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The most trusted Provider of International Engineering Comprehensive Service

**全球智能散料物流工程装备领域领军企业**

A Leading Enterprise in the Field of Global Intelligent Bulk Materials Conveying System

**山东华运装备科技有限公司**

SHANDONG HUAYUN EQUIPMENT TECHNOLOGY CO., LTD.

专注于散料物流工程装备领域  
Focusing on the Field of Bulk Materials Conveying Equipment



**山东华运装备科技有限公司**

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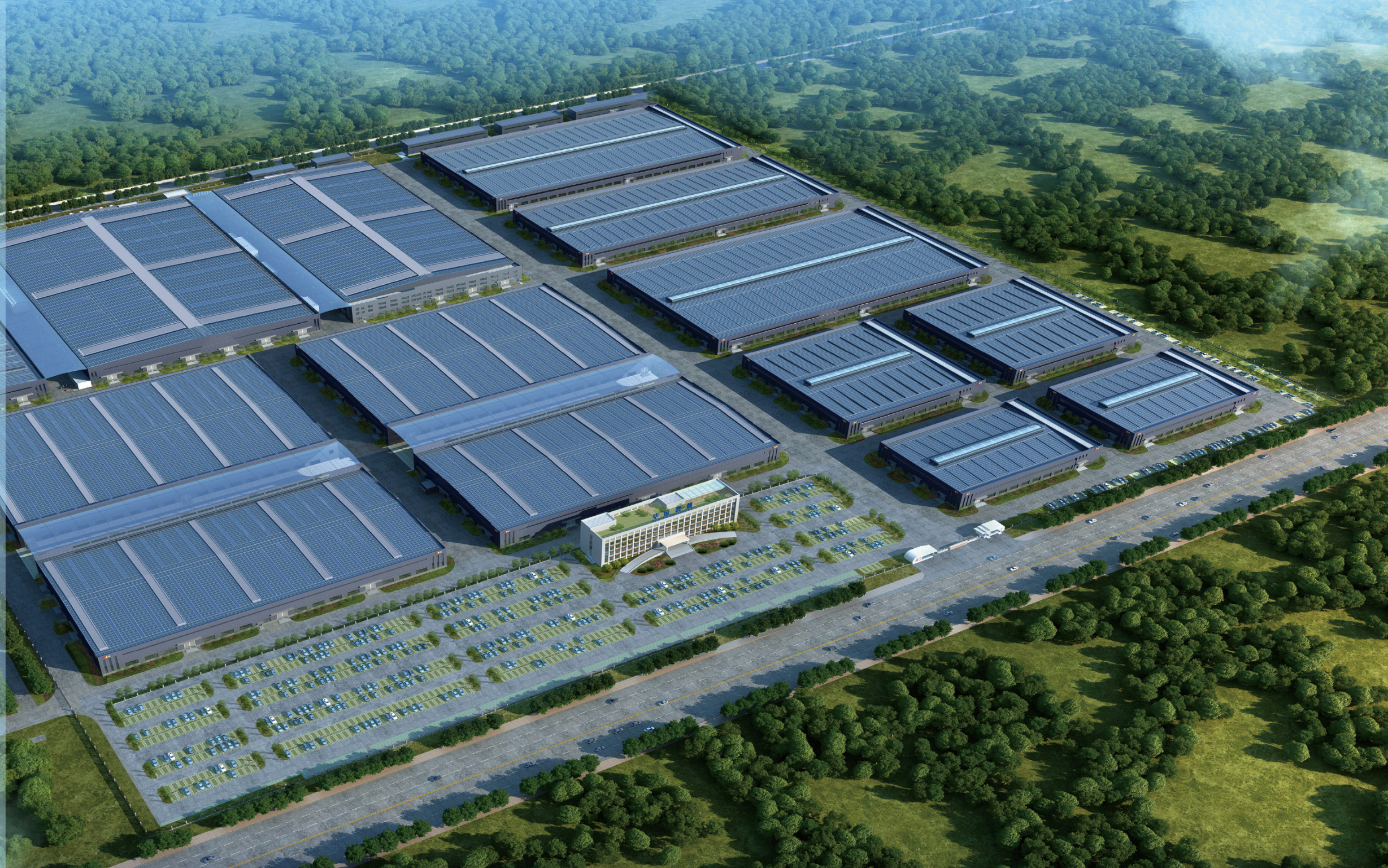
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SHANDONG HUAYUN  
EQUIPMENT TECHNOLOGY CO., LTD.

山东华运装备科技有限公司





## 企业简介 COMPANY INTRODUCTION

■ 山东华运装备科技有限公司专注于散料物流工程装备领域50余年，依靠科技创新为驱动，高端制造为引领，发展装备制造、工程服务与智慧运维三大业务领域，深耕煤炭矿山、非煤矿山、港口码头、冶金、电力、化工、建材等行业，形成核心能力突出、竞争优势明显、国际化运作、特色鲜明的多元业务集群，能够提供总承包、工程咨询、项目管理、工程设计、装备制造、工程监理、运维服务等全生命周期服务，是业内少有具备咨询、设计、建设、投资、运营“五位一体”服务能力的企业之一。

■ Shandong Huayun Equipment Technology Co., Ltd. has been focusing on the field of bulk materials conveying equipment for more than 50 years. Driven by technological innovation and led by high-end manufacturing, it has developed three major business areas: equipment manufacturing, engineering services, and intelligent operation and maintenance. It has deeply cultivated industries such as coal mines, non-coal mines, port terminals, metallurgy, power, chemical, and construction materials (cement, sand and gravel, concrete etc.), forming a diversified business cluster with outstanding core capabilities, obvious competitive advantages, international operation, and distinctive characteristics. It can provide full life-cycle services such as general contracting, engineering consultation, project management, engineering design, equipment manufacturing, project supervision, and operation & maintenance services. It is one of the few enterprises in the industry with the "five in one" service capabilities of consulting, design, construction, investment, and operation.

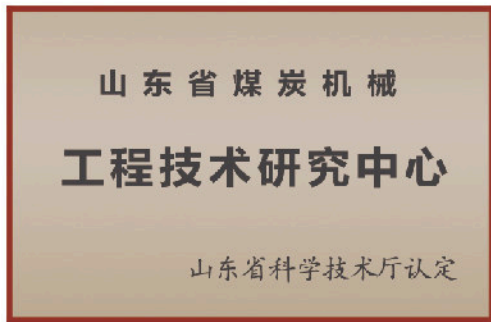
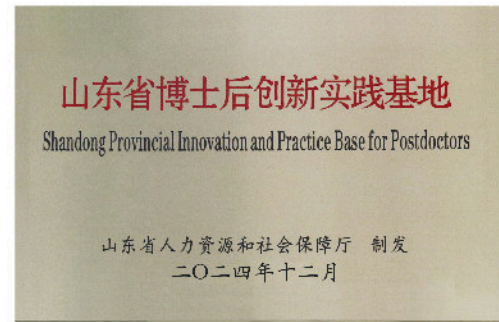
■ 当前，华运装备正全力引领行业新变革，以国家战略为指引，在“双循环”格局下，加速“数字化、平台化、智慧化、国际化”转型，全力打造散料物流国家队，绿色环保排头兵，新兴产业创新者，坚持走高技术高质量发展之路，为行业进步、产业升级不懈贡献力量，致力于成为最值得信赖的国际化工程综合服务商，打造全球智能散料物流工程装备领域领军企业。

■ At present, Huayun Equipment is fully committed to leading the new changes in the industry, guided by national strategy, accelerating the transformation of "digitalization, platformization, intelligence, and internationalization" under the "dual circulation" pattern, and striving to build a national team of bulk logistics, a leader in green environmental protection, an innovator in emerging industries, insisting on the path of high-tech and high-quality development, and making unremitting contributions to industry progress and upgrading. We are committed to becoming the most trustworthy international project comprehensive service provider and building a leading enterprise in the field of global intelligent bulk materials conveying system.





荣誉  
HONORS



资质  
QUALIFICATIONS







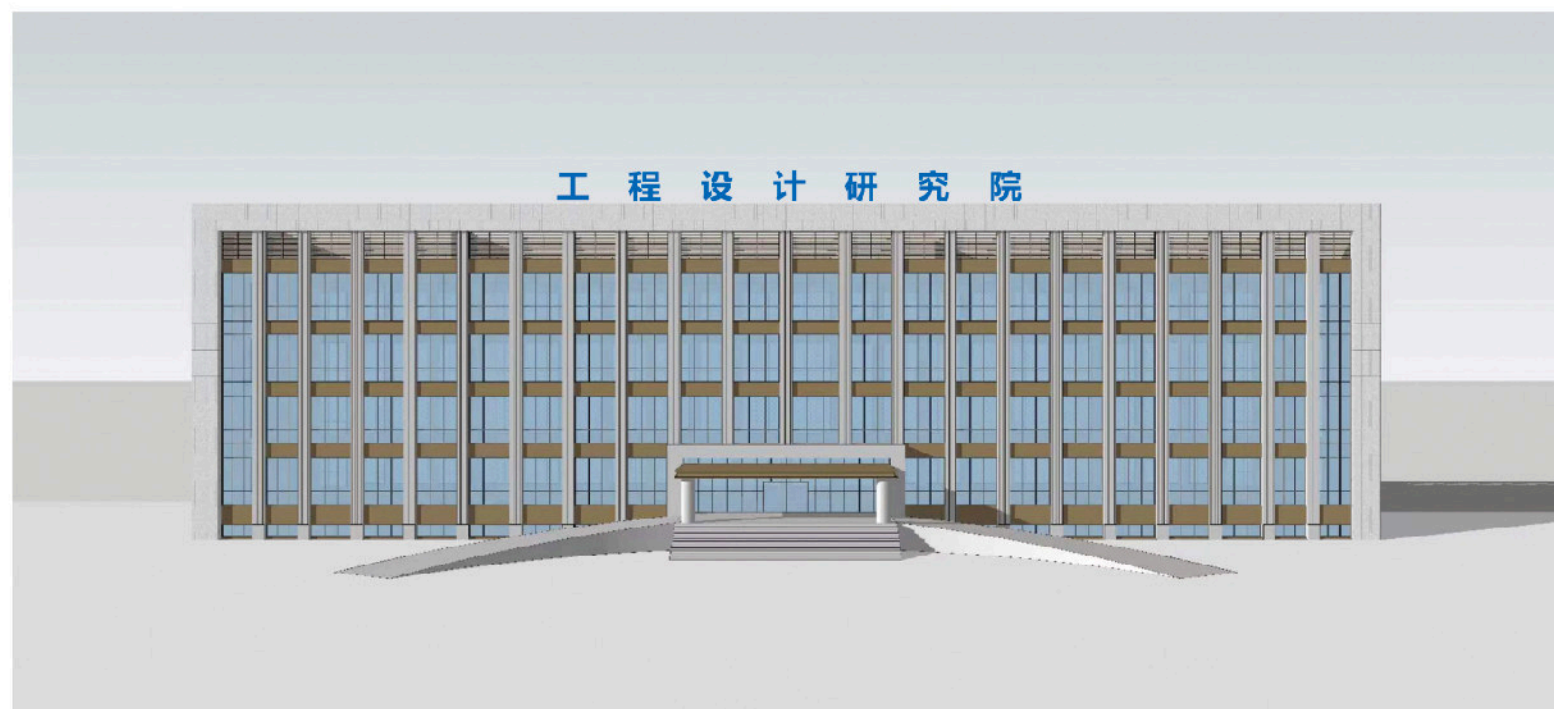
## 工程设计研究院

## ENGINEERING DESIGN AND RESEARCH INSTITUTE

### ► 研发团队 / R&D TEAM

作为行业技术引领者，华运装备工程设计研究院拥有矿山、冶金、建筑、结构、电气、暖通、给排水等工艺及相关公辅配套共计20多个专业的设计力量，形成了包括中国工程院院士和诸多国家级、行业级设计大师、百名研究生团队在内的高素质人才团队，搭建了全专业技术研发平台，下辖多个研究所机构，造就了一大批具有高市场价值的技术创新成果，获得了多项国家级、省部级奖项，取得了几百项授权专利，其中发明专利占比接近30%，引领行业向智能、生态、智慧、绿色的方向持续发展。

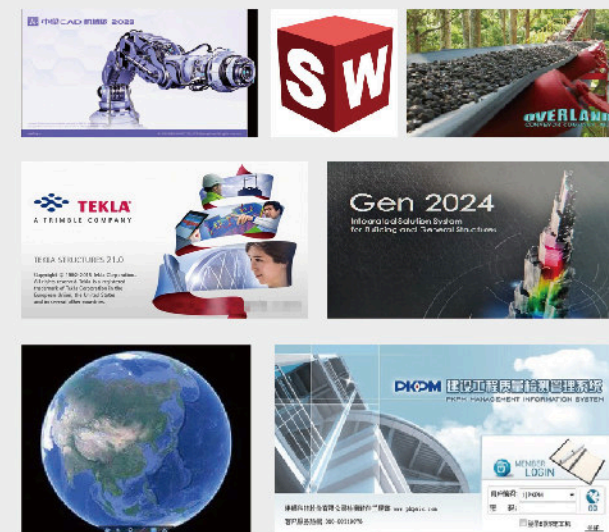
As a technology leader in the industry, Huayun Equipment Engineering Design and Research Institute has more than 20 professional design forces in mining, metallurgy, architecture, structure, electricity, HVAC, water supply and drainage and other processes and related public and auxiliary facilities. It has formed a high-quality talent team, including academicians of the CAE Member, many national and industry level design masters, and a team of 100 graduate students. It has built a full professional technology research and development platform, has multiple research institutes, and has created a large number of technological innovation achievements with high market value. It has won a number of national, provincial and ministerial awards, and hundreds of authorized patents, of which invention patents account for nearly 30%, leading the industry to sustainable development in the direction of intelligence, ecology, wisdom, and green.



### ► 设计手段 / DESIGN MEANS

长距离皮带机、管带机采用overland进行功率核算和启制动动态分析，钢结构深化详图采用Tekla，直接导入激光数控机床进行板材和型材下料，钢结构电算采用国际化通用软件Midas，环保转运系统采用三维物料离散元动态仿真技术。线路规划、地形仿真采用国际知名软件进行搭建，部件装配及工程详图采用SolidWorks。利用应力应变法对关键部件的受力进行智能监控，即保证了产品的技术性能，又提高了安全性和经济价值。

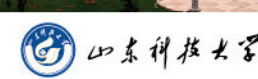
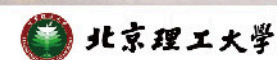
The long-distance belt conveyor and pipe conveyor adopt overland for power accounting and dynamic analysis of starting and braking. The detailed drawing of the steel structure adopts Tekla, which is directly imported into the laser numerical control machine for sheet and profile cutting. The steel structure computer adopts the international universal software Midas, and the environmental protection conveying system adopts three-dimensional material discrete element dynamic simulation technology. The route planning and terrain simulation are built using internationally renowned software, while component assembly and engineering details are done using SolidWorks. The use of stress-strain method for intelligent monitoring of the stress on key components not only ensures the technical performance of the product, but also improves safety and economic value.



### ► 研发水平 RESEARCH AND DEVELOPMENT LEVEL

研究院与清华大学、中国矿业大学、北京理工大学、哈尔滨工业大学等多所院校共同建立产、学、研基地。技术研发中心全部采用CAD模块化设计，三维实体造型的动态分析和关键部件的有限元分析，采用PLM管理系统与ERP有效衔接，做到数据传输无缝对接，实现了无纸化办公。

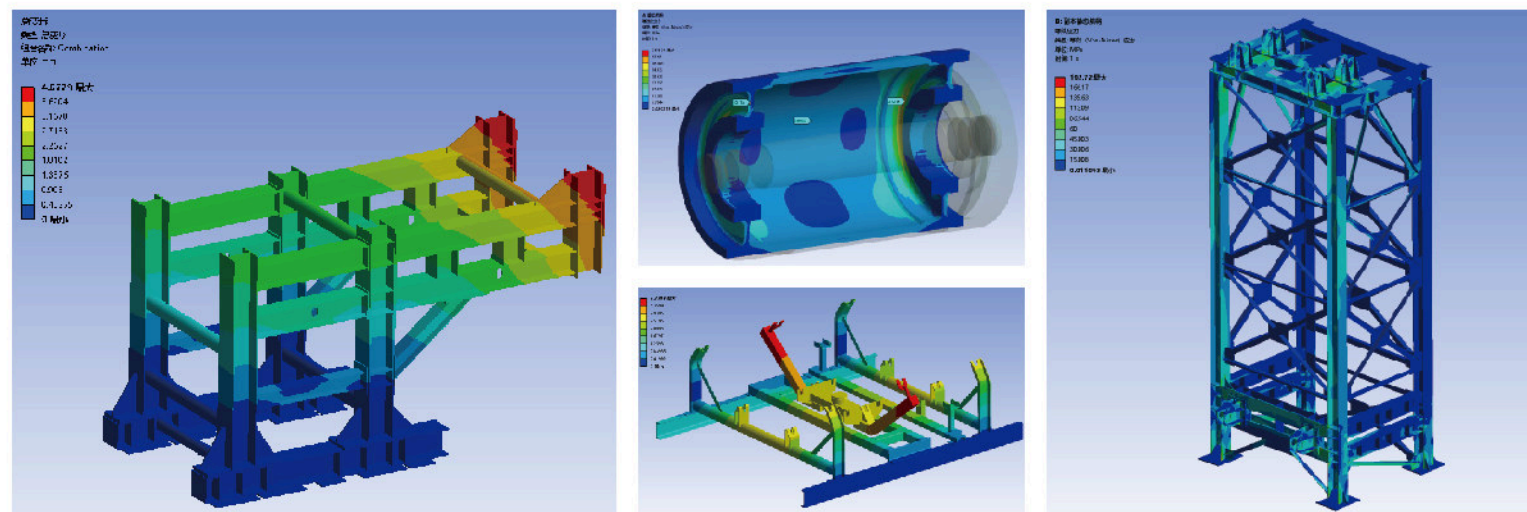
The research institute has jointly established the Production, Academic, and Research Base with multiple universities, such as Tsinghua University, China University of Mining and Technology, Beijing Institute of Technology, and Harbin Institute of Technology. The technology research and development center adopts CAD modular design, dynamic analysis of 3D solid modeling, and finite element analysis of key components. The PLM management system is effectively connected with ERP to achieve seamless data transmission and paperless office.



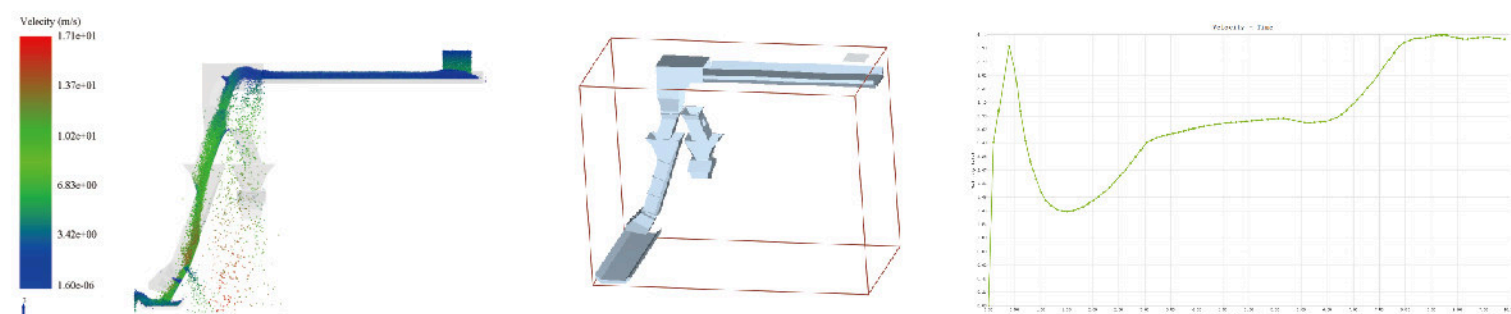




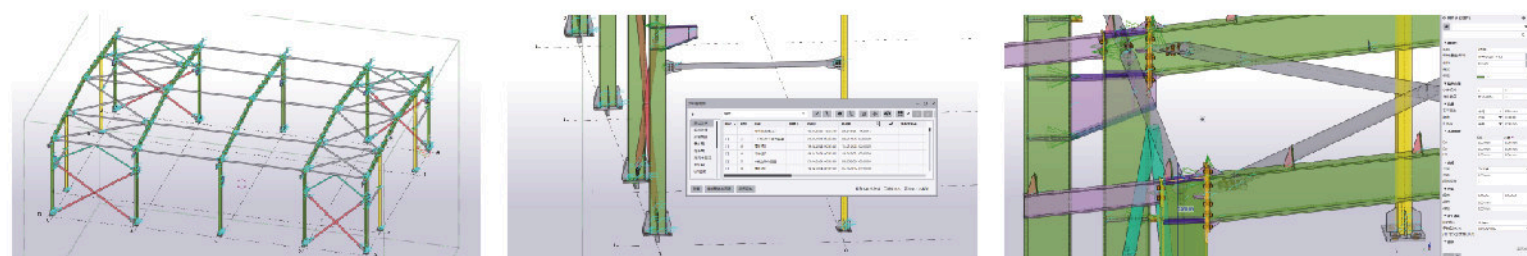
► 有限元仿真分析 / Finite Element Simulation Analysis



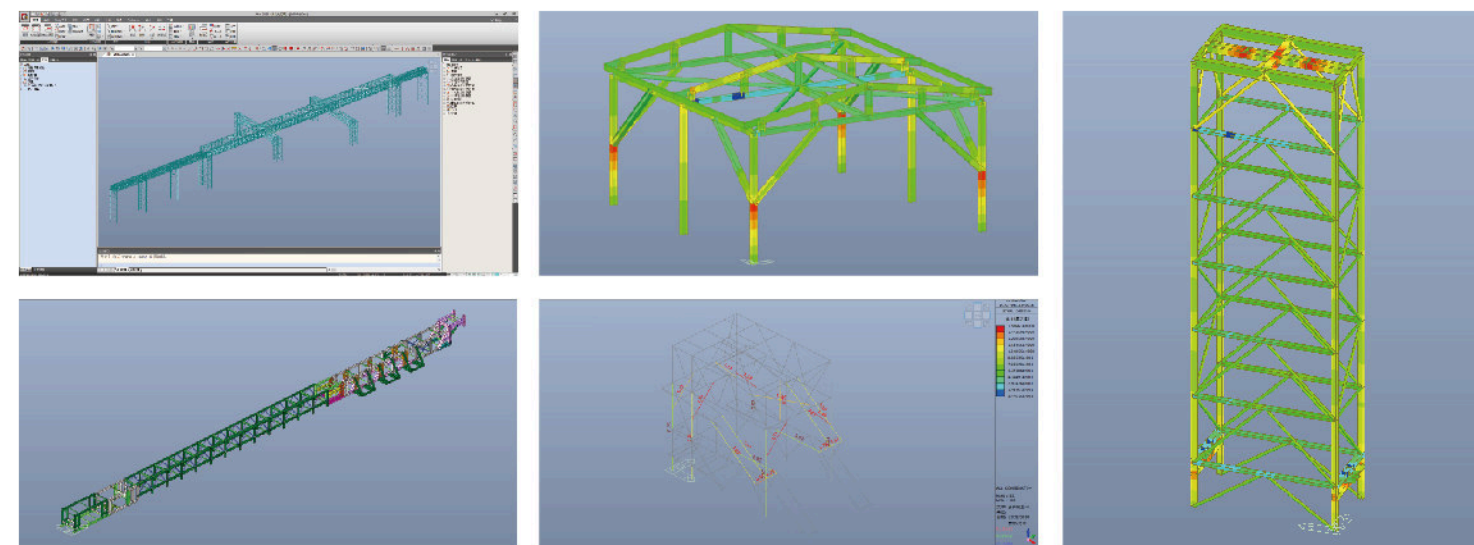
► 离散元动态仿真分析 / Discrete Element Dynamic Simulation Analysis



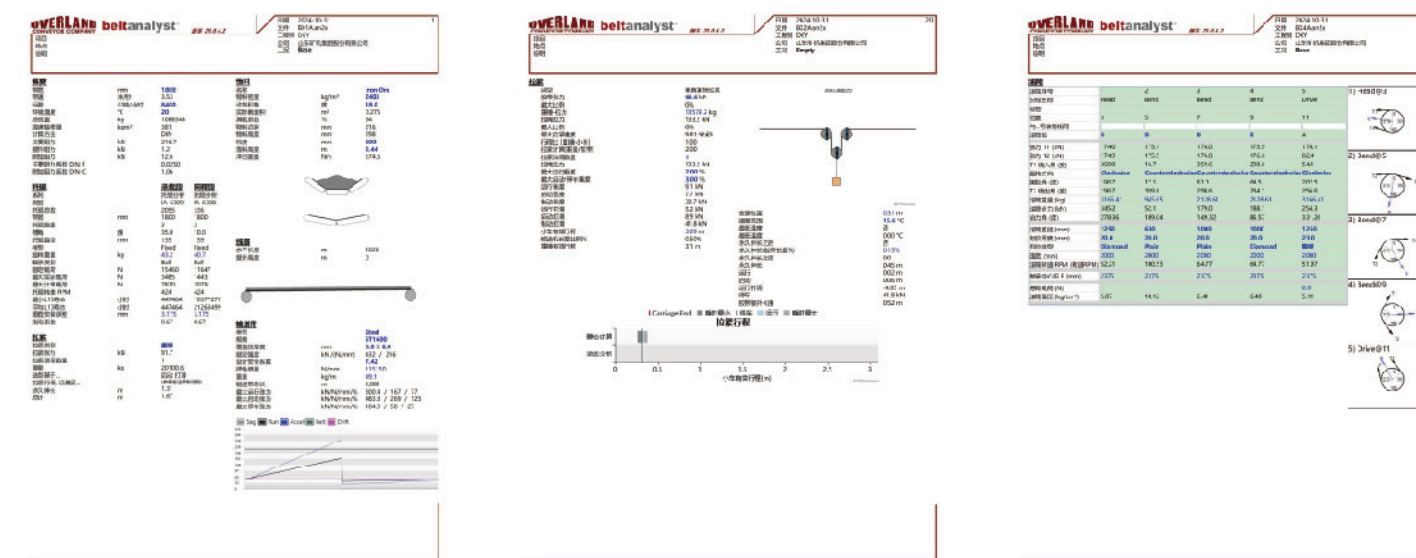
► TEKLA钢结构设计 / TEKLA Steel Structure Design



► MIDAS钢结构电算 / MIDAS Steel Structure Computer



► OVERLAND皮带机设计软件 / OVERLAND Belt Conveyor Design Software





## 智能制造 INTELLIGENT MANUFACTURING



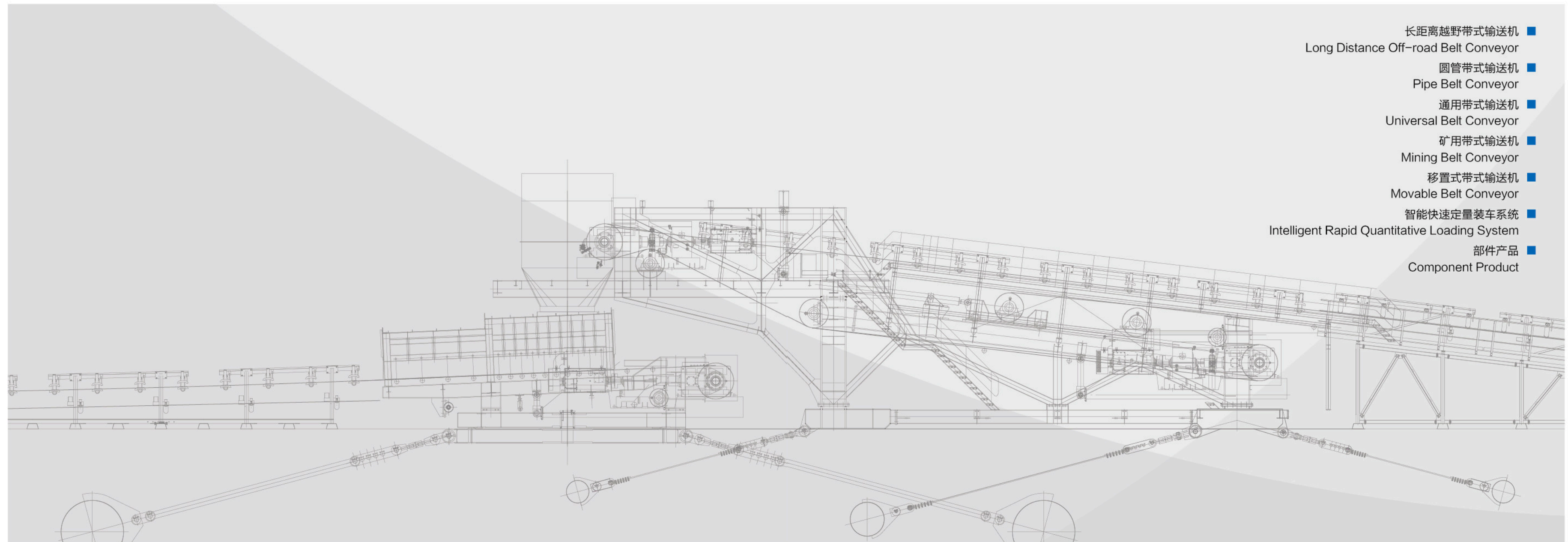






# 产品展示

## PRODUCT DISPLAY



长距离越野带式输送机 ■  
Long Distance Off-road Belt Conveyor

圆管带式输送机 ■  
Pipe Belt Conveyor

通用带式输送机 ■  
Universal Belt Conveyor

矿用带式输送机 ■  
Mining Belt Conveyor

移置式带式输送机 ■  
Movable Belt Conveyor

智能快速定量装车系统 ■  
Intelligent Rapid Quantitative Loading System

部件产品 ■  
Component Product





## 长距离越野带式输送机 / Long Distance Off-road Belt Conveyor

### 产品用途及特点 / Product Application and Features

长距离越野带式输送机是指实现长距离曲线输送的特种带式输送机。可以实现平面转弯，也可以伴随着平面转弯进行竖向凹凸弧转弯，构成空间转弯。它是通过将输送带的内曲线抬高、配置托辊内曲线调偏角及使用深槽托辊组等手段使输送机运行时产生一个向外的离心推力来克服由转弯造成的输送带张力的向心合力，保证输送带的转弯运行。采用弯曲的运行线路从而绕开障碍物或不利地段，实现少设或不设中间转载站，从而达到简化系统、节省投资的目的。

Long distance off-road belt conveyor refers to a special belt conveyor that realizes long-distance curved conveying. It can achieve flat turning, or perform vertical concave or convex arc turning along with flat turning, forming spatial turning. It is achieved by raising the inner curve of the conveyor belt, adjusting the deflection angle of the inner curve of the rollers, and adopting deep groove roller groups to generate an outward centrifugal thrust during the operation of the conveyor, in order to overcome the centripetal force caused by the tension of the conveyor belt due to turning and ensure the turning operation of the conveyor belt. Adopting a curved operating route to avoid obstacles or unfavorable areas, achieving the goal of simplifying the system and saving investment by setting up fewer or no intermediate transfer stations.





## 圆管带式输送机 / Pipe Belt Conveyor

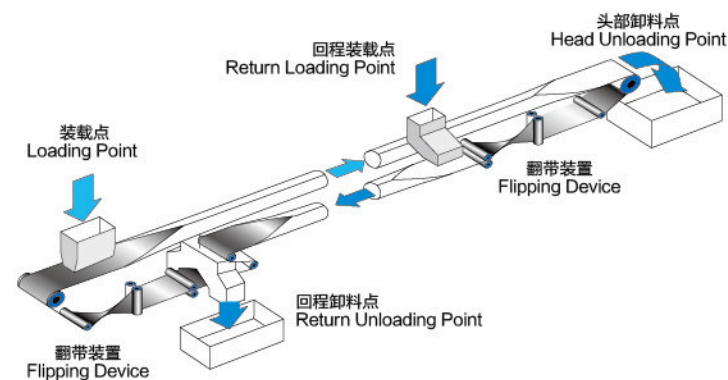
## 产品用途及特点 / Product Application and Features

圆管带式输送机是在槽形带式输送机的基础上发展起来的一类特种带式输送机，可实现封闭输送，有效避免漏料、洒料、扬尘、杂物混入、雨雪侵入等现象。具有密封性好、环境污染低、输送倾角大；适合于复杂地形布置，易于实现平面和空间转弯，占地面积小，实现双向输送物料等特点。

Pipe belt conveyor is a special type of belt conveyor developed on the basis of trough belt conveyor. It can achieve closed conveying, effectively avoiding phenomena such as material leakage, spillage, dust, debris mixing, and rain and snow intrusion. It has characteristics of good sealing, low environmental pollution, and large conveying inclination angle; suitable for complex terrain layout, easy to achieve planar and spatial turning, small footprint, and can realize bi-directional material conveying.

### 物料双向输送典型结构示意图

### Typical Structural Diagram of Bidirectional Material Conveying



### 名义管径和名义带宽 Nominal Pipe Diameter and Nominal Bandwidth

|                               |                                                                   |
|-------------------------------|-------------------------------------------------------------------|
|                               | JB/T 10380-2013                                                   |
| 名义管径<br>Nominal Pipe Diameter | 200 250 300 350 400 450 500 560 600 700 800 850                   |
| 名义带宽<br>Nominal Belt Width    | 730 910 1100 1280 1460 1640 1820 2050 2190 2300<br>2550 2900 3100 |

\* 带宽：一般为 $\pi D + 1/2D$ 取整 Belt Width: Usually  $\pi D + 1/2D$  Rounded Up

管帶機型号 Pipe Belt Conveyor Model:



### 圆管带式输送机主要参数

### Main Parameters of Pipe Belt Conveyor

表1 不同管径对应的带宽、断面积和许用块度 Table 1 belt width, cross-sectional area, and allowable block size corresponding to different Pipe Diameters

|                                                                        |     |         |         |         |         |          |           |           |           |           |           |
|------------------------------------------------------------------------|-----|---------|---------|---------|---------|----------|-----------|-----------|-----------|-----------|-----------|
| 管径 mm<br>Pipe Diameter mm                                              | 100 | 150     | 200     | 250     | 300     | 350      | 400       | 500       | 600       | 700       | 850       |
| 带宽 mm<br>Belt Width mm                                                 | 400 | 600     | 780     | 1000    | 1150    | 1350     | 1530      | 1900      | 2300      | 2650      | 3150      |
| 断面积 100% (㎡)<br>100% Cross-Sectional Area (㎡)                          |     | 0.0178  | 0.0313  | 0.0529  | 0.0637  | 0.0903   | 0.1466    | 0.2095    | 0.2908    | 0.3789    | 0.5442    |
| 断面积 75% (㎡)<br>75% Cross-Sectional Area (㎡)                            |     | 0.0133  | 0.0234  | 0.0397  | 0.0477  | 0.0677   | 0.1099    | 0.1571    | 0.2181    | 0.2842    | 0.4081    |
| 最大块度 (mm)<br>Maximum Block Size (mm)                                   | 30  | 50-50   | 50-70   | 70-90   | 90-100  | 100-120  | 120-150   | 150-200   | 200-250   | 250-300   | 300-400   |
| 普通带式输送机对应宽度 (mm)<br>Ordinary Belt Conveyor<br>Corresponding Width (mm) |     | 300-450 | 500-600 | 600-750 | 750-900 | 900-1050 | 1050-1200 | 1200-1500 | 1500-1800 | 1800-2000 | 2000-2400 |

表2 管径d、带速V和输送能力1V的匹配关系

Table 2 Matching Relationship between Pipe Belt Diameter  $D$ , Belt Speed  $V$ , and Conveying Capacity  $1V$ [illegible]





# 通用带式输送机 / Universal Belt Conveyor

## 产品用途及特点 / Product Application and Features

通用带式输送机泛指DT II (A)、DT75、DX型带式输送机。广泛应用于冶金、矿山、煤炭、港口、电站、建材等各个行业，用于散装物料的输送。具有生产率高、输送量大、能源消耗少、可实现连续长距离运输、工作平稳可靠、噪声小、对环境污染低、结构简单、设备运行费用低等特点。

Universal belt conveyors generally refer to DTII (A), DT75, and DX type belt conveyors, which are widely used for industrial bulk materials conveying in the industries conveying metallurgy, mining, coal, ports & terminals, power, chemical, construction materials (cement, sand and gravel aggregates, stones and rocks, concrete etc.), and others. It has the characteristics of high productivity, large conveying capacity, low energy consumption, continuous long-distance transportation, stable and reliable operation, low noise, low environmental pollution, simple structure, and low equipment operating costs.







## 矿用带式输送机 / Mining Belt Conveyor

### 产品用途及特点 / Product Application and Features

矿用带式输送机具有可靠性高、生产效率高、输送量大、能源消耗少、适应地形条件、布置灵活、自动化程度高、易于实现智能化的特点。广泛应用于煤炭矿山、非煤矿山等行业。矿用带式输送机分为固定式、移置式、半固定式、可伸缩式、TBM连续跟进式、大倾角上运下运等多个系列。

Mining belt conveyors have the characteristics of high reliability, high production efficiency, large conveying capacity, low energy consumption, adaptability to terrain conditions, flexible layout, high degree of automation, and easy implementation of intelligence. They are widely used in industries such as coal mines and non coal mines. Mining belt conveyors are divided into multiple series, including fixed, movable, semi-fixed, extendable, TBM continuous follow-up, and high inclination upward and downward transportation.

### 1. 煤矿用固定式带式输送机 Fixed Belt Conveyor for Coal Mines

该机型是煤矿集中运输的主要设备, 以下为部分皮带机的技术参数:

This model is the main equipment for centralized transportation in coal mines. The following are the technical parameters of some belt conveyors:

| 型 号<br>Model       | 最大运量<br>Maximum Conveying Capacity<br>(t/h) | 运距<br>Conveying Distance<br>(m) | 带宽<br>Belt Width<br>(mm) | 带速<br>Belt Speed<br>(m/s) | 电机功率<br>Motor Power<br>(kw) | 传动滚筒直径<br>Drive Pulley Diameter<br>(mm) | 托辊直径<br>Roller Diameter<br>(mm) | 机头外形尺寸(宽×高)<br>Conveyor Head Dimensions<br>(width x height)<br>(mm) | 参考重量<br>Reference Weight<br>(t) |
|--------------------|---------------------------------------------|---------------------------------|--------------------------|---------------------------|-----------------------------|-----------------------------------------|---------------------------------|---------------------------------------------------------------------|---------------------------------|
| DTL240/1000/4×2500 | 10000                                       | 3000                            | 2400                     | 5                         | 4×2500                      | 2000                                    | 219                             | 7850×3600                                                           | 1135                            |
| DTL240/1000/3×1800 | 10000                                       | 3000                            | 2400                     | 5                         | 3×1800                      | 2000                                    | 219                             | 7620×3600                                                           | 1070                            |
| DTL220/900/4×2500  | 9000                                        | 3000                            | 2200                     | 5                         | 4×2500                      | 2000                                    | 194                             | 7650×3600                                                           | 1042                            |
| DTL220/900/3×1800  | 9000                                        | 3000                            | 2200                     | 5                         | 3×1800                      | 2000                                    | 194                             | 7420×3600                                                           | 981. 5                          |
| DTL200/800/4×2500  | 8000                                        | 3000                            | 2000                     | 5                         | 4×2500                      | 2000                                    | 194                             | 7450×3600                                                           | 946. 8                          |
| DTL200/800/3×1800  | 8000                                        | 3000                            | 2000                     | 5                         | 3×1800                      | 2000                                    | 194                             | 7220×3600                                                           | 891. 6                          |
| DTL180/600/4×2500  | 6000                                        | 3000                            | 1800                     | 5                         | 4×2500                      | 2000                                    | 194                             | 7250×3600                                                           | 852. 2                          |
| DTL180/600/3×1800  | 6000                                        | 3000                            | 1800                     | 5                         | 3×1800                      | 2000                                    | 194                             | 7020×3600                                                           | 802. 5                          |
| DTL160/450/3×1600  | 4500                                        | 3000                            | 1600                     | 5                         | 3×1600                      | 2000                                    | 159                             | 6720×3600                                                           | 700. 2                          |
| DTL160/450/3×1250  | 4500                                        | 3000                            | 1600                     | 5                         | 3×1250                      | 1800                                    | 159                             | 6650×3600                                                           | 682. 2                          |
| DTL160/450/3×800   | 4500                                        | 2000                            | 1600                     | 5                         | 3×800                       | 1600                                    | 159                             | 6525×3600                                                           | 420. 5                          |
| DTL160/400/3×630   | 4000                                        | 2000                            | 1600                     | 4. 5                      | 3×630                       | 1400                                    | 159                             | 6350×3500                                                           | 375. 1                          |
| DTL160/400/3×400   | 4000                                        | 1900                            | 1600                     | 4. 5                      | 3×400                       | 1000                                    | 159                             | 5920×2650                                                           | 329. 2                          |
| DTL140/315/3×800   | 3150                                        | 2000                            | 1400                     | 4. 5                      | 3×800                       | 1600                                    | 159                             | 6325×3600                                                           | 356. 2                          |
| DTL140/315/3×710   | 3150                                        | 2000                            | 1400                     | 4. 5                      | 3×710                       | 1400                                    | 159                             | 6210×3500                                                           | 338. 1                          |
| DTL140/250/3×500   | 2500                                        | 1800                            | 1400                     | 4                         | 3×500                       | 1250                                    | 159                             | 6070×3100                                                           | 300                             |
| DTL140/250/3×400   | 2500                                        | 1400                            | 1400                     | 4                         | 3×400                       | 1000                                    | 159                             | 5650×2650                                                           | 251. 5                          |



|                  |      |      |      |      |       |      |     |           |         |
|------------------|------|------|------|------|-------|------|-----|-----------|---------|
| DTL120/200/3×800 | 2000 | 2000 | 1200 | 4    | 3×800 | 1600 | 159 | 6125×3600 | 289. 2  |
| DTL120/200/3×630 | 2000 | 2000 | 1200 | 3. 5 | 3×630 | 1400 | 133 | 5950×3500 | 253. 5  |
| DTL120/200/3×500 | 2000 | 1500 | 1200 | 3. 5 | 3×500 | 1250 | 133 | 5850×3100 | 210. 2  |
| DTL120/200/3×315 | 2000 | 1000 | 1200 | 3. 5 | 3×315 | 800  | 133 | 5450×2250 | 143. 6  |
| DTL120/200/3×250 | 2000 | 1000 | 1200 | 3. 5 | 3×250 | 800  | 133 | 5400×2250 | 139. 8  |
| DTL120/200/3×200 | 2000 | 1000 | 1200 | 3. 5 | 3×200 | 800  | 133 | 5380×2250 | 138. 3  |
| DTL100/120/3×630 | 1200 | 2500 | 1000 | 3. 5 | 3×630 | 1250 | 159 | 5720×3500 | 280. 2  |
| DTL100/120/3×560 | 1200 | 2500 | 1000 | 3. 5 | 3×560 | 1250 | 159 | 5690×3500 | 264. 3  |
| DTL100/120/3×315 | 1200 | 1600 | 1000 | 3. 5 | 3×315 | 800  | 133 | 5470×2250 | 135. 89 |
| DTL100/120/3×250 | 1200 | 1000 | 1000 | 3. 5 | 3×250 | 800  | 133 | 5380×2250 | 127. 2  |
| DTL100/120/3×200 | 1200 | 1000 | 1000 | 3. 5 | 3×200 | 800  | 133 | 5180×2100 | 125     |







2. 可伸缩式带式输送机 Scalable Belt Conveyor

该机型主要用于煤矿井下综采、高档普采或一般普采工作的顺槽运输，也可用于巷道掘进运输。用于顺槽运输时，机尾配桥式转载机与工作面输送机相接，用于巷道掘进时，机尾配带式转载机与掘进机相接。

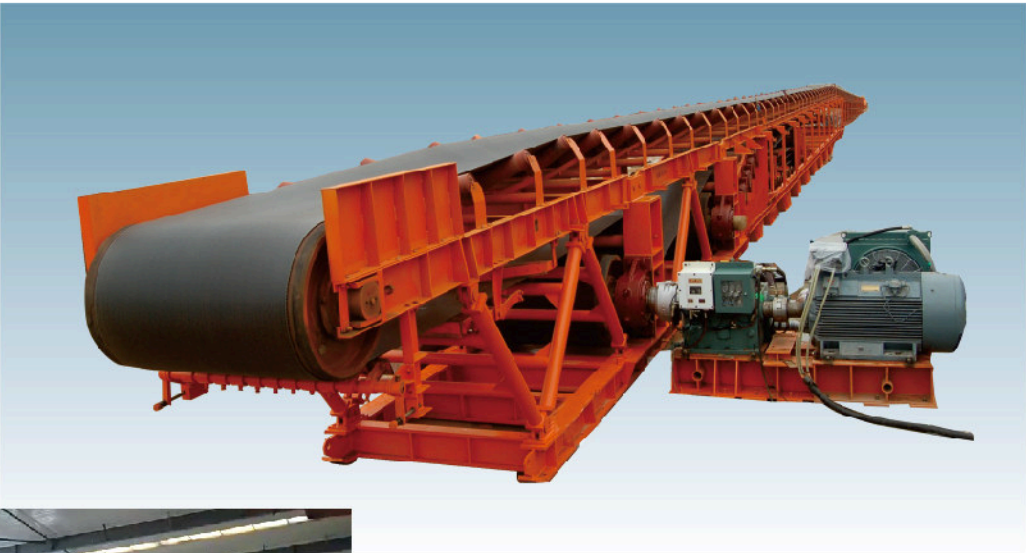
This model is mainly used for trench transportation in coal mine underground comprehensive mining, high-end general mining or general mining work, and can also be used for tunnel excavation transportation. When used for trench transportation, the tail of the conveyor machine is equipped with a bridge type transfer machine and connected to the working face conveyor. When used for tunnel excavation, the tail of the conveyor machine is equipped with a belt type transfer machine and connected to the excavation machine.

可伸缩式带式输送机技术参数 Technical Parameters of Scalable Belt Conveyor :

| 型 号<br>Model         | 最大运量<br>Maximum Conveying Capacity<br>(t/h) | 运距<br>Conveying Distance<br>(m) | 带宽<br>Belt Width<br>(mm) | 带速<br>Belt Speed<br>(m/s) | 电机功率<br>Motor Power<br>(kW) | 传动滚筒直径<br>Drive Pulley Diameter<br>(mm) | 托辊直径<br>Roller Diameter<br>(mm) | 机头外形尺寸(宽×高)<br>Conveyor Head Dimensions<br>(width x height)<br>(mm) | 参考重量<br>Reference Weight<br>(t) |
|----------------------|---------------------------------------------|---------------------------------|--------------------------|---------------------------|-----------------------------|-----------------------------------------|---------------------------------|---------------------------------------------------------------------|---------------------------------|
| DSJ180/600/3×1250    | 6000                                        | 3000                            | 1800                     | 5                         | 3×1250                      | 1600                                    | 194                             | 6750×2900                                                           | 700.5                           |
| DSJ180/600/3×800     | 6000                                        | 3000                            | 1800                     | 5                         | 3×800                       | 1600                                    | 194                             | 6720×2900                                                           | 672.3                           |
| DSJ160/400/4×710     | 4000                                        | 3000                            | 1600                     | 5                         | 4×710                       | 1400                                    | 159                             | 6520×2900                                                           | 621.3                           |
| DSJ160/400/4×560     | 4000                                        | 3000                            | 1600                     | 5                         | 4×560                       | 1250                                    | 159                             | 6520×2900                                                           | 578.43                          |
| DSJ140/315/3×710     | 3150                                        | 1600                            | 1400                     | 5                         | 3×710                       | 1000                                    | 159                             | 6220×2860                                                           | 308.48                          |
| DSJ140/315/3×630     | 3150                                        | 1450                            | 1400                     | 5                         | 3×630                       | 1000                                    | 159                             | 6220×2850                                                           | 295.36                          |
| DSJ140/315/3×560     | 3150                                        | 1400                            | 1400                     | 5                         | 3×560                       | 1000                                    | 159                             | 5880×2850                                                           | 283.38                          |
| DSJ140/250/3×500     | 2500                                        | 3000                            | 1400                     | 4                         | 3×500                       | 1000                                    | 159                             | 5650×2842                                                           | 450.2                           |
| DSJ140/250/3×400     | 2500                                        | 3000                            | 1400                     | 4                         | 3×400                       | 1000                                    | 159                             | 5326×2842                                                           | 437.5                           |
| DSJ120/200/（1-3）×400 | 2000                                        | 1000                            | 1200                     | 3.5                       | 3×400                       | 800                                     | 133                             | 4750×2150                                                           | 189.98                          |
| DSJ120/200/（1-3）×355 | 2000                                        | 1000                            | 1200                     | 3.5                       | 3×355                       | 800                                     | 133                             | 4726×2150                                                           | 155.1                           |
| DSJ120/200/（1-3）×315 | 2000                                        | 1000                            | 1200                     | 3.5                       | 3×315                       | 800                                     | 133                             | 4710×2150                                                           | 157.9                           |
| DSJ120/200/（1-3）×250 | 2000                                        | 1000                            | 1200                     | 3.5                       | 3×250                       | 800                                     | 133                             | 4698×2150                                                           | 147.1                           |
| DSJ120/200/(1-3)×200 | 2000                                        | 1000                            | 1200                     | 3.5                       | 3×200                       | 800                                     | 133                             | 4686×2150                                                           | 145.6                           |
| DSJ100/120/(1-3)×355 | 1200                                        | 2500                            | 1000                     | 3.5                       | 3×355                       | 800                                     | 133                             | 4526×1725                                                           | 229.4                           |
| DSJ100/120/（1-3）×315 | 1200                                        | 2400                            | 1000                     | 3.5                       | 3×315                       | 800                                     | 133                             | 4510×1725                                                           | 224.1                           |
| DSJ100/120/（1-3）×250 | 1200                                        | 800                             | 1000                     | 3.5                       | 3×250                       | 800                                     | 133                             | 4498×1725                                                           | 108.54                          |
| DSJ100/120/（1-3）×200 | 1200                                        | 800                             | 1000                     | 3.5                       | 3×200                       | 800                                     | 133                             | 4486×1725                                                           | 107.04                          |
| DSJ100/80/（1-2）×160  | 800                                         | 1000                            | 1000                     | 2.5                       | 2×160                       | 630                                     | 108                             | 2589×1665                                                           | 94.16                           |
| DSJ100/63/2×110      | 630                                         | 700                             | 1000                     | 2                         | 2×110                       | 630                                     | 108                             | 2537×1665                                                           | 86.5                            |
| DSJ100/63/（1-2）×90   | 630                                         | 700                             | 1000                     | 2                         | 2×90                        | 630                                     | 108                             | 2537×1665                                                           | 85.8                            |



|                    |     |      |      |     |       |     |     |           |        |
|--------------------|-----|------|------|-----|-------|-----|-----|-----------|--------|
| DSJ100/63/2×75     | 630 | 700  | 1000 | 2   | 2×75  | 630 | 108 | 2266×1615 | 61.0   |
| DSJ80/60/（1-2）×315 | 600 | 3000 | 800  | 2.5 | 2×315 | 800 | 133 | 2485×1725 | 292.3  |
| DSJ80/60/（1-2）×250 | 600 | 3000 | 800  | 2.5 | 2×250 | 800 | 133 | 2385×1725 | 284.1  |
| DSJ80/60/（1-2）×200 | 600 | 2600 | 800  | 2.5 | 2×200 | 800 | 133 | 2385×1725 | 248.7  |
| DSJ80/60/（1-2）×160 | 600 | 2400 | 800  | 2.5 | 2×160 | 630 | 108 | 2250×1665 | 156.2  |
| DSJ80/40/（1-2）×110 | 400 | 2400 | 800  | 2   | 2×110 | 630 | 108 | 2250×1665 | 150.5  |
| DSJ80/40/（1-2）×90  | 400 | 2200 | 800  | 2   | 2×90  | 630 | 108 | 2250×1665 | 140.3  |
| DSJ80/40/2×75      | 400 | 800  | 800  | 2   | 2×75  | 630 | 89  | 2066×1565 | 68.8   |
| DSJ80/40/2×40      | 400 | 800  | 800  | 2   | 2×40  | 500 | 89  | 1942×1465 | 52.153 |
| DSJ65/20/2×40      | 200 | 800  | 650  | 2   | 2×40  | 500 | 89  | 1742×1465 | 59.5   |
| DSJ65/20/2×22      | 200 | 800  | 650  | 1.6 | 2×22  | 500 | 89  | 1742×1465 | 48.7   |







## 移置式带式输送机 / Displacement Belt Conveyor

### 产品用途及特点 / Product Application and Features

随着世界范围内露天采矿业开采工艺和装备的技术进步，半连续开采运输工艺已成为国内外大型露天煤矿、露天金属矿的主流开采运输工艺。移动式带式输送机、移置式带式输送机、半移置式带式输送机做为露天矿开采的主要技术装备，其特点是胶带机通过移置机牵引钢轨或滑撬实现整机水平移动，另外本机还具有运输距离长、运量大、无基础等特点。

目前，我公司已为多个露天矿设计制造、安装了多条移置式带式输送机和半移置式带式输送机。

With the worldwide technological advancement of mining technology and equipment for open-pit industry, the semi-continuous mining and conveying technology has become the mainstream mining and conveying technology for the large open-pit coal mines and metal mines at home and abroad. Mobile belt conveyors, displacement belt conveyors, and semi-displacement belt conveyors are the main technical equipment for open-pit mining. Their characteristics are that the belt conveyor uses a displacement machine to pull steel rails or sliders to achieve horizontal movement of the entire machine. In addition, this machine also has the characteristics of long transportation distance, large capacity, and no foundation.

At present, our company has designed, manufactured, and installed multiple movable belt conveyors and semi-movable belt conveyors for multiple open-pit mines.







智能快速定量装车系统 / Intelligent Rapid Quantitative Loading System

该系统是一种将散状物料按规定的质量快速、连续称重后装车的系统产品。该系统具有装车精度高、装车速度快、装车平整均衡、劳动强度低、环保高效等特点。智能快速定量装车系统可适用于火车、汽车、轮船的智能、快速、定量装载。其主要适用的大宗散状物料有：煤炭、铁矿石、砂石骨料、粮食等。

This system is a product that quickly and continuously weighs bulk materials according to specified quality before loading them onto the vehicle. This system has the characteristics of high loading accuracy, fast loading speed, smooth and balanced loading, low labor intensity, environmentally friendly, and high efficiency. The intelligent fast and quantitative loading system can be applied to intelligent, fast, and quantitative loading of trains, cars, and ships. Its main applicable bulk materials include coal, iron ore, sand and gravel aggregates, grains, etc.

应用场景 Application Scenarios



系列化产品 Serialization Products

- 火车智能定量装车系统ZEL-100/5000-KZ  
Intelligent Quantitative Loading System for Trains ZEL-100/5000-KZ
- 汽车智能定量装车系统ZEL-40/2400-KZ  
Intelligent Quantitative Loading System for Automobiles ZEL-40/2400-KZ
- 防冻抑尘制备及喷淋系统  
Anti-freeze and Dust Suppression Preparation and Spray System
- 整平压实装置  
Leveling and Compacting Device







## 功 能 Function



### 智能引导系统 Intelligent Guidance System

智能引导系统通过语音指示、红绿灯指示、道闸控制及红外线防撞单元组成。车辆根据智能语音广播提示、配合红绿灯安全指示、完成车辆引导，通过车辆自动识别，完成车辆信息匹配准入、进站道闸开启，装车完成后、完成车辆信息LED显示。出站道闸开启，车辆根据提示牵出。

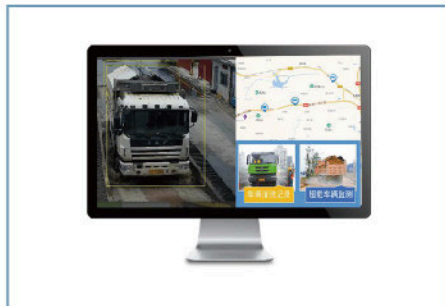
The intelligent guidance system consists of voice instructions, traffic light indications, barrier gate control, and infrared collision avoidance units. The vehicle guidance is based on intelligent voice broadcast prompts together with traffic light safety instructions. Through automatic vehicle recognition, it matches vehicle information for admission and opens the entrance gate. After loading, the vehicle information LED display is completed. The exit gate is opened, and the vehicle is pulled out according to the prompt.



### 车号自动识别 Automatic Identification of Vehicle Number

利用图像技术，将工业相机拍摄的车头图片进行处理计算，找出车牌字符并记录车号。将信号给到装车系统，代替人工操作。可根据车号匹配载重量、装车煤种等信息，避免错装、误装。

Using image technology, process and calculate the front images captured by industrial cameras, identify license plate characters, and record the vehicle number. Send the signal to the loading system instead of manual operation. It is possible to match the loading weight, loading coal type, and other information based on the vehicle number to avoid incorrect loading.



### 智能车辆定位 Intelligent Vehicle Positioning

车辆定位用于判断车厢对于装车位置准确，是保证装车效果的检测单元。通过车辆自动定位系统对车辆定位，调整车辆位置。

Vehicle positioning is used to determine the accuracy of the carriage's loading position and is a detection unit to ensure the loading effect. Use the vehicle's automatic positioning system to locate and adjust the vehicle's position.



### 智能装车溜槽 Intelligent Loading Chute

装车溜槽通过智能控制与PLC通讯连接，实现智能控制装车。包括完成溜槽伸缩、溜槽摆动角度调整、准确对位车厢。完成均匀布料装车。

The loading chute is connected through intelligent control and PLC communication to achieve intelligent control of loading. Including completing the expansion and contraction of the chute, adjusting the swing angle of the chute, and accurately aligning the carriage. Complete uniform fabric loading.

### 智能指挥系统 Intelligent Command System

在出站口位置设置LED大屏幕和语音广播，LDE屏幕显示车辆信息、装车数据、装车过程视频；语音广播“前进、停车、倒车”语音行车指令，从而代替人工指挥车辆。司机通过视频、语音广播指令调整车辆位置，完成均匀布料装车。

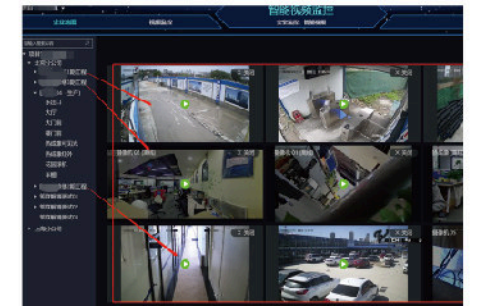
Set up LED screens and voice broadcasts at the exit, with LDE screens displaying vehicle information, loading data, and loading process videos; Voice broadcasting of "forward, Stop, Reverse" voice driving instructions replaces manual vehicle command. The driver adjusts the position of the vehicle through video and voice broadcast instructions to complete uniform fabric loading.



### 智能装载料位检测 Intelligent Loading Level Detection

利用激光雷达扫描完成车厢立体建模。智能计算装料高度，系统根据模型智能仿真装车效果，按系统提示装车，完成均匀布料。

Use Li DAR scanning to complete the three-dimensional modeling of the carriage. Intelligent calculation of loading height, the system intelligently simulates the loading effect based on the model, loads according to the system prompts, and completes uniform fabric distribution.



### 智能视频监控 Intelligent Video Surveillance

系统安装高清防爆红外监控摄像头，用于闸板卸料处、车厢装载处、出入通道等处进行视频监控；实现报警点视频联动展示，报警后自动推送当路视频，在集控室/装车站实现报警快速处理。采用高性能NVR（数字网络硬盘录像机），通过以太网交换机将前端相机接入系统，用于现场照片与录像存储；通过NVR系统软件，在集控室、装车站可以实现视频的实时图像显示，确保现场安全。

The system is equipped with high-definition explosion-proof infrared monitoring cameras for video monitoring at the gate unloading area, carriage loading area, entrance and exit passages, etc. it realizes the linkage display of alarm point videos, automatically pushes the current video after the alarm, and achieves rapid alarm processing in the control room/loading station. The high-performance NVR (digital network hard disk recorder) is adopted to connect the front-end camera to the system through an Ethernet switch for on-site photo and video storage. Through the NVR system software, real-time video image display can be achieved in the control room and loading station to ensure on-site safety.



### 智能报表系统 Intelligent Reporting System

智能报表系统包括：称重计量模块、视频识别模块、权限管理模块、报表查询模块、数据打印模块以及数据库管理模块。智能装车系统实现对装车过程中数据的统计、查询。用于调度决策指挥。

The intelligent reporting system includes weighing and measuring module, video recognition module, permission management module, report query module, data printing module, and database management module. The intelligent loading system realizes the statistics and queries of data during the loading process and is useful for decision-making, and commanding by the dispatcher.







智能快速装车站 Intelligent Rapid Loading Station

产品性能参数 Product Performance Parameters

| 参数名称 Parameter                                   |                                                                        | 技术指标 Technical Index                           |
|--------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------|
| 装车能力<br>Loading Capacity                         | 单仓单道汽车装车站 Single Warehouse and Single Track Automobile Loading Station | 3000t/h                                        |
|                                                  | 单仓单轨火车装车站 Single Warehouse Monorail Train Loading Station              | 5400t/h                                        |
| 装车精度<br>Loading Accuracy                         | 准确度 Accuracy                                                           | ±0.1%                                          |
|                                                  | 准确等级 Accuracy Level                                                    | C3                                             |
|                                                  | 称重精度 Weighing Accuracy                                                 | ±0.5%                                          |
| 定量仓称重范围 Quantitative Warehouse Weighing Range    |                                                                        | 0-100t                                         |
| 缓冲仓有效容积 Effective Capacity of Buffer Compartment |                                                                        | 150t-400t                                      |
| 适用车型<br>Applications                             | 汽车装车站 Automobile Loading Station                                       | 上敞开式货车 Open Top Truck                          |
|                                                  | 火车装车站 Train Loading Station                                            | C60-km98 ( 及上敞开集装箱 including open containers ) |
| 装车时间<br>Loading Time                             | 汽车装车站 Automobile Loading Station                                       | t≤45s/辆vehicle                                 |
|                                                  | 火车装车站 Train Loading Station                                            | t≤50s/节section                                 |
| 电源 Power Supply                                  | 电压等级 Voltage Level                                                     | 380v/660v                                      |

产品结构形式 Product Structure Form



混凝土筒仓智能快速定量装车站  
Concrete Silos Intelligent and Rapid  
Quantitative Loading Station



单仓单轨智能快速定量装车站  
Single Warehouse Monorail Intelligent  
Fast Quantitative Loading Station



单仓双轨智能快速定量装车站  
Single Warehouse Dual Track Intelligent  
Fast Quantitative Loading Station



双仓双轨智能快速定量装车站  
Dual-warehouse Dual-track Intelligent  
Fast Quantitative Loading Station

智能快速定量装车站特点 Characteristics of Intelligent Rapid Quantitative Loading Station

- 1、采用先进的摆动伸缩式装车溜槽、平移垂直伸缩式或自动布料机装车，可满足不同车厢装车要求。

2、缓冲仓安装先进的料位传感器、可精确检测料位高度。

3、定量仓安装先进的称重传感器、可准确配重物料、装车精度高。

4、配料闸门和装车闸门均采用对开式液压平板闸门，结构紧凑、动作灵活、无卡料。

5、系统内气流管道设计合理，确保物料流动顺畅，减少装车粉尘外溢。
1. Advanced swing telescopic loading chutes, translational vertical telescopic or automatic fabric dispensers are adopted for loading, which can meet the loading requirements of different carriages.

2. The buffer compartment is equipped with advanced level sensors for accurately detecting the height of the material level.

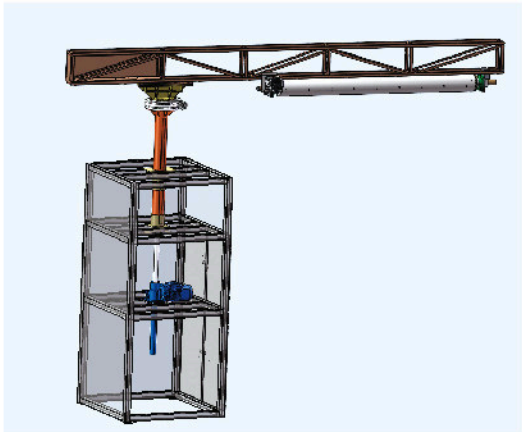
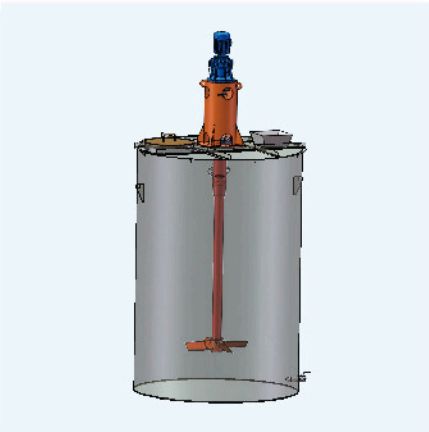
3. The quantitative warehouse is equipped with advanced weighing sensors, which can accurately balance materials and achieve high loading accuracy.

4. Both the batching gate and the loading gate use split type hydraulic flat gate, which has a compact structure, flexible action, and no jamming.

5. The design of the airflow pipeline within the system is reasonable, ensuring smooth material flow and reducing dust spillage during loading.



防冻抑尘制备及喷淋系统 Anti-freeze and Dust Suppression Preparation and Spray System



我公司设计开发了自动制液系统，防冻抑尘分别配置搅拌罐、预溶机、扬程泵、储液罐、车钩识别、单车喷淋计量、废液回收池、管路辅热及保温处理。

Our company has designed and developed an automatic liquid production system, which is equipped with mixing tanks, pre-dissolving machines, head pumps, liquid storage tanks, coupler recognition, single vehicle spray metering, waste liquid recovery tanks, pipeline auxiliary heating, and insulation treatment for anti-freezing and dust suppression.

整平压实装置 Flattening and Compaction Device

敞车装车压实装置，煤炭平煤压实系统由平煤平台、压实滚筒（直径1600mm以上）、支架、驱动装置及控制系统组成。

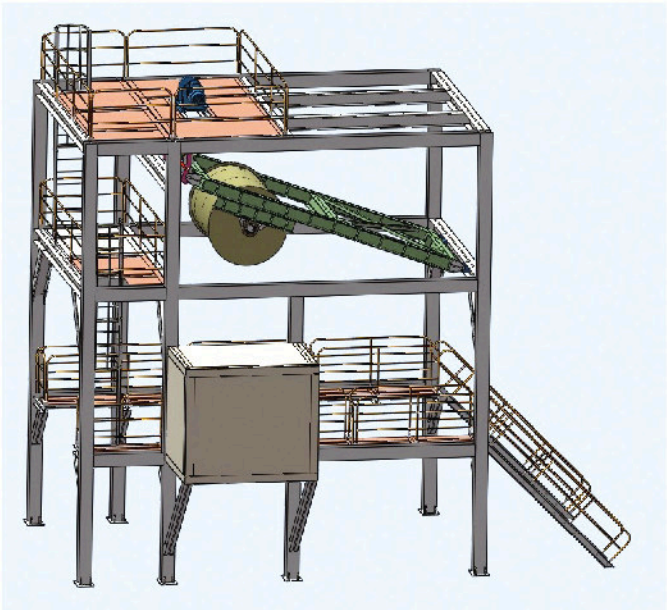
压实滚筒由电动绞车提升和下放，可以将装车时高于车厢的煤炭进行自动压实到与车厢平齐，从而达到铁路系统的要求。

整个压实系统的控制接入装车站控制中心，能够通过集控实现自动碾压，系统设有保护装置，当遇到系统故障和其它事故时能够保证滚筒高于车厢位置，从而保护车皮。

The open top car loading and compaction device, the coal flattening and compaction system consists of a coal flattening platform, compaction pulleys (with a diameter of 1600mm or more), brackets, driving devices, and control systems.

The compaction pulley is lifted and lowered by an electric winch, which can automatically compact coal that is higher than the carriage during loading to be level with the carriage, thus meeting the requirements of the railway system.

The control of the entire compaction system is connected to the loading station control center, which can achieve automatic rolling through centralized control. The system is equipped with protective devices, which can ensure that the pulley is higher than the carriage position in case of system failures and other accidents, thereby protecting the carriage.







## 部件产品 / Component Product

### 高分子托辊 Polymer Roller

托辊辊面为挤出型超高分子量聚乙烯管材，具有耐磨，耐腐蚀，不易粘附，自润滑、重量轻等优点。常温下，任何浓度的酸，碱，盐，硫等腐蚀介质都难与其产生化学反应。

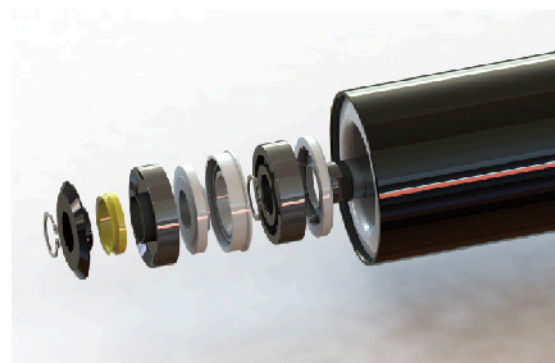
The surface of the roller is extruded Ultra-High Molecular Weight Polyethylene (UHMWP) pipe, which has the advantages of wear resistance, corrosion resistance, non adhesion, self-lubricating, and light weight. Any concentration of corrosive media such as acid, alkali, salt, sulfur, etc. is difficult to react chemically with it at room temperature.



### 高性能托辊 High Performance Roller

高性能托辊采用非接触迷宫和接触唇式的复合密封结构，防水防尘，密封效果显著。辊体实施缩口工艺，辊体端缘呈圆弧状，彻底消除了对输送带的磨损，大大提高托辊的同轴度，有效减小外圆的跳动和旋转阻力。使托辊寿命达到50000小时以上，寿命期内托辊损坏率小于10%。

The high-performance roller adopts a composite sealing structure of non-contact labyrinth and contact lip, which is waterproof and dust-proof, and has significant sealing effect. The roller body adopts the necking process, and the end edge of the roller body is in a circular arc shape, which completely eliminates the wear on the conveyor belt, greatly improves the coaxiality of the roller, and effectively reduces the jumping and rotational resistance of the outer circle, all the above makes the roller service life reach 50000 hours or more, with a roller damage rate of less than 10% during the service life.



### 高性能滚筒 High Performance Pulley

滚筒作为输送机的关键部件，应具有很高的可靠性。我公司研发中心通过对滚筒组进行有限元分析与优化计算，改进了滚筒结构，降低结构应力，提高了滚筒的寿命及可靠性。我公司滚筒由专业化高端设备制造而成，已形成系列化、规模化生产。

As a key component of the conveyor, the pulley should have high reliability. Our R&D center has improved the pulley structure, reduced structural stress, and increased the lifespan and reliability of the pulley through finite element analysis and optimization calculations. The pulleys are manufactured by specialized high-end equipment and have formed a serialized and large-scale production.



### 聚氨酯清扫器 Polyurethane Belt Cleaner

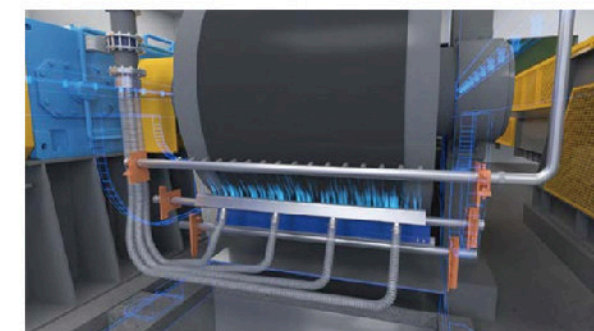
清扫器设计合理，结构紧凑，运行可靠，刮刀采用国外最新材料和工艺，并保证刮刀和皮带保持稳定的压力接触，保证持续良好的清扫效果。清扫器主轴两端设有自动调节装置，能自动调节刮刀始终保持与输送带胶面最佳的密贴性，保证了对输送带的粘附尘物清扫干净的良好效果。

The belt cleaner has reasonable design, compact structure and reliable operation. The scraper adopts the latest foreign materials and processes, and ensures stable pressure contact between the scraper and the belt, ensuring continuous good cleaning effect. The main shaft of the cleaner is equipped with automatic adjustment devices at both ends, which can automatically adjust the scraper to maintain the best adhesion with the adhesive surface of the conveyor belt, ensuring a good cleaning effect on the adhesive dust of the conveyor belt.

### 风清扫装置 Wind Cleaning Device

针对干粉类物料专门开发，采用高效风机产生高压风力进行清洁作业，具有环保、清扫效率高、不伤胶带、高效、低成本等优点。风清扫设备的建设和运营成本相对较低，维护简便，能够长期稳定运行。

It is specially developed for dry powder materials, using high-efficiency fans to generate high-pressure wind for cleaning operations, with advantages such as environmental protection, high cleaning efficiency, no damage to conveyor belt, high efficiency, and low cost. The construction and operation costs of wind cleaning equipment are relatively low, easy to maintain, and capable of long-term stable operation.



### 合金/陶瓷清扫器 Alloy/Ceramic Cleaner

针对粘性和含水量高的物料具有良好的清扫效果，采用高耐磨特种硬质合金刮板，延长了产品的使用周期。利用橡胶体本身的弹性性能，可自动调节清扫器刮板与输送机胶带之间的接触压力，保证了刮板与运行的胶带受力在一定合适的范围之内，使得清料既干净，又不损坏胶带。

It has a good cleaning effect for materials with high viscosity and moisture content. The high wear-resistant special hard alloy scraper is adopted to extend the product lifespan. By utilizing the elastic properties of the rubber body itself, the contact pressure between the scraper of the cleaner and the conveyor belt can be automatically adjusted, ensuring that the force of the scraper to the running belt is within a certain appropriate range, and the material cleaning effect is good without damaging the rubber belt.





### 无源液压自动纠偏装置 Passive Hydraulic Automatic Correction Device

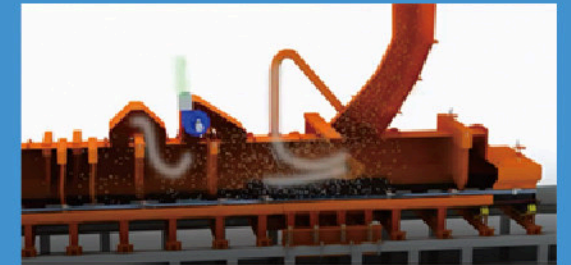
无需外接动力源，利用调正油泵自动控制纠偏托辊的角度，实现跑偏输送带的自动纠偏。调偏连续，阻力小，力矩大。此无源液压自动纠偏装置结构合理、内部设有多道轴承、纠偏阻力小、动作可靠、反映灵敏，借助皮带跑偏产生的侧推力带动液压装置自动纠偏。

Without the need for an external power source, the angle of the correction roller can be automatically controlled by the adjustment oil pump to achieve automatic correction of the deviation conveyor belt. The deviation adjustment is continuous with, low resistance, and high torque. This passive hydraulic automatic correction device has a reasonable structure, multiple bearings inside, low correction resistance, reliable action, and sensitive response. It uses the lateral thrust generated by belt deviation to drive the hydraulic device to automatically correct the deviation.

### 无动力/微动力除尘导料槽 No Power/Micro Power Dust Removal Guide Chute

根据空气动力学原理，采用EDM对粉尘流动速度和流动形态进行模拟，采用压力平衡和密闭循环方式，降低导料槽内气流的压力，实现了含尘气流的闭路良性循环、沉降，煤尘积结回落输煤皮带，避免了粉尘外溢污染环境。

According to the principles of aerodynamics, EDM is used to simulate the flow velocity and flow pattern of dust. The pressure balance and closed circulation method are adopted to reduce the pressure of the airflow in the guide groove, achieving a closed-loop virtuous cycle and settling of the dusty airflow. The coal dust accumulates and falls back onto the coal conveyor belt, avoiding dust overflow and pollution of the working environment.



### 智能电动纠偏装置 Intelligent Electric Correction Device

采用跑偏传感器及视觉系统检测跑偏信号反馈到控制系统，控制电缸推动调偏架的结构。自动调整、结构简单、性能可靠、安装方便。可以在恶劣环境下工作：不怕水、不怕粉尘、不损伤皮带。

It adopts a deviation sensor and visual system to detect the deviation signal and feedback it to the control system, the electric cylinder is controlled to push the structure of the deviation adjustment frame. It is characterized with automatic adjustment, simple structure, reliable performance, and easy installation. It can work in harsh environments with water-proof, dust-proof, and belt anti-wear performance.



### 高分子缓冲床 Polymer Buffer Bed

缓冲条的表面材料为超高分子量聚乙烯，表面光滑且耐磨，可减少摩擦阻力，延长使用寿命。缓冲条的中层为高弹性橡胶可有效减轻物料对皮带的冲击，能够更好的保护皮带。现场安装维护简便，左右侧床均可整体拆下，以利于缓冲床的安装维护。

The surface material of the buffer strip is ultra-high molecular weight polyethylene (UMWHP), which is smooth and wear-resistant, reducing frictional resistance and extending service life. The middle layer of the buffer strip is made of high elastic rubber, which can effectively reduce the impact of materials on the belt and better protect the belt. On site installation and maintenance are simple, and both left and right beds can be removed as a whole to facilitate the installation and maintenance of the buffer bed.

### 液压自动张紧装置 Hydraulic Automatic Tension Device

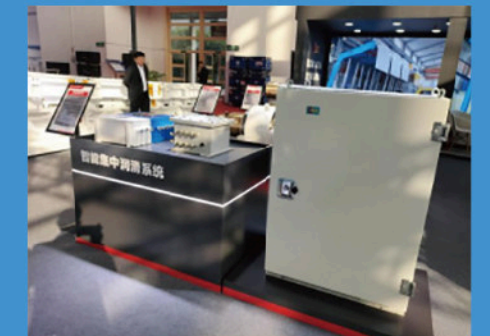
ZYJ500型液压张紧装置是根据我国煤矿特点，考虑带式输送机在启动和正常运行时所需拉力不同，经合理的输送带张力模型分析研究而设计。具有减小输送机启动时冲击负荷、按预定程序自动工作、快速响应、参数变化灵活、保压等特点。该设备有液压泵站、拉紧油缸、蓄能器、隔爆兼本安型控制开关及附件五大部分组成，拉紧油缸通过滑轮、钢丝绳与拉紧小车相连。

The ZYJ500 hydraulic tension device is designed based on the characteristics of coal mines in China, considering the different pulling forces required for belt conveyors during start-up and normal operation, and through a reasonable analysis and research of the conveyor belt tension model. It has the characteristics of reducing the impact load during the start-up of the conveyor, automatically working according to the predetermined program, fast response, flexible parameter changes, and pressure maintenance. The equipment consists of five main parts: hydraulic pump station, tension cylinder, accumulator, explosion-proof and intrinsic safety control switch, and accessories. The tension cylinder is connected to the tension trolley through pulleys and wire ropes.

### 智能润滑系统 Intelligent Lubrication System

适用于润滑频率高，配管长度大、润滑点多、各润滑点需脂量差异大、各点润滑周期差异大、润滑点需脂量不清楚需观察调整的系统，能实现系统堵塞、泄漏监测，各润滑点给油量、给油时间、润滑间隔时间随机可调。

It is suitable for systems with high lubrication frequency, long piping length, multiple lubrication points, large differences in grease requirements at each lubrication point, large differences in lubrication cycles at each point, and unclear grease requirements at lubrication points that require observation and adjustment. It can achieve system blockage and leakage monitoring, and the oil supply amount, oil supply time, and lubrication interval time at each lubrication point can be randomly adjusted.



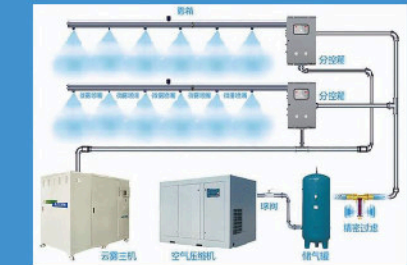




盘式制动装置 Disc Brake System

KPZ系列盘式制动装置主要用于上运、下运、长距离输送机的制动，特别是大倾角下运带式输送机的制动。用于下运带式输送机，其解决了制动盘散热及制动火花问题。能有效地防止超速、飞车事故的发生。用于上运特别是大倾角上运输送机，使输送机更安全、可靠，能有效防止逆止器失效而出现的倒飞车事故。用于长距离大型带式输送机时，能够实现可控制动停车，避免输送机在停车过程中张力急剧变化而导致输送带“堆叠”。

The KPZ series disc-brake device is mainly used for braking the upward, downward, and long-distance belt conveyors, especially for braking large angle downward belt conveyors. When used for downward belt conveyors, it solves the problems of brake disc heat dissipation and brake sparks, and can effectively prevent the occurrence of speed over and run-away accidents. When used for upward transportation, especially for belt conveyors with large inclination angles, it can effectively prevent overturning accidents caused by the failure of the backstop, which makes the conveyor safer and more reliable. When used for long-distance large belt conveyors, it can achieve controllable braking and stop, avoiding the conveyor from "stacking" due to sudden changes in tension during the stopping process.



干雾抑尘系统 Disc Brake System

干雾抑尘是通过“云雾”化的水雾（1~10 μm）来捕捉粉尘，让水雾与空气中的粉尘颗粒结合，形成粉尘和水雾的团聚物，受重力作用而沉降下来，可以有效解决局部封闭/半封闭状态下无组织排放粉尘的难题，如进料斗和给料机装卸区域的除尘。

Dry mist dust suppression is the process of capturing dust through a water mist (1-10 μm). The mist combines with dust particles in the air to form aggregates of dust and mist, which settle under gravity. This effectively solves the problem of unorganized dust emissions in partially enclosed/ semi-enclosed situations, such as dust removal at feeding hoppers, feeders and other loading and unloading areas.

操作台和防爆箱

Console and Explosion-Proof Box

本电控装置由矿用隔爆兼本质安全型控制箱、矿用本质安全型操作台、隔显示屏和各种传感器组成，适用于有爆炸性气体（甲烷混合物）和煤尘的矿井中。

配合矿用高、低压隔爆开关，本装置可控制各种驱动方式的带式输送机的运行，能满足长运距、大运量、大倾角，特别是具有变坡等复杂情况的带式输送机的控制要求。

This electronic control device consists of a mining explosion-proof and intrinsic safety control box, a mining intrinsic safety operation console, a screen display and various sensors, and is suitable for mines with explosive gases (methane mixtures) and coal dust.

Combined with high and low voltage explosion-proof switches for mining, this device can control the operation of various driving modes of belt conveyors, meeting the control requirements of long haul, large capacity, large inclination angle, especially for belt conveyors with complex situations such as slope changes.



矿用本质安全型操作台  
Mining Intrinsic Safety Control Panel



矿用隔爆兼本质安全型可编程控制箱  
Mining Explosion-proof and Intrinsic Safety Programmable Control Box



矿用隔爆型摄像仪 Mining Explosion-proof Camera

矿用隔爆型摄像仪是新一代的防爆监控设备，采用先进的H.265智能编码技术。一体化设计的摄像仪具有高清晰度、无火花、防水防尘、体积小、重量轻、配置灵活、传输损耗小、传输距离远、安装方便等特点，并且还具有强光抑制和彩色转黑白等功能。在皮带沿线关键位置，包括机头、机尾、放煤点、煤仓等处安装防爆摄像仪，通过光缆实现级联，上传到集控操作台，再通过交换机上传到地面集控中心。

The mining explosion-proof camera is a new generation of explosion-proof monitoring equipment, which adopts advanced H.265 intelligent coding technology. The camera with integrated design features high definition, spark free, waterproof and dust proof, small size, light weight, flexible configuration, low transmission loss, long transmission distance, easy installation, and also has functions such as strong light suppression and color to black and white conversion. Install it at key locations along the belt, including the machine head, tail, coal discharge point, coal bunker, etc., cascade them through optical cables, upload them to the centralized control console, and then upload them to the ground centralized control center through switches.



综合保护 Comprehensive Protection

适用于煤矿井下有瓦斯和煤尘爆炸危险的环境，适用于输送机设备的检测、急停闭锁、沿线通话、语音报警等，有效保障输送机设备的正常运行。

It is suitable for underground coal mine environment with gas and coal dust explosion hazards, suitable for detecting conveyor equipment, emergency stop locking, line communication, voice alarms, etc., effectively ensuring the normal operation of conveyor equipment.



速度传感器  
Speed Sensor



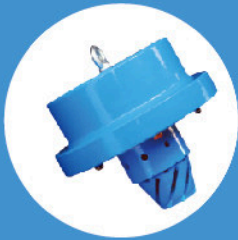
温度传感器  
Temperature Sensor



电极式堆煤保护  
Electrode Type Coal Pile Protection



扩音电话闭锁开关  
Loudspeaker Telephone Interlock Switch



烟雾传感器  
Smoke Sensor



洒水保护  
Sprinkler Protection



拉绳闭锁开关  
Rope Locking Switch



跑偏保护  
Deviation Protection

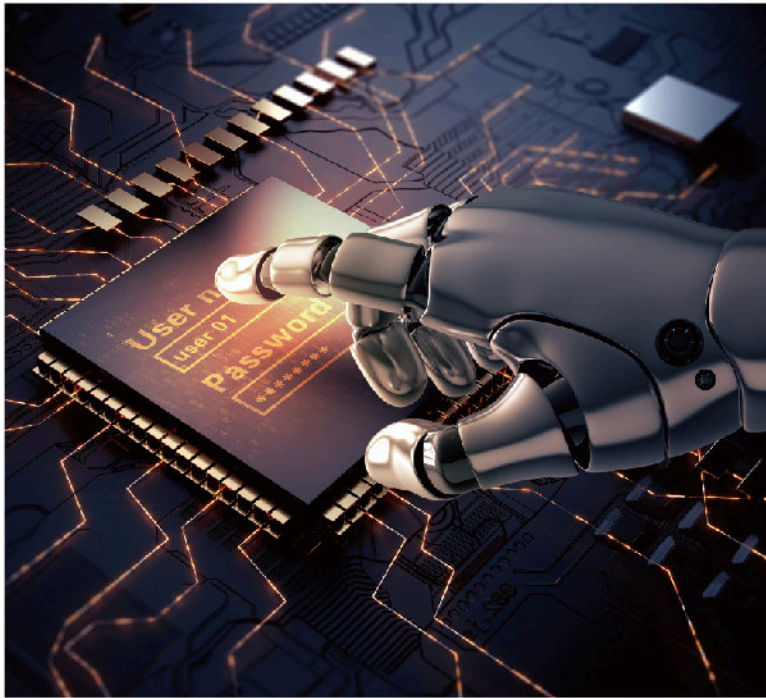


智慧运维  
SMART OPERATION AND MAINTENANCE

智慧运维中心 / SMART OPERATIONS CENTER

智慧运维中心坐落于青岛西海岸新区光谷软件园，专业致力于工业互联网领域研究，实现设备的状态感知、智能诊断、融合决策和云服务，并为企业提供智能控制系统、维保运营系统、预测性维护解决方案、过程控制决策方案、智能物联网云平台，助力企业高质量发展。中心以多年积累的设备运维数据为基础，利用最先进人工智能技术方案，建立了行业顶尖的散料运输设备故障诊断大模型。

The Smart Operation and Maintenance Center is located in the Optics Valley Software Park, West Coast New Area, Qingdao, China. It is dedicated to research in the field of industrial Internet, realizing equipment status awareness, intelligent diagnosis, integrated decision-making and cloud services, and providing enterprises with intelligent control systems, maintenance and operation systems, predictive maintenance solutions, process control decision-making solutions, and intelligent Internet of Things cloud platforms to help enterprises develop in a high-quality way. Based on years of accumulated equipment operation and maintenance data, the center has established an industry-leading fault diagnosis model for bulk material conveying equipment using the most advanced artificial intelligence technology solutions.



智慧运维设备管理理念 Smart Operation and Maintenance Equipment Management Concept

以可靠度为中心的全寿命周期管理：以“设备全寿命周期综合成本最低化”的理念，通过持续优化设备可靠性的手段，系统化开展设备运维管理工作。

设备可靠度管理：即通过采用高效的精密监测、智能诊断、性能测试、可靠性分析等技术，帮助运维团队全面了解和掌握设备状态，为合理安排检修项目、检修间隔、检修工期提供科学依据，有效降低检修成本，实现设备的优化检修。

系统可靠性提升：即针对各个主辅机设备的故障原因及监测需求，安装最匹配的先进技术及传感器，实现散料运输系统全系统无盲区覆盖。主辅机设备的全部在线监测、所有可能故障的智能诊断，确保了散料运输系统的运行可靠性。

技能模块化培训：即在先进人工智能诊断系统辅助下，针对各种设备的各类故障或运维内容，将现场运维工作模块化分割，并对该模块任务制定详细的作业指导书。按照指导书，不仅实现对应的人员技能标准化培训，还可帮助现场运维人员快速准确执行运维任务。

综上，智能运维系统能够全面提升设备管理水平，实现主辅设备真正的状态检修。通过降低设备故障率、提高设备健壮性，实现延长设备寿命、降低运维成本、提高企业效益的核心目标。

Reliability Centered Full Life Cycle Management: with the concept of "Minimizing the Comprehensive Cost of Equipment throughout its Entire Life Cycle", equipment operation and maintenance management is systematically carried out through continuous optimization of equipment reliability.

Equipment Reliability Management: It refers to the use of efficient precision monitoring, intelligent diagnosis, performance testing, reliability analysis and other technologies to help the operation and maintenance team comprehensively understand and grasp the equipment status, provide scientific basis for reasonable arrangement of the maintenance projects, intervals and periods, effectively reduce maintenance costs, and achieve optimized maintenance of equipment.

System Reliability Improvement: it refers to the installation of the most matching advanced technology and sensors for the fault causes and monitoring needs of various main and auxiliary equipment, achieving full coverage of the bulk material conveying system without blind spots. All online monitoring of main and auxiliary equipment, as well as intelligent diagnosis of all possible faults, ensure the operational reliability of the bulk material conveying system.

Modular Training of Skills: with the assistance of advanced artificial intelligence diagnostic systems, the on-site operation and maintenance work is modularized and segmented for various types of equipment failures or maintenance content, and detailed operation manuals are developed for the tasks of this module. According to the guidebook, it can not only achieve standardized training of corresponding personnel skills, but also help the on-site operation and maintenance personnel quickly and accurately execute operation and maintenance tasks.

In summary, the intelligent operation and maintenance system can comprehensively improve the level of equipment management and achieve true status maintenance of main and auxiliary equipment. The core goal of extending equipment lifespan, reducing operation and maintenance costs, and improving enterprise efficiency is achieved by reducing equipment failure rates and improving equipment robustness.

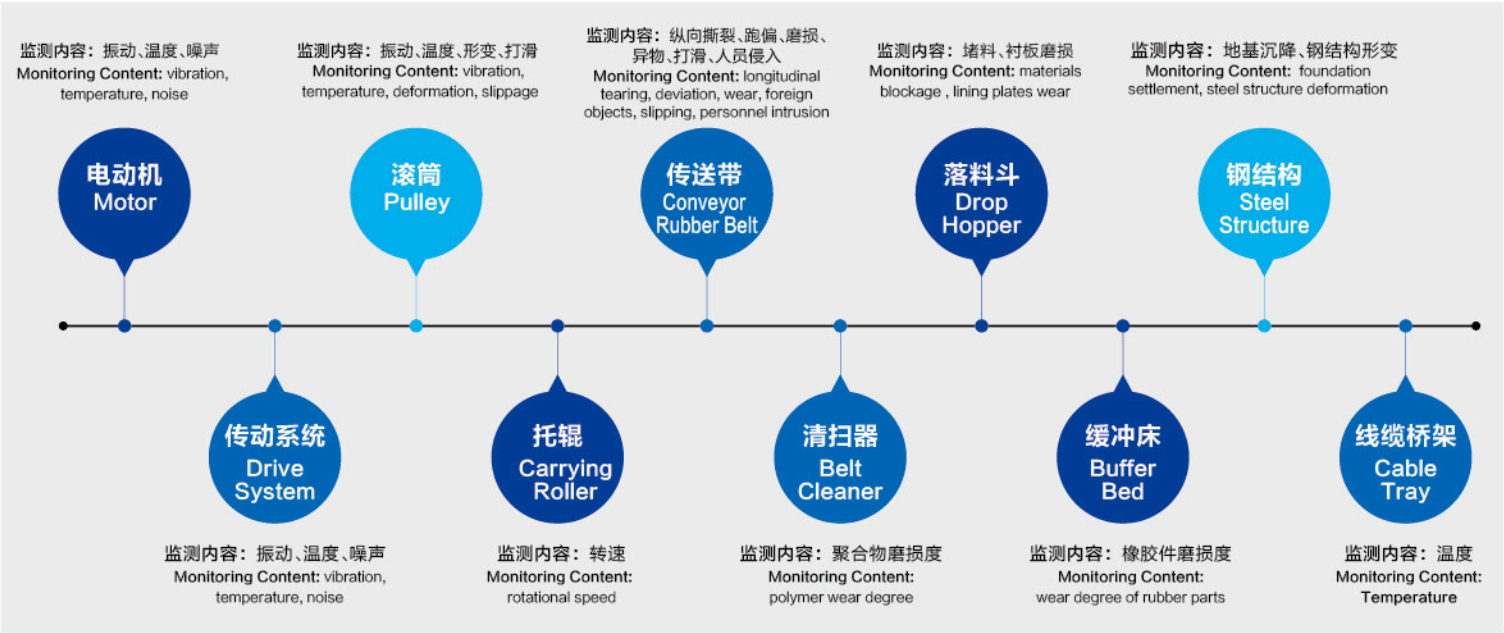




智慧运维系统 / SMART OPERATION AND MAINTENANCE SYSTEM

为贯彻先进设备管理理念而研发的全套技术体系，包括各类先进传感器、巡检机器人、多种智能化装备、人工智能诊断系统、软件管理平台。本智能系统监测对象包括全部散料运输主辅设备，并可自动识别所有设别常见故障。

A complete technical system developed to implement advanced equipment management concepts, including various advanced sensors, inspection robots, various intelligent equipment, artificial intelligence diagnostic systems, and software management platforms. The monitoring object of this intelligent system includes all main and auxiliary equipment for bulk material transportation, and can automatically identify all common equipment faults.



先进监测传感器 Advanced Monitoring Sensors

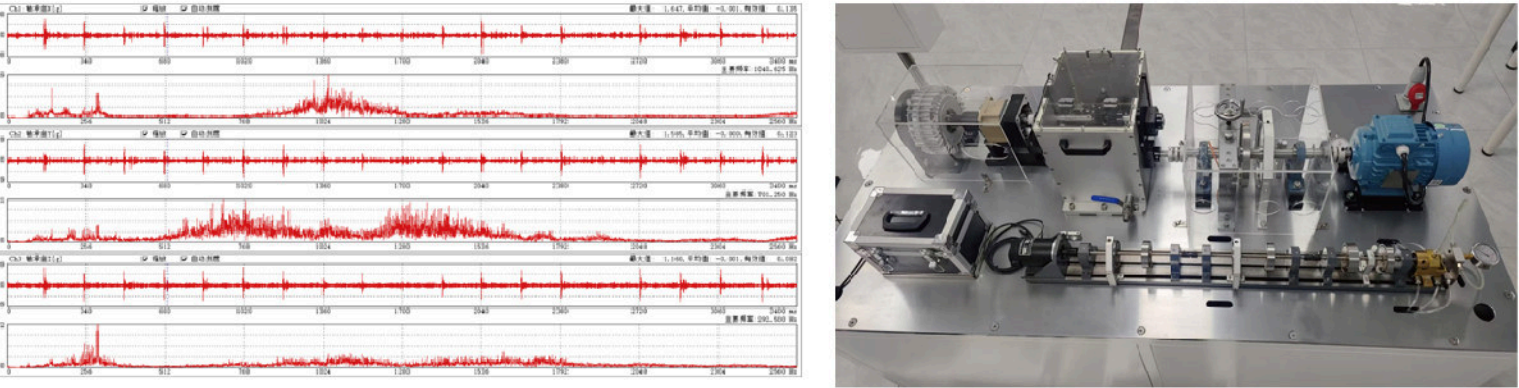
智慧运维系统采用的传感器包括：测振用高精度三轴加速度传感器、温度传感器、噪音及超声传感器、激光转速计、形变监测传感器、智能摄像头、红外摄像头、纵撕监测设备、测温光纤；上述传感器均配套有先进数采器及边缘计算设备，在相应算法支持下可实现快速高精度测量及异常状态识别。

The sensors used in the smart operation and maintenance system include high-precision three-axis acceleration sensors for vibration measurement, temperature sensors, noise and ultrasonic sensors, laser tachometers, deformation monitoring sensors, intelligent cameras, infrared cameras, longitudinal tear monitoring equipment, and temperature measuring optical fibers. All above sensors are equipped with advanced data acquisition devices and edge computing equipment, which can realize fast and high-precision measurement and abnormal state recognition with the support of corresponding algorithms.



传感器针对不同监测对象进行监测及分析。例如振动传感器，可对电机、减速机、轴承进行振动频谱分析、轴承冲击解调分析、齿轮故障特性分析、时域波形分析、相位分析；形变监测可对钢结构及滚筒进行结构缺陷分析、固有频率分析；超声传感器可对电气设备进行局部放电技术分析等等。

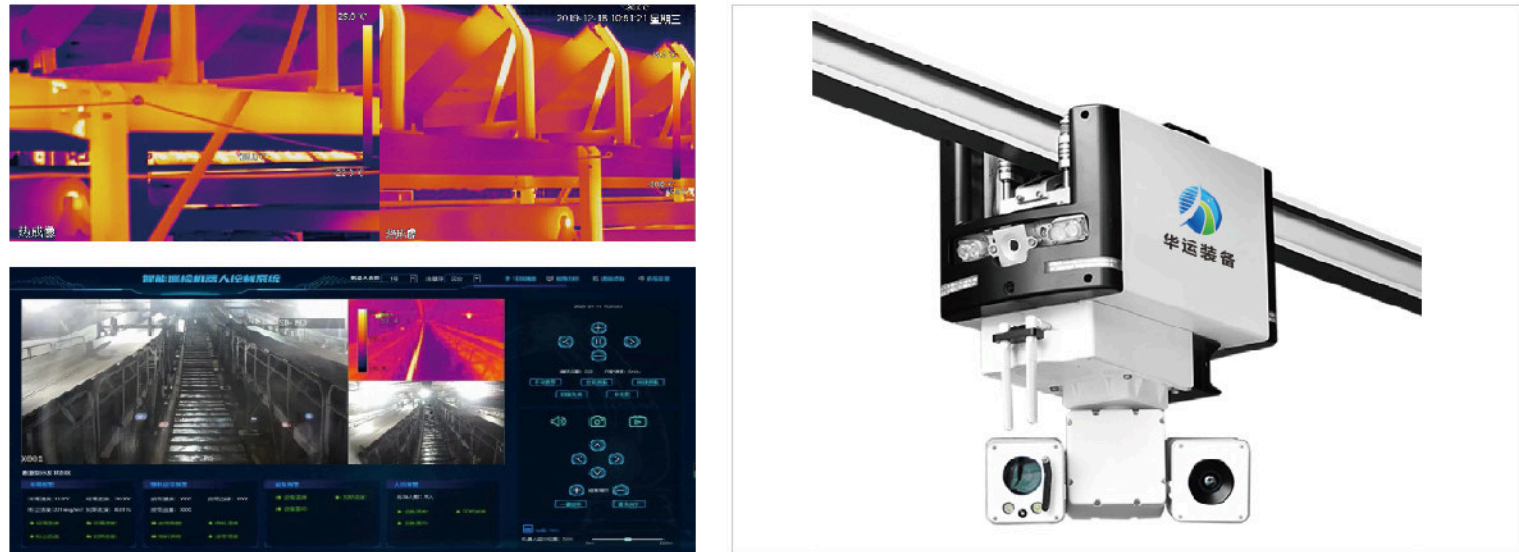
Sensors monitor and analyze different monitoring objects. For example, vibration sensors can perform vibration spectrum analysis, bearing impact demodulation analysis, gear fault characteristic analysis, time-domain waveform analysis, and phase analysis on motors, reducers, and bearings. Deformation monitoring can perform structural defect analysis and natural frequency analysis on steel structures and rollers. Ultrasonic sensors can perform partial discharge technology analysis on electrical equipment, and so on.



巡检机器人 Inspection Robot

轨道式巡检机器人，可根据应用现场的实际环境，搭载光学及红外摄像头、噪音及危险气体检测传感器等各类设备，按照设定路线及周期进行巡检。在监测设备及环境时，能够识别皮带跑偏、人员危险动作、设备高温及火灾等各类异常状态。巡检机器人可自动充电、自动清洁，并可实现故障自检，能较大程度替代人工巡检任务，提高巡检效率。

The orbital inspection robot can be equipped with various devices such as optical and infrared cameras, noise and hazardous gas detection sensors, etc. according to the actual environment of the application site, and conduct inspections according to the set route and cycle. When monitoring equipment and environment, it can identify various abnormal states such as belt deviation, personnel dangerous actions, equipment high temperature, and fire. The inspection robot can automatically charge, clean, and perform fault self-inspection, which can greatly replace manual inspection tasks and improve inspection efficiency.

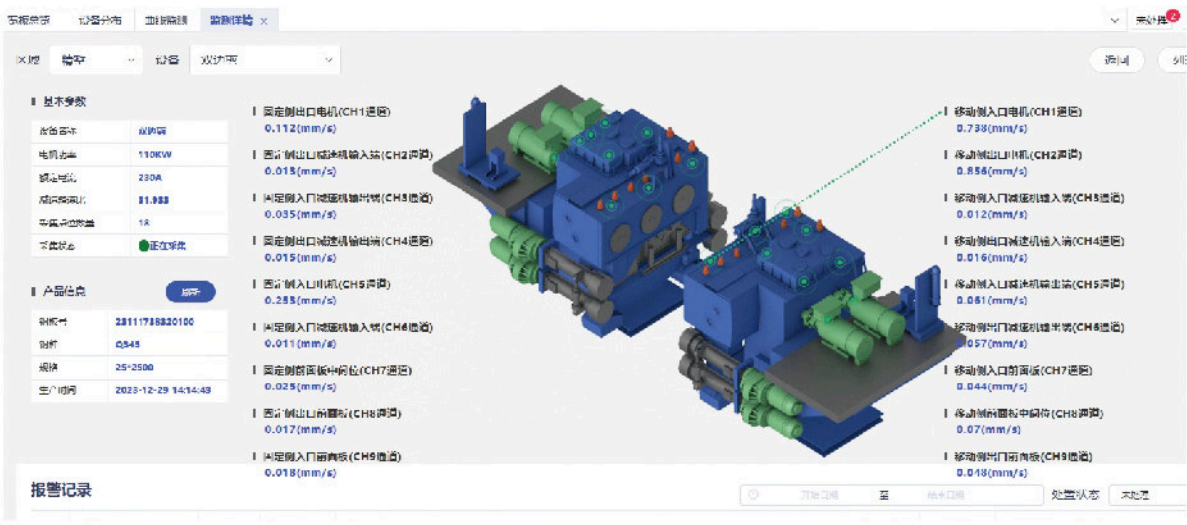




■ 人工智能诊断系统 Artificial Intelligence Diagnostic System

以华运装备业内顶尖的设备制造经验及现场运维数据为核心，利用最先进人工智能技术成果，并持续对比国际先进故障诊断系统，本中心研发完成了散料运输行业顶尖水平的智能设备诊断系统。在掌握核心故障数据、开发振动凝视功能的基础上，利用模型迁移算法，实现核心设备寿命预测功能，并持续优化，不断提高预测精度。

With the company's top equipment manufacturing experience in the industry and on-site operation and maintenance data as the core, utilizing the most advanced artificial intelligence technology achievements, and continuously comparing with international advanced fault diagnosis systems, the company R&D center has developed a top-level intelligent equipment diagnosis system in the bulk material conveying industry. Based on mastering of core fault data and development of vibration gaze function, using model transfer algorithm to achieve core equipment lifespan prediction function, and continuously optimizing to improve prediction accuracy.



■ 软件管理系统 Software Management System

智慧运维软件管理系统，是将所有传感器数据进行采集、存储、分析、显示的软件平台。同时，该平台还具备用户管理、故障统计、运维任务派发、决策指挥、信息发送等功能，高度体现了华运装备以可靠性为中心的全寿命周期管理的设备运维思想。

The intelligent operation and maintenance software management system is a software platform that collects, stores, analyzes, and displays all sensor data. At the same time, the platform also has functions such as user management, fault statistics, operation and maintenance task distribution, decision-making and command, and information transmission, which highly reflects the company equipment operation and maintenance philosophy that focusing on reliability centered full life cycle management.



监测图谱 Inspection Robot

波形频谱图

瀑布图

多趋势图

倒进图

故障前

故障后

预警体系包括阈值预警、趋势预警、报警合并及推送等。其中，阈值预警是利用当前实时数据和阈值进行比较，得到报警状态；趋势预警是结合当前实时值和历史数据，对比数据的增长情况，得到报警状态，可分为趋势增幅预警和趋势增速预警。

The pre-warning system includes threshold warning, trend warning, alarm merging and push, etc. Among them, threshold warning is to compare the current real-time data with threshold to obtain the alarm status. Trend warning is to combine the current real-time value with historical data, compare with the growth of data, and obtain the alarm status, which can be divided into trend increase warning and trend growth rate warning.



# 总承包业绩

## GENERAL CONTRACTING PERFORMANCE

公司坚持“零距离全程服务”为宗旨，在全国设有26个大型配件仓库，形成了完善的营销服务网络体系。华运装备恪守“重诚信、顾客第一，创新改进、质量第一”的经营理念，愿与国内外朋友广泛合作，共谋发展。

The company adheres to the principle of "Zero Distance Full-Service" and has 26 large accessory warehouses across the country, forming a complete marketing service network system. Huayun Equipment adheres to the business philosophy of "Honesty and Trustworthiness, Customer First; Innovation and Improvement, Quality First", and is willing to cooperate extensively with friends at home and abroad to seek common development.







典型业绩案例 Typical Case Study















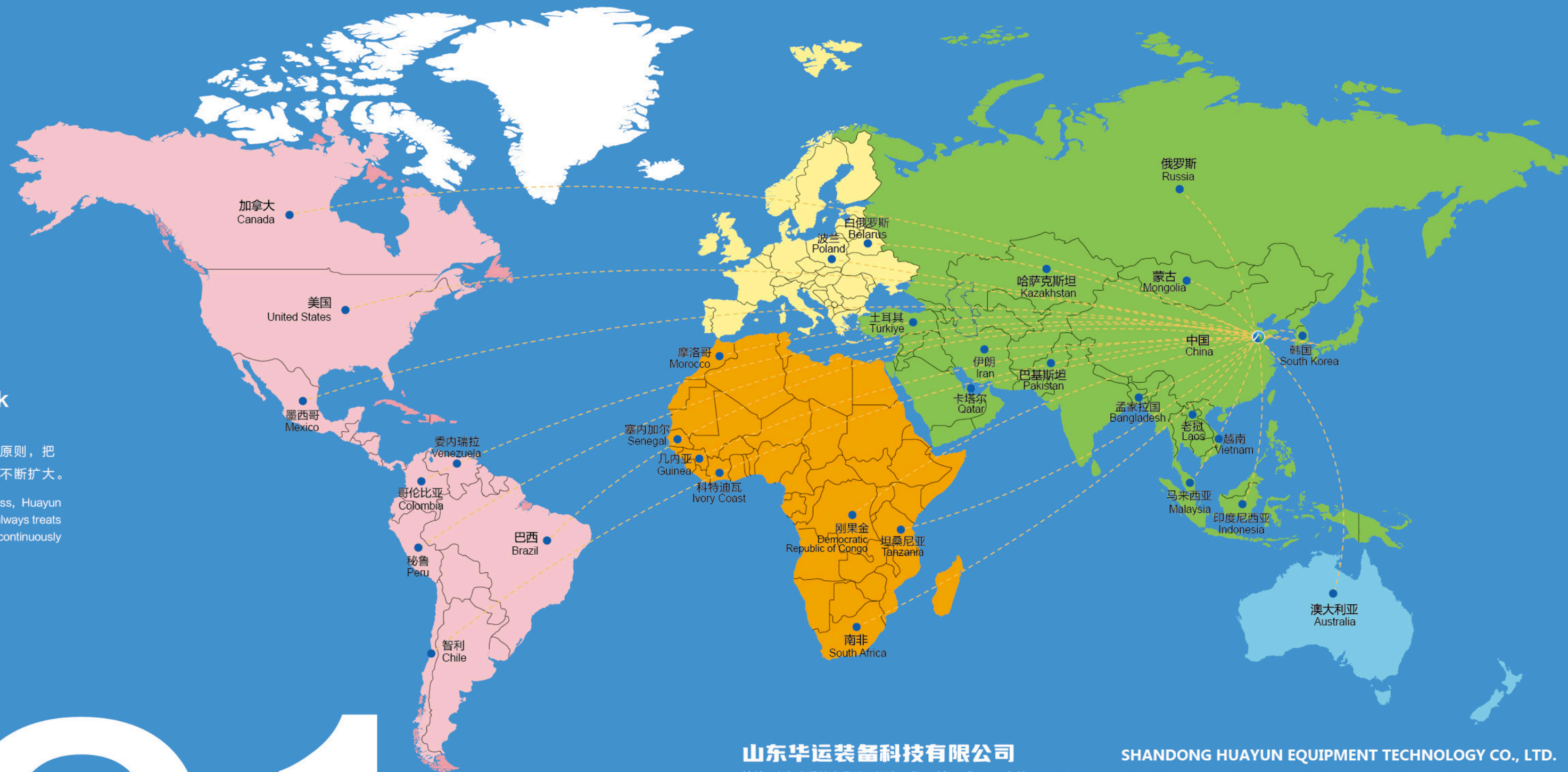


## 营销服务网络 Marketing Service Network

诚信服务，臻于至善，华运装备坚持顾客至上的原则，把客户当作朋友，满意的专家服务使营销服务网络不断扩大。

With integrity service and striving for ultimate goodness, Huayun Equipment adheres to the principle of Customer First and always treats customers as friends, the satisfactory expert services continuously expand the marketing service network.

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