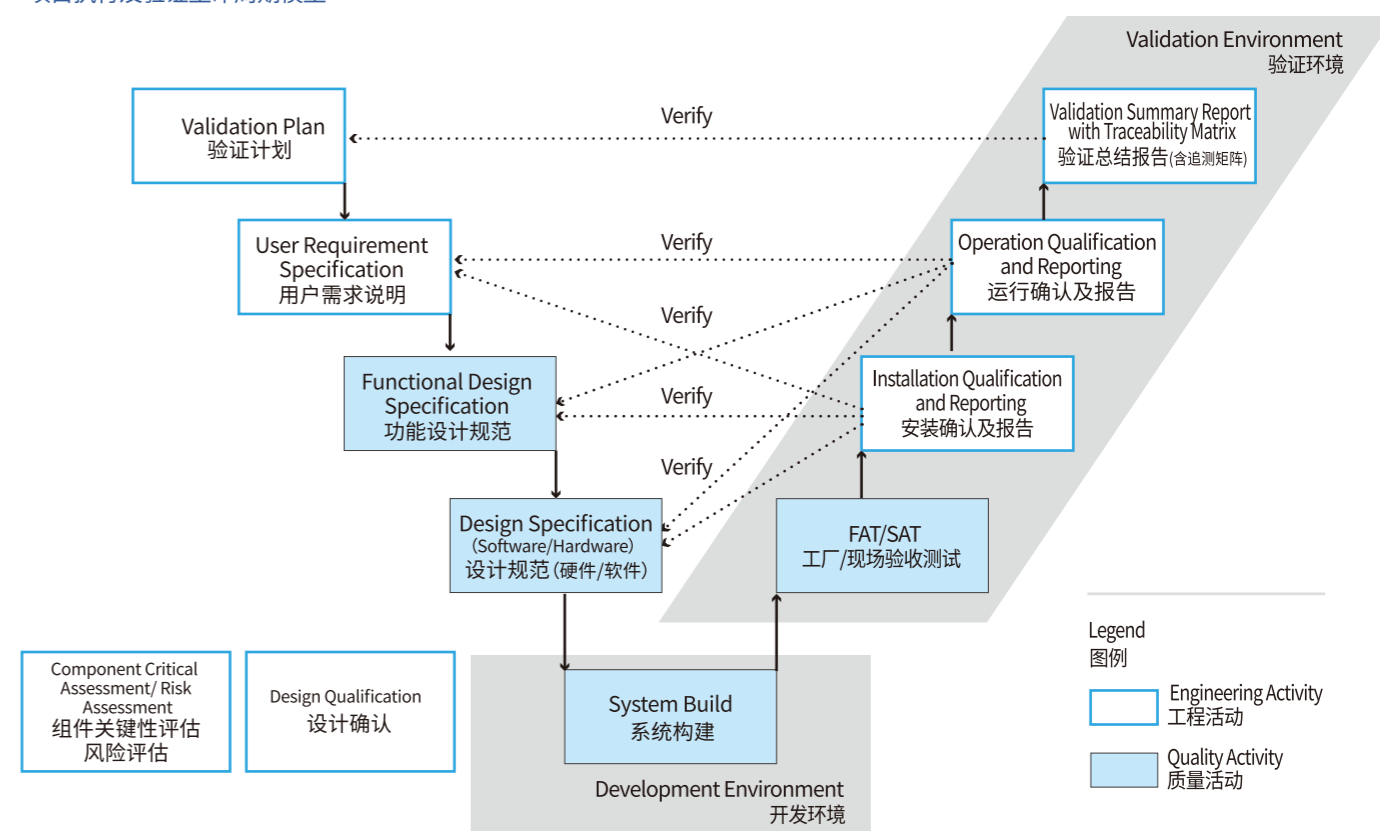
计算机化系统的生命周期活动将按照ISPE GAMP5 V-model的方法进行实施。

在整个项目生命周期活动中将按照GAMP中软、硬件类别及确认方法对系统内的软、硬件采取不同的验证策略,在系统整个生命周期实施质量风险管理方法,遵循文档管理、偏差管理和变更控制等支持流程,保证系统法规符合性。

The life cycle activities of the computerized system will be implemented in accordance with the ISPE GAMP5 V-Model methodology.

In the whole project life cycle activities, different verification strategies will be adopted for the software and hardware in the system according to the categories and confirmation methods of software and hardware in GAMP, quality risk management methods will be implemented during the whole life cycle of the system, in accordance with support processes such as document management, deviation management and change control, ensuring the compliance of system regulations.

Project Execution and Validation Lifecycle Model  
项目执行及验证生命周期模型



# 3

## Intelligence with Ability & Integrity 智圆行方

01

全流程定制化服务

Customized Service for Whole Process

用户需求分析 URS	二次优化设计 QOD	功能描述 FS	硬件设计说明 HDS	软件设计说明 SDS	设计确认 DQ
<p>与客户详细交流对URS进行澄清 把需求说明量化</p> <p>Communicate with customer in detail to clarify URS</p> <p>Quantify the requirements statement</p>	<p>工艺工程师、软件设计经理、车间主任针对控制逻辑进行梳理、优化</p> <p>仪表阀门工程师、工艺人员、业主自控工程师针对仪表选型进行梳理优化</p> <p>Process engineer, software design manager and workshop director sort out and optimize the control logic</p> <p>Instrumentation and valve engineers, process personnel and owner control engineers comb and optimize the instrument selection</p>	<p>根据URS缩写功能说明文件 用更清晰更准确的语言响应URS</p> <p>用户管理 数据归档 报警功能</p> <p>According to the URS abbreviation function specification file</p> <p>Use clearer and more accurate language to respond to URS</p> <p>User management Data archiving Alarm function</p>	<p>控制柜布局 硬件选型描述 网络架构 系统通信接口</p> <p>Layout of control cabinet Description of hardware selection The network architecture System communication interface</p>	<p>程序结构 程序功能块介绍 HMI界面介绍</p> <p>Program structure Program function block introduction HMI interface introduction</p>	<p>双方根据URS要求对设计文件进行审核确认</p> <p>确认后开始进行详细设计和项目具体执行</p> <p>The design documents were reviewed and confirmed by both parties according to URS requirements</p> <p>After confirmation, detailed design and project execution will begin</p>
系统构建 System Build	工厂测试 FAT	安装确认 IQ	功能测试 OQ	用户培训 User Training	
<p>DQ确认后程序编写、控制柜组装、设备采购、现场安装</p> <p>After DQ confirmation, program preparation, control cabinet assembly, equipment procurement and on-site installation will be carried out</p>	<p>控制柜外观检测 根据图纸校验接线 元器件标签检查 软件打点测试 硬件安装测试 软件功能测试</p> <p>Control cabinet appearance inspection Verify wiring according to drawing Component Label Inspection The software is tested Hardware installation test Software functional testing</p>	<p>计算机软硬件安装确认 现场接线及仪表安装确认 根据IQ清单及电路图进行现场打点测试</p> <p>Computer hardware and software installation confirmation Confirm field wiring and instrument installation Conduct on-site test according to IQ checklist and circuit diagram</p>	<p>程序功能测试 控制功能测试 报警测试 数据测试(报表、历史趋势、操作记录) HMI界面测试 用户管理功能测试等</p> <p>Program function test Control function test Alarm test Data testing (reports, historical trends, operational records) HMI interface testing User management functional tests, etc</p>	<p>编写用户操作手册 组织操作人员培训维护人员 直到用户熟练运用此系统</p> <p>Compile user operation manual Organize operation personnel training and maintenance personnel training until users are proficient in using the system</p>	

## 02

### 懂工艺的自控专家



依托集团工艺技术中心及近20年行业经验积累, 自控团队工艺基础扎实、现场经验丰富, 无论是控制方案设计还是仪表阀门选型, 均结合生产工艺特点, 为客户提供针对性解决方案。

#### Teamwork of Experts from All Fields

Relying on the group's process technical center and industry experience accumulated in recent 20 years, the automatic control team has a solid process foundation and rich field experience. Both control scheme design and instrument valve selections are combined with production process characteristics to provide targeted solutions for customers.

## 03

### 专业设计团队二次优化



二次优化设计的能力及深度直接决定了自动化、信息化解决方案的成败;  
设置专职优化设计团队, 充分结合项目特点, 从数字化工厂整体规划、IT网络架构、工艺梳理、控制逻辑功能梳理、仪表阀门选型、仪表安装等方面进行专业的深度优化设计。

#### Secondary Optimization of Professional Design Team

Whether or not automation and informatization proposal success is directly determined by the capability of secondary optimization during design.  
Full-time optimization design team responsible for project optimization, based on the characteristics of the project, from all aspects ranging from overall planning of digital factory, IT network architecture, processes sorting, control logic functions sorting, instrument valve selections, instrument installations, etc.

## 04

### 方案落地、可实施性强



从生产实际出发, 结合医药生产工艺特性、生产特点、使用习惯, 为客户提供针对性自动化、信息化解决方案;  
方案实用性强、性价比高、减少人力成本、提高生产效率、提高产品质量。

#### Highly Implementable Proposal

Provide customers with targeted automation and information solutions which is designed based on the vision of actual production, combined with the characteristics of the pharmaceutical production process, production characteristics, and usage habits;  
The proposals are highly practical, cost-effective, labor-saving, and focus on the improvement of production efficiency and product quality.

## 05

### 专业验证团队保障



验证团队服务过多家通过美国cGMP、欧盟GMP、中国GMP 2010版认证的大型医药企业, 计算机系统验证经验丰富。

#### Verification Support from Professional Team

The verification team has served many large pharmaceutical enterprises passing the verifications such as cGMP in the United States, GMP in the European Union, and GMP 2010 in China, with rich experience in computer system verification.

## 06

### 团队理念国际领先



与国际主流合作商深度战略合作, 并通过引进、消化、吸收、再创新, 掌握前沿技术, 始终在行业中保持技术领先地位。

#### Leading in the World: Idea of Automatic Control

Tian's Group maintains a leading position in the industry through in-depth strategic cooperation with our core partners from all over the world and possesses a batch of cutting-edge core technologies via introduction, digestion, absorption, re-innovation.

# 4

## Intelligence for the Intelligent 智者见智

### 项目案例 Projects Reference

广州百济神州生物制药有限公司  
三期项目14D车间BMS&EMS系统

国内同行业洁净厂房自动化、信息化程度领先

项目类型:生物制药车间  
服务范围:BMS空调自控系统、EMS环境监测系统、  
PLC系统、SCADA系统、计算机化系统验证  
项目规模:IO点约3000点  
项目标准:EMA、FDA

BMS&EMS System of 14D Workshop (Phase III) for  
Guangzhou BeiGene Biopharmaceutical Co., Ltd

Leading in domestic clean room industry for auto-  
mation and informationization level

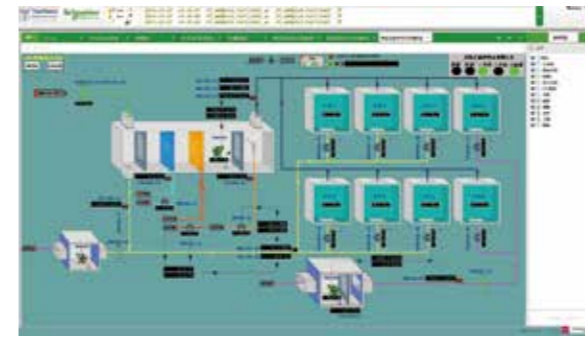
**Project Type:** Biopharmaceutical Workshop  
**Service Scope:** BMS system, EMS system, PLC  
system, SCADA system, computer system  
verification  
**Project Scale:** I/O points around 3,000  
**Project Standards:** EMA, FDA



上海君实生物工程有限公司  
临港基地中试车间新建项目

国内生物制药行业洁净厂房自动化、  
信息化程度领先

New Project of Pilot Plant of Lingang Base for  
Shanghai Jun Shi Biological Engineering  
Technology Co., Ltd.



项目类型:生物制药车间  
服务范围:BMS空调自控系统、EMS环境监测系统、  
DCS系统、SCADA系统、AGV自动移动  
小车系统、弱电系统、计算机化系统验证  
项目标准:EMA、FDA

Leading in domestic biopharmaceutical industry  
for the automation and informationization  
level of clean workshop

**Project Type:** Biopharmaceutical Workshop  
**Service Scope:** BMS air conditioning automatic control  
system, EMS environmental monitoring system, DCS system,  
SCADA system, AGV automatic mobile trolley system, weak  
current system, computer system verification  
**Project Standards:** EMA, FDA

北京诺诚健华医药科技有限公司  
药物研发平台升级项目BMS&EMS工程

Beijing InnoCare Pharma Tech Co., Ltd.  
Drug Research and Development Platform Upgraded  
Project BMS&EMS System



项目类型:生物制药车间  
服务范围:BMS&EMS系统、动力节能群控系统、  
计算机化系统验证  
项目标准:EMA、FDA

**Project Type:** Biopharmaceutical Workshop  
**Service Scope:** BMS & EMS system, group control system for power  
energy-saving, computerized system verification  
**Project Standards:** EMA, FDA

山东安舜制药有限公司  
乐陵医药产业园二期自动化工程

国内化学制药行业多功能  
合成车间自动化、信息化程度领先

项目类型:抗肿瘤多功能合成车间  
服务范围:DCS+Batch系统、SIS系统、SCADA系统、  
人员信息管理系统、计算机化系统验证  
项目规模:IO点约12000点  
项目标准:EMA、FDA

Automation Project in Laoling Pharmaceutical Industrial (Park Phase II) for Shandong Anshun Pharmaceutical Co., Ltd.

Leading in domestic chemical and pharmaceutical industry for automation and informationization level of multi-functional synthesis workshop

**Project Type:** Anti-tumor drug Multi-functional Synthesis Workshop  
**Service Scope:** DCS + Batch system, SIS system, SCADA system, staff information management system, computer system verification  
**Project Scale:** I/O points around 12,000  
**Project Standards:** EMA, FDA



齐鲁制药(内蒙古)有限公司  
阿荣旗项目自动化工程

全球规模最大、自动化、信息化  
程度领先

Automation Engineering for Arongqi Project of Qilu Pharmaceutical (Inner Mongolia) Co., Ltd.



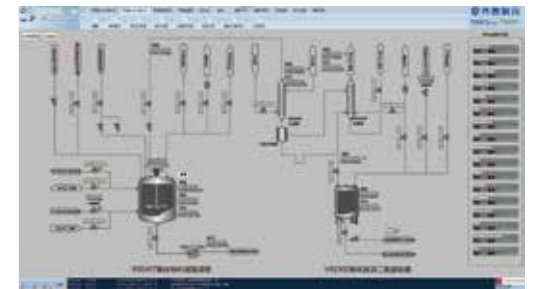
项目类型:原料药精制车间  
服务范围:DCS+Batch系统、SCADA系统、  
人员信息管理系统、计算机化系统验证  
项目规模:IO点约10000点  
项目标准:FDA

The world's largest scale and leading in information automation

**Project Type:** API Refining Workshop  
**Service Scope:** DCS + Batch system, SCADA system, staff information management system and computer system verification.  
**Project Scale:** I/O points around 10000  
**Project Standard:** FDA

齐鲁晟华制药有限公司  
年新增2000吨甲氨基阿维菌素  
苯甲酸盐扩产转型升级自动化项目

Qilu SYNVA Pharmaceutical Co., Ltd.  
Annual Increase of 2,000 Tons of Amamectin Benzoate Expansion Transformation Upgrading Project



项目类型:农药合成车间  
服务范围:DCS系统、SIS系统、SCADA系统、  
弱电系统、可燃和有毒气体探测报警系统  
项目规模:IO点约5700点

**Project Type:** Pesticide Synthesis Workshop  
**Service Scope:** DCS system, SIS system, SCADA system, weak current system, flammable and toxic gas detection and alarm system  
**Project Scale:** I/O points around 5700

康龙化成(绍兴)药业有限公司  
一期项目自动化工程

Automation Project (Phase I) for Pharmaron (Shaoxing) Pharmaceutical Co., Ltd.



项目类型: 高端创新原料药多功能合成车间  
服务范围: DCS系统、SIS系统、SCADA系统、  
计算机化系统验证  
项目规模: IO点约7000点  
项目标准: EMA、FDA

**Project Type:** High-end novel Multi-functional API Synthesis Workshop  
**Service Scope:** DCS system, SIS system, SCADA system, computer system verification  
**Project Standards:** EMA, FDA  
**Project Scale:** I/O points around 7000

天科(荆州)制药有限公司  
绿色制药产业基地自控项目

化学制药智能工厂优秀示范项目

Automatic Control Project of Green Pharmaceutical Industry Base for Tianke (Jingzhou) Pharmaceutical Co., Ltd



项目类型: 原料药合成车间  
服务范围: 合成一车间(含溶媒回收)、罐区、动力车间、原料库、成品库、质检楼、环保中心, 涵盖DCS系统、BMS/EMS系统、SCADA系统、能源管理系统、人员信息管理系统、人员定位系统、计算机化系统验证  
项目规模: IO点约13000点  
项目标准: EMA、FDA

**Excellent demonstration project of chemical and pharmaceutical intelligent plant**

**Project Type:** API Synthesis Workshop  
**Service Scope:** Synthesis workshop I, tank area, power workshop, API material warehouse, finished product warehouse, quality inspection building, environmental protection center, including DCS system, BMS/EMS system, SCADA system, energy management system, personnel information management system, personnel position system, computer system verification  
**Project Scale:** I/O points around 13000  
**Project Standard:** EMA, FDA

远大医药·武汉武药制药有限公司  
小品种(短缺药)药品原料药生产基地建设项目  
(二期工程) 自控工程

Grand Pharmaceutical • Wuhan Wuyao Pharmaceutical Co., Ltd.  
Small Variety Drugs (shortage drugs) API Production base Construction Project (phase II) Automatic Control Project



项目类型: 原料药合成车间  
服务范围: DCS系统、SIS系统、群控系统、BMS&EMS、  
计算机化系统验证  
项目规模: IO点约3500点  
项目标准: FDA

**Project Type:** API Synthesis Workshop  
**Service Scope:** DCS system, SIS system, group control system, BMS & EMS, computerized system verification  
**Project Scale:** I/O points around 3500  
**Project Standard:** FDA

黄冈人福药业有限责任公司  
国际高端新型特色原料药产业化生产基地  
8#厂房工艺自控系统

Huanggang Humanwell Pharmaceutical Co., Ltd.  
Automatic Process Control system for 8# Plant at International High-end New-type Characteristic API Industrialization Production Base



项目类型: 高端新型特色原料药  
服务范围: DCS系统、计算机化系统验证  
项目规模: IO约2000点  
项目标准: EMA、FDA

**Project Type:** High-end New-type Characteristic APIs  
**Service Scope:** DCS system, computerized system verification  
**Project Scale:** I/O points around 2000  
**Project Standard:** EMA, FDA

金城医药·山东汇海医药化工有限公司  
培南类高端医药中间体项目自动化工程

Jincheng Pharma • Shandong Huihai Pharmaceutical Chemical Co., Ltd.  
Meropenem High-end Pharmaceutical Intermediates Project Automation Engineering



项目类型: 医药中间体  
服务范围: DCS系统、SIS系统  
项目规模: IO点约8500点

**Project Type:** Pharmaceutical Intermediates  
**Service Scope:** DCS system, SIS system  
**Project Scale:** I/O points around 8500

中节能万润化工园区  
一期&二期项目自动化工程

Automation Project of Valiant Chemical Park (Phase I & Phase II) for China Energy Conservation and Environmental Protection Group Co., Ltd.



项目类型: 原料药多功能合成车间  
服务范围: DCS+Batch系统、SCADA系统、  
人员信息管理系统、计算机化系统验证  
项目规模: IO点约10000点  
项目标准: EMA、FDA

**Project Type:** Multi-functional API Synthesis Workshop  
**Service Scope:** DCS + Batch system, SCADA system, staff information management system and computer system verification.  
**Project Scale:** I/O points around 10000  
**Project Standards:** EMA, FDA

江西祥太生命科学有限公司  
生产一、二车间自动化工程

Automation Engineering of No.1 and No.2 Workshops for Jiangxi Shtec Bioscience Co., Ltd.



项目类型: 原料药合成车间  
服务范围: DCS系统、SCADA系统、计算机化系统验证  
项目规模: IO点约6000点  
项目标准: EMA、FDA

**Project Type:** API Synthesis Workshop  
**Service Scope:** DCS system, SCADA system, computer system verification  
**Project Scale:** I/O points around 6000  
**Project Standards:** EMA, FDA

浙江研一新能源科技有限公司  
AONE&SONE自动化工程

Zhejiang Yanyi New Energy Technology Co., Ltd.  
AONE & SONE Automation Engineering



项目类型: 新能源特种粘结剂  
服务范围: DCS系统  
项目规模: IO点共约3000点

**Project Type:** New Energy Special Binder  
**Service Scope:** DCS system  
**Project Scale:** I/O points around 3000

蓝晶微生物·江苏蓝素生物材料有限公司  
年产25000吨生物降解新材料(PHA)产业化  
项目一期工程

国内同行业发酵生产车间自动化程度领先

Bluepha · Jiangsu Lansu Biomaterials Co., Ltd.  
The First Phase of The Biodegradable New Material  
Polyhydroxyalkanoates (PHA) Industrialization Project  
With an Annual Output of 25,000 Tons



项目类型: 生物降解新材料  
服务范围: 发酵车间仪表及DCS系统、提取车间仪表及DCS系统、  
动力车间仪表及DCS系统、环保车间仪表及DCS系统、  
BMS空调仪表及PLC系统  
项目规模: I/O点约2400点  
项目标准: EMA

Leading automation of fermentation production  
workshops in China

**Project Type:** New biodegradable materials  
**Service Scope:** Instrument and DCS system for fermentation  
workshop, instrument and DCS system for extraction  
workshop, instrument and DCS system for power house,  
instrument and DCS system for environmental protection  
workshop, BMS air conditioning instrument and PLC system  
**Project Scale:** I/O points around 2400  
**Project Standard:** EMA, FDA

深圳市海普瑞药业集团股份有限公司  
坪山工厂新建预灌充制剂线项目BMS&EMS工程

Shenzhen Hepalink Pharmaceutical Group Co., Ltd.  
The New pre-filling Preparation Line Project BMS & EMS  
Project at Pingshan plant



项目类型: 生物制药  
服务范围: BMS&EMS系统、计算机化系统验证  
项目标准: EMA, FDA

**Project Type:** Biopharmaceutical  
**Service Scope:** BMS & EMS system, computerized system  
verification  
**Project Standard:** EMA, FDA

江苏金斯瑞蓬勃生物科技有限公司  
53#BMS&EMS工程

Jiangsu GenScript ProBio Biotech Co., Ltd.  
53#BMS&EMS Project

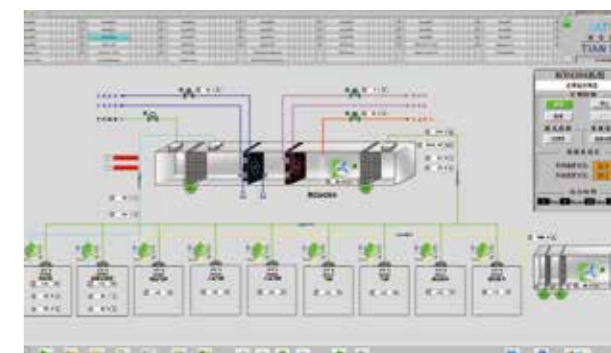


项目类型: 生物制药  
服务范围: BMS&EMS系统、动力节能群控系统、  
计算机化系统验证  
项目标准: EMA, FDA

**Project Type:** Biopharmaceutical  
**Service Scope:** BMS & EMS system, group control system for  
power energy-saving, computerized system verification  
**Project Standard:** EMA, FDA

楷拓生物科技(苏州)有限公司  
质粒核酸研发生产建设项目BMS&EMS工程

CATUG Biotechnology (Suzhou) Co., Ltd.  
Plasmid Nucleic Acid R&D and Production Construction  
Project BMS&EMS



项目类型: 生物制药  
服务范围: BMS&EMS系统、动力节能群控系统、  
计算机化系统验证  
项目标准: EMA, FDA

**Project Type:** Biopharmaceutical  
**Service Scope:** BMS & EMS system, group control system for  
power energy-saving, computerized system verification  
**Project Standard:** EMA, FDA





## 典型项目 Projects List

<p>广州百济神州生物制药有限公司三期项目14D原液车间BMS&amp;EMS系统 BMS&amp;EMS System of 14D Workshop (Phase III) for Guangzhou BeiGene Biopharmaceutical Co., Ltd</p>
<p>百济神州(广州)创新科技有限公司生物岛项目BMS&amp;EMS工程 BMS&amp;EMS System of Biopharmaceutical Project for BeiGene (Guangzhou) Innovation Technology Co., Ltd</p>
<p>上海君实生物工程有限公司临港基地中试车间新建项目BMS&amp;EMS工程 Shanghai TopAlliance Biosciences Co., Ltd. Harbor Base Workshop New Project BMS&amp;EMS</p>
<p>苏州君盟生物医药科技有限公司创新性治疗用单克隆抗体产业化项目自动化工程 Suzhou TopAlliance Biosciences Technology Co., Ltd. Automation Engineering of Industrialization Project of Innovative Monoclonal Antibody for Therapeutic Use</p>
<p>广州诺诚健华医药科技有限公司BMS&amp;EMS工程 Guangzhou InnoCare Pharma Tech Co., Ltd. BMS&amp;EMS Project</p>
<p>北京诺诚健华医药科技有限公司药物研发平台升级项目BMS&amp;EMS工程 Beijing InnoCare Pharma Tech Co., Ltd. Drug Research and Development Platform Upgraded Project BMS&amp;EMS</p>
<p>深圳市海普瑞药业集团股份有限公司坪山工厂新建预灌充制剂线项目BMS&amp;EMS工程 Shenzhen Hepalink Pharmaceutical Group Co., Ltd. Pingshan Factory's New Prefilling Preparation Line Project BMS&amp;EMS</p>
<p>江苏金斯瑞蓬勃生物科技有限公司53#BMS&amp;EMS工程 Jiangsu GenScript ProBio Biotech Co., Ltd. 53#BMS&amp;EMS Project</p>
<p>杭州民生药业股份有限公司固体制剂车间欧盟符合性项目EMS&amp;BMS工程 Hangzhou Minsheng Pharma Holding Group Co., Ltd. Solid Preparation Workshop EU Compliance Project EMS&amp;BMS</p>
<p>楷拓生物科技(苏州)有限公司质粒核酸研发生产建设项目BMS&amp;EMS工程 CATUG Biotechnology (Suzhou) Co., Ltd. Plasmid Nucleic Acid R&amp;D and Production Construction Project BMS&amp;EMS</p>
<p>广东华生元基因工程发展有限公司重组人表皮生长因子喷剂、滴眼剂项目BMS&amp;EMS工程 Guangdong Watsin Genetech LTD Recombinant Human Epidermal Growth Factor Spray and Eye Drops Project BMS&amp;EMS</p>

<p>齐鲁晟华制药有限公司年新增2000吨氨基阿维菌素苯甲酸盐扩产转型升级自动化项目 Qilu SYNVA Pharmaceutical Co., Ltd. Annual Increase of 2,000 Tons of Amamectin Benzoate Expansion Transformation Upgrading Project</p>
<p>山东安弘制药有限公司高端靶向药转型升级项目空调自动化工程 Air Conditioning Automation Engineering of the Transformation and Upgrading Project of Shandong Anhong Pharmaceutical Co., Ltd</p>
<p>山东安舜制药有限公司乐陵医药产业园二期原料药多功能车间自动化工程 Automation Project of Multi-functional API Synthesis Workshop in Laoling Pharmaceutical Industrial Park (Phase II) of Shandong Anshun Pharmaceutical Co., Ltd.</p>
<p>山东安舜制药有限公司一期项目污水处理自控工程 Shandong Anshun Pharmaceutical Co., Ltd. First Phase Project of Automatic Control Engineering of Sewage Treatment</p>
<p>齐鲁制药(内蒙古)有限公司呼伦贝尔分公司全球最大综合型绿色生物制药生产基地一期自动化工程 Automation Project of Refining Workshop (Phase I), World's Largest Comprehensive Green Biopharmaceutical Production Base, for QILU Pharmaceutical Hulun Buir Branch</p>
<p>中节能万润股份有限公司万润工业园一期B01项目自控工程 Automatic Control Project B01 of Valiant Industrial Park Phase I of Valiant Corporation Limited</p>
<p>中节能万润股份有限公司万润工业园一期自控工程 Automation Project of Valiant Chemical Park (Phase I) for China Energy Conservation and Environmental Protection Group Co., Ltd.</p>
<p>山东金城医药化工有限公司2350t/a医药系列中间体项目自控系统工程 Shandong Jincheng Pharmaceutical Chemical Co., Ltd. 2,350t/a Pharmaceutical Series Intermediate Project Automatic Control System Engineering</p>
<p>山东金城医药化工有限公司头孢呋辛酸项目自控工程 Automatic Control Project of Cefuroxime Acid Project for Shandong Jincheng Pharmaceutical &amp; Chemical Co., Ltd.</p>
<p>山东汇海医药化工有限公司培南类高端医药中间体项目自控工程 Automatic Control Engineering for Shandong Huihai Pharmaceutical &amp; Chemical Co., Ltd. Peinan High-end Pharmaceutical Intermediate Project</p>
<p>远大医药·武汉武药制药有限公司小品种药品(短缺药)原料药生产基地建设项目(二期工程)自控工程 Grand Pharmaceutical &amp; Wuhan Wuyao Pharmaceutical Co., Ltd. Small Variety Drugs (Shortage Drugs) API Production Base Construction Project (Phase II) Automatic Control Project</p>



## 典型项目 Projects List

蓝晶微生物·江苏蓝素生物材料有限公司年产25000吨生物降解新材料（PHA）产业化项目一期工程  
Bluepha· Jiangsu Lansu Biomaterials Co., Ltd. The First Phase of The Biodegradable New Material Polyhydroxyalkanoates (PHA) Industrialization Project With an Annual Output of 25,000 Tons

浙江研一新能源科技有限公司AONE&SONE自动化工程  
Zhejiang Yanyi New Energy Technology Co., Ltd. AONE & SONE Automation Engineering

景德镇富祥生命科技有限公司厂区三车间一、车间四、精馏车间及液体储罐区自动化工程  
Automation Engineering for Workshop One, Workshop Four, Rectification Workshop, and Liquid Storage Tank Area of Jingdezhen Fushine Life Technology Co., Ltd.

江西祥太生命科学有限公司一、二车间自控工程  
Automatic Control Project of No.1 and No.2 Workshops for Jiangxi Shtec Bioscience Co., Ltd.

康龙化成(绍兴)药业有限公司一期自控工程  
Automatic Control Project (Phase I) for Pharmaron (Shaoxing) Pharmaceutical Co., Ltd.

天科(荆州)制药有限公司绿色制药(化学原料药)产业基地项目(EPC)  
Tianke (Jingzhou) Pharmaceutical Co., Ltd. Green Pharmaceutical (Chemical API) Industrial Base Project (EPC)

重庆天地药业有限责任公司乌杨医药产业园一期项目自动化工程  
Automatic Control Project of Wuyang Pharmaceutical Industrial Park(Phase I) of Chongqing Tiandi Pharmaceutical Co., Ltd

山西锦波生物医药股份有限公司III型人源胶原蛋白工业化技改生产车间项目自控工程  
Shanxi Jinbo Biomedicine Co., Ltd. Type III Human Collagen Industrial Technical Transformation Workshop Project Automatic Control Project

成都微芯药业有限公司创新药生产基地一、二期BMS&EMS工程  
Chengdu Chipscreen Pharmaceutical Co., Ltd. Innovative Drug Production Base, Phase I and Phase II BMS&EMS Project

广东立国制药有限公司600T头孢唑辛酯项目合成车间自控工程  
Automatic Control Project of Synthesis Workshop of 600T Cefuroxime Axetil Project for Titan Pharmaceutical Co., Ltd. (Guangdong)

连云港润众制药有限公司抗肿瘤原料药合成车间自动化工程  
Automation Project of Anti-tumor API Synthesis Workshop for Lianyungang Runzhong Pharmaceutical Co., Ltd.

浙江普洛得邦制药有限公司青霉素类无菌原料药车间自控工程  
Automatic Control Project of Penicillin Aseptic API Workshop for Zhejiang Apeloa Tospo Pharmaceutical Co., Ltd.

浙江国邦药业集团有限公司无菌原料药自控工程  
Automatic Control Project of Aseptic API for Guobang Pharma Ltd.

浙江东盈药业有限公司无菌原料药车间工艺、空调自动化工程  
Zhejiang Dongying Pharmaceutical Co., Ltd. Aseptic API Workshop Process & Air Conditioning Automation Engineering

伊犁川宁生物技术有限公司万吨抗生素生产基地、淀粉车间自动化工程  
Automation Project of 10,000-ton Antibiotic Production Base and Starch Workshop for Yili Chuanning Biotechnology Co., Ltd.

复星医药·山东二叶制药有限公司合成车间、溶剂中心及罐区自动化工程  
Fosun Pharma & Shandong Erye Pharmaceutical Co., Ltd. Synthesis Workshop, Solvent Center, and Tank Area Automation Engineering

河北常山生化药业股份有限公司艾本那肽生产车间、乙醇回收车间自动化工程  
Automation Project of Exendin Production Workshop and Ethanol Recovery Workshop for Hebei Changshan Biochemical Pharmaceutical Co., Ltd.

南京白敬宇制药有限责任公司二甲基亚砜回收车间自控工程  
Automatic Control Project of Dimethyl Sulfoxide Recovery Workshop for Nanjing Baijingyu Pharmaceutical Co., Ltd.

威海迪素制药有限公司原料药合成车间自控工程  
Automatic Control Project of API Synthesis Workshop for Weihai Disu Pharmaceutical Co., Ltd.

内蒙古拜克生物制药有限公司阿维菌素发酵车间自控工程  
Automatic Control Project of Abamectin Fermentation Workshop for Inner Mongolia Baike Biological Co., Ltd.

内蒙古伊品生物科技有限公司年产30万吨液糖车间自控工程  
Automatic Control project of liquid sugar workshop (annual production of 300,000 tons) for Inner Mongolia Eppen Biotech Co., Ltd.