

建筑因恒久而美好
Glorious Architecture, Permanent Steel
专注钢构建筑部品制造和绿色装配 Since 1999

徐州华岩气体设备有限公司
Xuzhou Huayan Gas Equipment Co., LTD

地址：江苏省邳州市中山路珑玺湾6幢写字楼5层
电话：+8619351565170
邮箱：Mail@huayanmail.com
网址：www.equipmentcn.com



企业官网



企业公众号

CORPORATE
PHOTO ALBUM

企业画册
百年企业 军工品质

全产业链绿色装配式空间网格结构和高端钢结构建筑高质量智能建造服务商
High quality intelligent construction service provider for green prefabricated spatial grid structures
and high-end steel structure buildings throughout the entire industry chain

装配式部品部件智能化制造基地

工业化绿色建筑集成专家

空间网格结构智能建造专家与领导者

EVERLASTING
ARCHITECTURE
BUILDING EVERLASTING
恒久建筑 · 建筑恒久



ENTERPRISE CHAPTER

企业篇

01 企业简介

Company Profile

02 发展历程

Development history

03 资质荣誉

Qualifications and honors

04 科研创新

Scientific research innovation

05 制造能力

Manufacturing capability

06 施工能力

Constructability



COMPANY PROFILE 企业简介

成立于**2005**年，注册资金**10099**万元，
位于徐州经济技术开发区杨山路99号，
拥有装配式部品部件制造基地**300**余亩。

Established in 2005, with a registered capital of 100.99 million yuan,
Located at No. 99 Yangshan Road, Xuzhou Economic and Technological Development Zone,
We have over 300 acres of prefabricated component manufacturing base.



拥有建筑工程施工总承包壹级资质、钢结构工程专业承包壹级资质、轻型钢结构工程设计专项甲级资质、螺栓球网架（壳）结构制造特级资质、管桁架结构制造特级资质、钢结构制造特级资质。是国家级高新技术企业、江苏省建筑产业现代化示范基地、装配式部品部件智能化制造基地、江苏省钢结构工程技术研究中心、中国建筑金属结构协会理事单位。

Having the first level qualification for general contracting of construction engineering, first level qualification for professional contracting of steel structure engineering, first level qualification for special design of light steel structure engineering, special level qualification for bolt ball truss (shell) structure, special level qualification for pipe truss structure, and special level qualification for steel structure manufacturing. It is a national high-tech enterprise, a modern demonstration base for the construction industry in Jiangsu Province, an intelligent manufacturing base for prefabricated component parts, a research center for steel structure engineering technology in Jiangsu Province, and a member unit of the China Association of Building Metal Structures.

恒久于2008年合并重组百年军企—中国人民解放军6414工厂，秉承“百年企业、军工品质”精神，“以绿色创造未来”的建筑理念，与上海交通大学、哈尔滨工业大学、同济大学、中国矿业大学等高校院所合作，研发了具有恒久特色的大跨度空间网格结构技术体系、超大跨度张弦结构技术体系、低碳装配式PEC结构住宅集成建筑体系、多高层绿色装配式全钢集成建筑体系、钢结构工业建筑技术体系、低碳超轻钢集成住宅建筑体系、金属屋面BIPV技术体系、装配式钢结构桥梁技术体系、模块化集成建筑体系，先后承建了江苏省首座全钢结构装配式绿色集成高层建筑——颐和汇邻湾广场、国电方家庄电厂储能环保项目、上海世博文化公园双子山项目、南极罗斯海新站等众多标志性建筑。

In 2008, Hengjiu merged and restructured a century old military enterprise – the 6414 Factory of the People's Liberation Army of China. Adhering to the spirit of "century old enterprise and military industry quality" and the architectural concept of "creating the future with green", it cooperated with universities such as Shanghai Jiao Tong University, Harbin Institute of Technology, Tongji University, and China University of Mining and Technology to develop a technology system for large-span spatial grid structure and ultra large span tension string structure with Hengjiu characteristics Low carbon prefabricated PEC structure residential integrated building system, multi story green prefabricated all steel structure integrated building system, steel structure industrial building technology system, low-carbon ultra light steel integrated residential building system, metal roof BIPV technology system, prefabricated steel structure bridge technology system, modular integrated building system. We have successively undertaken the construction of the first all steel structure prefabricated green integrated high-rise building in Jiangsu Province – Yihe Huilinwan Square, State Grid Fangjiazhuang Power Plant Energy Storage and Environmental Protection Project, Shanghai World Expo Cultural Park Shuangzhishan Project, Antarctic Ross Sea New Station and many other landmark buildings.

DEVELOPMENT HISTORY

恒久·发展历程

1999

- 恒久钢构前身长虹钢结构公司成立，开启创业征程

2001

- 迁入徐州朱庄工业园
- 应邀加入中国建筑金属结构协会

2002

- 三标体系全面运行，标志公司步入标准化管理阶段

2004

- 整体迁入徐州民营工业园
- 取得钢结构工程专业承包壹级资质和轻型钢结构专项设计甲级资质

2005

- 恒久钢构正式成立
- 通过ISO9001质量体系认证

2006

- 组织流程再造，管理再上新台阶
- 授予中国建筑钢结构行业3A诚信企业

2007

- 引入第三方管理咨询机构，推进科学管理落地
- 荣获首个鲁班奖

2008

- 集团并购重组百年历史的中国人民解放军6414工厂，注入“中共江苏省第一个党支部”红色基因
- 荣获首个钢结构金奖

2012

- 整体迁入徐州经济开发区本厂区生产经营

2014

- 获批江苏省钢结构工程技术研发中心

2017

- 承建江苏省首座全钢结构高层建筑，开启绿色装配式高层钢结构发展新纪元
- 认定为江苏省建筑产业现代化示范基地及装配式部品部件智能化制造基地

2019

- 基于大跨度预应力管桁架技术封闭煤棚建设的研究和应用项目授予国家能源集团科技进步奖
- 承建国内首座安全、绿色、高效、智慧的百万千瓦超超临界间接空冷燃煤机组项目被授予中国安全生产协会安全科技进步二等奖

2021

- 认定为江苏省建筑业百强企业
- 授予江苏省先进基层党组织称号
- 授予中国建筑钢结构行业5A诚信企业

2018

- 承建世界最大跨度229米预应力管桁架环保项目，开启超大跨度预应力管桁架建设新纪元
- 取得建筑工程施工总承包贰级资质
- 超大跨度预应力索拱桁架施工工法荣获省级工法认定
- 认定为江苏省钢结构工程技术研究中心

2015

- 获批国家高新技术企业认定
- 取得中国钢结构制造特级资质

2016

- 螺栓球网架杆件制作加工工法荣获省级工法认定

2022

- 国内首创空间网格结构智能制造生产基地落地运营
- 取得建筑工程总承包壹级资质
- 取得螺栓球网架（壳）结构制造、管桁架结构制造特级资质

2023

- 携手上海交通大学成立空间钢结构智能建造研究中心
- 参与中国第五个南极科考站罗斯海新站建设

HONORARY QUALIFICATIONS

恒久·荣誉资质



★ 主编省标《装配式部分包覆钢-混凝土组合结构技术规程》

Editor in Chief Provincial Standard "Technical Specification for Prefabricated Partially Clad Steel Concrete Composite Structures"

★ 参编行业标准《建筑用不锈钢焊接管材》

Participated in the compilation of industry standard "Stainless Steel Welded Pipes for Construction"

★ 参编标准《建筑钢、木结构企业质量管理等级评价标准》

Participating in the compilation of the standard "Quality Management Level Evaluation Standard for Building Steel and Wood Structure Enterprises"

★ 参编标准《钢网架结构螺栓球节点用封板锥头和套筒》

Participating in the compilation of the standard "Sealing Plate Cone Head and Sleeve for Bolted Ball Joints in Steel Grid Structures"

★ 参编标准《料场封闭钢结构工程检测与评定专项规程》

Participated in the compilation of the standard "Special Specification for Inspection and Evaluation of Closed Steel Structure Engineering in Material Yard"

★ 参编省《装配式建筑技术手册》

Participated in the compilation of the Provincial Prefabricated Building Technical Manual

★ 省级工法《超大跨度预应力索拱架施工工法》

Provincial construction method "Construction method for super large span prestressed cable arch frame"

★ 省级工法《螺栓球网架杆件的制作加工工法》

Provincial construction method "Manufacturing and processing method of bolt ball net frame members"



★ 鲁班奖

Luban Award

★ 钢结构金奖

Steel Structure Gold Award

★ 扬子杯

Yangtze Cup

★ 国家能源科技进步奖

National Energy Science and Technology Progress Award

★ 中国建筑金属结构协会科学技术奖一等奖

First Prize of Science and Technology Award of China Building Metal Structure Association

★ 中国钢结构协会技术创新奖

China Steel Structure Association Technology Innovation Award

★ 江苏省建筑产业现代化优秀创新奖

Jiangsu Province Construction Industry Modernization Excellent Innovation Award

★ 空间螺栓球网架结构智能生产线新技术

New Technology of Intelligent Production Line for Space Bolt Ball Grid Structure

★ 2022年度建筑钢结构行业竞争力 50 强企业

Top 50 Competitive Enterprises in the Construction Steel Structure Industry in 2022



★ 中共江苏省第一个党支部

The First Party Branch of the Communist Party of China in Jiangsu Province

★ 国家级高新技术企业

National level high-tech enterprise

★ 江苏省建筑产业现代化示范基地

Jiangsu Province Construction Industry Modernization Demonstration Base

★ 装配式部品部件智能化制造基地

Intelligent manufacturing base for prefabricated component parts

★ 江苏省钢结构工程研究中心

Jiangsu Steel Structure Engineering Technology Research Center

★ 江苏省建筑业百强企业

Top 100 Construction Enterprises in Jiangsu Province

★ 徐州市智能建造研究中心

Xuzhou Intelligent Construction Research Center

★ 徐州市企业技术中心

Xuzhou Enterprise Technology Center

★ 江苏省先进基层党组织

Advanced Grassroots Party Organizations in Jiangsu Province

★ 中国建筑钢结构行业5A诚信企业

5A Integrity Enterprise in China's Construction Steel Structure Industry

★ 建筑工程施工总承包壹级资质

First level qualification for general contracting of construction projects

★ 钢结构工程专业承包壹级资质

First level qualification for professional contracting of steel structure engineering

★ 轻型钢结构工程设计专项甲级资质

Special Grade A Qualification for Design of Light Steel Structures

★ 螺栓球网架（壳）结构制造特级资质

Special qualification for bolt ball grid structure (shell)

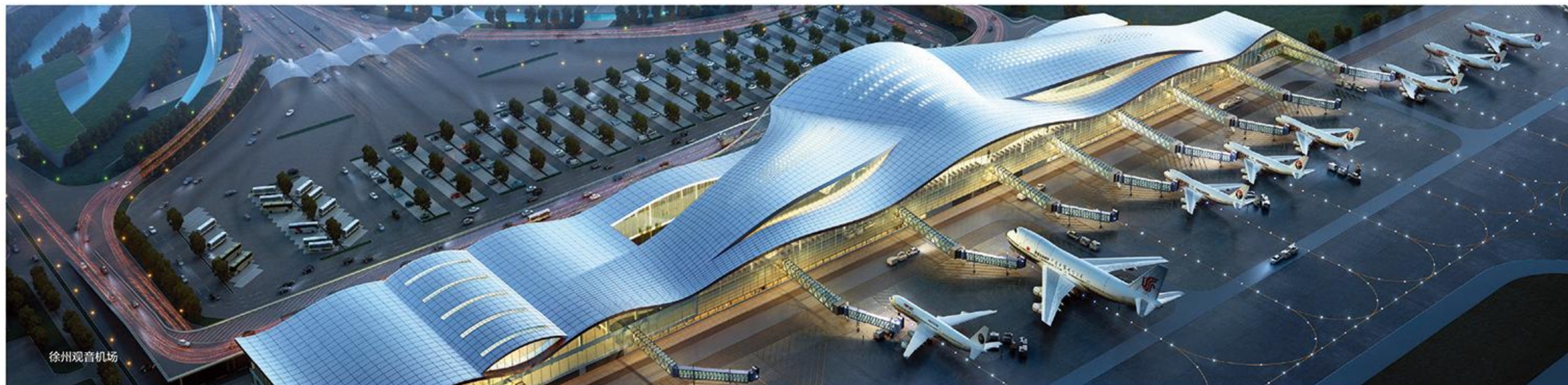
★ 管桁架结构制造特级资质

Special qualification for pipe truss structure

★ 钢结构制造特级资质

Special qualification for steel structure manufacturing

SCIENTIFIC RESEARCH INNOVATION 恒久·科研创新



恒久钢构致力于以科技创新为抓手、以高质量发展为引领，高度重视科技研发工作。公司是江苏省钢结构工程技术研究中心，拥有技术研发人员50余人，其中高级职称人员占比60%以上。先后与哈尔滨工业大学、同济大学、中国矿业大学等高校院所建立了产学研战略合作关系，并与上海交通大学船建学院成立空间钢结构智能建造研究中心，共建恒久钢构空间钢结构智能建造示范基地，研发了具有恒久特色的九大结构技术体系及三大核心关键技术。

Hengjiu Steel Structure is committed to using technological innovation as the starting point, leading by high-quality development, and attaches great importance to scientific and technological research and development work. The company is the Jiangsu Steel Structure Engineering Technology Research Center, with more than 50 technical research and development personnel, of which more than 60% are personnel with senior professional titles. We have established strategic cooperation relationships with universities such as Harbin Institute of Technology, Tongji University, and China University of Mining and Technology. We have also established a research center for intelligent construction of space steel structures with the School of Shipbuilding, Shanghai Jiao Tong University, and jointly built a demonstration base for the intelligent construction of permanent steel structure space steel structures. We have developed nine structural technology systems and three core key technologies with long-lasting characteristics.



50⁺
设计研发人员

100⁺
专利技术

30⁺
著作论文标准



恒久钢构一直注重自主知识产权的研究和开发，先后获得专利、工法、软著等技术成果100余项，科技成果转化率达95%以上。

Hengjiu Steel Structure has always focused on the research and development of independent intellectual property rights, and has obtained more than 100 technological achievements such as patents, construction methods, and software copyrights, with a technology conversion rate of over 95%.

MANUFACTURING CAPABILITY

恒久·制造能力

年网架、桁架、钢结构生产能力 **20** 万吨

公司目前拥有生产厂房约10万平方米。拥有自主研发的空间网格结构智能化生产线，采用先进的智能CAD-CAM技术，实现了设计数据与数控设备的无缝对接；先进数字化生产管理系统，实现全过程实时监控管理，为公司数字化转型和走新型建筑工业化道路奠定了坚实的基础。

The company currently has a production plant of approximately 100000 square meters. We have an independently developed intelligent production line for spatial grid structures, utilizing advanced intelligent CAD-CAM technology to achieve seamless integration between design data and CNC equipment; The advanced digital production management system achieves real-time monitoring and management of the entire process, laying a solid foundation for the company's digital transformation and the path of new building industrialization.

十大核心制造技术

Top Ten Core Manufacturing Technologies

★ 超大跨度桁架结构加工技术

Processing technology for ultra large span steel truss structures

★ 带复杂节点H型桁架结构加工技术

Processing technology for H-shaped truss structures with complex nodes

★ 弧形箱体桁架结构加工技术

Processing Technology of Arc-shaped Box Truss Structure

★ 钢管和型材顶弯加工技术

Top bending processing technology for steel pipes and profiles

★ 新型部分包覆钢-混凝土组合结构加工技术

New Processing Technology for Partially Coated Steel Concrete Composite Structures

★ 十字型转箱型钢柱加工技术

Processing technology for cross shaped box shaped steel columns

★ 双曲梁及旋转楼梯加工技术

Processing technology for hyperbolic beams and rotating stairs

★ 厚板窄间隙焊接技术

Thick Plate Narrow Gap Welding Technology

★ 超低温环境服役结构钢焊接技术

Welding technology for structural steel in ultra-low temperature environments

★ 钢结构数字预拼装技术

Digital pre assembly technology for steel structures

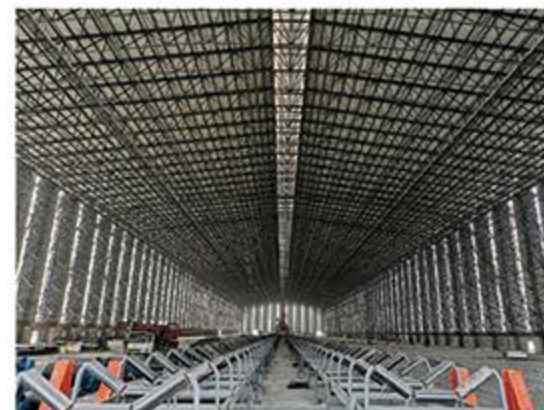
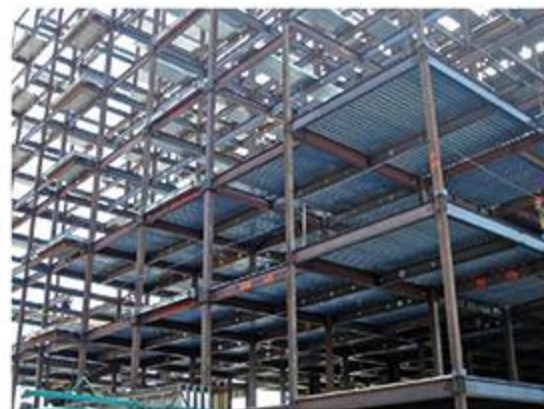
CONSTRUCTABILITY

恒久·施工能力

年施工能力 **3000** 万平方米

公司专业工种持证上岗，机械设备配套齐全。可承接管桁架、网架、钢框架等各类钢结构工程的施工。尤其在空间结构领域有着丰富的施工经验，获得了多项施工工法及专利，处在业内领先水平。公司注重施工技术的发展，拥有顶升、提升、滑移、张拉等成套技术。年综合施工能力300万平方米。

The company's professional occupations are certified and equipped with complete mechanical equipment. Can undertake the construction of various steel structure projects such as trusses, grid structures, and steel frames. Especially in the field of spatial structures, he has rich construction experience and has obtained multiple construction methods and patents, which is at the leading level in the industry. The company focuses on the development of construction technology and has a complete set of technologies such as jacking, lifting, sliding, and tensioning. The annual comprehensive construction capacity is 3 million square meters.



TECHNOLOGY

技术篇

01 大跨空间网格结构技术体系

Technical system of large-span spatial grid structure

02 超大跨度张弦结构技术体系

Technical System of Ultra Large Span String Structures

03 低碳装配式PEC结构集成住宅建筑技术体系

Low carbon prefabricated PEC structure integrated residential building technology system

04 多高层绿色装配式全钢构集成建筑技术体系

Technical System of Multi story Green Prefabricated All Steel Structure Integrated Building

05 低碳超轻钢集成住宅建筑技术体系

Low carbon ultra light steel integrated residential building technology system

06 金属屋面BIPV技术体系

BIPV technology system for metal roofs

07 钢结构工业建筑技术体系

Technical System of Steel Structure Industrial Building

08 模块化集成建筑体系

Modular integrated building system

09 装配式钢结构桥梁技术体系

Technical System of Prefabricated Steel Structure Bridges

10 空间网格结构智慧设计技术

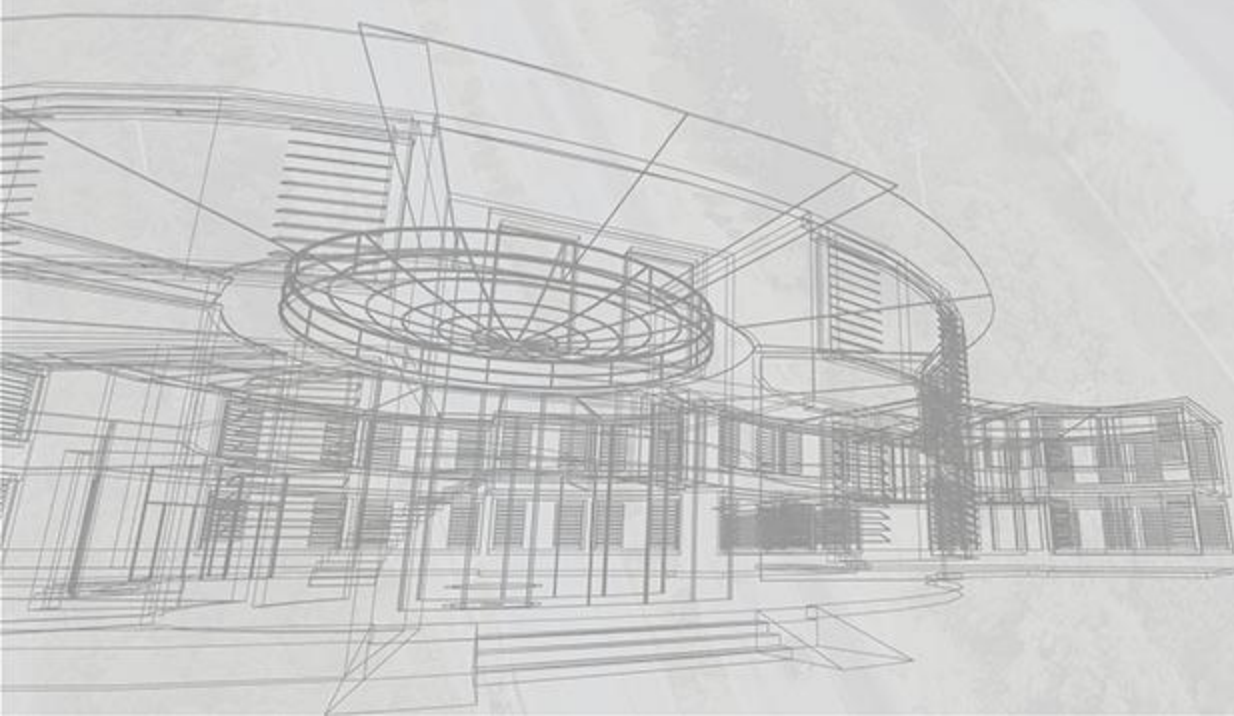
Smart design technology for spatial grid structures

11 钢结构智能制造技术

Intelligent Manufacturing Technology for Steel Structures

12 钢结构智能建造技术

Intelligent construction technology for steel structures



TECHNICAL SYSTEM OF LARGE-SPAN SPATIAL GRID STRUCTURE

大跨空间网格结构技术体系

采用与上海交通大学合作研发的空间结构智慧设计软件 HJ-STCAD, 可对各类空间网格结构工程项目进行参数化驱动的智慧设计, 自动实现大批量方案对比, 较常规设计方法节约用钢量可达10%, 提高设计效率50%以上。

自主研发了国内首套螺栓球网格结构杆件智能化生产线, 实现杆件从下料、焊接、涂装、烘干的全过程自动化数控加工; 合作研制了螺栓球加工数控机床, 实现螺栓球从基准孔、抛光、铣面、钻孔、倒角、攻丝的全过程自动化数控加工。

自主研发了网格结构杆件自动套料软件, 最大程度地利用杆件原材料, 生成的套料数据可直接输入杆件智能化生产线, 实现杆件自动加工, 解决了现有人工进行杆件套料耗时耗力、且很难实现杆件数字化管理问题。

首创空间网格结构数字化运维全生命周期管理平台, 包括运行在云服务器上的数字化管理后台——恒久云和运行在电脑或手机上的数字化管理终端。数字化管理后台通过“一件一码”技术手段, 实现所有原料和构件在全生命周期的状态实时更新, 从而实现工期规划、进度管理、余料管理、质量管理、成本控制、安全监管等功能; 数字化管理终端可实现现场构件原料状态实时同步, 信息查询, 流程表单自助提交, 实时查看项目进度等功能。

The spatial structure intelligent design software HJ-STCAD, developed in collaboration with Shanghai Jiao Tong University, can be used for parameterized driven intelligent design of various spatial grid structure engineering projects, automatically achieving large-scale scheme comparison. Compared with conventional design methods, it can save up to 10% of steel consumption and improve design efficiency by more than 50%.

We have independently developed the first intelligent production line for bolt ball grid structure members in China, achieving full process automation of CNC machining from cutting, welding, painting, and drying of members; We have collaborated on the development of a CNC machine tool for bolt ball machining, which realizes the full process automation of bolt ball machining from benchmark hole, polishing, milling, drilling, chamfering, and tapping.

We have independently developed an automatic nesting software for grid structure members, which maximizes the use of raw materials for members. The generated nesting data can be directly input into the intelligent production line for members, achieving automatic processing of members. This solves the problem of time-consuming and labor-intensive manual nesting of members, as well as the difficulty in achieving digital management of members.

Pioneering digital operation and maintenance full lifecycle management platform for spatial grid structure, including digital management backend running on cloud servers – Everlasting Cloud and digital management terminals running on computers or mobile phones. The digital management backend uses “one piece, one code” technology to achieve real-time updates of all raw materials and components throughout their lifecycle, thereby achieving functions such as schedule planning, progress management, surplus material management, quality management, cost control, and safety supervision; The digital management terminal can achieve real-time synchronization of on-site component raw material status, information inquiry, self-service submission of process forms, and real-time viewing of project progress.



TECHNICAL SYSTEM OF SUPER LONG SPAN TENSION STRING STRUCTURE

超大跨度张弦结构技术体系

采用空间三角形或四边形圆管钢桁架+体外预应力拉索的结构体系, 该体系采用公司特有的先进的HJ-STCAD建模设计分析软件进行优化设计和施工全过程吊装分析, 确保设计的最优化和施工的安全合理性。

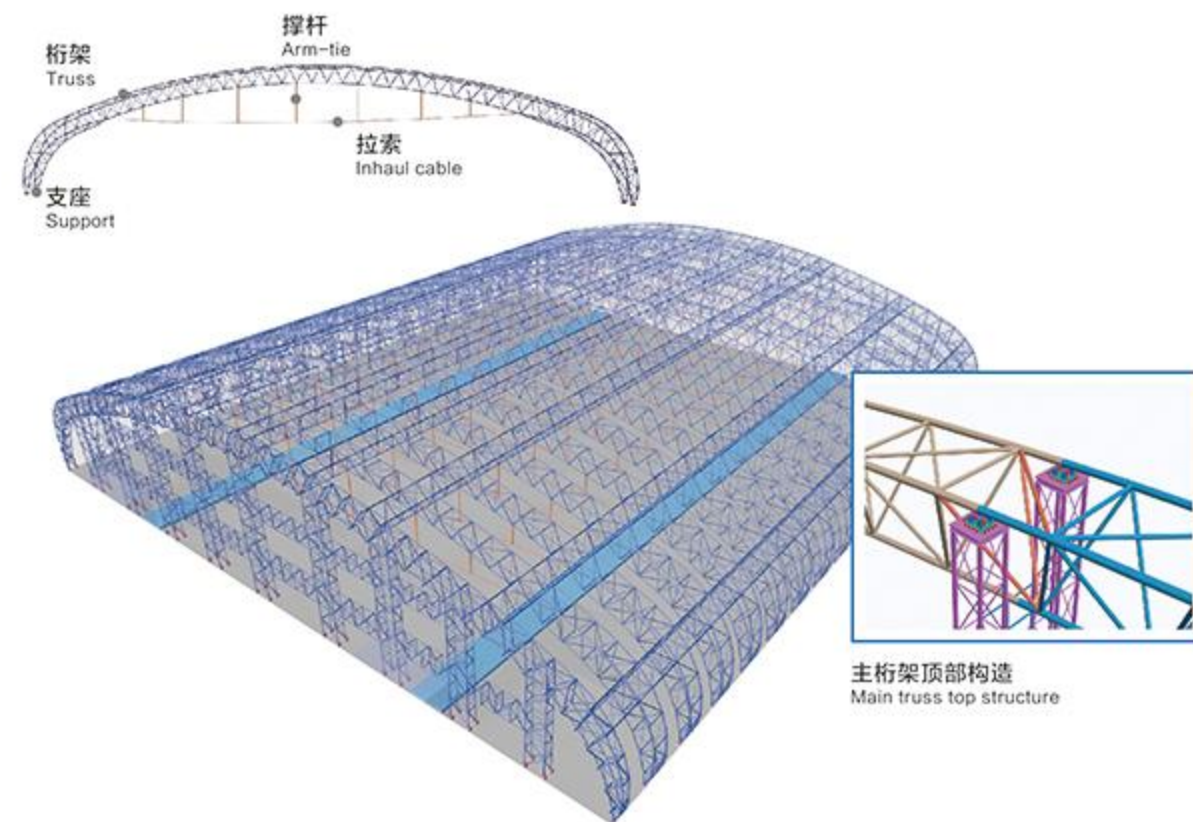
采用先进的CAD-CAM技术, 实现了钢结构深化设计软件与数控生产机床的无缝对接, 拥有大跨度高精度弯管技术、高质量钢管对接技术等核心加工技术。

拥有一整套成熟的大跨度预应力管桁架结构施工工法, 涉及张弦桁架的拉索张拉方法、支撑胎架高精度安装方法、累积滑移方法、高程控制网的建立方法、钢结构虚拟预拼装技术等, 超大跨度张弦结构技术体系国内领先。

The structural system adopts a spatial triangle or quadrilateral circular tube steel truss+external prestressed cables. The system adopts the company's unique advanced HJ-STCAD modeling design analysis software for optimized design and construction whole process lifting analysis, ensuring the optimization of design and the safety and rationality of construction.

By adopting advanced CAD-CAM technology, seamless integration between steel structure deepening design software and CNC production machine tools has been achieved, with core processing technologies such as large-span high-precision bending technology and high-quality steel pipe docking technology.

We have a complete set of mature construction methods for large-span prestressed pipe truss structures, including cable tensioning methods for tension string trusses, high-precision installation methods for support frames, establishment methods for elevation control networks, and virtual pre assembly technology for steel structures. Our technology system for large-span tension string structures is leading domestically.



LOW CARBON PREFABRICATED PEC STRUCTURE INTEGRATED RESIDENTIAL BUILDING TECHNOLOGY SYSTEM

低碳装配式PEC结构集成住宅建筑技术体系

以国际先进的PEC钢混组合结构体系为主体，并集成恒久特色外挂内嵌双层装配式外墙体系、装配式加气混凝土内墙体系、无支撑预制PC钢筋桁架叠合板+预制PC楼梯以及设备管线装修一体化体系，形成一种恒久特色建筑体系。该体系中均可以采用窄翼缘的组合梁和组合柱，很好的解决了住宅中凸梁凸柱问题；PEC构件防火和防腐性能突出，与传统纯钢构相比减少防火防腐涂料用量50%以上，工程总造价降低5%~15%；相对于纯钢构或SRC组合结构，具备较大的刚度，提高房屋结构的舒适度；相对纯混凝土结构，具备一定程度的轻量化优势；同时预制率和装配率高，工业化程度高。

Taking the internationally advanced PEC steel-concrete composite structure system as the main body, and integrating the long-lasting characteristic external hanging and embedded double-layer prefabricated exterior wall system, prefabricated aerated concrete interior wall system, unsupported prefabricated PC steel bar truss composite plate+prefabricated PC staircase, and equipment pipeline decoration integration system, a long-lasting characteristic building system is formed. In this system, composite beams and columns with narrow flanges can be used, effectively solving the problem of convex beams and columns in residential buildings; PEC components have outstanding fire and anti-corrosion performance, reducing the use of fire and anti-corrosion coatings by more than 50% compared to traditional pure steel structures, and reducing the total project cost by 5% to 15%; Compared to pure steel or SRC composite structures, it has greater stiffness and improves the comfort of the building structure; Compared to pure concrete structures, it has a certain degree of lightweight advantage; At the same time, the prefabrication rate and assembly rate are high, and the degree of industrialization is high.

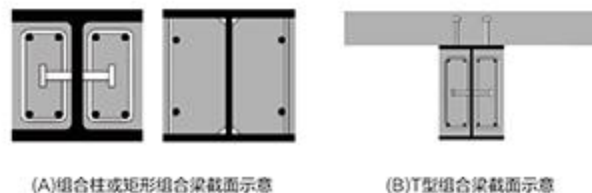


PEC部分包覆钢-混凝土组合构件

开口截面主钢件外周轮廓间包覆混凝土，且混凝土与主钢件共同受力的结构构件，H型钢PEC梁、PEC柱、T型PEC梁；异形PEC柱、PEC剪力墙

PEC partially coated steel concrete composite components

A structural component consisting of H-shaped steel PEC beams, PEC columns, and T-shaped PEC beams, where concrete is wrapped between the outer contours of the main steel component with an open section and the concrete and the main steel component are subjected to joint forces; Specially shaped PEC columns and PEC shear walls

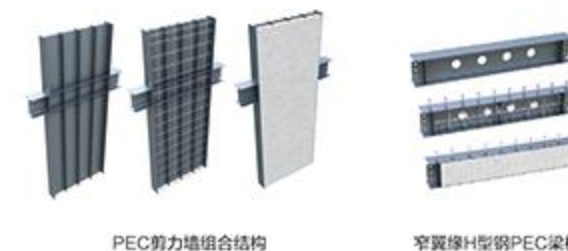


主体结构体系

扁方管混凝土柱+窄翼缘H型钢PEC梁柱+PEC剪力墙组合结构

Main structural system

Composite structure of flat square tube concrete column, narrow flange H-shaped steel PEC beam column, and PEC shear wall



楼面系统与楼梯系统

无支撑预制PC钢筋桁架楼承板+预制PC楼梯（钢混组合楼梯）
装配施工：无满堂脚手架施工；预制构件装配化施工；无模板施工
楼面性能：楼面整体性好；楼面防水性好；楼面顶棚粉刷性好
楼梯性能：舒适感好



Floor system and staircase system

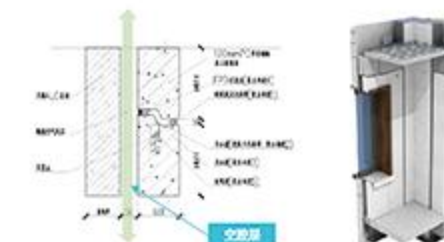
Unsupported prefabricated PC steel truss floor support plate+prefabricated PC staircase (steel-concrete composite staircase)
Assembly construction: construction without full scaffolding; Prefabricated component assembly construction; Formwork free construction
Floor performance: Good overall floor integrity; Good waterproofing of the floor; Good floor and ceiling painting performance
Staircase performance: good comfort

外墙系统

外挂内嵌双层装配式外墙，内嵌加气混凝土条板，外挂加气混凝土模板，中间留有空腔，内外墙分离双层防水保护、隔绝保温性好，空腔可布置管线。

External wall system

External and embedded double-layer prefabricated exterior walls, embedded aerated concrete strips, external aerated concrete horizontal plates, with a cavity left in the middle. The internal and external walls are separated with double-layer waterproof protection and good insulation. The cavity can be used to arrange pipelines.



内墙系统

装配式加气混凝土墙板
装配施工：非砌筑干法施工、免找平抹灰预制导墙精确定位
使用舒适：隔音降噪性能好、绿色环保、防火阻燃性能好
防开裂：柔性伸缩构造防止温度变形开裂

Internal wall system

Prefabricated aerated concrete wall panel
Assembly construction: non masonry dry method construction, precise positioning of prefabricated guide walls without leveling and plastering
Comfortable to use: good sound insulation and noise reduction performance, green environmental protection, good fire and flame retardant performance
Anti cracking: Flexible telescopic structure to prevent temperature deformation and cracking



LOW CARBON ULTRA LIGHT INTEGRATED RESIDENTIAL BUILDING TECHNOLOGY SYSTEM

低碳超轻钢集成住宅建筑技术体系

采用超轻钢结构体系和新型建筑用非金属及金属板材，以及轻质保温材料，集成全装配式住宅体系。具有建造周期短，建造标准化程度高，环境影响小，节能效果好等优点。适用于建造1-6层的房屋建筑。

Adopting ultra-light steel structure system, new non-metallic and metal sheets for construction, as well as lightweight insulation materials, integrated into a fully assembled residential system. It has the advantages of short construction cycle, high standardization of construction, low environmental impact, and good energy-saving effect. Suitable for building buildings with 1-6 floors.

TECHNICAL SYSTEM OF MULTI STORY GREEN PREFABRICATED ALL STEEL STRUCTURE INTEGRATED BUILDING

多高层绿色装配式全钢构集成建筑技术体系

本体系采用钢管混凝土柱+中心支撑的结构体系，集成了装配式三板系统（钢筋桁架楼承板+预制钢楼梯+加气混凝土墙板）、以及幕墙系统、机电系统；具有三大核心技术，分别是钢框架+中心支撑的全钢结构体系，该技术承重能力相比单独使用钢管柱或混凝土柱提高2倍之多；高层建筑铰接柱脚技术，本技术减少基础开挖深度和岩土爆破量，降低了工程成本约5%~15%；圆钢管混凝土柱+混凝土地下室组合技术，最大限度发挥钢-混组合结构的承载能力和防水防火性能。

This system adopts a structural system of steel tube concrete columns+central support, integrating a prefabricated three panel system (steel truss floor support plate+prefabricated steel staircase+aerated concrete wall panel), as well as curtain wall system and electromechanical system; It has three core technologies, namely a steel frame+central support all steel structural system, which has a load-bearing capacity that is more than twice that of using steel pipe columns or concrete columns alone; The technology of hinged column feet in high-rise buildings reduces the depth of foundation excavation and the amount of rock and soil blasting, and reduces engineering costs by about 5% to 15%; The combination technology of round steel tube concrete column and concrete basement maximizes the bearing capacity and waterproof and fireproof performance of steel-concrete composite structures.



钢框架+中心支撑的全钢结构体系

该技术承重能力相比单独使用钢管柱或混凝土柱提高2倍之多。

Full steel structure system with steel frame and central support

The load-bearing capacity of this technology is more than twice that of using steel pipe columns or concrete columns alone.

高层建筑铰接柱脚技术

本技术减少基础开挖深度和岩土爆破量，降低约5%~15%的工程成本。

Hinged Column Footing Technology for High rise Buildings

This technology reduces the depth of foundation excavation and the amount of rock and soil blasting, reducing engineering costs by about 5% to 15%.

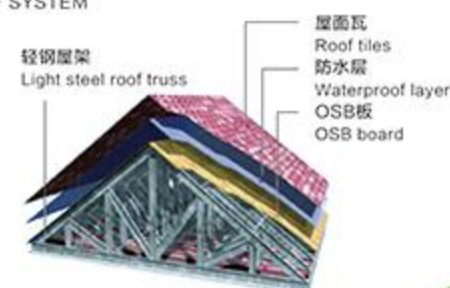
圆钢管混凝土柱+混凝土地下室组合节点技术

最大限度发挥钢-混组合结构节点连接的承载能力和防水防火性能。

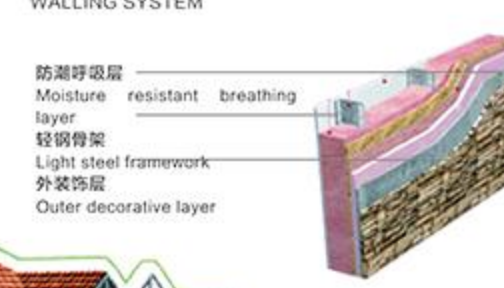
Composite node technology of round steel tube concrete column and concrete basement

Maximize the load-bearing capacity and waterproof and fireproof performance of the node connections in steel-concrete composite structures.

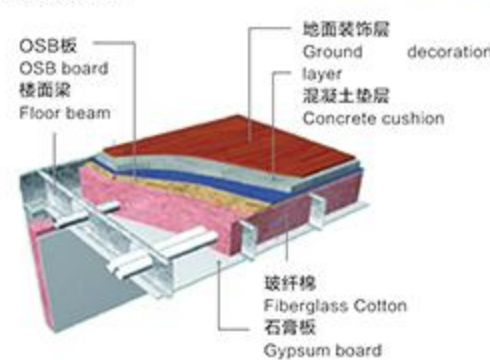
屋面系统 ROOF SYSTEM



墙体系统 WALLING SYSTEM



楼面系统 FLOOR SYSTEM



结构构件 STRUCTURAL MEMBERS

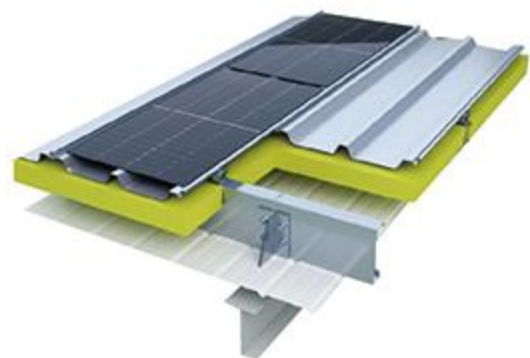


BIPV TECHNICAL SYSTEM FOR METAL ROODING

金属屋面BIPV技术体系

自主设计金属屋面板系统，可以兼做光伏面板支架系统，可以与光伏面板有机结合在一起，形成光伏建筑一体化产品。提升金属屋面防水和保温隔热效果，降低屋面光伏系统综合造价。

Independently designed metal roof panel system can also serve as a photovoltaic panel support system, which can be organically combined with photovoltaic panels to form an integrated photovoltaic building product. Improve the waterproof and thermal insulation effects of metal roofs, and reduce the comprehensive cost of roof photovoltaic systems.



重量轻，减轻建筑荷载；抗风揭，抗风性能达14级台风；防水、防火、时尚美观；使用寿命长；安装方便，施工专业技术指导，金属光伏屋面安装在屋顶上，无需额外占用土地。

Lightweight, reducing building loads; Wind resistance, with a wind resistance performance of up to 14 level typhoons; Waterproof, fireproof, fashionable and aesthetically pleasing; Long service life; Easy to install, with professional technical guidance for construction, metal photovoltaic roofs can be installed on the roof without the need for additional land occupation.



绿色能源，金属屋面光伏一体化（BIPV）产生的是绿色能源，不会污染环境。太阳能是最清洁并且是免费的，利用过程中不会产生任何生态方面的副作用。它又是一种再生能源，取之不尽，用之不竭。

Green energy, metal roof photovoltaic integration (BIPV) produces green energy that does not pollute the environment. Solar energy is the cleanest and free, and there will be no ecological side effects during its utilization. It is also a renewable energy source that is inexhaustible and inexhaustible.



起到建筑节能作用，安装于屋顶的光伏瓦吸收太阳能转化为电能，大大降低了室外综合温度，减少了墙体得热和室内空调冷负荷，所以也可以起到建筑节能作用。

It plays a role in building energy conservation. The photovoltaic tiles installed on the roof absorb solar energy and convert it into electrical energy, greatly reducing the outdoor comprehensive temperature, reducing wall heating and indoor air conditioning cooling load, so it can also play a role in building energy conservation.

TECHMOCAL SYSTEM FOR STEEL STRUCTURE INDUSTRIAL BUILDINGS

钢结构工业建筑技术体系

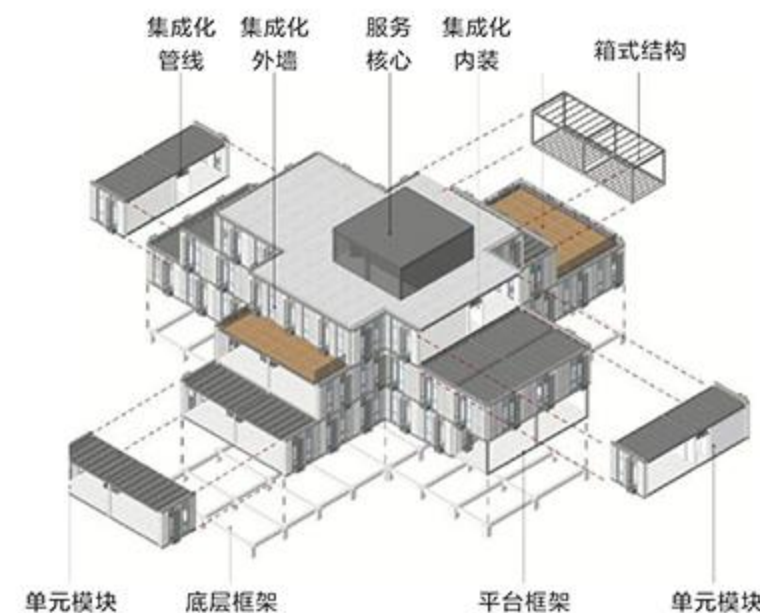


主要采用门式钢架结构系统，冷弯成型檩条系统，以及金属屋面和墙面围护系统，形成低层和多层全装配化轻型钢结构建筑系统。具备自重轻、全工厂预制、施工速度快、综合造价低，内部跨度空间大等优点。

Mainly using a portal steel frame structure system, a cold formed purlin system, and a metal roof and wall enclosure system, forming a low and multi-layer fully assembled lightweight steel structure building system. It has the advantages of light weight, full factory prefabrication, construction speed block, low comprehensive cost, and large internal span space.

MODULAR INTEGRATED BUILDING SYSTEM

模块化集成建筑体系



采用大模块建造技术+工厂全装修建造模式，大模块建造方式突破集装箱小模块空间局限，增加平面功能灵活性，减少现场作业量，同时质量达到工业级。模块整体安装在主体钢结构楼面上，接通主体管线接口，即可“拎包入住”。

Adopting large module construction technology and factory full decoration construction mode, the large module construction method breaks through the limitations of container small module space, increases the flexibility of planar functions, reduces on-site operations, and achieves industrial grade quality. The module is installed as a whole on the main steel structure floor, connected to the main pipeline interface, and can be moved in.

TECHNICAL SYSTEM FOR PREFABRICATED STEEL STRUCTURE BRIDGES 装配式钢结构桥梁技术体系

宣曲高速大龙湾互通工程



采用精确建模与数控排版，解决了桥梁错位板现场分段间精确对接、零件起拱、精确下料与制孔问题。采用大截面H型、箱型组立焊接自动生产线，板单元自动反转架，龙门自动埋弧焊机等自动设备保证了桥梁主体的组装焊接质量。

By adopting precise modeling and CNC layout, the problems of precise docking between segments, part arching, precise cutting and hole making of bridge misalignment plates on site have been

solved. The use of automatic production lines for large-section H-shaped and box shaped assembly welding, automatic reversing frames for plate units, gantry automatic submerged arc welding machines, and other automatic equipment ensures the assembly and welding quality of the bridge body.

CHARACTERISTICS OF STEEL STRUCTURE BRIDGES 钢结构桥梁的特点



钢材的抗拉、抗压、抗剪强度相对来说较高，钢构件断面小、自重轻。

The tensile, compressive, and shear strength of steel is relatively high, and the steel components have a small cross-section and light self weight.



钢材的塑性和韧性好，使钢结构桥梁的抗震性能好。

The good plasticity and toughness of steel make the seismic performance of steel structure bridges good.



易于改造，变动比较容易、灵活。

Easy to transform, relatively easy and flexible to change.



强度高，自重轻则可减轻基础的负荷，降低基础造价，同时还便于运输和吊装。

High strength and light weight can reduce the load on the foundation, reduce the cost of the foundation, and also facilitate transportation and lifting.



连接简便，安装方便，施工周期短。

Easy connection, easy installation, and short construction period.



制造、加工、工业化程度较高，精度高。

The good plasticity and toughness of steel make the seismic performance of steel structure bridges good.



环保产品，节约能源，符合可持续发展的政策。

Environmental protection products, energy conservation, and compliance with sustainable development policies.

咸阳风雨廊桥工程

SMART DESIGN TECHNOLOGY FOR SPATIAL GRID STRUCTURES

空间网格结构智慧设计技术

拥有先进的空间网格结构建模分析设计软件，能够实现多模型和多方案的快速对比分析，找出最优化的方案，能够实现施工全过程的模拟分析和虚拟预拼装。

Equipped with advanced spatial grid structure modeling, analysis and design software, it can quickly compare and analyze multiple models and schemes, find the optimal solution, and achieve simulation analysis and virtual pre assembly of the entire construction process.

建模效率

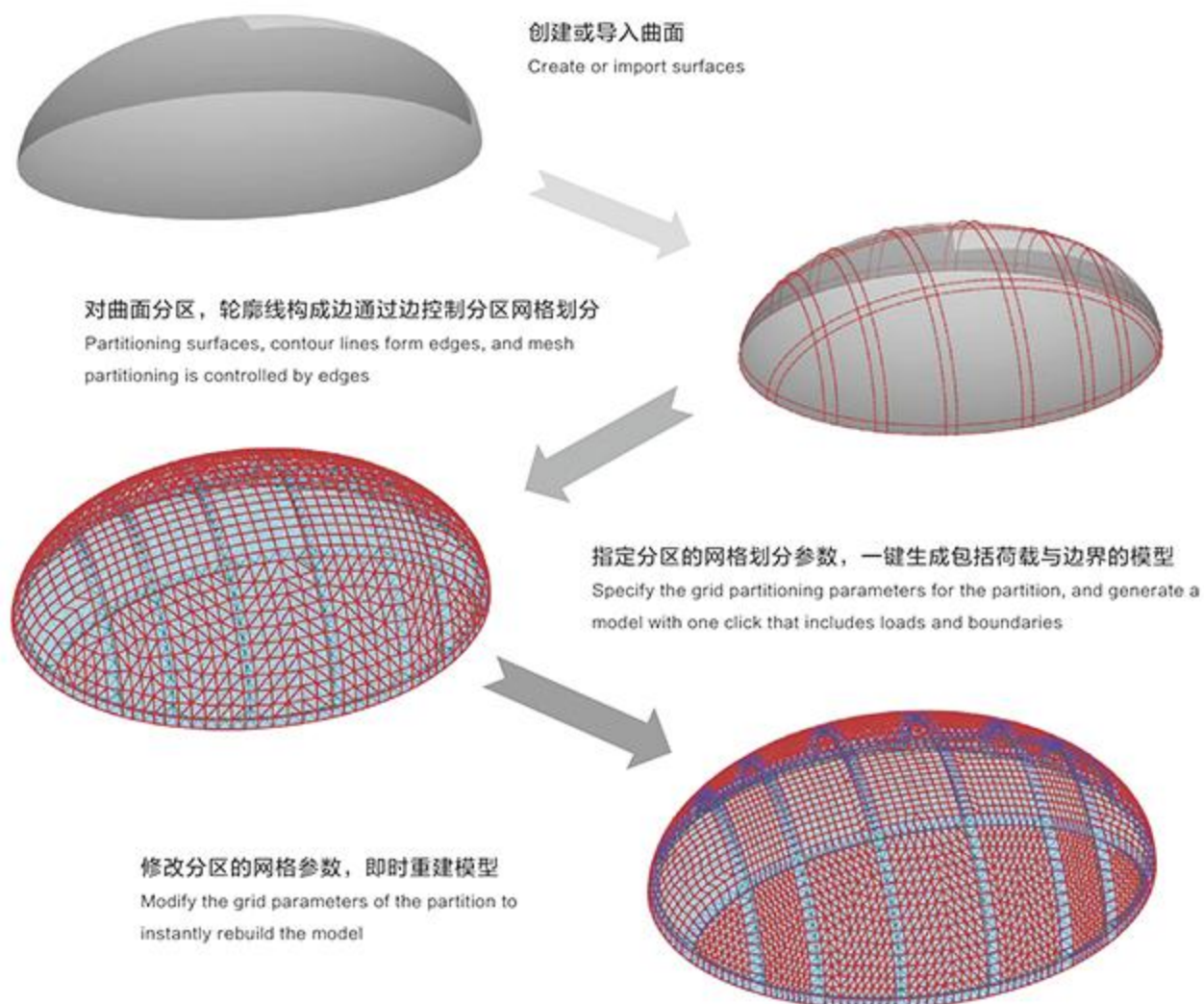
Modeling efficiency

材料用量、总造价

Material usage and total cost

↑ 90%

↓ >5%



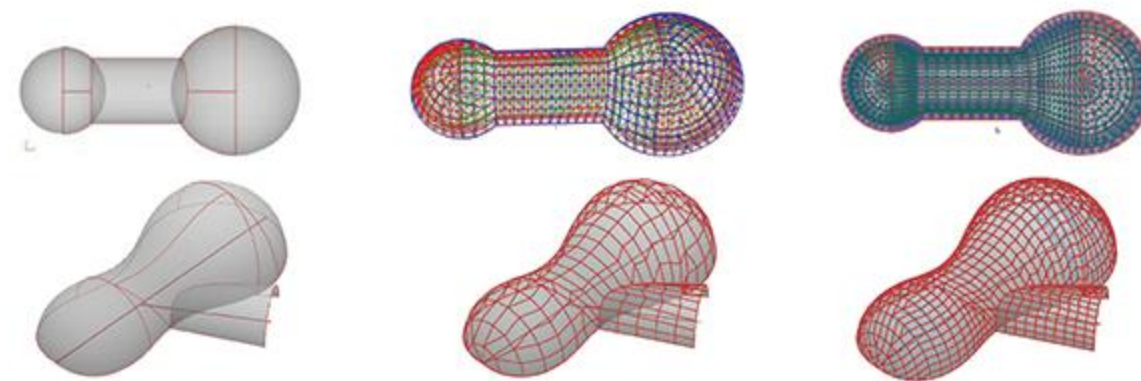
智慧设计基于正向设计，选出最优方案。

Intelligent design is based on forward design, selecting the optimal solution.

【基于边】 Edge based

以“边”对“面”分区，指定控制参数，一键成模

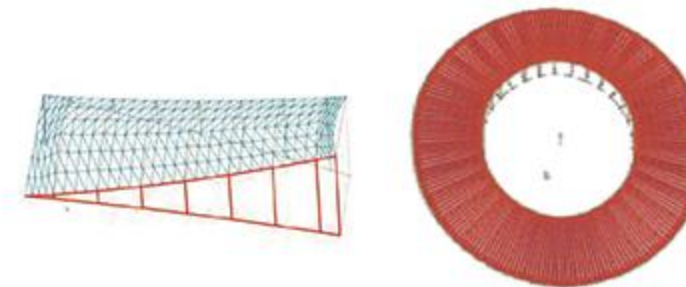
Partition "faces" with "edges", specify control parameters, and create a mold with one click



【基于子块】 Based on sub blocks

定义子块，指定导线，自适应插入子块，完成建模，子块为模型中拓扑相似部分结构，修改导线上插入子块数量，自动重建模型。

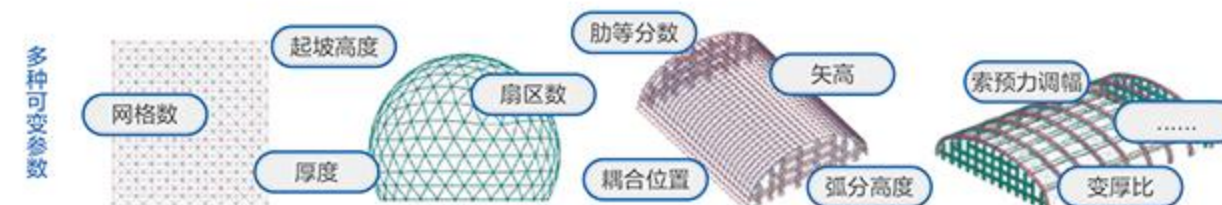
Define sub blocks, specify wires, adaptively insert sub blocks, complete modeling, and modify the number of inserted sub blocks on wires to automatically rebuild the model.



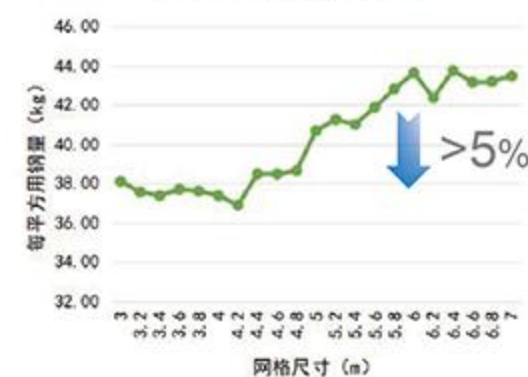
【标准模型】 Standard model

30多种标准模型，全面智慧设计

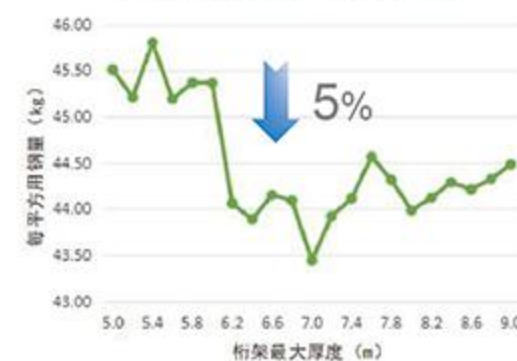
More than 30 standard models, comprehensive intelligent design



不同网格尺寸对应结构用钢量



不同桁架最大厚度对应结构用钢量



INTELLIGENT MANUFACTURING TECHNOLOGY FOR STEEL STRUCTURES

钢结构智能制造技术

拥有国内领先的螺栓球网架杆件智能化生产线，实现了网架杆件从下料、焊接、涂装、烘干、打码、码垛、打包的全过程智能化生产，降低成本，提高效率和加工质量；螺栓球节点自动精细化加工生产线，实现螺栓球智慧设计和智能加工一体化；拥有基于BIM技术和网络云的数字化管理平台，实现工艺管理+过程监控+人机交互+现场管理+质量管理+分析报表+客户服务等数据可视化，流程、监控、看板、物流管理系统互通互联，实现企业信息化系统全流程贯通。

We have a domestically leading intelligent production line for bolt ball grid members, which realizes the entire process of intelligent production of grid members from cutting, welding, painting, drying, coding, stacking, and packaging, reducing costs, improving efficiency and processing quality; Automatic precision processing production line for bolt ball nodes, achieving the integration of intelligent design and intelligent processing of bolt balls; We have a digital management platform based on BIM technology and network cloud, which realizes process management+process monitoring+human-machine interaction+on-site management+quality management+analysis reports+customer service and other data visualization. The process, monitoring, dashboard, and logistics management systems are interconnected, achieving full process integration of enterprise information systems.



生产物料监管系统
Production Material Supervision System



生产过程实时管控系统
Real time control system for production process

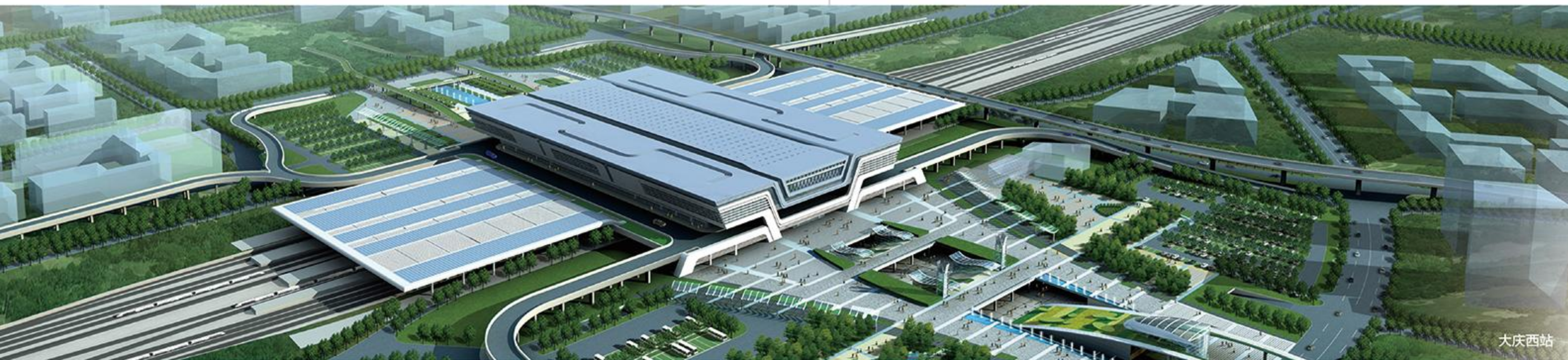


能源消耗智能管控系统
Energy consumption intelligent control system,
safety and environmental



安全环保智能管控系统
protection intelligent control system





TECHMOCAL SYSTEM FOR STEEL STRUCTURE INDUSTRIAL BUILDINGS 钢结构智能建造技术

拥有基于BIM技术和数字孪生技术的智慧管理系统。通过深度利用BIM、传感器、物联网、云计算、大数据等新一代信息技术，将项目整合在同一平台，便于企业、项目管理者对现场情况及时了解、有效监管。拥有钢桁架移动工厂技术和PEC混凝土预制移动工厂技术；应用数字孪生技术实现了钢结构数字预拼装。

Having a smart management system based on BIM technology and digital twin technology. By deeply utilizing new generation information technologies such as BIM, sensors, the Internet of Things, cloud computing, and big data, projects are integrated on the same platform, facilitating timely understanding and effective supervision of on-site situations by enterprises and project managers. Possess steel truss mobile factory technology and PEC concrete prefabrication mobile factory technology; The application of digital twin technology has achieved digital pre assembly of steel structures.



为实现钢结构建筑全生命周期的智能建造，需将设计、施工与运营维护阶段综合进行考虑，提前设计各阶段的平台架构，掌握各阶段所需传递和使用的有效数据类型，自设计阶段即开始筹备有效数据库，在设计阶段即开始完成下一阶段所需信息数据的交付，尤其是在设计与施工阶段积累的数据交付，可方便运营平台对数据的调取与运用。

To achieve intelligent construction throughout the entire lifecycle of steel structure buildings, it is necessary to comprehensively consider the design, construction, and operation maintenance stages, design the platform architecture for each stage in advance, master the effective data types required to be transmitted and used in each stage, prepare an effective database from the design stage, and complete the delivery of the required information and data for the next stage while handing over the design and construction stages. Especially the data delivery accumulated during the design and construction stages can facilitate the retrieval and application of data by the operation and maintenance platform.



PROJECT SECTION

项目篇

01 国家重点工程、市政场馆
National key projects and municipal venues

02 商业高层建筑
Commercial high-rise buildings

03 大跨度空间工程
Large span space engineering

04 膜结构工程
Membrane structure engineering

05 钢结构工业厂房
Steel structure industrial factory building

06 立交桥梁工程
Interchange bridge engineering

07 国际工程
International Engineering



PERMANENT STEEL STRUCTURE

NATIONAL KEY PROJECTS AND MUNICIPAL VENUSE

国家重点工程、市政场馆

- ★ 全装配式钢结构建筑体系
- ★ 大模块化建筑体系
- ★ 建筑结构装修一体化技术
- ★ 大温差环境节点设计技术
- ★ 高性能新型材料应用技术
- ★ 数字孪生技术和预拼装技术
- ★ 基于BIM技术的精细化设计技术

国家级重点工程： 南极罗斯海新站项目

南极罗斯海新站项目是国家重点工程项目，此项目是新时代我国建立的第1个常年科考站，是继长城站、中山站之后第3个常年考察站，是我国在南极的第5个考察站，也是首个面向太平洋扇区的考察站。考察站分为主体建筑和配套建筑，其中主体建筑分为主站和后勤中心，配套建筑由高空物理观测栋、气象及大气观测栋、地球物理观测栋等组成，总建筑面积5244平米。

The Ross Sea New Station Project in Antarctica is a national key engineering project. This project is the first perennial scientific research station established in China in the new era, the third perennial research station after the Great Wall Station and Zhongshan Station, the fifth research station in Antarctica, and the first research station facing the Pacific sector. The inspection station is divided into the main building and supporting buildings, with the main building divided into the main station and logistics center. The supporting buildings consist of high-altitude physics observation building, meteorological and atmospheric observation building, geophysical observation building, etc., with a total construction area of 5244 square meters.



广州白云国际机场三期扩建项目

广州白云国际机场三期扩建工程是我国民航机场建设史上规模最大的一次改扩建工程，对于强化广州国际航空枢纽、推动民航强国战略目标实现、打造粤港澳大湾区发展新动力源具有重要意义。项目建筑总面积约为8.3万平米。

Guangzhou Baiyun International Airport Phase III Expansion Project

The third phase expansion project of Guangzhou Baiyun International Airport is the largest renovation and expansion project in the history of China's civil aviation airport construction. It is of great significance for strengthening Guangzhou's international aviation hub, promoting the realization of the strategic goal of building a strong civil aviation country, and creating a new power source for the development of the Guangdong Hong Kong Macao Greater Bay Area. The total construction area of the project is approximately 83000 square meters.



徐州观音机场二期工程

本项目航站楼大厅屋盖采用双曲面空间网格结构，建筑面积5.4万平方米，屋盖结构高低相交处由空腹桁架连接过渡。网架采用正交正放网架，螺栓球和焊接球混合节点。围护系统采用架空铝塑复合板+铝镁锰合金防水板及直立锁边结构+柔性防水层的金属屋面系统。建成后新老机场连绵一体，宛如翩翩起舞的汉袖。

Xuzhou Guanyin Airport Phase II Project

The roof of the terminal hall in this project adopts a hyperbolic spatial grid structure, with a building area of 54000 square meters. The high and low intersections of the roof structure are connected and transitioned by an open web truss. The grid adopts an orthogonal upright grid, with a mixed node of bolt balls and welded balls. The enclosure system adopts a metal roof system consisting of overhead aluminum-plastic composite panels, aluminum magnesium manganese alloy waterproof panels, and an upright locking edge structure with a flexible waterproof layer. After completion, the new and old airports are seamlessly integrated, like dancing Han sleeves.



山东太古机场项目

山东太古飞机维修新厂区项目是2022年山东省重点项目、济南机场改扩建工程的关键节点工程、是亚太地区最大的综合飞机维修改装基地之一，总建筑面积16.9万平方米，将建设4个机库群、16个标准维修机位，预计年定检维修出场飞机超过600架次，飞机维修改装产能将提升50%以上。

Shandong Taigu Airport Project

The Shandong Taigu Aircraft Maintenance New Factory Project is a key project in Shandong Province in 2022 and a key node of the Jinan Airport Reconstruction and Expansion Project. It is one of the largest comprehensive aircraft maintenance and modification bases in the Asia Pacific region, with a total construction area of 169000 square meters. It will construct 4 hangar clusters and 16 standard maintenance stands. It is expected that more than 600 aircraft will be inspected and repaired annually, and the aircraft maintenance and modification capacity will increase by more than 50%.



杭州萧山机场

该项目位于杭州市萧山国际机场国航园区内，采用平板网架+管桁架相结合的结构形式，跨度90米，宽度83.5米，总建筑面积7500平方米。本项目采用整体提升施工方法，吊装总量共计449吨。

Hangzhou Xiaoshan Airport

The project is located in the Air China Park of Xiaoshan International Airport in Hangzhou. It adopts a combination of flat grid and pipe truss structure, with a span of 90 meters, a width of 83.5 meters, and a total construction area of 7500 square meters. This project adopts the overall lifting construction method, with a total lifting capacity of 449 tons.

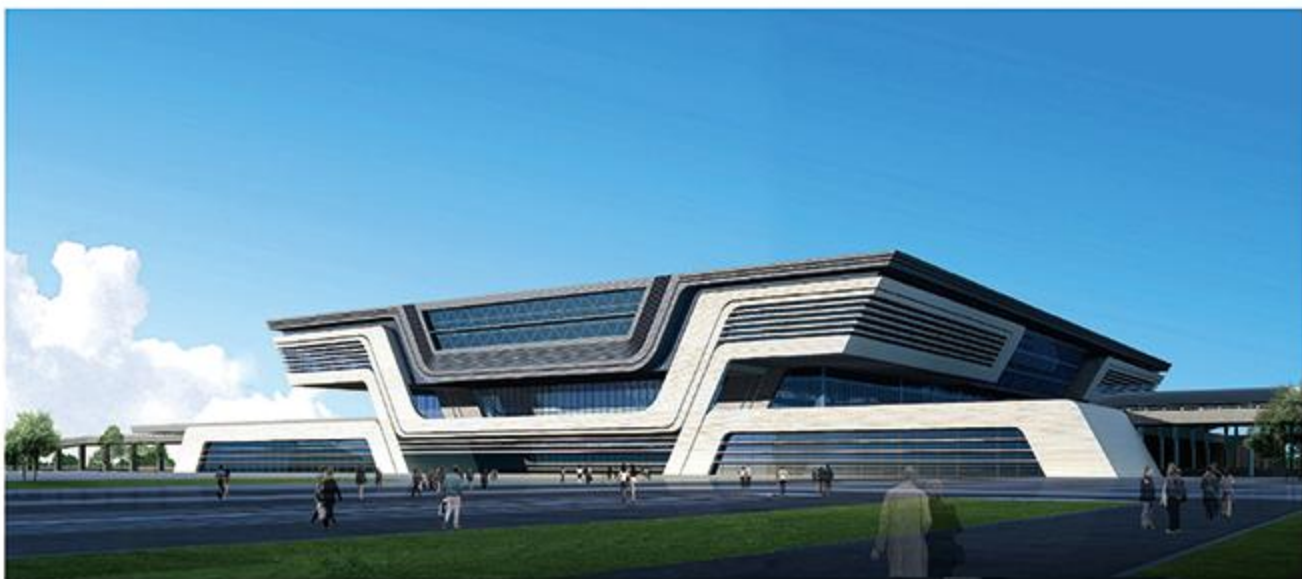


上海浦东国际机场货运站二期项目

本项目长248米，宽144米，采用螺栓球和焊接球相结合的网架结构，总建筑面积约3.6万平方米。整个建筑通过结构缝分为主站房、高架库、业务用房、陆侧雨棚和空侧雨棚五部分。

Shanghai Pudong International Airport Freight Terminal Phase II Project

This project is 248 meters long and 144 meters wide, using a grid structure combining bolt balls and welded balls, with a total construction area of approximately 36000 square meters. The entire building is divided into five parts through structural joints: main station building, elevated warehouse, business building, landside canopy, and airside canopy.

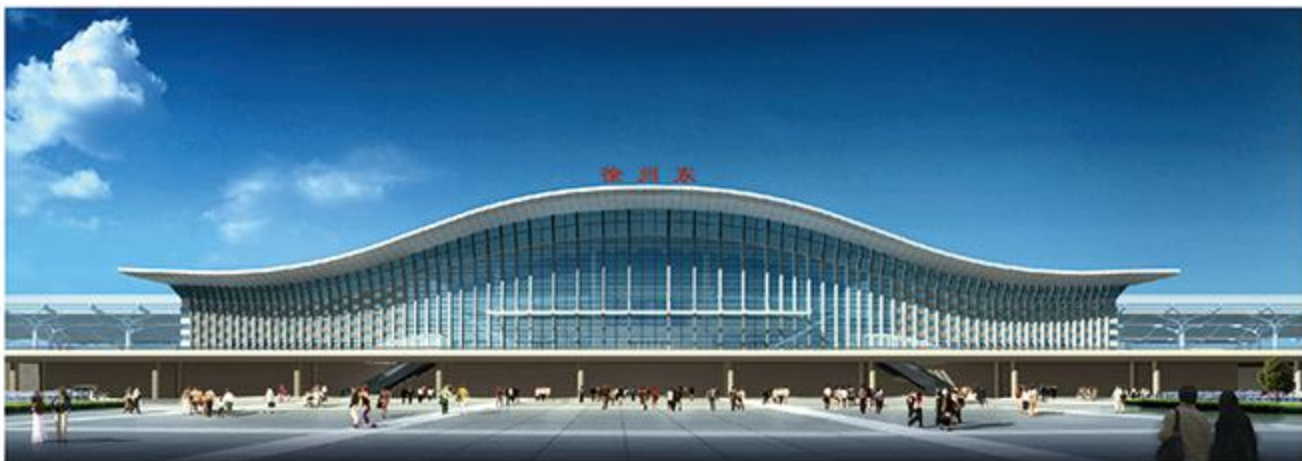


大庆西站站房网架工程

本工程站房宽130米，长228.5米，最大跨度75米，工程面积2.8万平方米，采用正交正方四角锥网架，网格为5米×5米，采用螺栓球与焊接球组合节点形式，支座为球面铰支座。

Daqing West Station Building Grid Structure Project

The station building of this project is 130 meters wide, 228.5 meters long, with a maximum span of 75 meters and a construction area of 28000 square meters. It adopts an orthogonal square pyramid grid with a grid size of 5 meters × 5 meters, using a combination of bolt ball and welding ball joint form, the support is a spherical hinge support.



京沪高铁徐州站工程

本工程建筑面积7.4万平方米，平面尺寸为450米×167.7米，雨棚柱为钢管混凝土柱，屋面采用波浪形箱型梁与树枝状钢柱柱头相连，柱头采用铸钢节点，四连跨，最大跨度43米，柱距为20米。结构整体轻盈简洁，给人以搏击海浪，跃跃向上的感觉。

Xuzhou Station Project of Beijing Shanghai High Speed Railway

The construction area of this project is 74000 square meters, with a floor plan size of 450 meters × 167.7 meters, the canopy column is made of steel tube concrete column, and the roof is connected to the branched steel column head using a wavy box beam. The column head is made of cast steel nodes, with four spans and a maximum span of 43 meters. The column spacing is 20 meters. The overall structure is lightweight and simple, giving people a feeling of fighting against the waves and jumping upwards.



焦作市国际太极拳文化交流中心

本项目建筑面积7万平方米，主要建设内容为“一场二馆二中心”，成为太极特色鲜明的全民健身中心。屋面采用钢结构弧形梁和空间管桁架相结合的结构体系，桁架最大跨度63米。

Jiaozuo International Tai Chi Culture Exchange Center

The construction area of this project is 70000 square meters, and the main construction content is "one venue, two halls, and two centers", becoming a national fitness center with distinctive Tai Chi characteristics. The roof adopts a structural system that combines steel curved beams and spatial pipe trusses, with a maximum span of 63 meters.

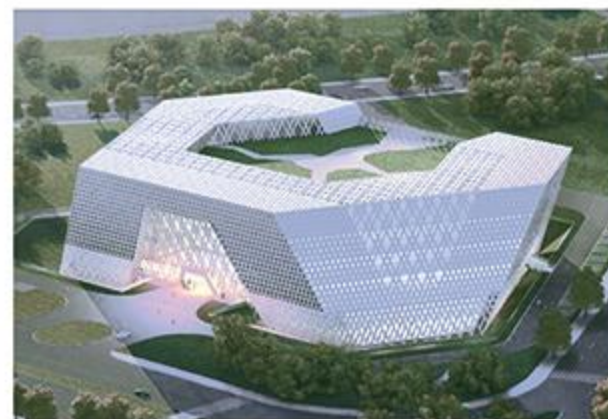


徐州音乐厅

本工程总建筑面积1万平方米，采用双曲线矩形管桁架幕墙结构，外形以紫薇花为创作原型，建筑整体宛若在水中盛开的花朵。

Xuzhou Concert Hall

The total construction area of this project is 10000 square meters, and it adopts a hyperbolic rectangular pipe truss curtain wall structure. The appearance is based on the Ziwei flower as the creative prototype, and the overall building is like a blooming flower in water.



福州市城市发展展示馆

本项目最大跨度48.8米，为箱型构件组成的斜向斜交网架结构，十六片网架结构形式形成独特的建筑外观效果，中心庭院屋盖结构为钢桁架井字结构。

Fuzhou Urban Development Exhibition Hall

The maximum span of this project is 48.8 meters, which is a diagonal grid structure composed of box shaped components. The sixteen grid structure forms a unique architectural appearance, and the central courtyard roof structure is a steel truss well shaped structure.



中国海洋大学综合体育馆

该工程建筑面积18000 m²为马鞍形和半球形的组合体，整馆内分为游泳馆及球类体育馆，结构形式又分为焊接球网架和螺栓球网架，屋面采用进口铝镁锰板系统。该场馆为十一届全运会比赛场馆。

China Ocean University Comprehensive Gymnasium

The construction area of this project is 18000 square meters, which is a combination of saddle shaped and hemispherical shapes. The entire building is divided into a swimming pool and a ball sports arena, and the structural form is divided into welded ball grid and bolt ball grid. The roof adopts an imported aluminum magnesium manganese plate system. This venue is for the 11th National Games competition.

COMMERCIAL HIGH-RISE BUILDINGS 商业高层建筑



中国钢结构金奖、扬子杯工程： 徐州颐和汇邻湾商业广场

该项目位于徐州泉山区，是一幢以运动健身为核心，结合商业、文体娱乐、餐饮、办公、社区服务等一系列功能空间的都市综合体。是徐州市首个全钢结构的装配式绿色集成高层建筑，装配率达到90%以上，真正实现了像搭积木一样建房子，建筑高度105米，建筑面积9.3万平方米，总用钢量8600吨。

China Steel Structure Gold Award and Yangtze Cup Project:
Xuzhou Yihe Huiluan Commercial Plaza

This project is located in Quanshan District, Xuzhou, and is an urban complex with sports and fitness as its core, combined with a series of functional spaces such as commercial, cultural and entertainment, catering, office, and community services. It is the first fully steel structured prefabricated green integrated high-rise building in Xuzhou City, with an assembly rate of over 90%. It truly achieves building like building blocks, with a height of 105 meters, a building area of 93000 square meters, and a total steel consumption of 8600 tons.



鲁班奖项目
解放军第三零七医院新建医疗综合楼

本工程高度63米，主体为框架剪力墙结构，局部采用钢骨柱混凝土结构，地下二层、地上十四层。

Luban Award Project

New Medical Complex Building at the 307th Hospital of the People's Liberation Army

The height of this project is 63 meters, and the main structure is a frame shear wall structure. Steel reinforced concrete structures are used locally, with two underground floors and fourteen above ground floors.



上海申昆路停车场及虹桥商务区上盖综合开发工程

申昆路停车场处于机场联络线、嘉闵线等的交叉节点，地下部分占地约12.5万平方米，建筑面积约11.2万平方米，作为国内首个市域铁路地下停车场TOD综合开发项目，将满足机场联络线和嘉闵线存车洗车以及正线综合维修功能，轨顶标高为-8.23m，停车场顶板标高为+2.77m。

Shanghai Shenkun Road Parking Lot and Hongqiao Business District Upper Cover Comprehensive Development Project

The Shenkun Road parking lot is located at the intersection of the airport connecting line and Jiamin Line, with an underground area of approximately 125000 square meters and a building area of approximately 112000 square meters. As the first comprehensive development project of TOD for urban railway underground parking lots in China, it will meet the storage, washing, and comprehensive maintenance functions of the airport connecting line and Jiamin Line. The rail top elevation is -8.23m, and the parking lot roof elevation is +2.77m.



天津富力中心

本工程高度180米，采用钢骨混凝土结构，十字型钢骨柱和H型钢骨梁，钢板厚度均50mm以上。

Tianjin Fuli Center

This project has a height of 180 meters and adopts a steel reinforced concrete structure, with cross shaped steel columns and H-shaped steel beams. The thickness of the steel plates is above 50mm.



天津环渤海国际金融大厦

本工程主体结构为非对称异形钢骨混凝土结构，实现了钢结构与混凝土的完美结合，形成高度达148米的超高层建筑。

Tianjin Bohai Rim International Financial Building

The main structure of this project is an asymmetric shaped steel reinforced concrete structure, achieving a perfect combination of steel structure and concrete, forming a super high-rise building with a height of 148 meters.



南京空港会展小镇

本项目总建筑面积2.3万平方米，钢结构分为多功能厅楼层钢框架结构、观光厅钢结构造型桁架、主会议厅空间桁架+型钢桁架结构三部分，利用“超大型液压同步提升施工技术”，将其一次提升到位，整体提升总重量约600吨，提升高度30米。

Nanjing Airport Exhibition Town

The total construction area of this project is 23000 square meters, and the steel structure is divided into three parts: the multi-functional hall floor steel frame structure, the sightseeing hall steel structure shaped truss, and the main conference hall space truss+shaped steel truss structure. By using the "super large hydraulic synchronous lifting construction technology", it is lifted into place in one go, with an overall lifting weight of about 600 tons and a lifting height of 30 meters.

LARGE SPAN SPACE ENGINEERING 大跨度空间工程



中国钢结构金奖工程： 国电宁夏方家庄电厂2X1000MW机组工程封闭 煤棚EPC总承包工程

本工程为世界最大跨度封闭煤场，跨度为229米，其结构形式为预应力张弦拱桁架结构，采用空间三（四）边形圆管结构，采用体外预应力拉索，拉索布置在拱桁架下弦杆的下部中间位置，本项目采用累计滑移施工方法，采用了公司自主研发的高精度支撑胎架。最大跨度229米，主结构用钢量约4000吨。

China Steel Structure Gold Award Project:

EPC General Contracting Project of Closed Coal Shed for the 2X1000MW Unit Project of Guodian Ningxia Fangjiazhuang Power Plant

This project is the world's largest enclosed coal yard with a span of 229 meters. Its structural form is a prestressed tension string arch truss structure, which adopts a spatial three (four) sided circular tube structure and external prestressed cables. The cables are arranged in the middle of the lower chord of the arch truss. This project adopts the cumulative sliding construction method and adopts the high-precision support tire frame independently developed by the company. The maximum span is 229 meters, and the main structure uses approximately 4000 tons of steel.



山西中电第二神头发电有限责任公司二期“上大 压小”2X1000MW燃煤发电机组工程

本项目为省内最大跨度预应力管桁架结构形式的环保集成建筑，采用预应力张弦拱桁架结构体系，最大跨度220米，其中220米跨拱高49.5米，130米跨拱高42米，支座采用半球刚接支座，桁架形式为空间三角形圆管桁架，索采用半平行钢丝束外包PE，山墙及联系桁架采用空间圆管桁架结构体系，支撑体系采用交叉索。

Shanxi Zhongdian Second Shentou Power Generation Co., Ltd. Phase II "Upper Large Pressure Small" 2X1000MW Coal-fired Generator Unit Project

This project is an environmentally friendly integrated building with the largest span of pre-stressed pipe truss structure in the province. It adopts a pre-stressed string arch truss structure system, with a maximum span of 220 meters. The 220 meter span arch height is 49.5 meters, and the 130 meter span arch height is 42 meters. The support adopts a hemispherical rigid joint support, and the truss form is a hollow triangular circular pipe truss. The cables are wrapped with semi parallel steel wire bundles in PE. The mountain wall and connecting truss use a spatial circular pipe truss structure system, and the support system uses cross cables.



天津钢管集团股份有限公司原料场全封闭工程

本项目为天津钢管集团股份有限公司最大跨度环保项目，采用三心圆拱形网架结构，螺栓球节点，最大高度41.7米，总长度374米，最大跨度123米。

Tianjin Steel Pipe Group Co., Ltd. Raw Material Yard Fully Closed Project

This project is the largest span environmental protection project of Tianjin Steel Pipe Group Co., Ltd. It adopts a three core circular arch grid structure, bolt ball nodes, a maximum height of 41.7 meters, a total length of 374 meters, and a maximum span of 123 meters.



中国钢结构金奖工程： 首钢京唐钢铁联合有限责任公司矿料场改造封闭工程

本项目是料场封闭工程采用两连跨预应力拱桁架钢结构，总跨度377米。相当于38个标准足球场面积。本项目创造了环保项目“全球单体总跨度最大”、“全球单体总建筑面积最大”两项记录。最大跨度175m+198米，建筑面积26.3万平方米。

China Steel Structure Gold Award Project:

Shougang Jingtang Steel United Co., Ltd. Mine Material Yard Renovation and Closure Project

This project is a closed material yard project using a two span prestressed arch truss steel structure, with a total span of 377 meters. Equivalent to 38 standard football fields. This project has created two records for environmental protection projects: the largest total span of a single building in the world and the largest total building area of a single building in the world. The maximum span is 175m+198m, with a building area of 263000 square meters.



中安联合0729-P0031-0090圆形料场网架

本项目结构形式为双层正放四角锥球壳网架，共3个单体，均采用外弦支撑形式，螺栓球节点连接，最大跨度104.5米，最大高度58.25米，球壳顶部有直径18米的通风天窗。

Zhong'an United 0729-P0031-0090 Circular Material Yard Grid

The structural form of this project is a double-layer square pyramid spherical shell grid, consisting of three individual units, all of which are supported by external chords and connected by bolted ball nodes. The maximum span is 104.5 meters and the maximum height is 58.25 meters. There is a ventilation skylight with a diameter of 18 meters at the top of the spherical shell.



五寨县万通实业封闭式煤炭储运建设项目

本工程采用钢网壳+单层压型钢板结构，总长度1350米，最大跨度100米，平均建筑高约为35米，建筑面积约14万平方米。

Wuzhai County Wantong Industrial Closed Coal Storage and Transportation Construction Project

This project adopts a steel mesh shell+single-layer profiled steel plate structure, with a total length of 1350 meters, a maximum span of 100 meters, an average building height of about 35 meters, and a construction area of about 140000 square meters.



中国钢结构金奖工程

广东惠州港荃湾港区煤炭码头一期工程条形封闭煤场上部钢结构工程

本工程采用蚕茧型三心圆筒壳网架结构体系、螺栓球与焊接球组合节点形式，下弦支撑，总长度达到1000米，最大跨度118米，总用钢量约7000吨。

China Steel Structure Gold Award Project

The upper steel structure project of the strip enclosed coal yard for the first phase of the coal terminal project in Tsuen Wan Port Area, Huizhou Port, Guangdong Province

This project adopts a silkworm cocoon type three core cylindrical shell grid structure system, combined node form of bolt ball and welding ball, with bottom chord support, a total length of 1000 meters, a maximum span of 118 meters, and a total steel consumption of about 7000 tons.



湄洲湾港秀屿港区石门澳作业区工程

本工程钢结构形式复杂多样，其中 1#2#干燥棚为大跨度拱壳空间网架结构形式，外弦球心跨度达到117.5米；3#硫酸铵棚为大跨度拱形钢桁架膜结构形式，其中膜材采用反吊膜形式，外弦跨度109.8米。

Meizhou Bay Port Xiyu Port Area Shimen'ao Operation Area Project

The steel structure of this project is complex and diverse, among which the 1#2# dry coal shed is a large-span arched shell space steel grid structure, with an outer chord spherical center span of 117.5 meters; The ammonium sulfate shed is a large-span arched steel truss membrane structure, in which the membrane material adopts a reverse hanging membrane form, with an outer chord span of 109.8 meters.



山东省聊城市电厂2X600MW煤场棚化改造项目

本项目结构为预应力管桁架，采用三心圆拱形网架结构，螺栓球节点，最大跨度123米，最大高度41.7米，总长度374米。

Shandong Liaocheng Power Plant 2X600MW Coal Yard Shed Transformation Project

The structure of this project is a prestressed pipe truss, using a three core circular arch grid structure with bolt ball nodes. The maximum span is 123 meters, the maximum height is 41.7 meters, and the total length is 374 meters.



鞍钢集团朝阳钢铁原料储矿料场棚化封闭项目

本项目采用三心圆螺栓球拱形网架结构，跨度145米，上弦支撑，建筑面积7万平米，采用山墙起步+累积滑移的施工方案。

Ansteel Group Chaoyang Iron and Steel Raw Material Storage Mine Shed Closed Project

This project adopts a three core round bolt ball arch grid structure with a span of 145 meters, upper chord support, and a construction area of 70000 square meters. The construction plan adopts a starting point of the mountain wall and cumulative sliding.

MEMBRANE STRUCTURE ENGINEERING 膜结构工程



华能烟台发电厂封闭改造钢结构网架膜结构EPC工程

本项目主体采用三心圆网架结构，跨度120米，总建筑面积1.9万平方米，屋面采用骨架膜结构。

Huaneng Yantai Power Plant Closed Renovation Steel Structure Grid Membrane Structure EPC Project

The main body of this project adopts a three core circular grid structure, with a span of 120 meters and a total construction area of 19000 square meters. The roof adopts a skeleton membrane structure.



徐州音乐厅膜结构

本项目由多个花瓣形状单元组成，采用钢管桁架结构，膜材采用国外PTFE膜。

Membrane structure of Xuzhou Concert Hall

This project consists of multiple petal shaped units, using a steel pipe truss structure and using foreign PTFE membrane materials.



杭州师范大学体育场膜结构

本项目采用平面钢管桁架结构，最大悬挑长度42米。

Membrane Structure of Hangzhou Normal University Sports Stadium

This project adopts a flat steel pipe truss structure, with a maximum overhang length of 42m.

STEEL STRUCTURE INDUSTRIAL FACTORY BUILDING

钢结构工业厂房



南通易地技术改造联合工房项目

本项目采用正放四角锥双层平板网架，螺栓球和焊接球混合节点形式。建筑面积1.8万平方米。

Nantong Yidi Technical Transformation Joint Workshop Project

This project adopts a double layer flat grid structure with a square pyramid and a mixed node form of bolt ball and welding ball. The building area is 18000 square meters.



一汽大众天津工厂项目

本项目采用双层焊接球斜放四角锥网架结构，单跨60米，总建筑面积8.3万平方米。

FAW Volkswagen Tianjin Factory Project

This project adopts a double layer welded ball diagonal quadrangular pyramid grid structure, with a single span of 60 meters and a total construction area of 83000 square meters.



河南中烟郑州和新卷烟厂联合易地技术改造项目

本项目采用正放四角锥双层平板网架，屋面采用发泡水泥复合板形式。总建筑面积4.2万平方米。

Henan Zhongyan Zhengzhou and New Cigarette Factory Joint Relocation Technology Transformation Project

This project adopts a double-layer flat grid with a square pyramid in the upright position, and the layer adopts the form of foam cement composite board. The total construction area is 42000 square meters.



广汽新能源扩建EPC项目

本项目采用双层正放四角锥平板网架结构，屋面设置新型太阳能光伏发电板，总建筑面积8.6万平方米。

Guangqi New Energy Expansion EPC Project

This project adopts a double-layer square pyramid flat grid structure, with a new type of solar photovoltaic power generation panel installed on the roof. The total construction area is 86000 square meters.



中国重汽智能网联重卡总装车间项目

本项目为双层平面网架结构，螺栓球和焊接球混合节点，下弦支撑形式，总建筑面积7.7万平方米。

China National Heavy Duty Truck Intelligent Network Connection Heavy Truck Assembly Workshop Project

This project is a double-layer planar grid structure, with a mixed node of bolt ball and welding ball, and a bottom chord support form. The total construction area is 77000 square meters.



西门子电机厂房项目

本项目总长度275米，宽度306米，采用双坡屋面排水，总建筑面积8.5万平方米。

Siemens Motor Factory Project

The total length of this project is 275 meters, with a width of approximately 306 meters. It adopts a double slope roof drainage system, and has a total construction area of 85000 square meters.



海南湾岭物流园基础建设项目

本项目采用门式钢架结构形式，围护结构采取双层压型钢板复合保温材料，建筑面积2.6万平方米。

Hainan Wanling Logistics Park Infrastructure Construction Project

This project adopts a portal steel frame structure, and the enclosure structure adopts double-layer profiled steel composite insulation material, with a building area of 26000 square meters.



安图生物体外诊断产业园项目

本项目主要由地下车库及三栋高层厂房组成，总建筑面积30万平方米。

Antu Extracellular Diagnosis Industrial Park Project

This project mainly consists of an underground garage and three high-rise factories, with a total construction area of 300000 square meters.



福建福耀汽车智能生产线项目

本项目总建筑面积3.7万平方米，其中地上建筑面积3.5万平方米，地下建筑面积1716平方米。

Fujian Fuyao Automobile Intelligent Production Line Project

The total construction area of this project is 37000 square meters, including 35000 square meters above ground and 1716 square meters underground.

INTERCHANGE BRIDGE ENGINEERING 立交桥梁工程



剑黎高速桥梁公路工程

本工程桥梁按路线分幅设计，左右幅桥孔跨布置 2×30 简支预制T梁+248米（净跨径）钢筋混凝土箱型拱+ 2×30 简支预制T梁，桥梁全长401.88米，主桥桥面系采用跨径29.32m的钢混组合梁，钢纵梁梁高1.5m，横向间距为2.475m，顺桥向每隔7.33m设置一道钢横梁，梁高1m，钢纵、横梁均采用焊接工字形截面，桥面板采用25cm普通钢筋混凝土预制板，顶面桥面铺装采用10cm后沥青混凝土层。

Jianli Expressway Bridge and Highway Engineering

The bridge of this project is designed in sections according to the route, with 2 spans arranged for the left and right bridge openings $\times 30$ simply supported prefabricated T-beams+248 meters (net span) reinforced concrete box arches+ 2×30 simply supported prefabricated T-beams, with a total length of 401.88 meters, are used for the main bridge deck system. The steel-concrete composite beam with a span of 29.32 meters is used, and the steel longitudinal beam is 1.5 meters high with a horizontal spacing of 2.475 meters. A steel crossbeam is set every 7.33 meters along the bridge direction, with a height of 1 meter. The steel longitudinal and transverse beams are all welded I-shaped sections, and the bridge deck is made of 25cm ordinary reinforced concrete prefabricated panels. The top deck is paved with a 10cm asphalt concrete layer.



宣曲高速G60工程

Xuanqu Expressway G60 Project



S4 公路南桥立交改造工程

S4 South Bridge Interchange Renovation Project



福宜高速公路建设工程

Fuyi Expressway Construction Project



济广高速济南至菏泽段改扩建工程

Jinan Heze section of Jiguang Expressway renovation and expansion project



京沪高速公路莱芜至临沂段改扩建工程

Reconstruction and expansion project of the Laiwu Linyi section of the Beijing Shanghai Expressway



京沪高速改扩建工程

Beijing Shanghai Expressway Reconstruction and Expansion Project



广西苍昭高速公路工程

本桥为念田枢纽A匝道2号桥，位于昭平县昭平镇念田村附近，地貌单元属于低山丘陵地貌，于柱号AK0+520处采用65钢砼，钢砼组合梁结构上跨主线，单幅钢砼组合梁桥面宽10.5米，采用双箱单室，中心梁高3.6米，其中桥面板在腹板处厚度为0.35米，在箱室中心处厚度为0.25米，本桥位于曲线上，主梁按曲线布置，桥面板翼缘悬臂长度保持不变，内侧翼缘悬臂长2米，外侧翼缘长1米，单箱宽度2.7米两个箱室间距2米。

Guangxi Cangzhao Expressway Project

This bridge is the 2nd ramp of Niantan Hub A, located near Niantan Village, Zhaoping Town, Zhaoping County. The geomorphic unit belongs to low mountain and hilly terrain. At column number AK0+520, 65 steel concrete is used, and the steel-concrete composite beam structure spans the main line. The single steel-concrete composite beam has a bridge surface width of 10.5 meters and a double box and single chamber, with a center beam height of 3.6 meters. The bridge deck has a thickness of 0.35 meters at the belly plate and 0.25 meters at the center of the box chamber. This bridge is located on a curve, The main beam is arranged according to a curve, and the cantilever length of the bridge deck flange remains unchanged. The inner flange cantilever is 2 meters long, the outer flange is 1 meter long, and the width of a single box is 2.7 meters. The distance between the two box compartments is 2 meters.



沪陕高速公路平潮至广陵段扩建工程

Expansion Project of Pingchao Guangling Section of Shanghai Shanxi Expressway



二连浩特至广州公路工程

Erenhot Guangzhou Highway Project



徐州解放北路工程

Xuzhou Jiefang North Road Project



宿迁市迎宾大道改造工程

Yingbin Avenue Renovation Project in Suqian City

INTERCHANGE ENGINEERING 国际工程

巴基斯坦塔贝拉四期水电站工程

本工程采用H型钢桁架结构体系，屋面采用预制混凝土板，加工形式复杂，加工精度要求高，质量采用欧标标准。

Pakistan Tabela Phase IV Hydropower Station Building

This project adopts an H-shaped steel truss structure system, and the roof adopts prefabricated concrete slabs. The processing form is complex, and the processing accuracy requirements are high. The quality adopts European standards.

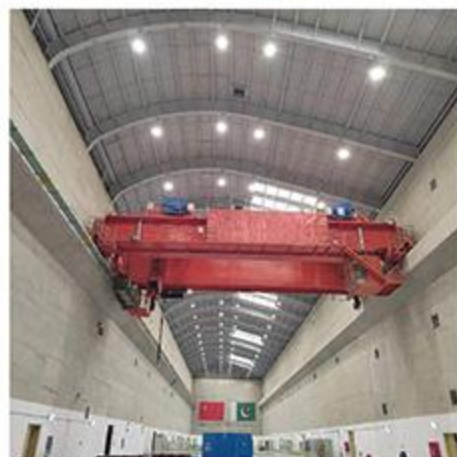


巴基斯坦卡洛特水电工程

本工程采用弧形曲线H型钢结构，加工制造复杂，精度要求高，防腐要求高，质量采用欧标标准。

Pakistan Tabela Phase IV Hydropower Station Building

This project adopts a curved H-shaped steel structure with complex processing and manufacturing, high precision requirements, and high anti-corrosion requirements. The quality adopts European standards.



印尼金瑞新能源焦炭项目工程

本工程90多个单体，总用钢量2万吨，其中2个煤棚为网架结构，网架面积9.8万平方米，采用双连跨筒壳结构，总跨度138米，本工程质量采用欧标标准，属于“一带一路”重点工程，总建筑面积25万平方米。

Indonesia Jinrui New Energy Coke Project Project

There are more than 90 single buildings in this project, with a total steel consumption of 20000 tons. Two coal sheds are of grid structure, with a grid structure area of 98000 square meters. The double span cylindrical shell structure is adopted, with a total span of 138 meters. The quality of this project adopts the European standard, which belongs to the key project of the "the Belt and Road", with a total construction area of 250000 square meters.

◆ 美国加州车间项目

California Workshop Project Engineering, USA

◆ 尼泊尔那苏瓦卡里 111MW 水电站项目

Nepal Nasuwakari 111MW Hydropower Project

◆ 孟加拉邦嘎枢纽站房屋顶钢网架项目

Bangladesh Bangga Hub Station Roof Steel Grid Project

◆ 科特迪瓦格西波-波波里水电站项目

Ivory Coast Gesipo Popoli Hydropower Project

◆ 圣佩德罗大学项目

San Pedro University Project

