

# LTZC BEARING CO., LTD

(LUOYANG HEAVY-DUTY BEARING)



# INTRODUCTION



Established in 1992. Facility Size: 20,000 m<sup>2</sup>. Employees: 120 in total. 20 technical personnel. 2 professor-level senior engineers. Annual production value: 80 Million RMB.



LTZC Bearing is a state level high technology enterprise specialized in manufacturing extra-large size bearings. We are member of Shanghai Crane Engineering Association and member of Beijing Shield Construction Association. In 2016, LTZC founded Luoyang High Load Capacity Bearing Engineering Technology Research Center.

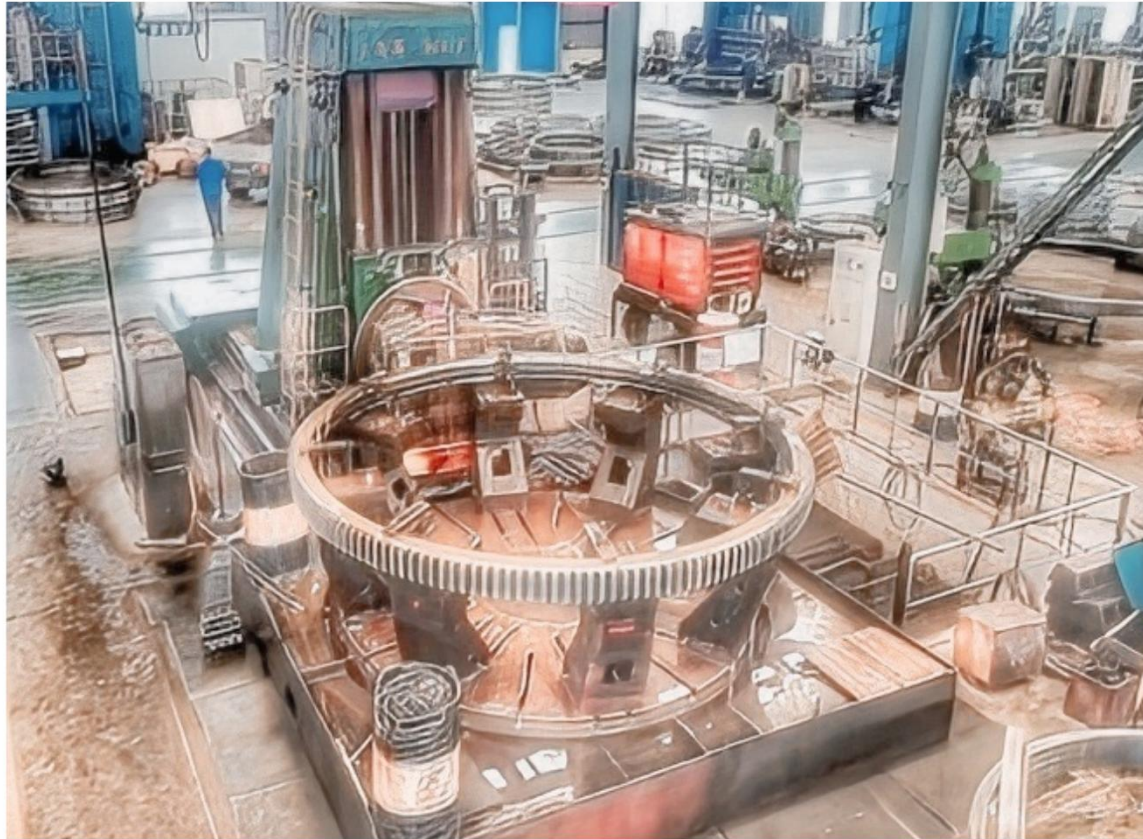


# NEW PLAN IN 2025



A new facility will be built in 2025. Total facility size will be 35,000 m<sup>2</sup>.  
Expected annual production value: 200 Million RMB.





**Main Products:** slewing bearing, non-standard precision bearing, gear ring, rack, bearing unit assembly, etc. Product dimensions range from OD  $\Phi 200\text{mm}$  to  $\Phi 20,000\text{mm}$ .

## ACCURACY

Accuracy class includes P0, P6, P5 and P4 grades.

## STANDARD

General Bearing: GB/T307; Slewing Bearing: JB/2300;  
Shipbuilding Industry: CB/T3669; Mechanical Industry: JB/T10471;  
Wind Power Bearing: JB/T10705

## EXPORT

Export to 10+ countries, i.e. USA, Russia, Germany, India, Italy, Norway, the Czech Republic, Brazil, Spain, the Netherlands, South Korea, etc.

## APPLICATION

Mainly used in construction machinery, ports, metallurgy, power, shield machine, wind power, mining, petrochemical, machine tools, medical equipment supporting, etc.

## OEM

LTZC passed the quality assessment for qualified suppliers of Timken (Wuxi) Company in 2007, and passed the qualified supplier evaluation of SKF China in 2016. We have long-term cooperation with Timken and SKF.



# APPLICATION



Stacker-reclaimer



Circular stacker reclaimer



Ladle turret



Steel plant



Bridge crane



Ship loader



Radio telescope



Shield machine



SATCOM vehicle

## Quality Policies

- ◆ Quality First
- ◆ Reputation Supreme
- ◆ Sustainable Development
- ◆ Continuous Innovation

## Quality Objectives

- ◆ First Time Yield (FTY): 98%
- ◆ **Process Final Yield (PFY): 100%**
- ◆ Customer Satisfaction: 98%





## Quality Management System

The general manager presides over quality management and the management representative organizes the quality inspection department and other relevant departments to participate. LTZC has passed the ISO9001:2008 quality management system certification in 2003 and reviews it every year.

## FMEA

Failure mode and effect analysis in the design stage

## Ship Inspection Management Certifications

We have passed inspections and obtained certifications as below:

1. China Classification Society (CCS) Factory Type Certification;
2. Bureau Veritas (BV) Factory Certification;
3. American Bureau of Shipping (ABS) Single Product Certification;
4. Registro Italiano Navale (RINA) Single Product Certification;
5. Det Norske Veritas (DNV) Single Product Certification;
6. Korean Register of Shipping (KR) Single Product Certification



# QUALITY CONTROL



9001



45001



14001



RINA



ABS



CCS



BV



RS

## Quality Manual

LTZC has a complete set of regulations, our quality manual including but not limited to:

- (1) Inspector responsibilities
- (2) Provisions of rewards and penalties for product quality
- (3) Assembly inspection procedure regulations
- (4) Provisions of quality supervision and control
- (5) Inspection regulations for outsourced processing of product
- (6) Outsourcing and procurement provisions

## Quality Analysis Meeting System

Quality meeting is convened at the beginning of each month. Meeting minutes are recorded and confirmed in written form. Quality analysis is carried out as well as quality notification and treatment. Advice for improvement is given.

## Quality Statistics Ledger System

Ledger for percentage of qualified product. Ledger for identification of measuring instruments.

## Measurement Office & Test Office

All measurement instruments and inspection data are professionally managed.



## Qualified Suppliers Evaluation System

All suppliers are examined and approved for qualification and rated twice a year. All unqualified suppliers are blacklisted.

## Periodic Equipment Precision Detection System

In order to ensure production equipment precision, equipment suppliers are required to provide equipment precision data and conclusion. LTZC periodically detects and standardizes all equipments and meanwhile sets up detection record files.

## Product Design Management System

Technologies and design drawings must strictly conform to national standards as well as specific requirements of customers. Operation instruction and technology tracking card are formulated for major products.

## Product Identification System

Product tracking label: from forging, processing procedure to finished product, label identification is adopted for quality supervision and tracking during the whole process.

## Software

- LTZC has co-operation with Henan University of Science and Technology, the Bearing Department of which is the only one in China. Our research software include:



ROMAX



ANSYS



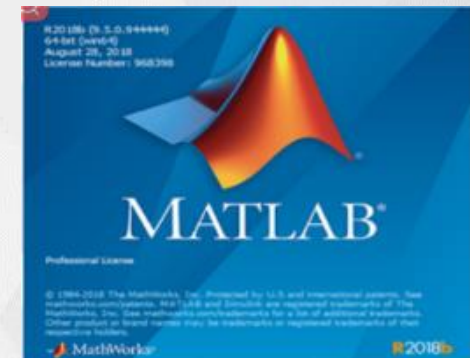
ADAMS



ADORE



ABAQUS



Matlab



1

## Turning Process

6-meter CNC vertical lathe, 5-meter vertical lathe equipped with special grinding head, 3.5-meter vertical lathe equipped with special grinding head, 2.8-meter high precision CNC vertical lathe, 2.5-meter vertical lathe, 1.6-meter CNC vertical lathe, 20 and 30 horizontal lathe

2

## Heat Treatment

300~7000 medium frequency quenching machine and 6-meter tempering furnace

3

## Tooth Processing

8-meter gear hobbing machine, 5-meter gear hobbing machine, 3.5-meter gear hobbing machine, 1.6-meter CNC gear shaper, 800mm CNC gear shaper, 500 mm CNC gear shaper

4

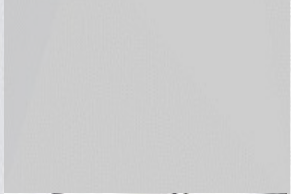
## Drilling Process

4-meter NC drilling, 1.6-meter NC drilling, Z3050 drilling machine, Z3080 drilling machine, milling and drilling machine

5

## Grinding Process

1.8-meter vertical CNC grinding machine processing center MX-1800, 2.5-meter floor grinding machine, M280 internal grinding machine, M74100 flat grinder, M74215 flat grinder, M1083 centerless external grinding machine, 3M2180/8 cylindrical grinder machine and independent semi-closed assembly area



## Turning



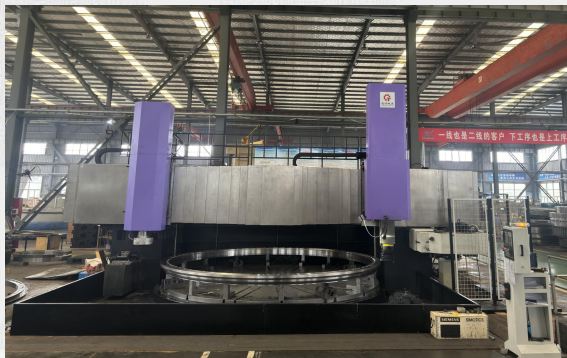
CK6180/1500 horizontal CNC lathe



3.15m vertical lathe



4m vertical lathe



5m vertical lathe



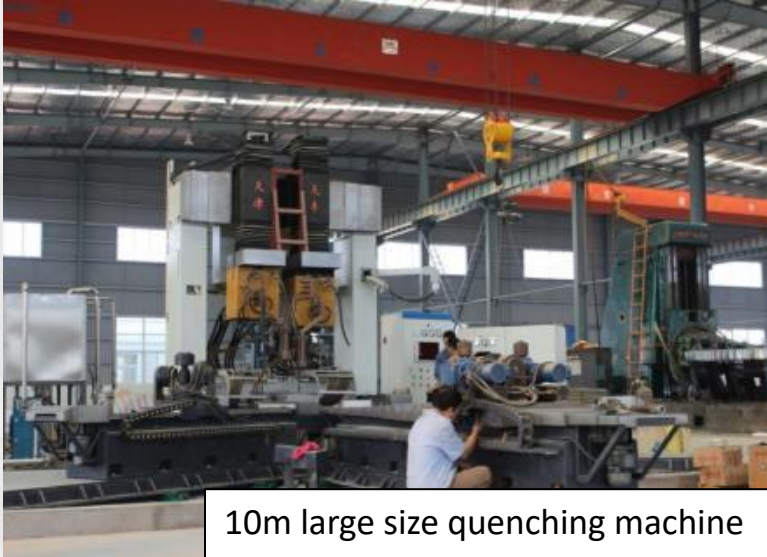
6m CNC vertical lathe



13m precision CNC vertical lathe



## Heat Treatment



## Tooth processing



500mm CNC gear shaper



800mm CNC gear shaper



1.6m CNC gear shaper



3.5m CNC gear shaping machine



10m high speed gear milling machine



## Drilling unit



4m CNC drilling machine



5m CNC milling machine



1600mm CNC drilling machine



Drilling processing center

## Grinding



1.6M CNC vertical mill  
processing center



Processing center MX-  
1800



1.8 meters vertical CNC  
grinding machine



2.5 meters floor  
grinding machine



3M2180/8 cylindrical  
drilling machine



Precision internal CNC  
grinding machine

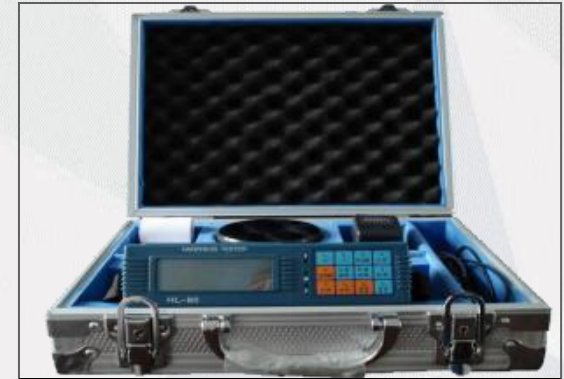




Length measuring instrument



Indicator tester



Leeb hardness tester



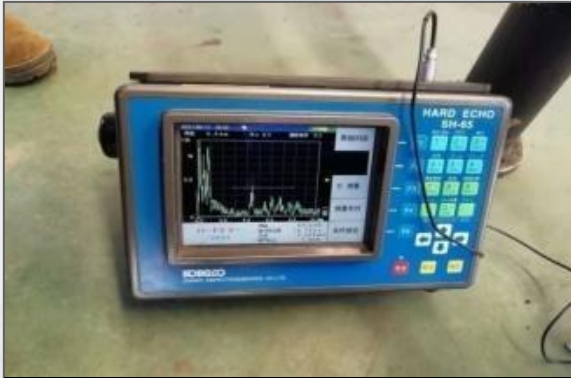
Standard part (block gauges)



Magnetic particle flaw detector



8m bridge leveling ruler



Case depth tester



Ultrasonic crack meter



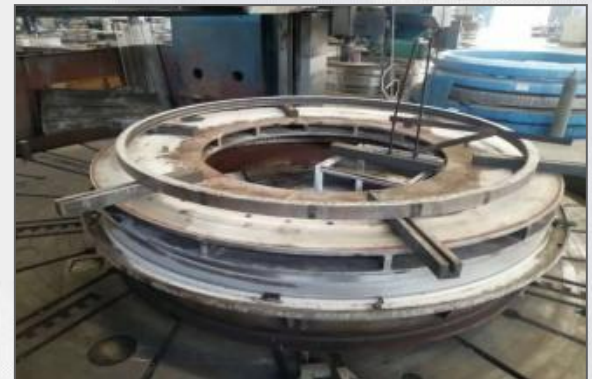
Inside micrometer



Brinell hardness tester



Quality control station



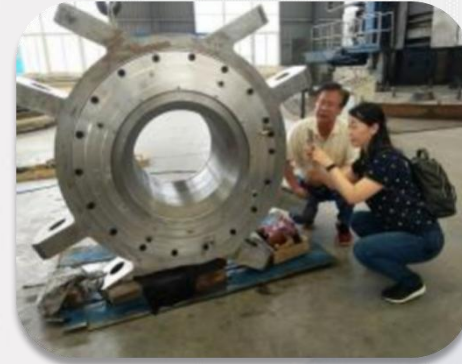
Heat treatment shaping table



Low temperature test



Air-tight test



Load test

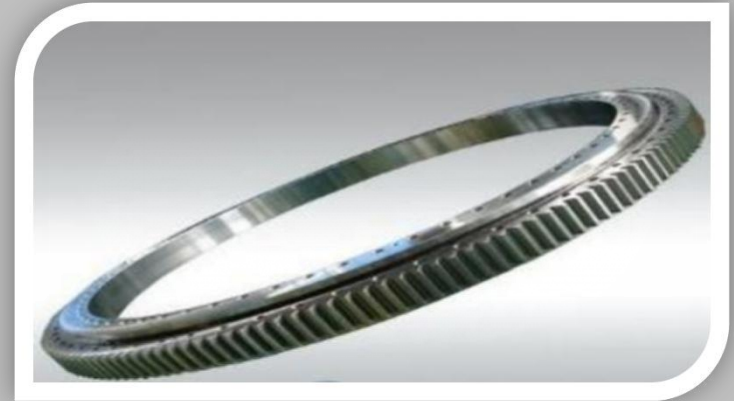


Lubrication test



## Slewing Bearing

Stacker & Reclaimer, Crane,  
Shipping loader, Crawler  
crane, Truck crane, etc.



1. Professional manufacturer of extra large size, heavy-duty bearings, outer diameter up to 8.447m and 10.87m etc.
2. Service support for first-class enterprises worldwide, such as ZPMC, ZOOMLION, and Bao Steel, etc.



## Nanjing



In 2024, LTZC has delivered a slewing ring with an outer diameter (OD) of 10.87 meters, which is integral three-row rollers structure for 2,000 ton fixed lifting equipment, a new record of largest slewing ring for LTZC.



## South Korea



Also in 2024, LTZC is proud to announce the successful production of an integrated bearing with an OD of 8.445 meters for our valued crane industry client in South Korea.



## Guide rail



20-meter precision  
segmented guide rail





## Wuhan

LTZC provides Wuhan Heavy Industry with 8-meter high-precision segmented gear rings, which are used in the vertical friction stir welding system of a key national project.

## φ24m segmented bearings



φ24m segmented bearings developed and successfully delivered to Jiangsu Nantong Rainbow Heavy Machinery



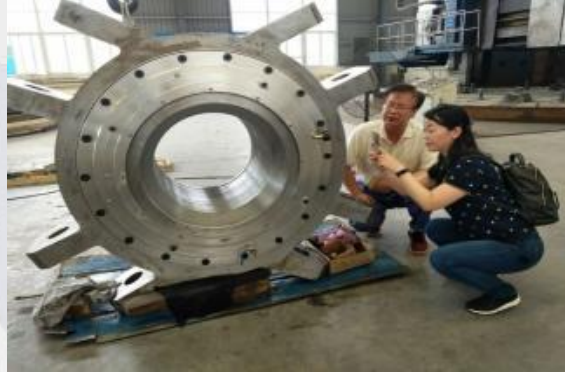
## Steering Mechanism

Customer (full name)	Part of use	Slewing bearing type	Qty.	Certificate(CCS/RMRAS)
Suzhou Sujing Marine Co. Ltd	Steering propellers	013.50.2100.03P5	12	CCS
	Steering propellers	013.60.2240.03KP5	12	CCS
Jiangsu Xinhang Marine Technology Co. Ltd	Steering propellers	A0008325	15	RMRS
	Steering propellers	A0010016	15	RMRS



## Traction rotation ring

Development of traction rotation ring for marine drilling risers of CSSC deep oil drilling platform.



## Sealing ring of Shield bearing

Inner seal ring & outer seal ring of shield machine bearing.  
Height: 4200mm; thinnest: 24mm.



## Ring roll for CRCC

LTZC has developed the whole set of ring roll of shield machine main drive for CRCC, 15 series, and 90 pieces in total.

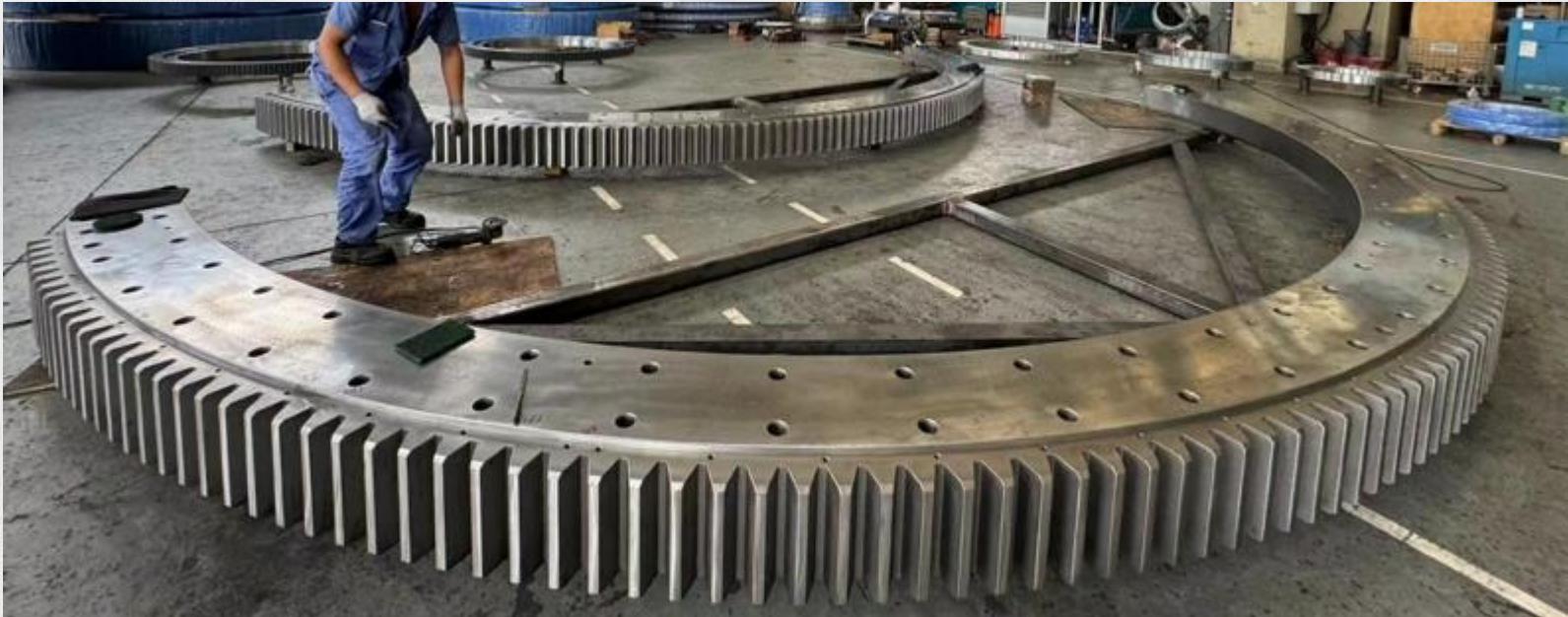


## Testing track





## Six-meter high-precision gear ring



Our Hengshui customers are supplied with segmented gear ring US8.419.1606, outer diameter of 6 meters, ground teeth, and successfully delivered to end customers.



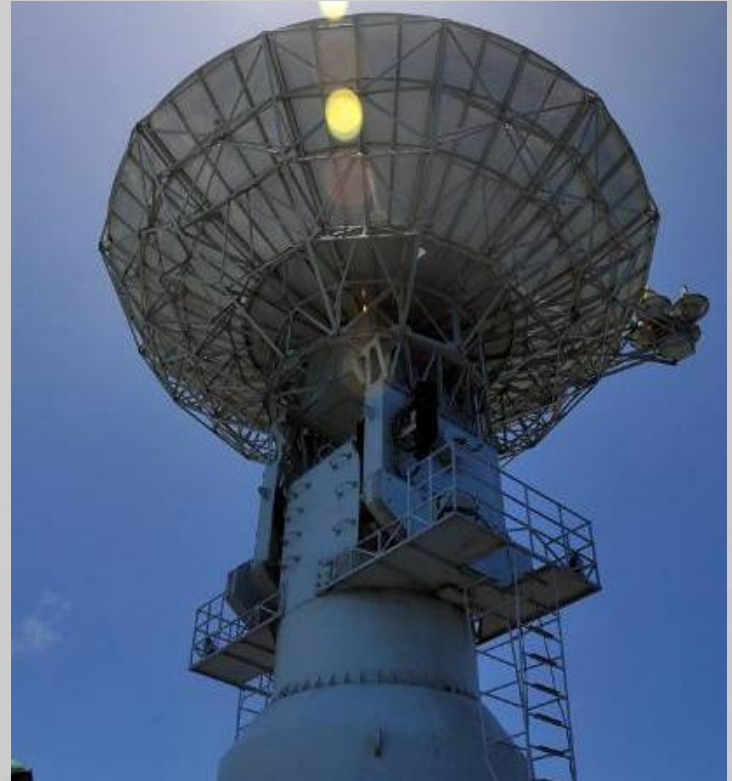
LTZC's 3-meter-diameter turntable bearing holding up the main torch tower in the opening ceremony of the World Military Olympic Games.



## Surveillance ship main control radar

Since 2002, LTZC has been supplier of the main control radar bearings 3-818 to Maritime Monitoring Ship, **double row thrust ball bearings** with OD 2154.6mm, precision **cross tapered roller bearings** from OD 1820 to OD 2868mm and **double-row ball bearings**.

Precision: P5, Class 7 tooth precision,  
Negative Clearance, Anti-corrosion



## National Key Project: Super large slewing bearing for crane

### CSSC

From the end of 2017 to April 2018, super large slewing bearing for cranes were developed for Dalian customer. OD was 7020mm. 7397/6006P6

In 2014, LTZC supplied 132.70.6600.03 -- a three row cylindrical roller slewing bearing for 340 ton fixed crane. Bearing OD: 7200mm; weight: 22.4 tons.





## SHIP CRANE

American ship crane

Type: 3R13-109NXX5

OD:3120mm

Delivery Date: 2009

Structure: internal gear three row cylindrical roller bearings



The bearing was exported to the United States for marine crane, approved by ABS Classification Society.

Taiwan vessel **ACACIA STAR**

Type: CLB3072.03

OD:3258MM

Delivery date: 2014.8

Structure: Double Row Ball Slewing Bearing



## ZPMC

Since 2011, LTZC has offered slewing bearings to ZPMC gantry crane in batch, more than any other supplier including Rothe Erde.

132.50.4000.03
132.50.4500.03
132.50.4600.03
132.50.4670.03



## Nanjing Port-Machinery

Since 2013, LTZC batch has constantly supplied 132.50.4000.03 to NJPMP. In 2016, LTZC offered 132.60.6000.06 to NJPMP, the outer diameter is 6585 mm, which is used for the hoist Crane.



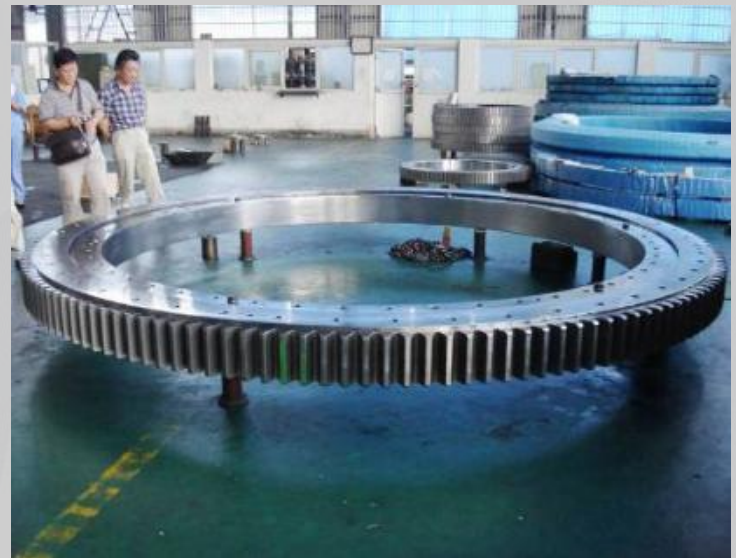


## BAOSTEEL

In 2000, supply of 1979/2500 slewing bearing to Baosteel subordinate enterprise. Application is stacker & reclaimer.

In 2014, offer of slewing bearings for Baosteel Zhanjiang Project , Bearing No: 191.50.5000.990.41.1102, outer diameter reaching 5.4m.

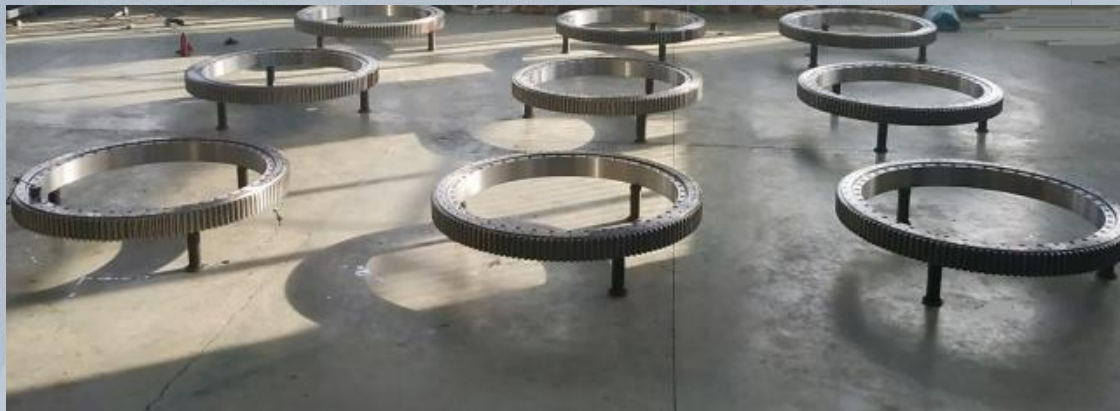
112.40.2800.12 K
1797/2500D2
1797/3230G2Y2
132.50.3150.03
132.50.3550.03



## ZOOMLION

LTZC supplies a large number of slewing bearings in stable and long-term contracts with the famous construction equipment manufacturer ZOOMLION.

- ⚙️ 131.45.2000.03K matching with 180 ton crawler crane
- ⚙️ 131.36.2000.03G1 matching with 130 ton crawler crane
- ⚙️ 131.45.2196.03 matching with 260 ton crawler crane





## ZOOMLION

- 031.50.1800.03K matching with 110 ton truck crane
- 131.30.2250.03 matching with 200 ton truck crane



## Large Size Non-Standard Precision Bearing

Satellite communications vehicle,  
Surveillance ship, Ground satellite  
antenna base, radio telescope etc

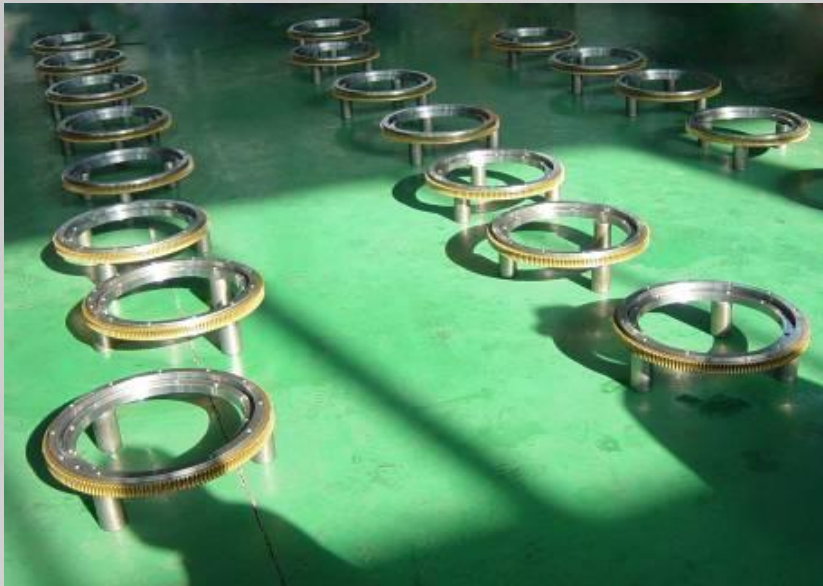


1. Participation in national key projects & development of sophisticated products
2. Recognition and reward of innovation from National Academy of Sciences



## Satellite communications vehicle radar

Since 2015, LTZC has supplied precision slewing bearings for SATCOM vehicles and 2.4m Pivot antenna assemblies (turbo pairs and shell) for China Electronic Science & Technology Group. The sealing material is low benzene silicon rubber, which solved the water leakage problem in ultra-low temperature environment.



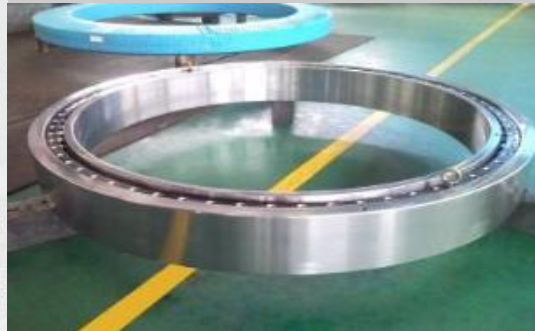
## Ground satellite 50 meters antenna base

In 2005, LTZC offered 50 meters antenna base and precision bearing (NU18/1600, OD 1950mm), large size precision sectional gear ring, gearbox (house, bearing and shaft), and wheel train bearings to China Observatory, which was the largest antenna system in Asia.

Antenna Base



Bearing NU18/1600



50-Meter Antenna





## Shanghai 65 meters radio telescope project

In 2012, bearing, base and precise orbit were successfully developed for the 65 meters antenna system for large fully mobile radio telescope in Shanghai Observatory. It was the largest antenna in Asia.

Bearing P5 class, OD: 2500mm, Large precision raceway track, 30 segmented structure, high difficulty welding, finished product with flatness 0.4mm.



## FAST "Sky Eyes" radio telescope

The FAST "Sky Eye" radio telescope (500m) built in 2016 is the largest single-aperture and most sensitive radio telescope in the world, which was mainly built by the National Observatory of the Chinese Academy of Sciences. LTZC supplied high-precision segmental gear ring for this project.



FAST:  
500m Aperture Spherical Telescope



## High Precision Slewing Bearing

Since 2009, LTZC has researched and developed high precision slewing bearing and connector, the OD ranged from 1.6 meters to 4.4 meters, structure being three row cylindrical roller bearing, P5 precision (radial runout only 5um), anti-corrosion treatment.



## 18,500 ton oil hydraulic press

In 2009, CITIC researched and developed the largest and most advanced free forging oil press in the world, and LTZC supplied the slewing bearing E8331-7P to the project.

Bearing OD: 3400mm

Structure: the uncommon single row double column cylindrical roller and single row ball combination

18,500 ton oil hydraulic press



Bearing E8331-7P in assembling

Chinese President Hu Jintao visiting CITIC site in 2010





## CNC friction welding machine

In 2013, 111.50.4450.03/P5 slewing bearing with outer diameter of 4700mm manufactured by LTZC was successfully used on the largest domestic CNC friction welding machine. It is a helical tooth cross roller slewing bearing with tooth precision Class 7 (Large dimension, small thickness, easy to deform)

## Meteorological Radar antenna

Plate Radar Antenna Slewing Bearing 123.50.3165.03/P5 cross tapered roller high precision slewing bearing developed by LTZC was successfully used on 20-Meter meteorological radar antenna. OD: 3490mm.



## Ladle Turret Slewing Bearing



1. Over 20 years of production experience for ladle turret slewing bearing.
2. Record holder of the largest and heaviest ladle turret bearing in China, a supply of slewing bearing of 450 ton ladle turret for Bao Steel Group.
3. Innovation project of large-size, heavy-duty ladle turret bearing approved by Ministry of Science & Technology.



## Bao Steel Ladle Turret

In 2006, LTZC manufactured slewing bearings 132.50.3940.03K for Bao steel 2# 240 ladle turret, which successfully replaced the SKF slewing bearing 78526-0307. OD of 4320mm, all key technical data of world class.

Notably, compared to similar products in the world, the bearing saved 2/3 of the cost for customer and shortened 2/3 of the production time, and worked for over 10 years.

## Ladle Turret Slewing Bearing

Type: 132.50.3940.03K instead of SKF 78526-0307



## 320 Ton Ladle Turret

The ladle turret bearing 131.50.4160.03 (88762.0101) was produced for Tianjin Iron Plant in March 2008, with an outer diameter of 4527.6 mm, to be used for 320 ton large ladle turret.

## 350 Ton Ladle Turret

In October of 2008, 350 tons of ladle turret bearing were produced for Chongqing Steel Plant. The type is 0823101.2, and the outer diameter is 4723.2 mm.

## 360 Ton Ladle Turret

In July 2010, the bearing of the 360 ton ladle turret delivered to Xinyu Steel Plant was 106.13SB1302-132. The outer diameter being 5070mm, it was the largest bearing used in ladle turret in China.





## 450 Ton Ladle Turret

Since May 2011, LTZC has designed 450 ton ladle turret bearing LTZ-GB1001, and successfully replaced SKF products. With an outer diameter of 5333mm, it renewed the record of largest slewing bearing for ladle turret in China.

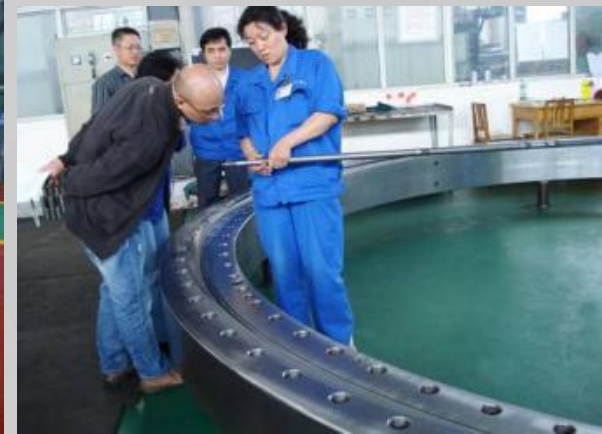


←450 ton ladle turret ignition ceremony was held on site in steel plant of Baosteel Group on April 15, 2012.

Lin Fugui, technical director of the project, taking a photo with our  
↓ sales manager, Liang Zhong.

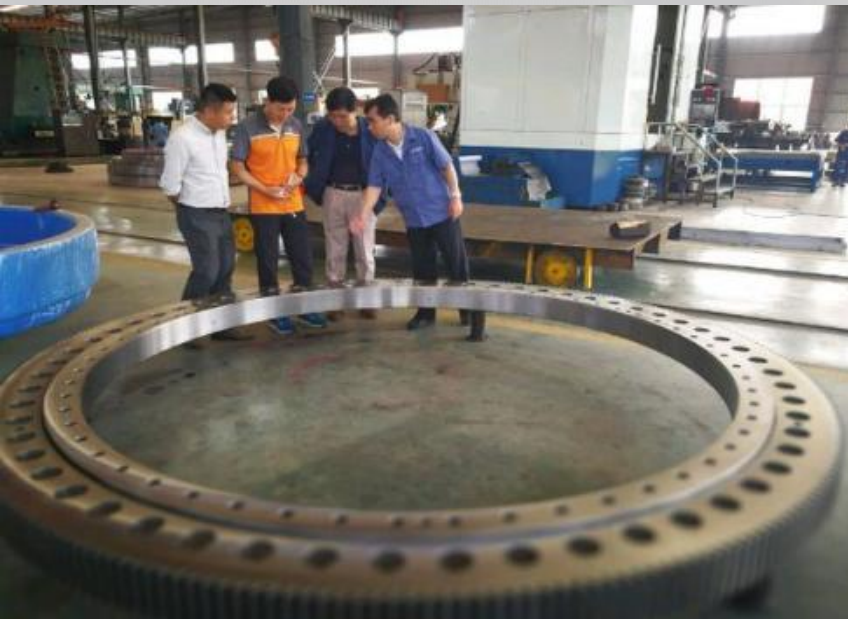


↓Product inspection



## POSCO Ladle Turret

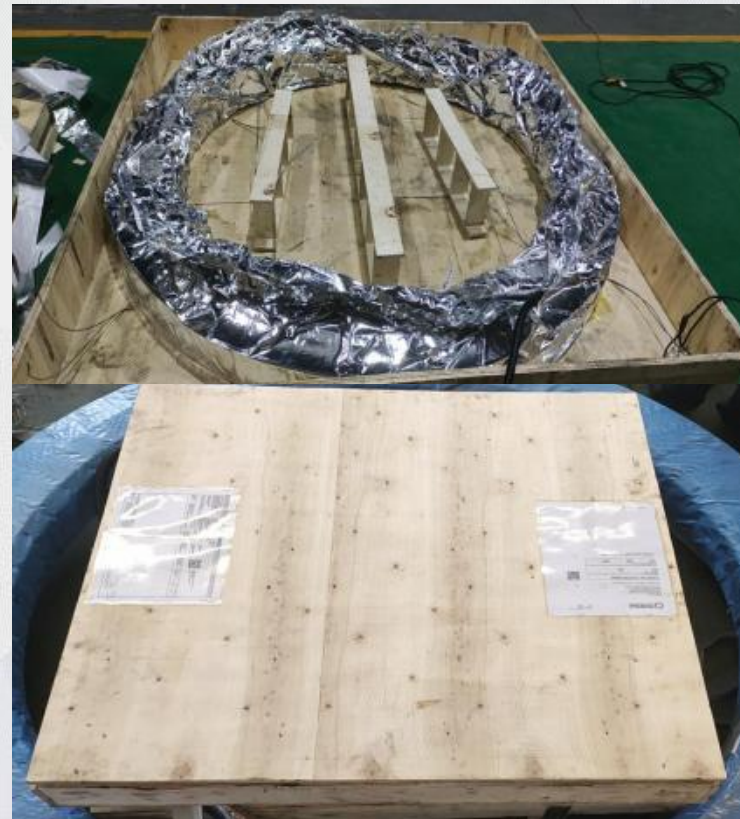
In 2017, Posco Zhang Jia Gang Stainless Steel Company urgently demanded slewing bearings 78526-0307 for their ladle turret. LTZC worked extra shifts and hours, and finished the production in 14 days. On the same night after inspection was done, LTZC transported the bearings to customer factory and helped finish the installation. Posco officially granted LTZC a crystal plate of appreciation to express their satisfaction.





## Primetals

From 2019, LTZC started to offer slewing rings to Primetals for more than 20 sets, respectively to their factories in Mexico, Turkey and China. According to the specific working conditions, LTZC adopted high temperature grease, viton seal and BASF cage for the slewing rings and made sure no problem at all for their operation on the equipments.



## Shield Machine Bearing Series



1. TBM Cutter Plate Main Bearing and Shield Machine segment erector bearing.
2. Remanufacturing of shield machine bearings taking place every month.
3. Basing on advantages in the field of main bearings for shield machines, LTZC is identified as Luoyang High-load Bearing Engineering Technology Research Center.



## Hard Rock TBM Cutter Plate main bearing

In 2013, the first open type trackless transport TBM was successfully manufactured by CITIC.

Length: 200m; weight: 800 tons.

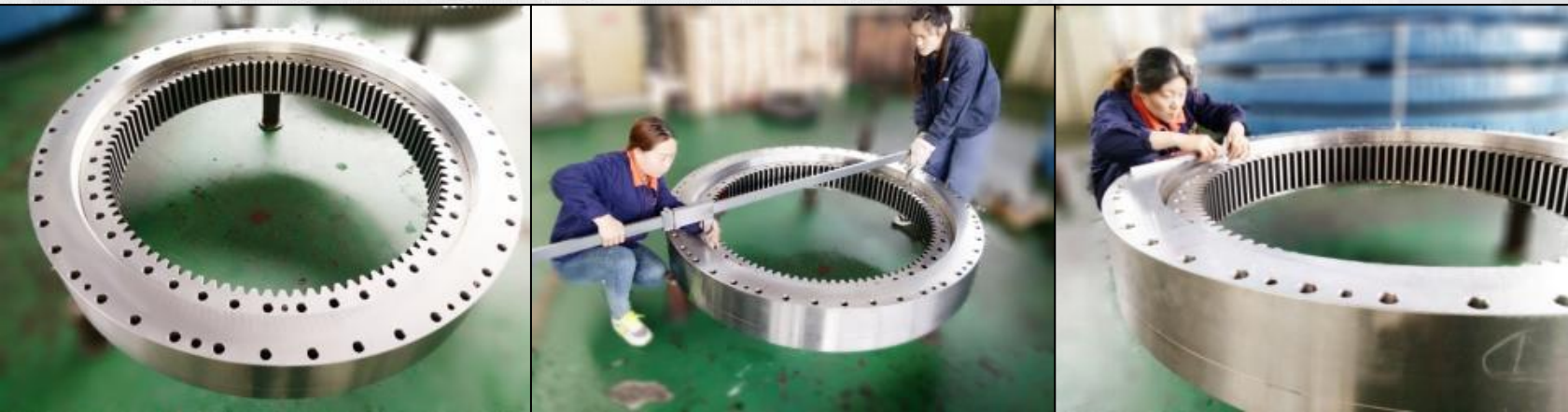
LTZC designed and manufactured the slewing bearings 130.90.2760.03 for the TBM, with special structure, outer diameter being 3198mm, and successfully passed acceptance inspection by CITIC.



## “Shield No. 1” Driving Anchor Machine main bearing



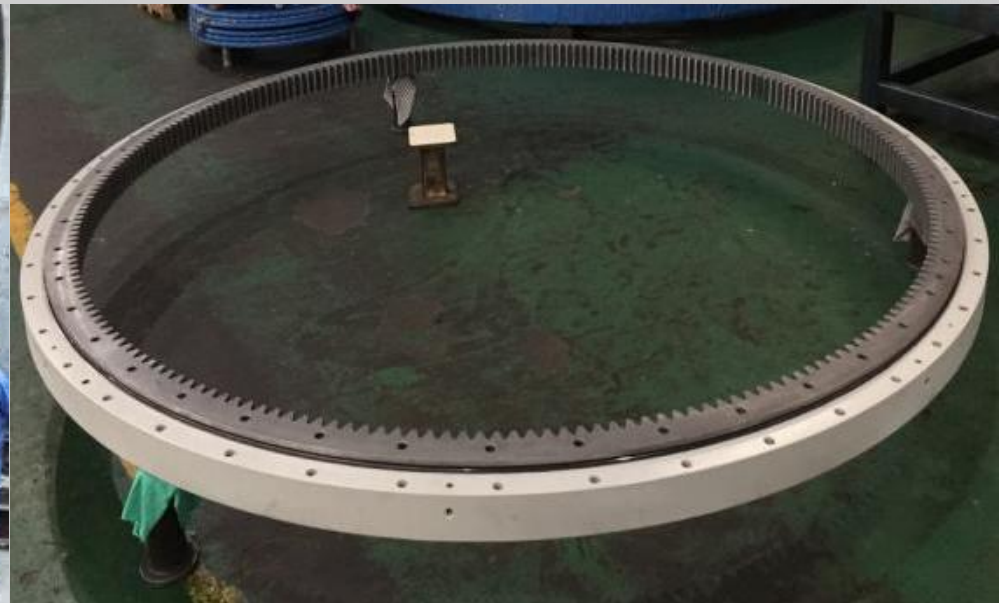
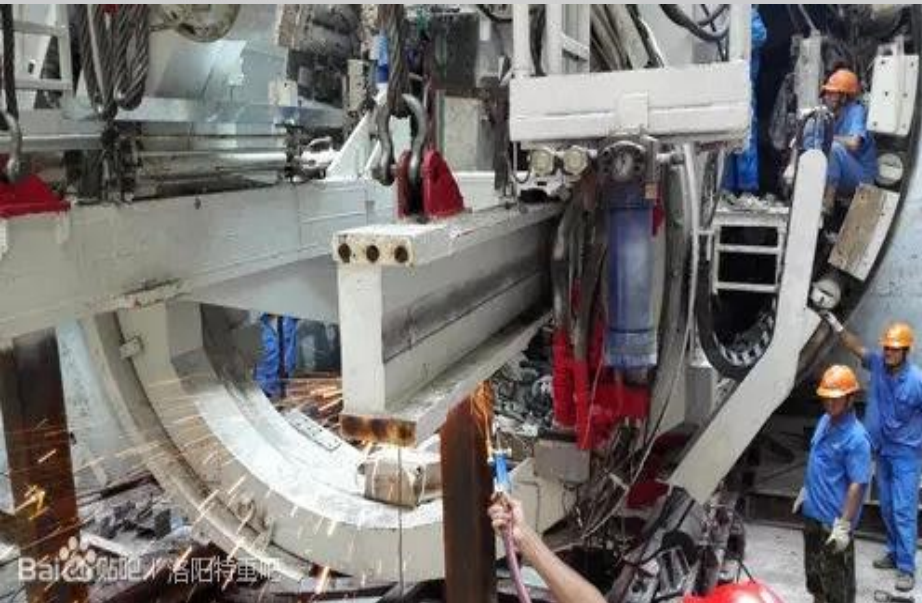
In 2016, LTZC manufactured 133.40.1395.03, the main driving slewing bearing with OD of 1595mm for the main cutter plate. With an inner tooth structure, the rings are electroslag remelting steel, brass cage, precision of P5. And “Shield No. 1” tunnelled through 3 kilometers of hard rock mountain in Beijing.





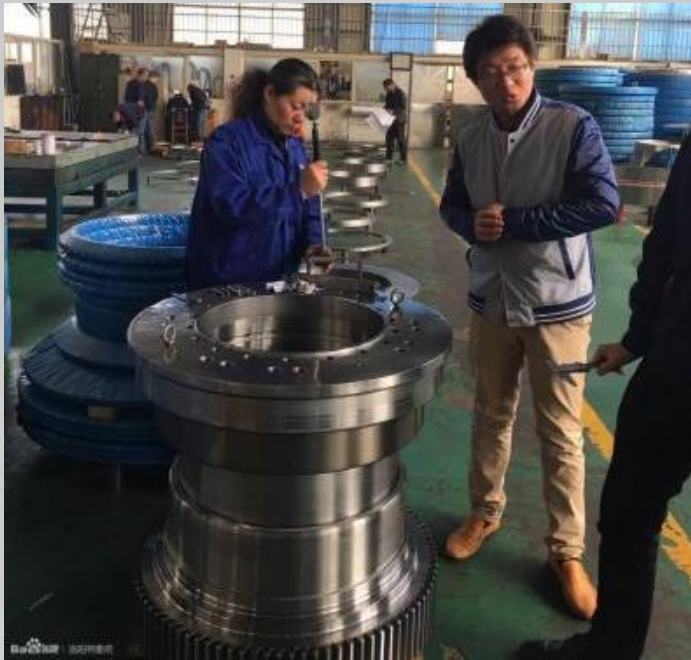
## Shield Machine segment erector bearing

In 2016, LTZC manufactured the slewing bearing 013.35.3070.03 for shield machine segment erector for CREC, outer diameter 3200mm, structure inner tooth four point contact ball slewing bearing, to be equipped in Herrenkench Shield Machine.



## Tube push bench driving system

The driving system of tube push bench produced by LTZC is composed of bearings, large gear, spindle, sealing ring and driving ring, which requires high-level reliability. It serves the key component with high processing accuracy and complex technology. And it has been successfully accepted and delivered to end users recently.



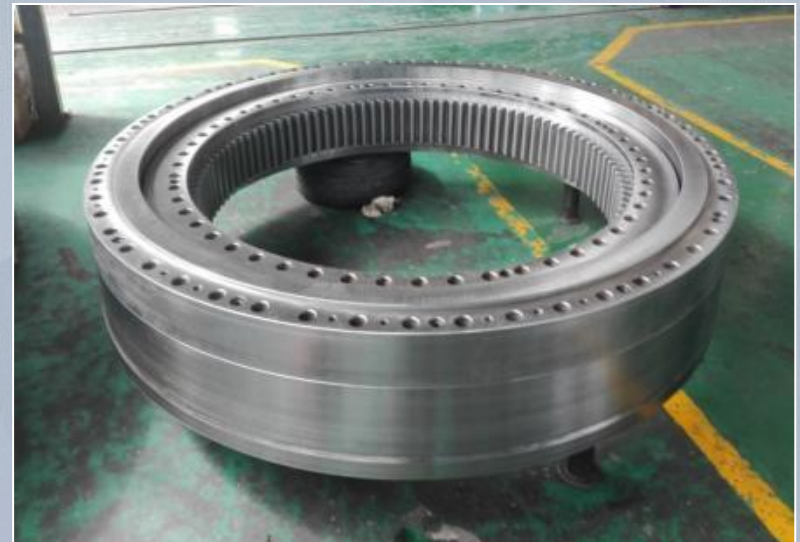
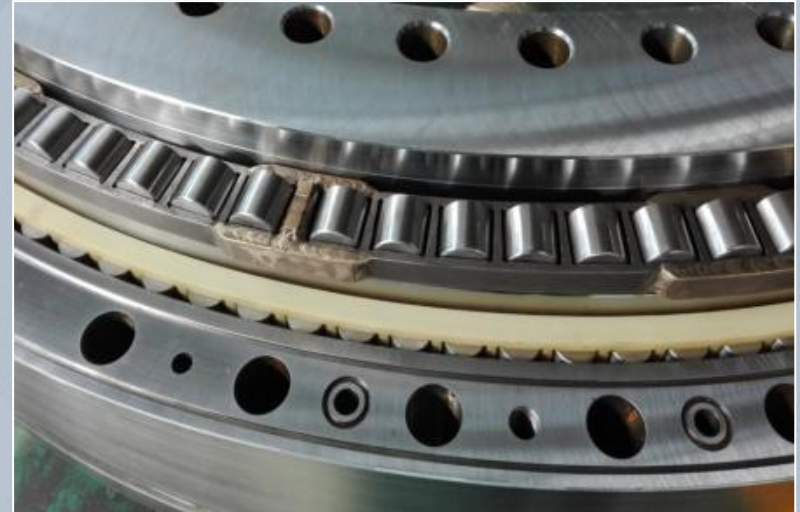


## Remanufacturing of shield bearing

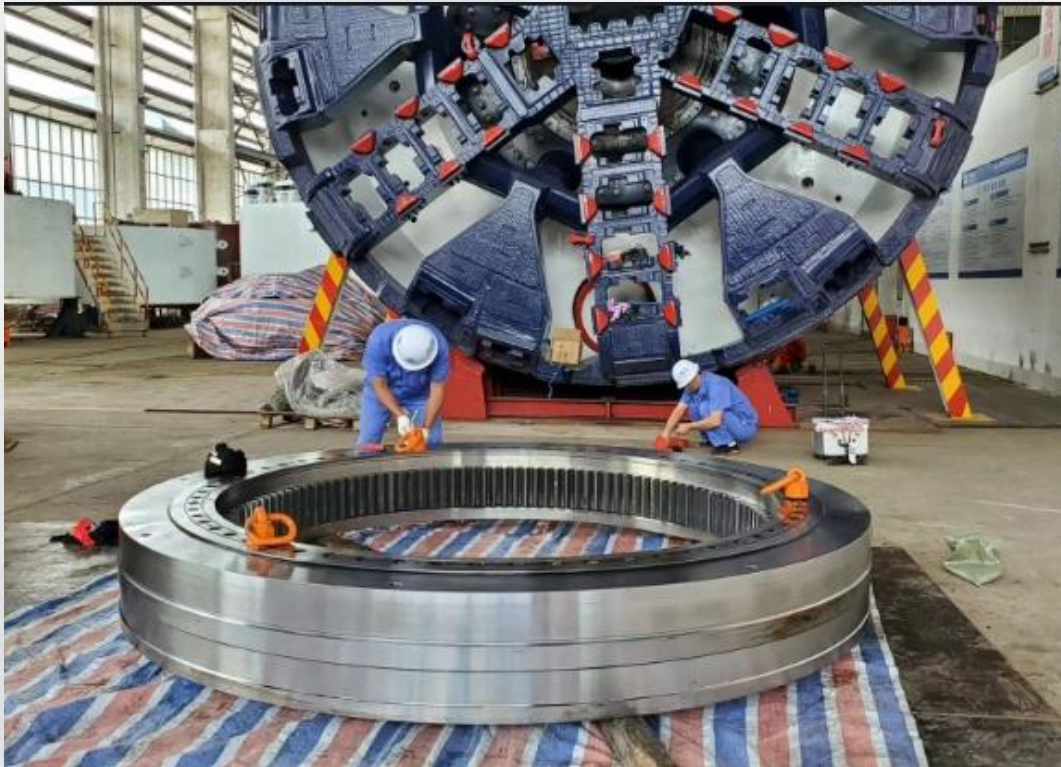
Before remanufacturing



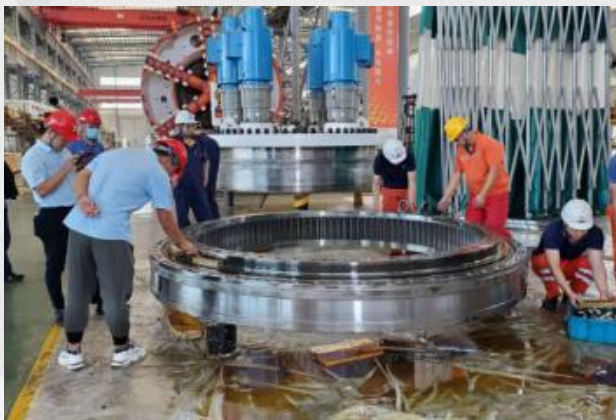
After remanufacturing







In 2021, LTZC finished production of 100 sets of main bearings and drive gears and maintenance for tunnel machines, the pictures showing our work on site. LTZC is trustworthy for every customer.





In July 2008, LTZC successfully developed 1.5MW wind power pitch bearings 12-1900-08, 8787/1716, and 1.5MW yaw bearing 2787/2553.

750KW pitch bearing 033.40.1487.03F and yaw bearing 013.40.2000.03 have started batch production.

All technical parameters of the testing results were up to standard, and the product rotation smooth and reliable according to the feedback from end users.

## WIND TURBINE BEARING

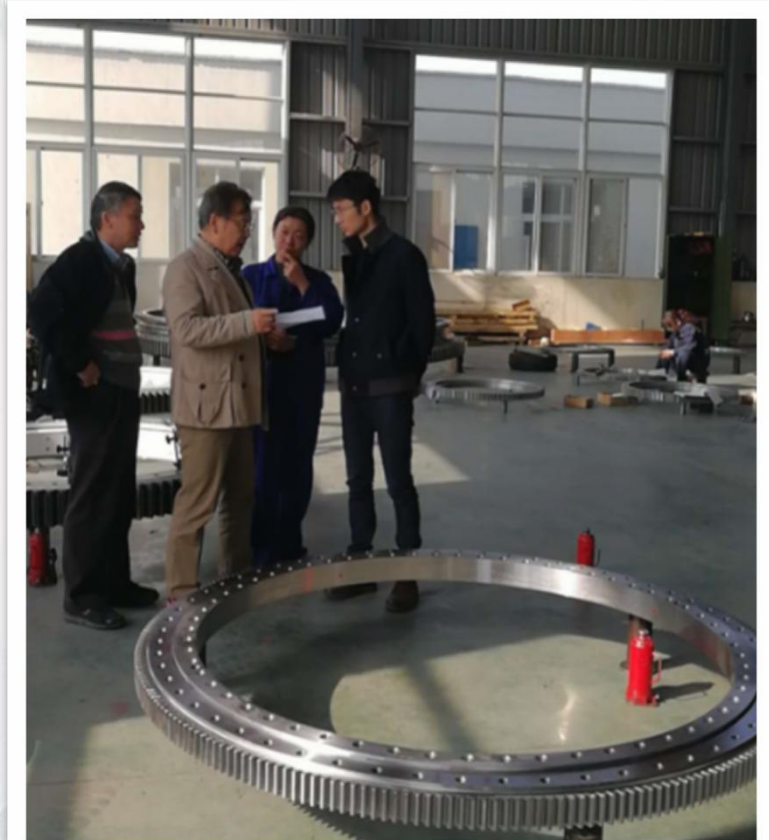


## MEDICAL CT SLEWING BEARING



### **Bearing No.011.30.1800.03/P4**

In October 2017, LTZC developed slewing bearing for medical CT machine for CAAC Group. All indexes still maintain high accuracy during high-speed rotation.



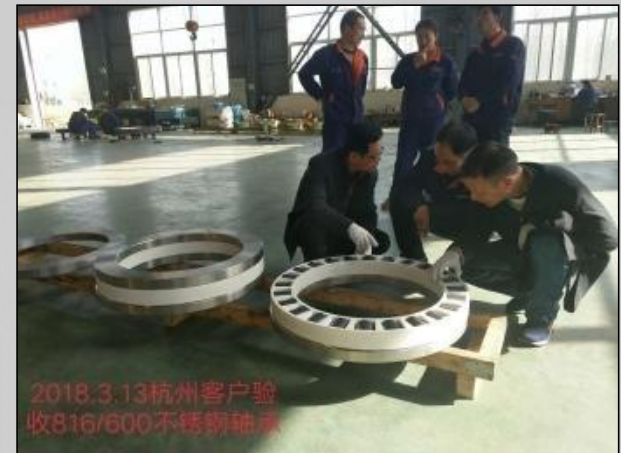


## TIDAL ENERGY BEARING

### Bearing No. 812/600

LTZC developed Tidal energy bearings, which is a national key project, material: 9Cr18Mo, Outer diameter: 800mm. The bearing is anti-corrosion by seawater, has a large difficulty in processing, belongs to domestic initiation.

The bearing will be widely used in the field of green energy as wind power and solar energy in the future, with wide development prospect .



## Design & selection

Pre-sales design and product type selection: our consummate LTZC technical service team help users select and design, providing strong technical support.

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## Installation guidance



Installation guidance during sales: professional guidance along with complete technical service for the on-site installation of key products according to customer request.

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## Post-sales service



Post-sales service: response to customers' quality objections within 24 hours and on-site service starts within 48 hours in China.

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# THANK YOU!



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