



太原重工轨道交通设备有限公司

TAIYUAN HEAVY INDUSTRY RAILWAY TRANSIT EQUIPMENT CO., LTD.

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中国·山西·太原
TAIYUAN · SHANXI · CHINA

企业简介 Company Profile



太原重工股份有限公司其前身为太原重型机器厂，始建于1950年，是新中国自行设计建造的第一座重型机械制造企业，也是中国重型机械行业第一家上市公司。公司占地面积370万平方米，资产总额275亿元，员工8000余人，年销售额逾百亿元，属国家特大型重点骨干企业，被誉为“国之瑰宝”、“国民经济的开路先锋”。

太原重工股份有限公司具有雄厚的自主研发实力，设计、制造的多项产品填补了国家空白，荣获了国优金奖，创造了420余项中国和世界第一。

Taiyuan Heavy Industry Co., Ltd.(hereinafter referred to as “TYHI”) is the first listed company in China's heavy machinery industry. The main holder, Taiyuan Heavy Machinery Group Co., Ltd., is the first heavy machinery enterprise designed and established independently in China in 1950. TYHI covers an area of 3.7 million square meters with total assets of RMB 27.5 billion and 8000 employees. The annual turnover is more than 10 billion. As a national key enterprise, TYHI has been honored as a “national treasure” and a “pioneer of the national economic development”.

TYHI's strength lies in its strong ability in research and self-development. We have created more than 420 types of nationally and internationally recognized products, many of which have filled gaps in the domestic market and have been awarded national prizes.

诚信 创新 精益 卓越 Integrity Innovation Precision Brilliance



太原重工轨道交通设备有限公司是太原重工股份有限公司从事研发、设计、制造和服务轨道交通领域的专业化子公司，是目前国内外唯一能同时生产轨道交通用车轮、车轴、齿轮箱及轮对的重要基地。

公司于上世纪九十年代初进入轨道交通零部件研发制造领域，建立了专门的产品设计、材料研究、工艺研究、检测和实验等机构，致力于车轮、车轴、齿轮箱及轮对全系列产品的开发；积极扩大“产、学、研、用”交流合作，掌握研发、制造的核心技术，产品广泛用于铁路、城市轨道交通、工矿冶金、起重运输、港口机械、能源电力等领域。

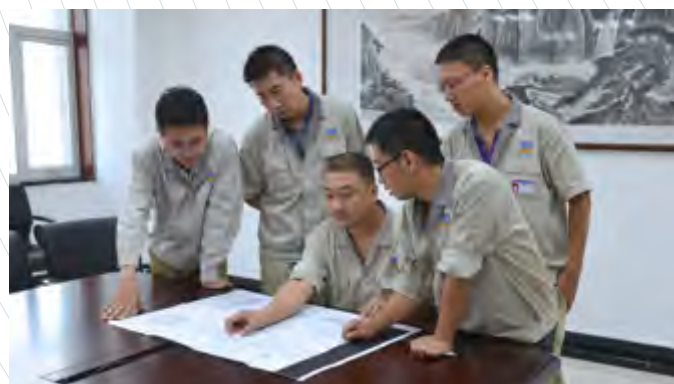
Taiyuan Heavy Industry Railway Transit Equipment Co., Ltd. (hereinafter referred to as “THRE”) is a subsidiary of TYHI specialized in the research, design, manufacture and service of railway transit equipment. At present, it is the only significant production base that can manufacture railway wheels, axles, wheelsets and gearboxes.

The company started to engage in the development of railway equipment spare parts in the early 1990s. We have established professional institutions for product design and engineering, material research, technology research, testing and experiment, devoting us to the development of different types of wheels, axles, gearboxes and wheelsets. In recent years, we have actively expanded "production, study, research and application" cooperation and grasped core technologies in research, development, and manufacture. The products are widely used in railway, urban rail, metallurgy, mining, lifting and transportation, port machinery and electric power industries.

企业简介 Company Profile



太原重工轨道交通始终以市场需求为导向，以高端化、国际化、集成化为目标，持续提升装备研发、制造能力，努力打造成全球最重要的轨道交通用轮、轴、齿轮箱及轮对总成研发、设计、制造、销售和服务的专业化企业之一。具备年产车轮60万片、车轴16万根、新造和检修齿轮箱1万套、轮对组装3万付的制造能力。



Being market-oriented, our company aims to become an international, integrated and high-end oriented enterprise. We strive to enhance research and manufacturing ability and to be one of the professionals in R &D, design, manufacture and service of railway wheels, axles, gearboxes and wheelsets. The annual capacity is 600,000 wheels, 160,000 axles, 10,000 gearboxes (newly-built and overhauled) and 30,000 wheelsets.

装备简介 Equipment Profile

公司拥有一条炼钢生产线，两条辗钢车轮生产线，一条精密锻造车轴生产线，一条快速锻造车轴生产线，一条齿轮箱生产线和一条轮对组装生产线，生产工序覆盖从冶炼到轮对总成全部流程，可以满足轨道交通机、客、货、动全系列及工矿冶金等产品的制造需求。

The company has one steel-making line, two wrought solid wheel production lines, one precision forging axle production line, one fast forging axle production line, one gearbox production line and one wheelset assembly line, covering all process from steel smelting to wheelsets assembling. We can meet requirements of railway locomotives, passenger cars, freight cars, high-speed rail, industrial and mining fields.



1990年,引进奥地利GFM精密锻造机，经自主设计建成了流程先进、布局合理、生产高效的车轴生产线，曾荣获国家科技进步二等奖。2016年经过信息化、智能化升级改造，年产车轴10万根。

In 1990, we imported Austria GFM forging machine, designed and reconstructed it to be an advanced, reasonable arranged and efficient axle production line which was honored with “National Scientific and Technological Progress Award”. In 2016, the line has been removed to our new plant and upgraded. The upgrade and intelligentization of axle production with the annual capacity of 100,000 axles is finalized.



1997年，引进加拿大CSW车轮专用生产线，经过不断完善优化，形成了柔性生产组织模式，并可满足高品质、高硬度的产品需要，年产车轮20万片。

In 1997, we imported the wrought solid wheel production line from the Canadian Steel Wheel Plant, optimized it to be a flexible production characterized line. The line can manufacture high-quality and high hardness wheels with the annual capacity of 200, 000 wheels.



2009年，建成轮对总装生产线，该生产线以铁路客车、货车、城轨轮对为主，兼具多品种轮对的组装和检修能力，可年产各类轮对3万副。

In 2009, the wheelsets assembly line was built for the production of railway passenger car wheelsets, freight car wheelsets and urban rail wheelsets. The line can also assemble or overhaul various kinds of wheelsets. The annual capacity is 30,000 wheelsets.

装备简介 Equipment Profile



2012年，新炼钢系统建成投产，有先进的80吨电弧炉、钢包精炼炉及VD真空脱气，年产钢水20万吨。

In 2012, the new steel-making system was build and put into operation, equipped with 80t electric arc furnace, ladle furnace and VD vacuum degasser. The annual capacity is 200,000 tons of liquid steel.



2012年，公司第二条辗钢车轮生产线建成投产。该生产线主要设备汇集了当今国际一流车轮制造设备供应商的最先进技术，是当今世界上自动化、信息化、智能化程度最高车轮生产线，年产车轮40万片。

In 2012, the second wrought solid wheel production line of our company and a new steel-making system were built and put into operation. This wheel line gathers all state-of-the-art technologies from world top machinery suppliers and becomes the most advanced, automatic and intelligent wheel production line in the world. The annual capacity is 400,000 wheels.

四机组全动车轮锻轧生产线由国际著名公司设计制造，生产效率、参数化控制水平、成材率、产品合格率世界一流；热处理生产线由温度控制精确的步进式隧道炉及智能化工艺软件控制的全自动淬火系统组成，可确保车轮优异的性能；机加工生产线选用全数控车削加工中心及数控钻铣中心，具有加工精度和效率高的特点；检测线由超声波检测、磁粉检测、静平衡测量、喷丸强化、硬度测量、全尺寸激光测量、打刻、自动喷涂等关键设备组成。

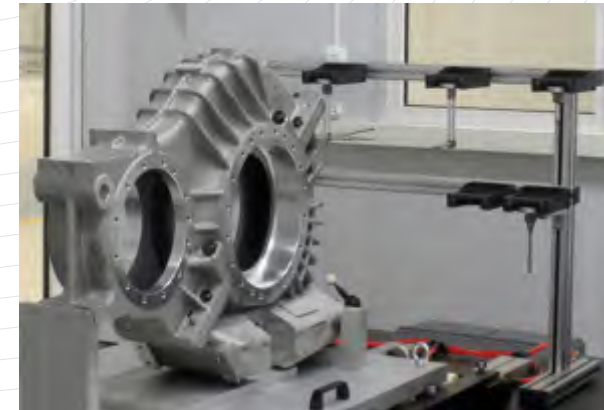
Four-unit automatic wheel forging and rolling line is designed and built by the world renowned company of which the productivity, parameterized control level and yield rate rank top of the world. Heat treatment line is equipped with walking beam furnace with accurately controlled temperature and automatic quenching system controlled by intelligent software, which ensures high quality mechanical properties of wheels. Mechanic line consists CNC Turning Machining Center and CNC drilling and milling center and has the characteristics of machining accuracy and high efficiency. Inspection line is composed of UT tester, MT tester, balance tester, blasting equipment, BHN tester, full dimension laser measurement, stamping machine and auto spraying machine.



装备简介 Equipment Profile



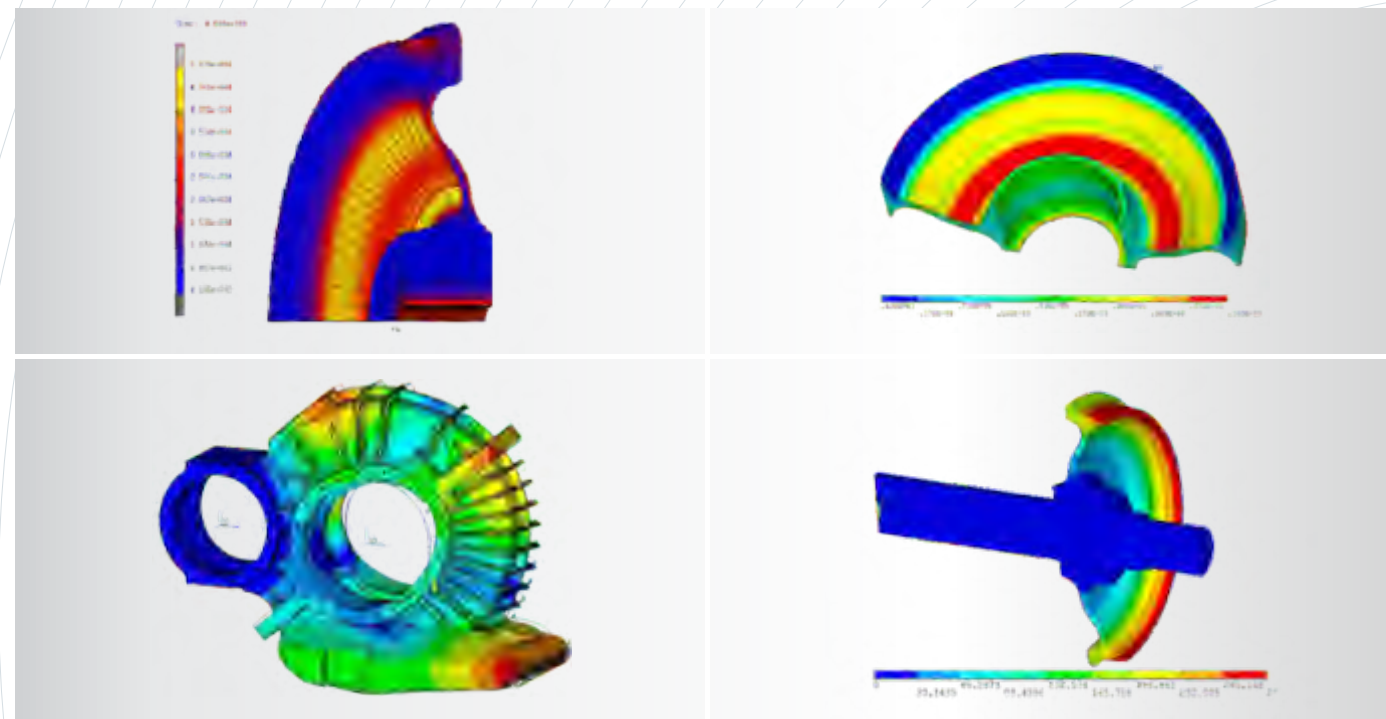
2014年，公司自主设计和建造了全自动快速锻造车轴生产线，具有产品适应范围广、生产组织灵活的特点，其中电加热悬挂式热处理系统设计理念先进，温度控制精确，加热均匀性高，技术水平国际领先，年产车轴6万根。
In 2014, the automatic fast forging axle production line was designed and built which has the characteristic of wide production range and flexible production organization. The electric heating hanging heat treatment system, which has advanced designing concept, is excellent in precise temperature control, high heating uniformity and is leading technological level. The annual capacity is 60, 000 axles.



2014年建成的齿轮箱生产线，由齿轮、齿轮轴、箱体、螺旋锥齿四个柔性加工单元和热处理线及试验台组成，可满足小批量、多品种、结构复杂产品的制造要求，适应于高铁、动车、城轨齿轮箱的新造和检修，具备年新造、检修齿轮箱1万套的能力。

In 2014, we built the gearbox production line, which is composed of the four flexible machining unites of gear, gear shaft, box, helical bevel gear and heat treatment line with testbed. The line could meet the manufacture requirements of small-lot, multiple-type and complicatedly constructed products. The line can manufacture and overhaul urban rail gearboxes, high-speed rail gearboxes with annual capacity of 10, 000 sets.

技术研发 Research and Development



太原重工轨道交通设备有限公司技术中心是太原重工股份有限公司国家级技术中心重要组成部分，拥有完善的理化分析、计量校准管理体系，在材料研究、产品设计、制造工艺、检测试验等方面积累了丰富的经验，已承担了“铁路用辗钢整体车轮径向全截面低倍组织缺陷的评定”等十几项重大课题研究。

通过不断的创新和自主研发，现已掌握了高速、重载、大功率牵引机车、城市轨道交通各种轮轴及齿轮箱的核心技术。自主研发的250公里动车组轮轴及时速350公里中国标准动车组轮轴正在进行运用考核，即将批量运用。此外，已经完成高铁齿轮箱行车试验及低地板轮对小批量装车使用。

同时，公司和铁道科学研究院、钢铁研究总院、中国科学研究院等权威研究机构进行密切合作，并同国内外顶级高校建立院士工作站，在产品的设计、先进制造技术、产品应用等领域开展研究。

Our Technology Center, which belongs to TYHI's State-level Technology Center. It has perfect physical and chemical analysis and calibration management system and has accumulated rich experience in material research, product design, manufacturing craft, inspection and testing work. We have undertook a dozen major research projects like “the Evaluation of macrostructure defect of wheel radial cross section”.

Through consistent innovation and independent research, we have mastered key manufacturing technologies of high-speed, heavy load, high-power locomotive, urban rail wheels and axles as well as gearboxes.

The wheels and axles for high-speed train of 250km/h and 350km/h researched and designed by ourselves are under examination and ready for mass usage. Besides, we have already finished the running trail and small batch trail for high-speed rail gearbox and low-floor wheelsets.

Meanwhile, we closely cooperate with Railway Academy of Sciences, Iron and Steel Research Institute, Chinese Academy of Sciences and other authoritative institutes and established Academician workstation in top universities at home and abroad to conduct research in several fields like product design, manufacture technology and product application.

技术研发 Research and Development

取得的成绩 Achievements

- 国家授权发明专利30余项
- THRE have more than 30 state authorized patents
- 获得铁道科学研究院科学技术奖、国家科技进步奖、机械工业联合会奖等国家级、省级、市级奖项共30余项
- THRE has won more than 30 awards, such as the Scientific Technology Advance Awards by China Academy of Railway Sciences, National Progress Awards in Science and Technology, Mechanical Industry Association Awards national, etc.
- 承担动车组轮轴、齿轮箱，轮轴材料，应用研究等国家级、省部级科技项目10余项
- THRE undertakes more than ten national and provincial science and technology projects concerning CRH wheels & axles, wheels&axles material and application research etc.
- 省级以上期刊发表论文共百余篇
- THRE has published over 100 papers in academic periodical at or above province level.



质量保证 Quality Assurance

太原重工轨道交通设备有限公司实验中心是专门从事轨道交通关键零部件产品专业化的科研实验中心，具备新材料及新产品开发、新工艺研究、新结构设计验证及运用过程失效分析能力，是中国合格评定国家认可委员会（CNAS）认可的太原重工理化检定中心的重要组成部分。

实验中心拥有完善的理化分析、计量校准管理体系，检测实验能力涵盖了国标及美标、欧标、ISO等国际先进标准。为轨道交通产品安全运行和科研实验提供了强有力的保障。

主要仪器设备有：美国FEI场发射扫描电子显微镜、德国Leica金相显微镜、德国KB全自动维氏硬度机、美国INSTRON电子万能材料试验机、美国MTS低频疲劳试验机、英国Foundrax全自动布氏硬度机、意大利AFFIR全洛氏硬度计、车轴纯弯曲疲劳试验机、钢研纳克仪器化冲击试验机、美国ThermoFisher等离子体发射光谱仪、美国LECO氧氮氢分析仪、高频红外碳硫分析仪、德国车轮残余应力试验机。

THRE's experiment center is a professional scientific research center specialized in the key parts of railway industry, and it has abilities of developing new materials and new products, researching on new manufacturing technology, designing verification new structure and analyzing process failure during the operation. And the center is the key part of the recognized experiment center, Taiyuan Heavy Physical and Chemical Testing center, by China National Accreditation Service for Conformity Assessment (CNAS).

The Experiment Center has comprehensive physical & chemical and measurement and calibration systems which conform to Chinese GB, American AAR, European EN and ISO latest standards, providing strong guarantee for the safe railway transportation and scientific research.

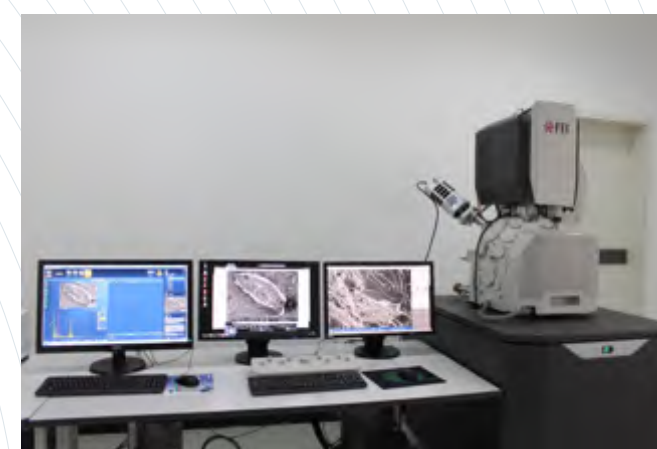
The main equipment includes: American FEI field emission scanning electron microscope (SEM), Germany Leica metallographic microscope, Germany KB full automatic vickers hardness tester, American INSTRON electronic material testing machine, American MTS low-frequency fatigue testing machine, The British Foundrax full automatic brinell hardness tester, Italian AFFIR rockwell hardness tester, Pure bending fatigue machine for axle, instrumented impact tester, American Thermo Fisher plasma emission spectrometer, American LECO Oxygen, Nitrogen and Hydrogen Analyzer, the high frequency infrared carbon sulfur analyzer, Germany wheels residual stress testing machine, Noise reduction testing, Material heat treatment test.



质量保证 Quality Assurance



LEICA金相显微镜
Leica Metallographic Microscope



FEI场发射扫描电子显微镜
Fei Field Emission Scanning Electron Microscope (sem)



MTS低频疲劳试验机
Mts Low-frequency Fatigue Testing Machine



INSTRON电子万能材料试验机
Instron Electronic Material Testing Machine



LECO氧氮氢分析仪
Leco Oxygen, Nitrogen And Hydrogen Analyzer

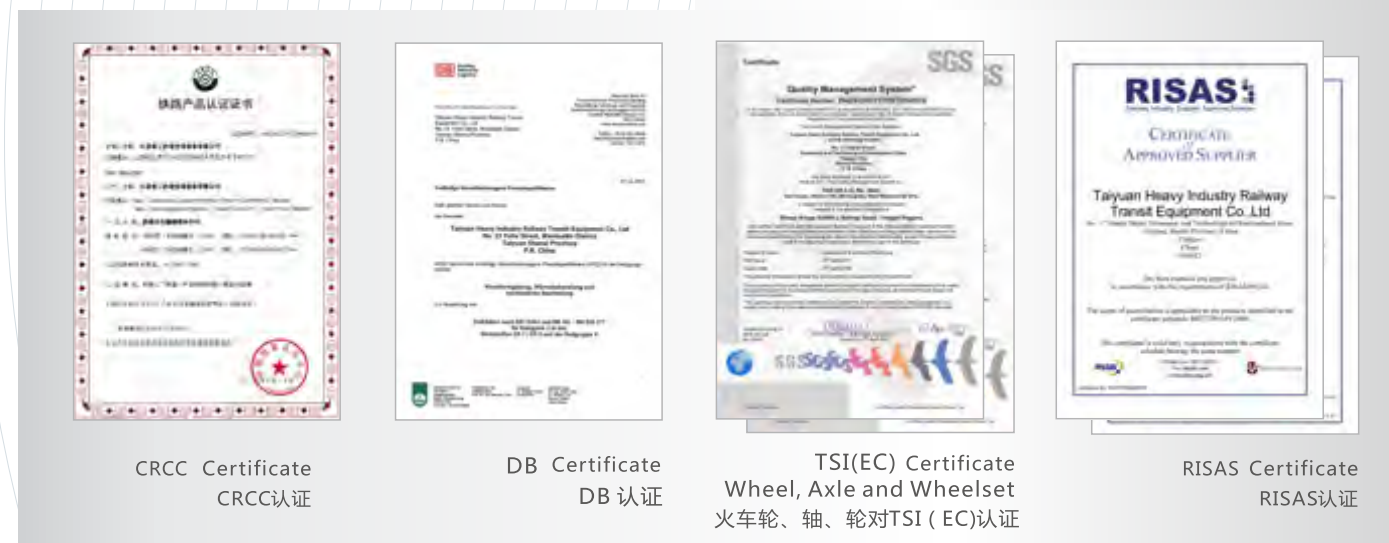


THERMO FISHER等离子体发射光谱仪
Thermo Fisher Plasma Emission Spectrometer

资质证书 Qualifications and Certifications

公司分别于1991年、1998年取得中国铁路车轴和车轮生产资质，并先后通过了国际IRIS、美国AAR、国铁CRCC、德国DB、欧洲TSI、英国RISAS等轨道交通领域专业认证。

In 1991 and 1998, we have been authorized to produce axles and wheels and gradually obtained certificates in railway fields, such as IRIS, American AAR, Chinese CRCC, Germany DB, European TSI and British RISAS.



产品 Products



公司产品可分为轴类、轮类、齿轮箱、轮对集成四大系列，能够按TB、AAR、EN等世界任何一种标准生产制造，产品广泛用于铁路、城市轨道交通、工矿冶金、起重运输、港口机械、能源电力等领域。

Our products can be divided in to four categories: wheels, axles, gearboxes and wheelsets assembly. We are able to manufacture products conforming to any standard in the world like TB, AAR, EN used in railway, urban rail, metallurgy, mining, lifting and transportation, port machinery, electric power industries.

产品 Products



车轮生产线可生产直径 $\Phi 500$ — $\Phi 1250$ mm的轮类产品，主要产品有高速动车轮，大直径机车轮、KKD型客车轮，HDSA型货车轮，HESA型货车轮，HFS型重载货车轮，出口机车、客车、货车（包括30吨、40吨重载车轮）等铁路车轮产品；多型号城市轨道交通用车轮；多型号工矿冶金用车轮；机车、风电、石油机械用齿轮坯；分体（轮毂、轮芯、扣环）车轮、弹性车轮等产品。

Wheel production line can produce wheels with the diameter ranging from $\Phi 500$ mm to $\Phi 1250$ mm. The main products are high-speed CRH wheel, large diameter locomotive wheel, KKD passenger car wheel, HDSA freight car wheel, HESA freight car wheel, HFS heavy duty freight car wheel, export railway wheels for locomotives, passenger cars, freight cars (including 30 tons, 40 tons heavy load wheels); multi-type urban rail wheel; multi-type mining metallurgical wheel; gear billets for the locomotives, wind power and oil machinery; fission wheel(wheel tyre, wheel center, snap ring), elastic wheel, etc..

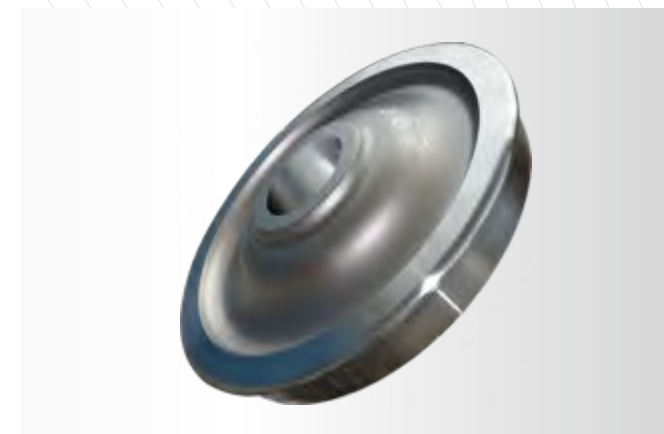


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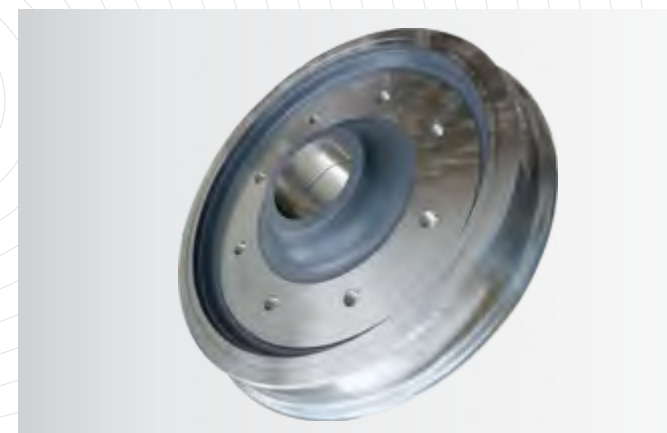
Integrity Innovation Precision Brilliance



大直径机车轮 Large Diameter Locomotive Wheel



重载货车轮 Heavy-duty Freight Wheel



高速动车轮 High-speed Rail Wheel



高硬度行车轮 High-hardness Crane Wheel



齿轮坯 Gear



城轨车轮 Urban Rail Wheel

产品 Products

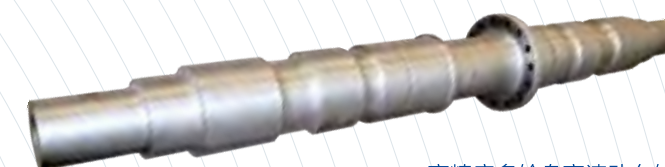
诚信 创新 精益 卓越

Integrity Innovation Precision Brilliance

轴类产品 Axles

车轴生产线可生产 $\Phi 70$ – $\Phi 350$ mm直径的轴类产品，主要产品有高精度多轮盘动车轴，机车轴、RC3等型号客车轴，RD2型货车轴，RE2B型货车轴，RF2型大直径重载货车轴，出口机车、客车、货车等铁路车轴产品；城市轨道交通用车轴；多型号工矿冶金用车轴等产品。

Axle production line can produce axles with the diameter ranging from $\Phi 70$ mm – $\Phi 350$ mm. The main products are high-precision high-speed train axle, locomotive axle, RC3 passenger car axle, RD2 freight car axle, RE2B freight car axle, RF2 large diameter heavy duty freight car axle, export locomotives axle, passenger car axle, freight car axle and other railway axle; Urban rail axle; multi-type mining metallurgical axle, etc.



高精度多轮盘高速动车轴
High-precision, High-speed Rail Axle



重载货车车轴
Heavy-duty Freight Car Axle



宽轨车轴
Wide Gauge Rail Axle



出口车轴
Export Axle



机车车轴
Locomotive Axle

产品 Products

诚信 创新 精益 卓越

Integrity Innovation Precision Brilliance

齿轮箱产品 Gearboxes

公司开发出了国内高铁及城轨使用的牵引齿轮箱系列产品，并且成功通过了试验验证，主要产品有A型城轨列车牵引齿轮箱、B型城轨列车牵引齿轮箱、100%低地板列车牵引齿轮箱、时速（250-350）km/h高速列车牵引齿轮箱等产品。

Our company has developed a series of traction gear boxes products for domestic high-speed railway and urban rail and has successfully passed the experimental tests. The main products are Type A and Type B urban rail traction gearboxes, 100% low floor traction gearboxes, and (250-350 km/h) high speed rail traction gearboxes.



A型城轨列车牵引齿轮箱 Type A Urban Rail Traction Gearbox



B型城轨列车牵引齿轮箱 Type B Urban Rail Traction Gearbox



100%低地板列车牵引齿轮箱
100% Low Floor Traction Gearboxes



时速（250-350）Km/h高速列车牵引齿轮箱
(250-350) km/h High-speed Rail Traction Gearbox



齿轮轴 Gear Shaft



齿轮 WheelGear

产品 Products

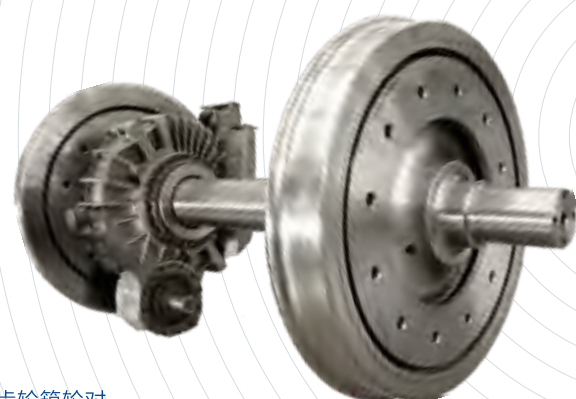
轮对集成产品 Wheelsets and Integrated Products

轮对生产线可组装带轴承、轴箱、齿轮箱、轴盘等多种轮对产品，广泛用于铁路、城市轨道交通、工矿冶金等领域。

The wheelsets production line can produce multi-type wheelsets and assemble passenger car wheelsets, freight car wheelsets, wheelsets with bearings, wheelsets with gearbox, as well as wheelsets with disc, which are widely used in railway, urban rail transit, industries, mining and other fields.



货车轮对
Freight Wheelset



压装齿轮箱轮对
Wheelset With Gearbox



客车轮对 Passenger Car Wheelset

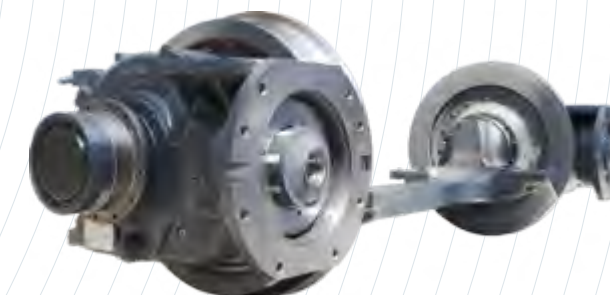
诚信 创新 精益 卓越

Integrity Innovation Precision Brilliance

轮对集成产品 Wheelsets and Integrated Products

公司还可生产低地板独立轮轴系统、起重机车轮组等集成产品。低地板独立轮轴系统，使用弹性车轮及整体锻造轴桥，具有低噪音、低振动、高适用性特征，作为走行和承载的关键零部件，为100%低地板有轨电车国产化提供了重要支撑。车轮组产品广泛用于工业、港口机械等领域。

Meanwhile, our company can also produce low floor independent wheel& axle, crane wheelsets and other integrated products. Low floor independent wheel& axle system employs elastic wheel and overall forging axle bridge, which has the characteristics of low noise, low vibration and high applicability. As key running and load components, it provides important support for localization of 100% low floor trams. The products are widely used in industries, port machinery, and other fields.



低地板轮对
Low Floor Wheelset

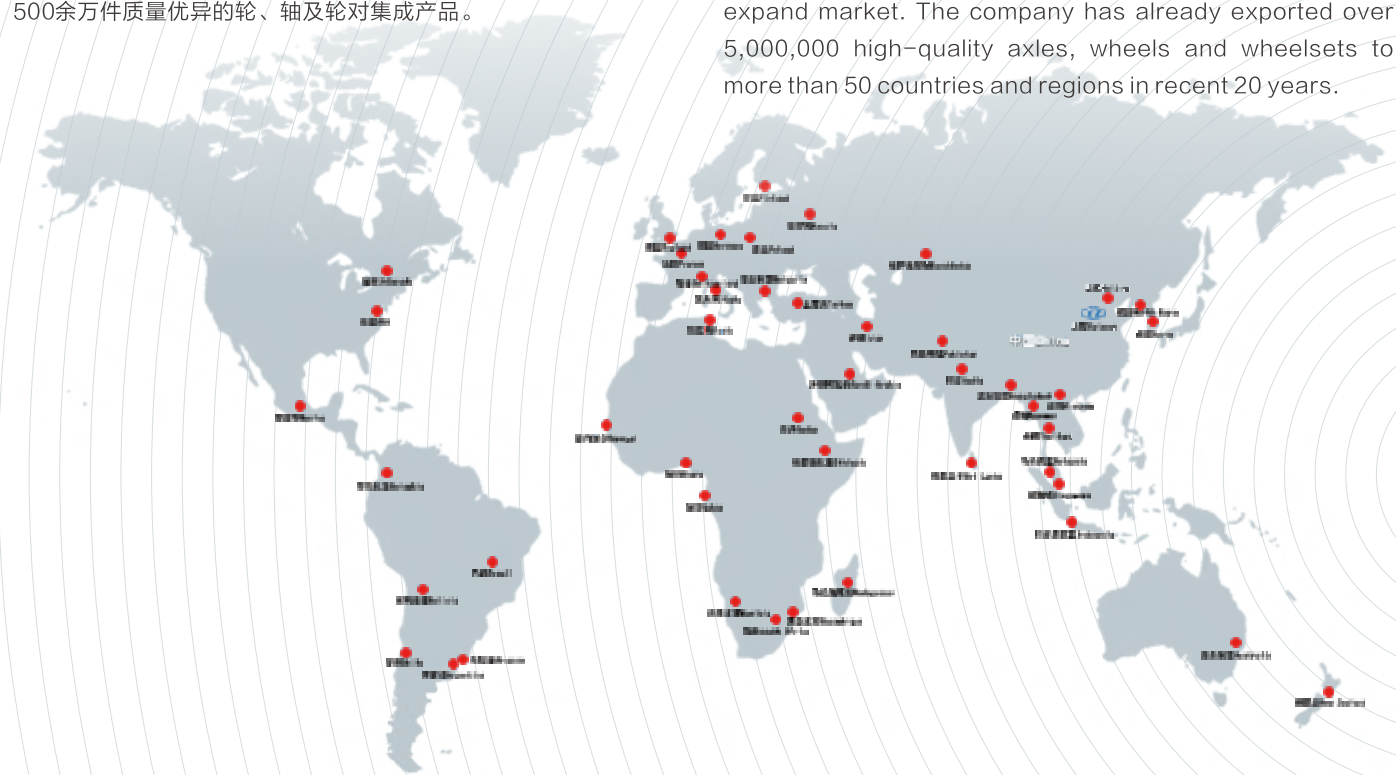


车轮组
Driven Wheel Group, Non-driven Wheel Group

国际业务
 International Cooperation and Export

公司积极参与各类国际机构认证，为深入拓展市场提供资质保障，同时积极与阿尔斯通、庞巴迪、西门子等国际知名企业合作，拓宽产品出口渠道。二十多年来，已为全球50余个国家和地区提供了500余万件质量优异的轮、轴及轮对集成产品。

The company has actively engaged in obtaining various qualifications and cooperated with several world renowned enterprises like Alstom, Bombardier and Siemens to expand market. The company has already exported over 5,000,000 high-quality axles, wheels and wheelsets to more than 50 countries and regions in recent 20 years.



					
					
					
					
					
					
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太重核心价值观
 Our Core Values

- 诚信
 Integrity
- 创新
 Innovation
- 精益
 Precision
- 卓越
 Brilliance

时速350km/h复兴号高速动车组
 2017年装配有太重轮轴的复兴号高速动车组正式营运