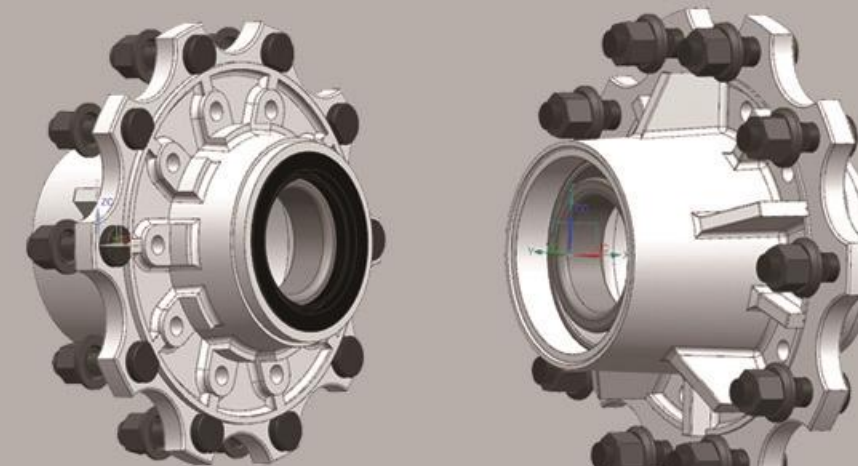


Drum-type aluminum alloy wheel hub



Disc-type aluminum alloy wheel hub

30% lighter

The aluminum alloy wheel hub weighs 9.8 kg, and using aluminum alloy wheel hubs for the entire vehicle can reduce the weight by 100 kg.

Heat dissipation performance improved by 300%

During high-speed driving and frequent or long-distance braking, the hub temperature can be maintained below 70°C, effectively ensuring proper lubrication and extending the service life of the wheel-end bear-

Better shock absorption and ride comfort

Aluminum alloy wheel hubs have better elasticity, effectively absorbing vibrations and noise during driving. This enhances ride comfort and significantly extends the service life of the tires.

High-speed train shock absorption design concept

Using finite element analysis software to scientifically design the structural form and stress distribution.

Self-developed rubber formulation

Fatigue-resistant, good elasticity, low heat generation, low creep, and a wide operating temperature range of -40°C to +70°C.

Rubber is vulcanized and bonded more firmly to metal.

The bonding strength can reach over 6 MPa, which helps improve the bushing's rigidity and fatigue strength.

Pre-compression installation method

It can eliminate internal stress in the rubber, thereby extending the bushing's service life.

Service life increased by 500%

Save on maintenance and replacement costs.



Bimetal rubber bushing torque rod



Polyurethane bushing torque rod

50.4% lighter

The ceramic-aluminum brake disc weighs 16.5 kg, and using it on the entire vehicle can reduce the weight by approximately 100 kg.

Corrosion resistance improved by 300%

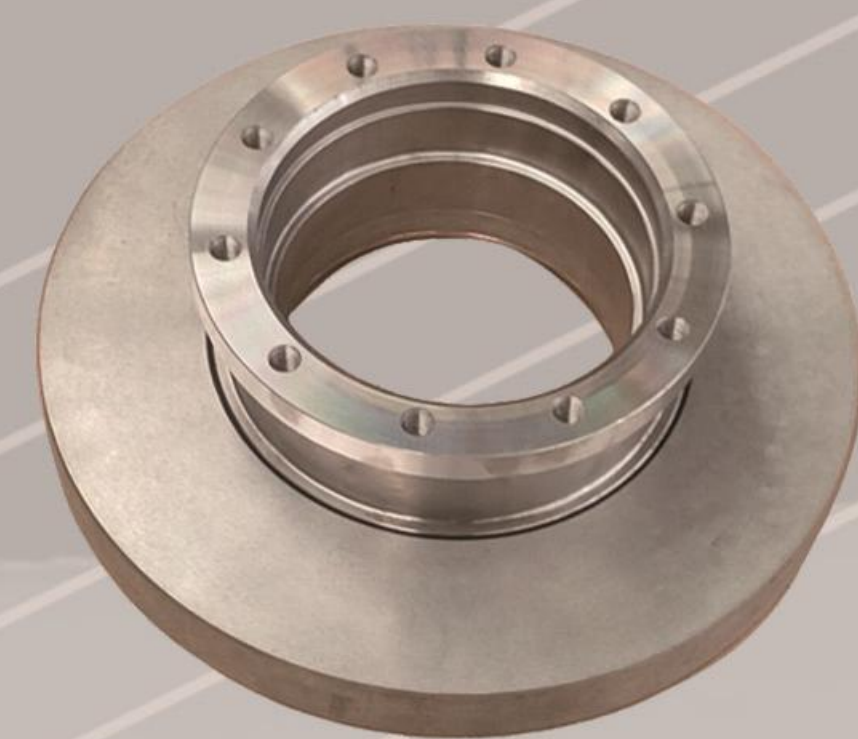
The ceramic-aluminum brake disc shows no corrosion after 72 hours in neutral salt spray testing.

Ease of use

Both grease and lubricating oil are suitable.

Service life increased by 260%

Maintenance-free within 3 years or 500,000 kilometers.



Ceramic-aluminum brake disc



Introduction

Shandong Zonxin Auto Parts Co., Ltd., founded in 2008, is a national high-tech enterprise integrating design, research and development, and precision manufacturing. The company has a high-level design and R&D team and advanced production equipment, with more than 180 employees, including over 30 mechanical engineering technicians. The company mainly produces semi-trailer suspension, axles, air suspension, and other semi-trailer parts, with an annual sales revenue exceeding 20 million USD.

Company Overview

25 years of manufacturing experience

Over 70 related patents

100 mu (approx. 66,700 m²) factory area

7-day fast delivery

More than 100 related products

Solution Design

Thousands of semi-trailer running gear design solutions

Design and R&D team of over 30 people

More than 70 related patents

Participated in the design of hundreds of vehicle models

Adapted to various cargo scenarios and different road conditions

Advanced Equipment

Robot automatic welding

Casting production line

Assembly line

Painting and drying line

Stamping production line

Inspection Center

Metallographic testing

Fatigue testing

Composition analysis

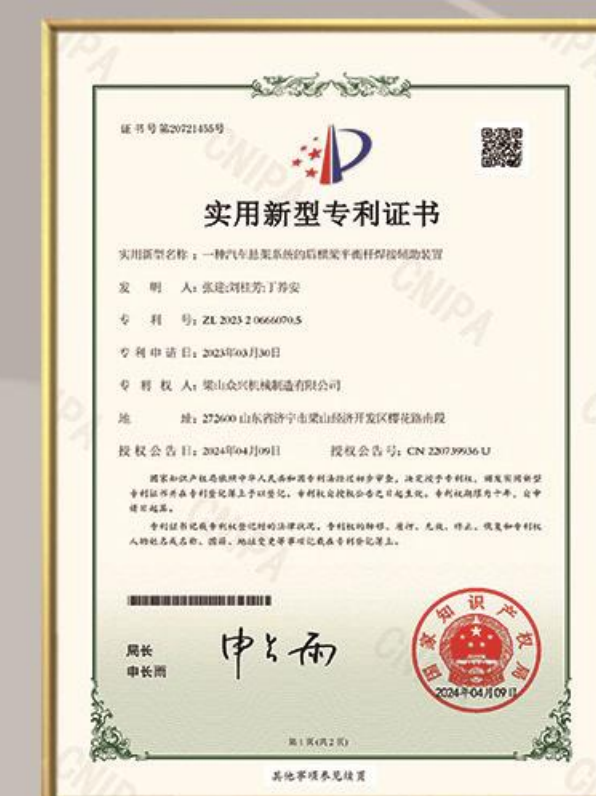
Non-destructive testing (NDT)

Corrosion test

In June 2019, with approval from the Shandong Provincial Department of Science and Technology, Shandong Zonxin Auto Parts Co., Ltd. jointly established the Shandong Academician Workstation with Academician Guo Konghui of the Chinese Academy of Engineering and his team, to conduct research and technical transformation on challenges related to semi-trailer axles and suspension systems.



Academician Workstation



Utility model patent

56



Invention patent

10



Design patent

8





Rubber suspension 13T,16T



German Type B Suspension Φ60



German Type F Suspension Φ60



Light-duty suspension Φ50



bogie suspension 24T,28T,32T



Japanese-type suspension



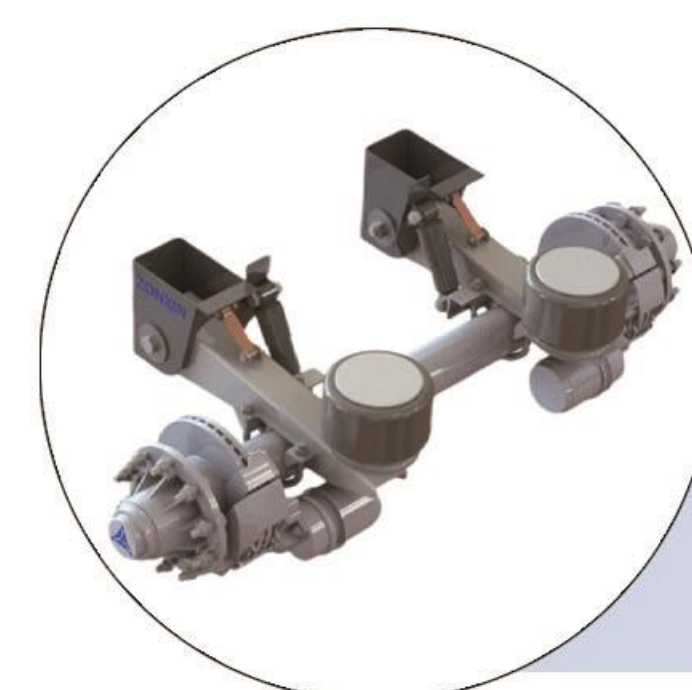
american underslung suspension Φ60,Φ70



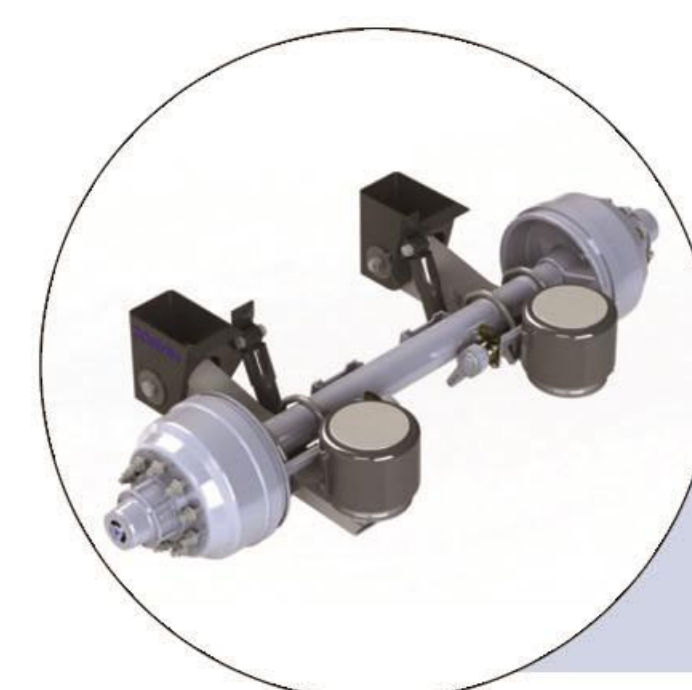
American type suspension Φ60,Φ70



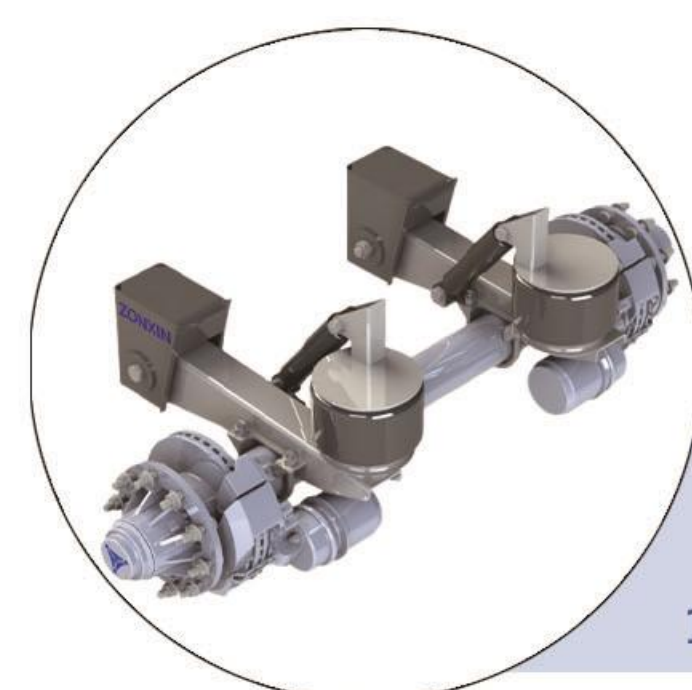
bogie suspension with axles 24T,28T,32T



American Type Air Suspension 13T,16T



Underslung Air Suspension 13T



South American air suspension 13T-Mexico, Brazil



F-L type welded beam air suspension 13T



German type air suspension 10T, 12T, 13T



Mechanical suspension lift device, large airbag lift device



F-Z type welded beam air suspension 13T



Light-duty American type air suspension



Light-duty German type air suspension



Oil Lubricated axle 13T, 16T



Trailer axle with square tube □150 / round tube Φ127



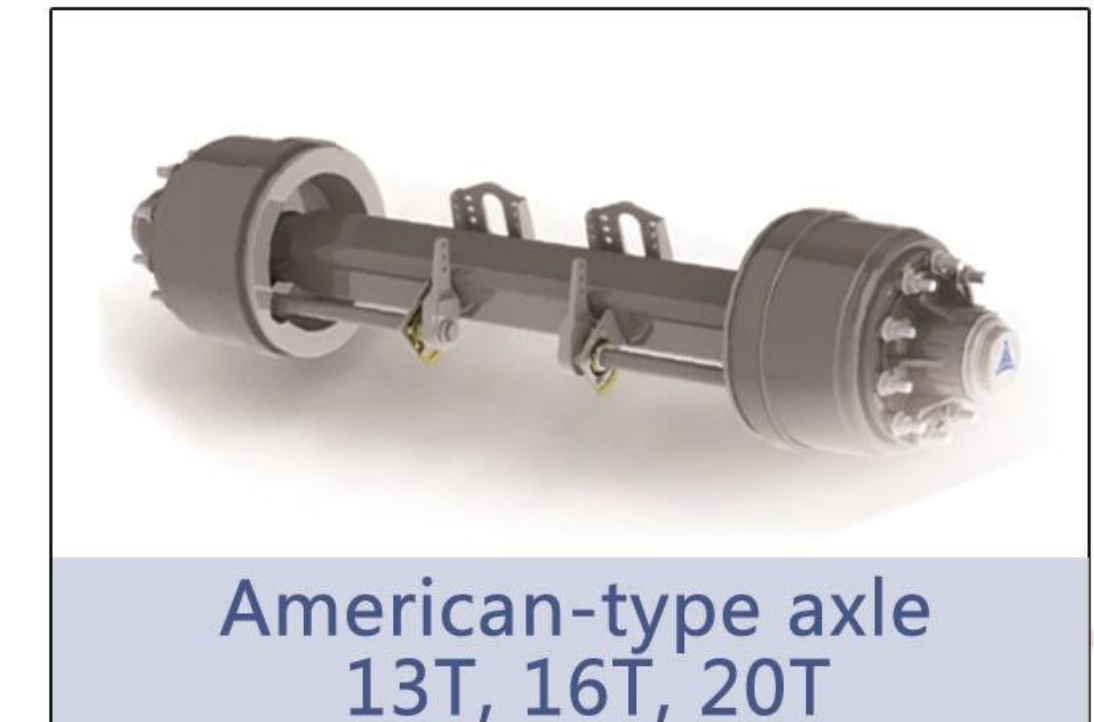
Underslung axle 11.5T



Disc brake axle 12T, 13T



Bent axle / low center axle 11.5T, 13T



American-type axle 13T, 16T, 20T



German-type axle 12T, 14T, 16T



Japanese-type axle 12T, 14T, 16T



spoke axle 12T, 13T, 14T, 16T

Leaf Spring Suspension

High-quality Steel
Each batch of materials undergoes spectral analysis and tensile testing

800T stamping line
High-tonnage double-sided integrated stamping ensures product flatness and consistency.

Robot welding line
Welding causes minimal deformation and has high efficiency, ensuring product dimensions and geometric tolerances.

Laser Cutting
6000W high power, highly efficient and precise; edges are smooth and burr-free with good consistency.

Structural advantages
Simple structure, good shock absorption, and low noise

Assembly production line
Press and torque arm tooling installation improves product fit clearance by 1-2 precision levels.

Casting production line
Raw material inspection, pre-furnace testing, casting and tempering heat treatment, metallographic examination, tensile testing, internal structure inspection, mechanical property testing

Good passability
Minimum longitudinal clearance diameter: 1291 mm Longitudinal step height clearance: 330 mm Vertical pit clearance width: 940 mm*

Rubber components
High load capacity, high reliability, lightweight, no lubrication required, maintenance-free, easy to repair

Air Suspension

High-quality steel
Each batch of material undergoes spectrochemical analysis and tensile testing.

800T stamping line
High-tonnage double-sided integrated stamping ensures product flatness and consistency.

Robot welding line
Welding causes minimal deformation and has high efficiency, ensuring product dimensions and geometric tolerances.

Laser Cutting
6000W high power, highly efficient and precise; edges are smooth and burr-free with good consistency.

Shot blasting, painting, and drying line
The water-based eco-friendly paint is applied evenly, has strong adhesion, dries quickly, and shows no sagging.

Air Spring
High-strength rubber, fatigue and corrosion resistance, ensuring long-term safe and stable performance under high-frequency and harsh environments.

Shock absorber
Precise damping, durable and fatigue-resistant, excellent sealing with leak-free performance in high and low temperatures.

Casting production line
Raw material inspection, pre-furnace testing, casting and tempering heat treatment, metallographic examination, tensile testing, internal structure inspection, mechanical property testing

Assembly production line
Press and torque arm tooling installation improves product fit clearance by 1-2 precision levels.

Axle

600T rolling production line
Double-sided simultaneous rolling, increased thickness and strength, high precision, stable quality, high output

Assembly production line
Nut tightening machine: uniform torque Bearing adjustment machine: consistent and uniform clearance

Fatigue testing
Each batch tested, fatigue life over 1 million cycles

Robotic welding
Simultaneous dual-side robotic welding; uniform welds, low distortion, smooth and strong

Medium-frequency induction quenching
Quenching at 6 bearing and seal points, high hardness, wear resistance, long service life

Wheel hub assembly
Grease-lubricated and oil-lubricated series, maintenance-free for 500,000 km

Tempered quenching
Full-body quenching and high-temperature tempering, uniform composition, hardness, and toughness throughout

Braking system
Brake drum: enhanced with Cu alloy for superior wear resistance Friction lining: contains graphite and modified nitrile rubber powder, heat and wear resistant Brake disc: adding Cn and Cr stabilizes pearlite to improve strength, Mo refines graphite and improves toughness

Automated CNC machining
Dual-end boring and turning, consistent dimensions, high efficiency and precision