

SHANXI TIANBAO GROUP

Leading Enterprise of China Forging Town



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Company Profile

Company Profile



Shanxi Tianbao Group Co., Ltd

A high-tech enterprise specializing in the research, development, production and sales of forgings

				
Established in	Registered Capital	Floor Area	Current Staff	Total Assets
2008	1.32hundred million RMB	240000m²	488person	7.3hundred million RMB

Forging Process

free forging, die forging, ring rolling

Main Products

pressure vessel flange, pipe flange, Slewing Bearing Blank, Vessel Shell Section Forgings

Application fields

aerospace, engineering machinery, petrochemical, ships & submarines, wind power equipment, Military Supplies, Rail Transit, nuclear power generation



Intelligent Transmission



The leader of wear and friction reduction self-lubricating composite sliding bearings.

As a provider of comprehensive solutions for high-reliability wear-resistant and anti-friction self-lubricating composite material sliding bearings, we are committed to bearing applications in new energy, military and other fields under complex working conditions such as high temperature, high speed, high load and extreme environment, so as to improve the reliability and service life of equipment for customers, reduce equipment maintenance costs and improve production efficiency.

We provide wear-resistant, friction-reducing self-lubricating composite bearings with exceptional wear performance, suitable for fluid lubrication, boundary lubrication, and mixed lubrication systems. Even under harsh conditions where conventional sliding bearings fail to maintain operation—such as with minimal oil supply, infrequent lubrication cycles, or complete oil deprivation—these composite bearings demonstrate outstanding durability and performance stability. They are widely used in wind power, hydropower, pumped storage, nuclear energy, military applications, and other critical sectors.

Intelligent Transmission

Externally rigid internally elastic front integrated sliding shaft system

Key words: high reliability, low cost, easy maintenance

Core features:

- Safety and service robustness:

It is suitable for low speed heavy load, high speed light load, variable speed and variable load, impact, reciprocation, swing, frequent start and stop and other complex combined working conditions. It can effectively reduce vibration and noise, and can achieve safe and stable shutdown and start-up without oil, less oil, heavy load and other extreme working conditions without high pressure lifting equipment.

- Excellent environmental adaptability:

Chemical stability: can tolerate a variety of organic solvents, acid and alkali solutions, oils and oxidants.

Electrical insulation: excellent electrical insulation performance, can maintain stability under high voltage and high frequency.

Flame retardant: good flame retardant, not easy to burn and can be self-extinguished.

- Reduce life cycle costs:

Reduce friction and wear, reduce the amount of lubricant, improve energy efficiency, prolong service life, durable and easy to repair, save operating costs



Wind power spindle seal products

Key words: low cost, strong interchangeability, easy to replace

Core features:

Using wear-resistant and self-lubricating materials, low cost and high weather resistance: self-lubricating sealing material and ductile iron low friction wear, no need for high hardness of wear ring, simplified spindle design, cost reduction; self-lubricating materials, high weather resistance, acid and alkali resistance, can be used in harsh environment, with the size completely interchangeable with existing products.

- Wear and friction reducing sealing materials

The design considers the applicability of different environments, such as high temperature, high humidity, corrosive conditions, etc. Wear-resistant and self-lubricating composite materials are selected to improve the sealing performance and durability, and ensure long-term

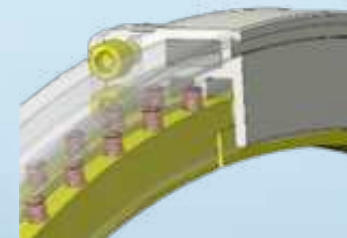
stable operation.

- Seal structure innovation design

The multi-stage sealing design effectively isolates external impurities and moisture intrusion, ensuring perfect compatibility with the original seal dimensions. The system employs a combination of axial contact seals, face contact seals, and packing seals. A leakage-proof design solution is implemented through an oil reservoir-micro-pit-seal overlap configuration.

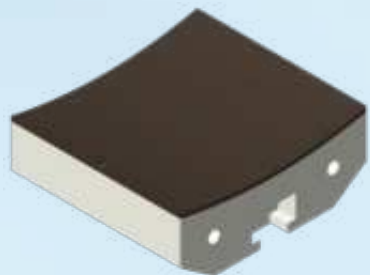
- Adaptive elastic adjustment

Compressed spring is used to automatically adjust the sealing strip pressing surface to prevent seal failure. Compressed spring is made of imported piano wire material to enhance the pressure uniformity of the spring under various loads and ensure the stability of the seal.



Intelligent Transmission

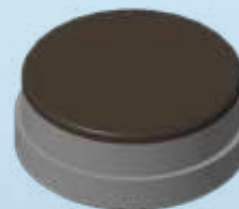
Tilting Pad Journal Bearings



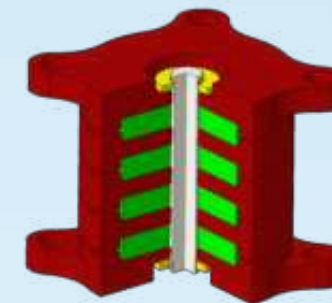
The rotating spindle rotates within the bearing housing, creating sliding friction between the shaft and housing. A lubricating film forms between these surfaces through liquid media such as oil or water. As the shaft rotates, this fluid generates dynamic pressure that balances radial loads, ensuring smooth operation. Radial sliding bearings are suitable for complex operational conditions including low-speed operation, heavy-duty loads, high-speed movement, and start-stop cycles.

Tilting Pad Thrust Bearings

Thrust bearings, designed to withstand axial loads (thrust), are widely used in various mechanical systems such as wind power, hydropower, thermal power, and marine vessels. The core principle involves placing friction-reducing flat or spherical surfaces between the shaft and housing. When axial loads are applied, these friction-reducing surfaces transfer the load to the support structure. This design effectively minimizes bearing friction and wear, thereby enhancing operational efficiency and extending equipment lifespan. The selection of thrust bearings should be comprehensively evaluated based on specific application requirements, including load type, speed specifications, working environment, and service life expectations. Proper lubrication and maintenance are essential during design and operation to ensure reliable performance and prolonged service life.



Elastic coupling



The elastic coupling is a high-performance integrated transmission system in wind turbines, featuring an outer steel casing and internal elastic components. Constructed from wear-resistant, self-lubricating composite materials, this maintenance-free disc coupling protects the gearbox and transmission system from bending and thrust loads transmitted by turbine blades, thereby extending the service life of bearings and gearboxes. Designed to smoothly transfer torque while minimizing blade impacts on the gearbox, this coupling compensates for axial, angular, and radial misalignment deviations.

Development History



2008-2010

- 2008 Shanxi Tianbao Wind Power Flange Co., Ltd. was established through the consolidation of five container forging enterprises, resulting in an annual production capacity of 30,000 tons of forgings.
- 2009 It obtained certifications for ISO 9000, ISO 14001, and OHSAS 18001, in addition to special equipment manufacturing licenses. Subsequently, it established partnerships as a supplier to five major companies, including Guodian, Goldwind, Envision, and Shanghai Electric.

2014-2016

- 2014 The transformation of equipment and the upgrading of industrial processes led to an annual output of 60,000 tons of forgings. As a result, the company was re-branded as Shanxi Tianbao Group Co., Ltd. Subsequently, it was recognized as a qualified supplier for Sinopec.
- 2015 Its exports constituted 50% of the total, thereby securing the foremost position in Xinzhou for foreign exchange earnings.

2021-2025

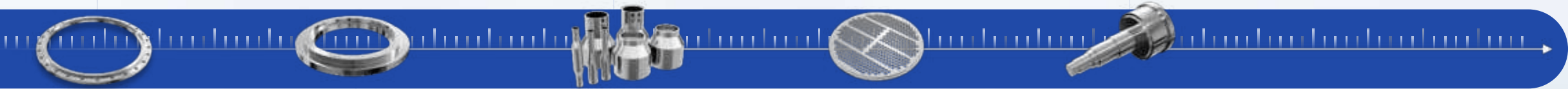
- 2021 It will continue to upgrade the industry around petrochemical and wind power forgings, join intelligent manufacturing, increase investment in innovation, develop high-end material forging, and build a first-class forging enterprise, so as to make continuous contributions to carbon neutrality and carbon peak.
- 2025

2011-2013

- 2011 It successfully passed the SGRE audit of foreign hosts and was designated as a qualified supplier.
- 2012 It successfully obtained PED/AD certification and CPR certification, thereby exporting products to Europe for the first time. In the same year, it launched a new 15,000-ton 3MW production line project, and its laboratory subsequently received certification from CNAS and CMA.

2017-2020

- 2017 It obtained certifications from VESTAS and GE to enhance its recognition among international customers.
- 2019 It obtained API certification and was awarded the title of "High-tech Enterprise in Shanxi Province", holding a total of 40 patents.
- 2020 To enhance market consolidation and improve competitiveness, an investment of RMB 238 million was allocated for the construction of a new intelligent manufacturing workshop, which is designed to have a capacity of 80,000 tons.



Enterprise Advantages

Competitiveness



Reliability



- Steady Growth and Expansion
- Whole-Process Autonomous Control and Production Capacity
- Dun & Bradstreet Certified Enterprise
- AAA Integrity Certification Enterprise
- Internal Control Management Specification
- Industry material specifications are varied and encompass a wide range of standards and requirements

Customer Recognition



- Recognition by numerous domestic and international customers
- Excellent Supplier
- Annual Continuous Surveillance Audits and Certifications

Cost Control



- Application of Patented Technology for Steady Near Net Shape Forming
- Application of Precision Die Forging
- Extensive Geographical Supporting Advantages

Delivery Timeliness



- Stable Personnel & Skillful Operation
- Digital Management Process Visualization
- Flexible Production
- Sufficient Equipment Capacity
- Effective inventory management

Quality Assurance



- Proven Quality Management
- Certification Systems Across Various Industries (18 Items)
- Process for Special Certification, Heat Treatment, and Nondestructive Testing
- Excellent Quality Management Team
- Unwavering Commitment to Quality Management Philosophy
- Comprehensive Inspection Plan
- Systematic Laboratories and Personnel

R&D and Sustainability



Collaborative R&D by multiple universities

Forging Research Institute of Tsinghua University

Taiyuan University of Science and Technology

Chongqing University

Taiyuan Institute of Technology

North University of China

Chongqing University of Arts and Science

- Continuously Recognized High-Tech Enterprise
- Simufact Forging Forming

02

Core Products

Wind Power Forgings



The company ranks among the top three leading enterprises in the wind power flange sector in China, with its business extending to numerous countries and regions worldwide. It has forged long-term strategic partnerships with state-owned power companies, wind turbine manufacturers, and large enterprises both domestically and internationally, consistently providing high-quality core components for the industry.

Wind power products encompass tower flanges, tower forged door frames, pile top flanges, pitch and yaw bearing forgings, gearbox shafts, and ring gear forgings. These products provide comprehensive solutions that span the entire life cycle of wind power, thereby consistently driving technological innovation and industrial advancement within the sector.

Raw Material Category: Carbon Steel, Alloy Steel, Stainless Steel, Aluminum alloys, titanium alloys, and other specialized alloy materials



Share in National Wind Power Market
≈17% +



Export Performance in Recent Years
Steady Growth



National Wind Power Sector
Brand Power

8m



Maximum Rolling Ring Size (Outer Diameter)

6.66cm

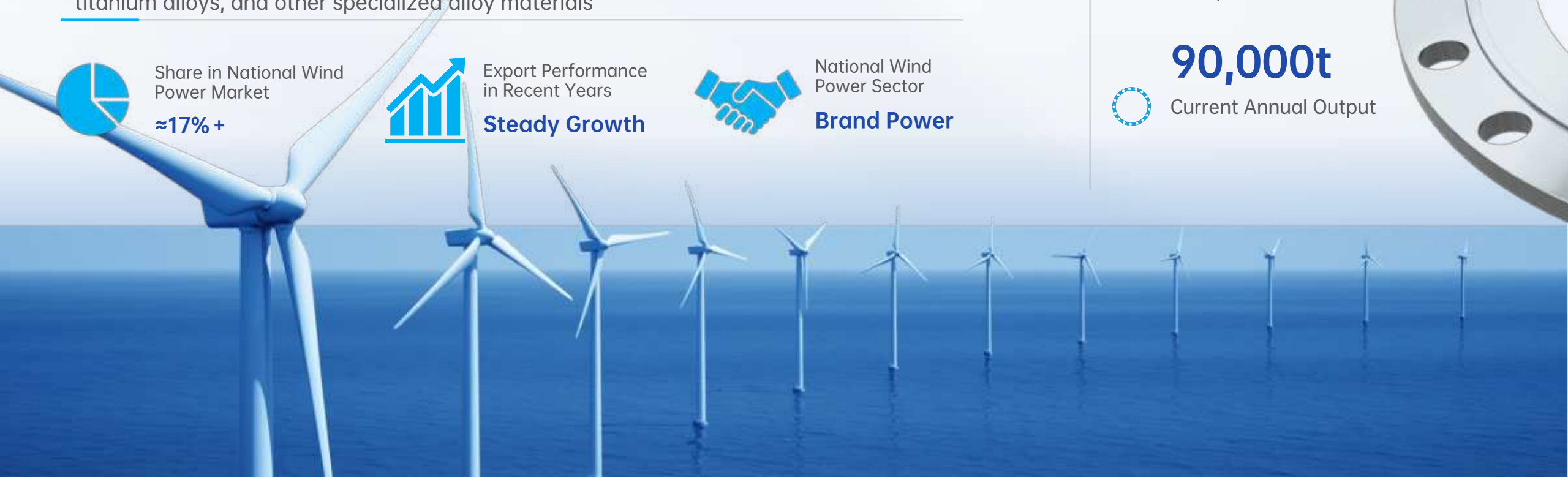


Minimum Rolling Ring Size (Outer Diameter)

90,000t



Current Annual Output



Main Products

Ring forging -----• Product specification: DN15mm·DN9,000mm



Disk forging -----• Product specification: DN15mm·DN8,500mm



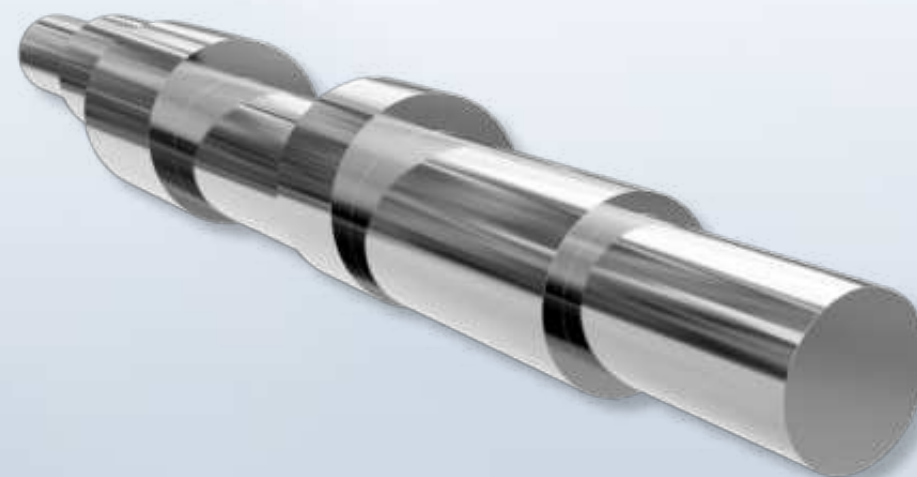
Main Products

Cylinder

-----• Product height: $\leq 4,000\text{mm}$

Axial forging

-----• Product specification: $\leq 7,000\text{mm}$

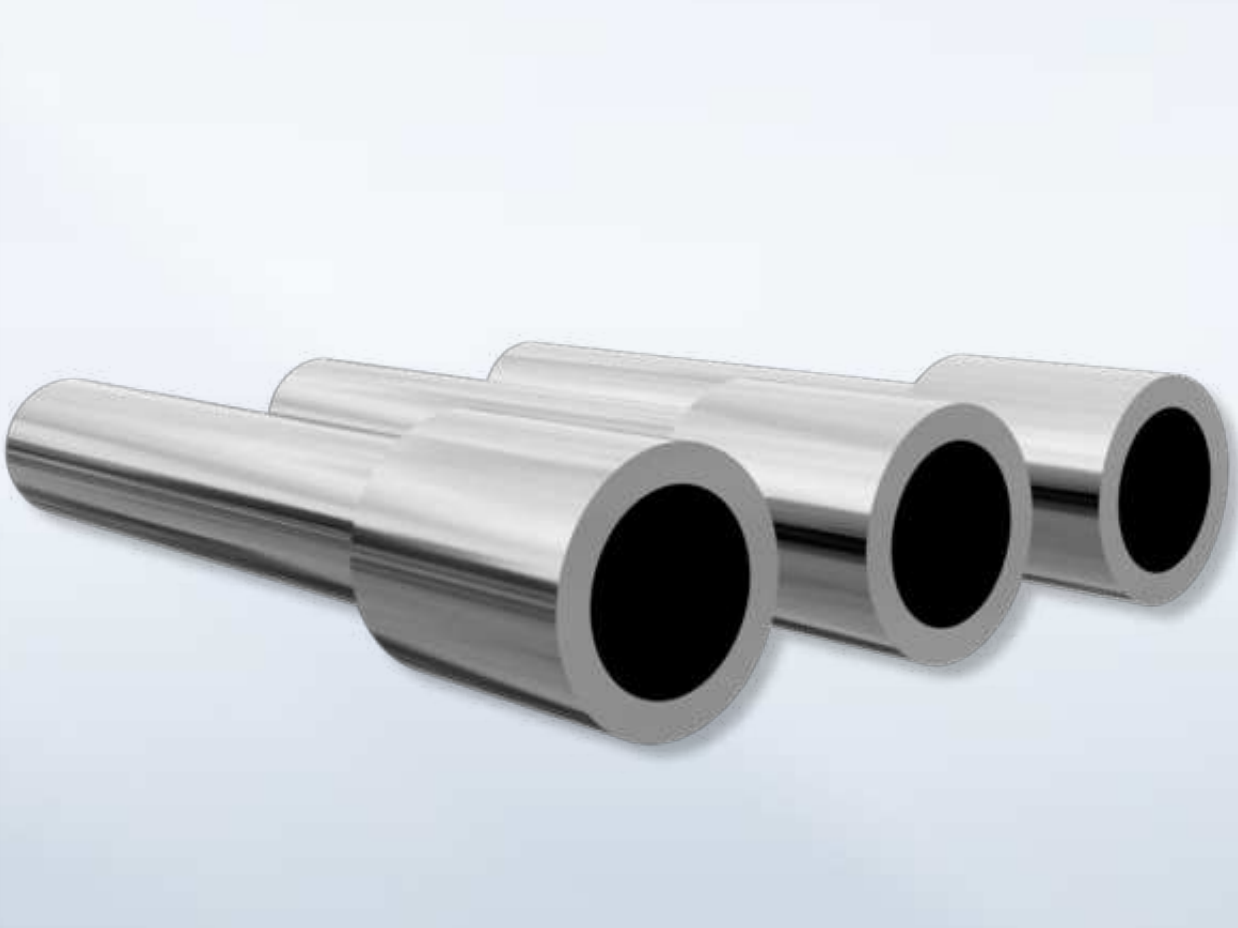


Main Products

Irregular forging -----• Product weight: <50T

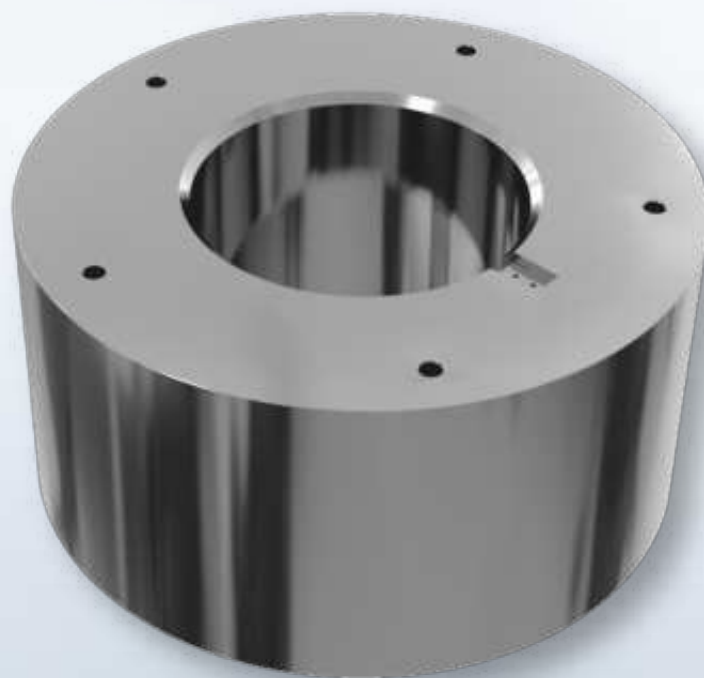


Heavy forging -----• Product weight: <50T



Main Products

Die Forgings



Product material

Carbon Steel

20/16Mn/16MnD/20CrMnTi/35#/45#/A105/ASTM A105/Q235A/Q235B/Q245R/Q345B/Q345R/Q355B/Q355D/Q355E/Q355NE/Q460C/S355JR/SA-105/SA-266 Gr.2/SA-350 LF2 CL.1/SA-350 LF3 CL.2/SA-516 GR.70/SA-765 Gr. II /SA-765 Gr.

III Alloy Steel

09MnNiD/12Cr1MoV/12Cr2Mo1/14Cr1Mo(H)/15CrMo/20CrNimo/20MnMo/20MnMoD/20MnMoNb/40Cr/42CrMo/42CrMo4/5CrNiMo/A182 F22/SA-182 F12 CL.2/SA-182M F12 CL2/SA-336 F12/09MnNiD,

Stainless Steel

015Cr21Ni26Mo5Cu2II/0Cr13Ni5Mo/A182-F304/A182-F904L/S22053/S30403/S30408/S31008II/S31603/S31608/S31703/S32168/S22053/S31668/S34778(F347)/SA-182 f304/SA-182 F304H/SA-182 F304L/SA-182 F316L/SA-182 F321/SA-965 F304/SA-965 F316L/SS304L

Nickel-Copper Alloy SB564 UNS N04400, Rare Earth Alloy Steel 09Cr2AlMoRE, Aluminum Alloy and Other Special Materials

Application scope



Aerospace



Construction Machinery



Petrochemical



Ship & Submarine



Wind Power Generation



Military Supplies



Rail Transit



Nuclear Power

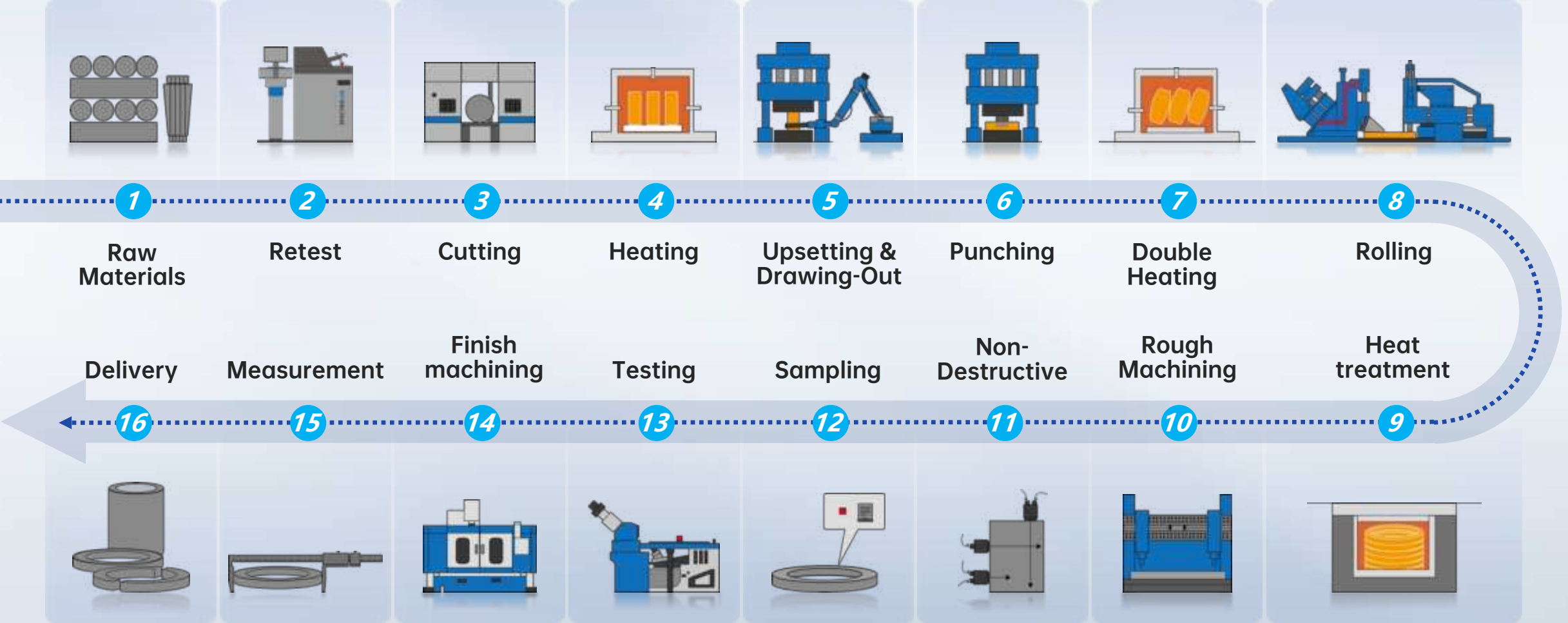


03

Production Base

Production process

100% Whole Process Traceability



Equipment Display



10000T OIL HYDRAULIC PRESS

Type	THP10-10000
Max Pressure	100MN
Working Stroke	3,000mm
Max Stroke	4,500mm



RING ROLLING MILL

Type	RAM10000TB
Max Diameter	Φ10,000 mm
Max Height	1,500 mm
Max Weight	50 Tons

Type	RAM6500
Max Diameter	Φ6,500 mm
Max Height	1,200 mm
Max Weight	20 Tons

Type	D51K-800E
Max Diameter	Φ800 mm
Max Height	400 mm
Max Weight	0.6 Tons



INDUSTRIAL ROBOTS

Type	KR600
Max Load	600kg
Max Arm Span	2,826mm



CNC VERTICAL LATHE

Type	CK5290
Max Diameter	Φ9,000mm
Max Height	3,500mm

Type	CK5283
Max Diameter	Φ8,300mm
Max Height	2,500mm

Type	CK5265
Max Diameter	Φ6,500mm
Max Height	2,500mm



CNC HIGH-SPEED DRILLER

Type	DMH8500/2
Max Diameter	Φ8,500 mm
Max Height	700 mm
Max Hole Diameter	Φ90mm

Type	DMH6500/2
Max Diameter	Φ6,500 mm
Max Height	500 mm
Max Hole Diameter	Φ90mm



3600T FRAME HYDRAULIC PRESS

Type	YD12F2-3600
Max Pressure	36 MN
Working Stroke	2,000 mm
Max Stroke	4,000 mm

Workshop Photographs



Intelligent Manufacturing Control Center



Corporate culture



Corporate vision

Forging excellent quality, refining brilliant performances



Enterprise Mission

To share win-with customers, seek common development with employees , and create a harmonious society together



Business Philosophy

Integrity-based, customer-axis, quality win the market



Enterprise Spirit

Learning,beyond,leading

Social responsibility



- 12+
12+times of safety training each year
- 100+
Helping Special Populations Every Year100+
- 300人
300 New Jobs in Past Three Years
- 30+
Various Social Welfare Activities30+

We consider employees to be our most valuable asset and are dedicated to fostering a safe and healthy working environment for each individual. We are committed to providing vocational training and opportunities for skill enhancement, thereby assisting employees in realizing their self-worth and facilitating their career advancement. We diligently fulfill our social responsibilities by engaging in charitable donations, expressing social condolences, and participating in various public welfare activities. We remain attentive to the needs of vulnerable groups and strive to promote harmony and progress across all sectors of society.

Enterprise Honor



High-Tech Enterprise



National-Level Professional, Specialized and New "Little Giant"



National Green Factory



Intelligent Manufacturing Benchmarking Enterprise in Shanxi Province



Intelligent Manufacturing Demonstration Enterprise in Shanxi Province



Top 100 Manufacturing Enterprises in Shanxi Province

Enterprise Qualification



Enterprise Qualification

General System Certification

- ISO 9001 /TUV NORD
- ISO 14001 /TUV NORD
- ISO 45001/TUV NORD
- API 认证

Laboratory Accreditation

- ISO17025/CNAS
- CMA

Product and Industry Certification

- PED/AD TUV NORD
- CCS
- PCCC认证
- CPR
- Special equipment manufacturing license

Periodic audit or certification by enterprises

- SIEMENSGAMESA
- Sinopec
- GOLDWIND
- ENVISION
- SANY
- GE
- The Challenge Petrochemical Machinery Corporation
- VESTAS
- TITAN



R&D Center

Technology R&D Center

The objective is to foster technological innovation and facilitate industrial upgrading through scientific and technological research, as well as the development of new products.

It convenes a consortium of experts and technicians aimed at enhancing the market competitiveness of enterprises through the research and development of new products, technologies, processes, and materials, as well as the improvement of existing products and technologies.



Physical and Chemical Testing Center

- Qualification Accreditation of CMA Inspection and Testing Institutions
- CNAS Laboratory Accreditation (L6010) Qualifications



Main tests include

Chemical Composition of Metallic Materials, Mechanical Properties, Metallographic Structure, Hardenability; Corrosion resistance; NDT



Main Testing Equipment

SPECTRO LAB Direct Reading Spectrometer, AxioVert.A1 Metallographic Microscope, WAW-300 Microcomputer-Controlled Electro-Hydraulic Servo Universal Testing Machine, JBW-450CY Pendulum Impact Tester, Oxygen, Nitrogen and Hydrogen Analyzer, CMT-300 High and Low Temperature Universal Testing Machine (-60 to 1000 °C), Automatic End Quenching Tester, Automatic Intergranular Corrosion Tester...



04

Customers

Customers



Note: The above content is in no particular order

Customers



Note: The above content is in no particular order

Key Projects



Wind Power

Uzbekistan Nukus Project

Anhui Bozhou Qiaocheng Xinhua Hydropower 150 MW Hybrid Tower

Urad Front Banner 20MW Distributed Wind Power Project

Datang International Quannan Wumeishan Phase II 50MW

Wind Turbine Tower of the Chaoyang Baishan 150 MW Wind Power Project of China Energy Engineering Corporation (CEEC)

Tongliao Horqin Left Wing Rear Banner 1000MW Desert Control Wind Power Project

Aduqin South District 500MW Project

Datang Jiangxi Ruichang Wujeshan Phase II 20MW Decentralized Project

2.8MW Wind Tower Project of Huaneng Songyuan Thermal Power Co., Ltd. for Rural Revitalization of Harbin New Energy

Huadian Xinjiang Changji Mulei Transmission "Second Channel" 800MW Project

Heilongjiang Chenneng Ruifeng Project

NX240918A Batch II D2 Project of Huaneng Longdong New Energy Base

Beijing Energy Ruijin Banqiao 7W Project

P-149 1 Lucheng Tianchen Guangyun ISOMW Project

Kazakhstan Zheztazgan 100MW

Egypt AMUNET Project

Uzbekistan BASH Green Hydrogen Project

Cangxian Steel Section Model 220

Linzhou Project Mingyang 6.25MW

Tongwei 100MW Project



Pressure Vessels

Fushun Kejianglong Self-Procurement Project

SEI Mobius 71 Ethylene Unit Project

Sinopec Zhenhai Refining & Chemical Branch

SEI Tianjin Nangang Ethylene Project

Tianjin Nangang 1.2 MTPA Ethylene Project

Shandong Expressway Hainan Development Co., Ltd.

Sinopec Ningbo Zhenhai Refining & Chemical Co., Ltd.

Self-produced by Hubei Changjiang Petrochemical Equipment Co., Ltd.

ExxonMobil Huizhou Ethylene Project Phase I

Concluding remarks

Responding to the call of the times, the group is heading towards a smart future with keen determination.

In the future development, the company will focus on the competitiveness construction of core technology and product on the basis of quality first, and further innovate so as to lead the industry and contribute to society with more excellent product quality and more thoughtful and considerate solution service! We look forward to working together with partners from home and abroad to achieve common growth and a bright future!

Thanks for watching

Leading Enterprise of China Forging Town



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