



### Alloy Steel Silica Sol Investment Casting Buffers

Ningbo Zhiye Mechanical Has more than 11 years of experience in alloy steel silica sol investment casting buffers of chromium, nickel or molybdenum to the carbon to enhance harden-ability and toughness. Low-alloy steels are most commonly used for components in the oil and gas, and pump and valve industries, but are also suitable for military vehicles and earth-moving and construction equipment.

## Product Description

Zhiye Mechanical is one of the famous China Alloy Steel Silica Sol Investment Casting Buffers manufacturers and Alloy Steel Silica Sol Investment Casting Buffers suppliers. Our factory specializes in manufacturing of Alloy Steel Silica Sol Investment Casting Buffers.

Material:Alloy Steel

Technique:Silica Sol Investment Casting

Gross Weight:0.5KG

Application Area:Automobile

Product Name:Alloy Steel Casting

Anti-Rust:with anti-rust water

Heat treatment:As Cast,Is

Fire, Tempering, Annealing, Quenching, Carburizing, Permeability, Thermal Refining, Hardening are available.

Ningbo Zhiye Mechanical Components Co.,Ltd. Has more than 11 years of experience in Low-alloy steels contain specified amounts of chromium, nickel or molybdenum to the carbon to enhance harden-ability and toughness. Low-alloy steels are most commonly used for components in the oil and gas, and pump and valve industries, but are also suitable for military vehicles and earth-moving and construction equipment. Common elements added carbon steels are Nickel (Ni), Chromium (Cr) and Molybdenum (Mo). Nickel is added to resist corrosion and provide strength, stability and toughness. Chromium is added to resist wear and corrosion and help the steel to increase strength and harden-ability. Molybdenum is added to withstand temperatures and elevate the strength and harden-ability of the steel. And seeking affordable automobile steel casting manufacturers in China? Please do not hesitate to contact us.

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Ningbo Zhiye Mechanical Components Co.,Ltd. produce alloy steel castings according to customer designs when applications require enhanced properties. The alloy steel castings we provide include Inconel X750, B367 GR2 Ti, SKD11, 4140, 4340, A487 4A, Zinc Alloy #3, etc. These castings are used in construction, oil&gas, fire safety, heavy vehicles, power generation equipment, automotive, meter components and other industrial applications. Alloy steel is the steel added to carbon with numerous elements to enhance the properties, such as manganese, nickel, chromium, molybdenum, vanadium, silicon, cobalt, titanium, etc.

The added alloys help increase hardenability, machinability, high or low-temperature stability, ductility, toughness, wear resistance, weldability or corrosion resistance. Heat treatment can help to improve some of these properties on castings. All our engineering, quality and sales team evaluate how to achieve customer specifications based on manufacturing capability, machining equipment, supply chain resources and long-term material supply, etc. Through full communication with the customer, we build up working

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model beneficial to customer's competitive advantages. We cast these alloy steel castings in investment casting, sand casting and die casting, according to the customer designs.

- Part size we produce: Investment casting - 300 x 300 x 270mm; Sand casting – 2” ~ 12” flow way size
- Part weight we produce: Investment casting – 10g ~ 30Kgs; Sand casting – 20Kgs ~ 500Kgs
- Material Grades we produce: X750, B367 GR2/5 Ti, SKD11, 4130, 4140, 4340, A487 4A/C/D and Zinc Alloy #3
- Mechanical Properties: strength, toughness, ductility, weldability, durability, wear resistance, machinability, etc.

### Production Procedures Of Investment Casting (Lost-Wax Casting):

- Tooling Die (tooling design and tooling making)
- Wax Mold (wax injection and tree assembly)
- Shell Mold (dipping & stuccoing, drying and de-wax)
- Pouring (shell mold sintering and metal liquid pouring)
- Casting (air cooling, shake out, cutting, ingate grinding and sand blasting)

### Subsequent Operations And Treatments

- Heat treatment (normalization, quenching, tempering, etc.)
- Machining (high precision machining including turning, milling, drilling, etc.)
- Plating (zinc, nickel, chrome plating, etc.)
- Coating (thermal spraying, etc.)

### Applications

- Energy: oil&gas (midstream piping valves), power generation equipment
- Automotive: heavy-duty vehicle components
- Construction: building hardware, fire safety device
- Others: meter components, structural components, tool die

### Purchase Information

- L/T (Lead Time for Samples and Mass Production): please confirm with contact sales for the best shipping schedule.
- MOQ (Minimum Order Quantity): depending on design and specifications (to be confirmed)
- MTR (Material Test Report): Mill Certificate + Inspection Report + Others Per Customer's Requests (to be confirmed)
- Shipping Term: FOB
- For specific custom requirements such as special designs, inspection standards or materials, please contact our sales representatives for further details.

### Product Description:

Material	Carbon steel, Alloy steel, stainless steel, cast iron, aluminum alloy, copper alloy
Process	Lost wax casting + cnc machining

Casting dimension tolerance	CT7-CT8
Casting surface roughness	Ra 12.5um
Casting weight range	0.1-100kg
Casting Size	Max linear size:1200mm, Max diameter size: 600mm
Machining Precision	Positioning accuracy 0.008mm, Rep. position. accuracy 0.006mm
Machining surface roughness	Ra0.8~6.3um
Max Travel Of Spindle	1800mmx850mmx700mm
Max Turning Diameter	1000mm
Material standard	GB, ASTM, AISI, DIN, BS, JIS, NF, AS, AAR.....
Surface treatment	KTL(E-coating), Zinc plating, Mirror Polishing, Sand Blasting, Acid pickling, black oxide, Wet Painting, Hot galvanizing, Powder coating, Nickel plating, Anti rust dip
Service available	OEM & ODM
Quality control	0 defects,100% inspection before packing
Application	Train & railway, automobile& truck, construction machinery, forklift, agricultural machinery, shipbuilding, petroleum machinery, construction, valve and pumps, electric machine, hardware, power equipment and so on.

## APPLICATION SCENARIO



### Product Profile:

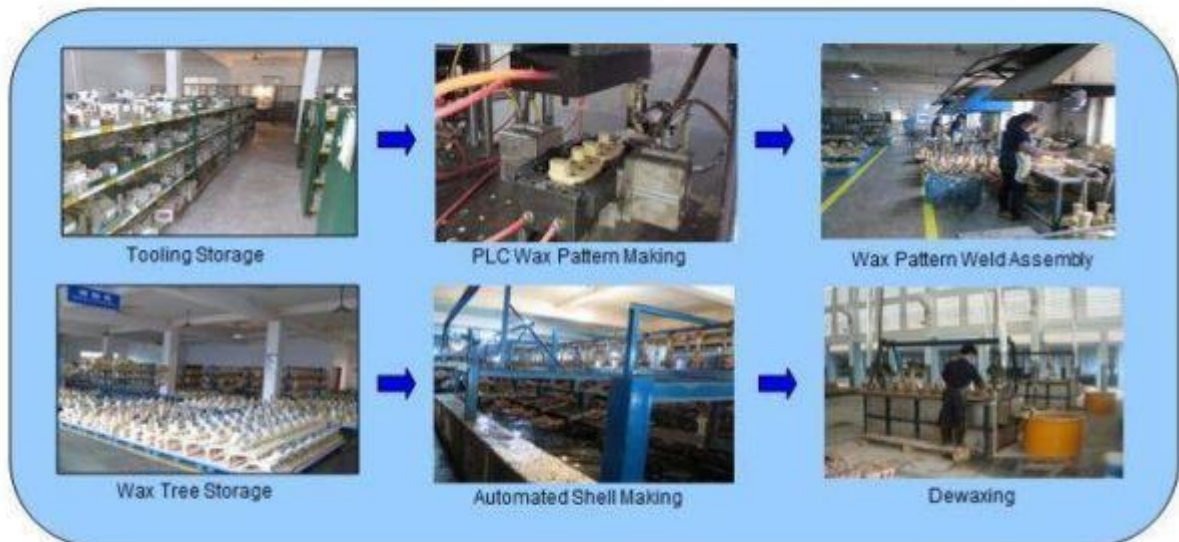
1. Marterial percentage	alloy steel:45% carbon steel:35% stainless steel:10% iron:10%
2. Casting weight percentage	0.1-5kg:40% 5-20kg:30% 20-40kg:20%

	above 40kg:10%
3. Industry percentage	Components for Rail: 15% Components for automobile: 25% Components for construction equipment: 20% Components for Material Handling Equipment:20% Components for agricultural machinery: 10% Other machinery components: 10%
4. Global market share	United States:30% Europe:35% Japan& Korea:15% Domestic market:15% Other:5%
5. Production capacity	Production Capacity: 20,000 tons / year The Current Production Output: 15,000 tons / year Open Capacity Percentage: 25%

### Manufacturing Process:

Process design ⇒ Tooling making ⇒ Wax injection ⇒ Wax pattern assembly ⇒ Mold preheat ⇒ Wax removal ⇒ Stuccoing ⇒ Dipping Casting ⇒ Mold shake out ⇒ Work piece cut-off ⇒ Grinding ⇒ Pack& transport ⇒ Final inspection ⇒ Machining ⇒ Heat treatment

#### MANUFACTURING PROCESS - INVESTMENT CASTING



MANUFACTURING PROCESS - INVESTMENT CASTING



MACHINE SHOP PROCESS OVERVIEW



Machining Centers (A)



Machining Centers (B)



Machining Centers (C)



CNC Machines (A)



CNC Machines (B)



CNC Machines (C)

## MACHINE SHOP PROCESS OVERVIEW



CNC Milling



Common Machine Area



Drilling & Milling



Final Quality Inspection(A)



Final Quality Inspection(B)



Final Quality Inspection(C)

## KEY CASTING EQUIPMENT



PLC Wax Pattern Machine



Automatic sand shooting machine



Automated Shell Making  
Production Line



Roasting Furnace



Semi-Automatic Pouring



Coreless Medium Free  
Induction Furnace



KEY CASTING EQUIPMENT



Pouring production line of shell molding



Shot Blast - Sand Cleaning



Automated Shot Blast



Mesh Belt HT Furnace



Chamber HT Furnace



Hydraulic Press

KEY MACHINING EQUIPMENT / MACHINE DETAIL



Turning Centre  
(PUMA 3050M)



Doosan Horizontal Machine Center  
(HM 635 II)



Machine Center  
(DNM5706)



Machine Center  
(VMC-188BL)



Machine Center (V10)



Machine Center (V12)

KEY MACHINING EQUIPMENT / MACHINE DETAIL



Machine Center  
(MVL-1400)



Machine Center  
(MVL-1200)



Machine Center  
(VEP-40A)



Vertical CNC  
Milling(XKA5032)



CNC Milling  
(XK5032)



Oblique Guide CNC Lathe  
(JH-CK6450)

KEY MACHINING EQUIPMENT / MACHINE DETAIL



CNC Lathe (CAK63135N)



CNC Lathe (CK6180)



CNC Lathe (CK64100F)



CNC Lathe (C2-50HK-1)



Special Lathe(A)



Radial Drilling Machine  
(Z305X16-1)

KEY MACHINING EQUIPMENT / MACHINE DETAIL



CNC Drilling Machine (ZHK35S)



Four-station Deep Hole Drilling Machine (VDH4-300)



Four Holes Drilling Special CNC Lathe (ZK4070D)



Turning milling center (CXF520-G)



Drilling and tapping center (TH550)

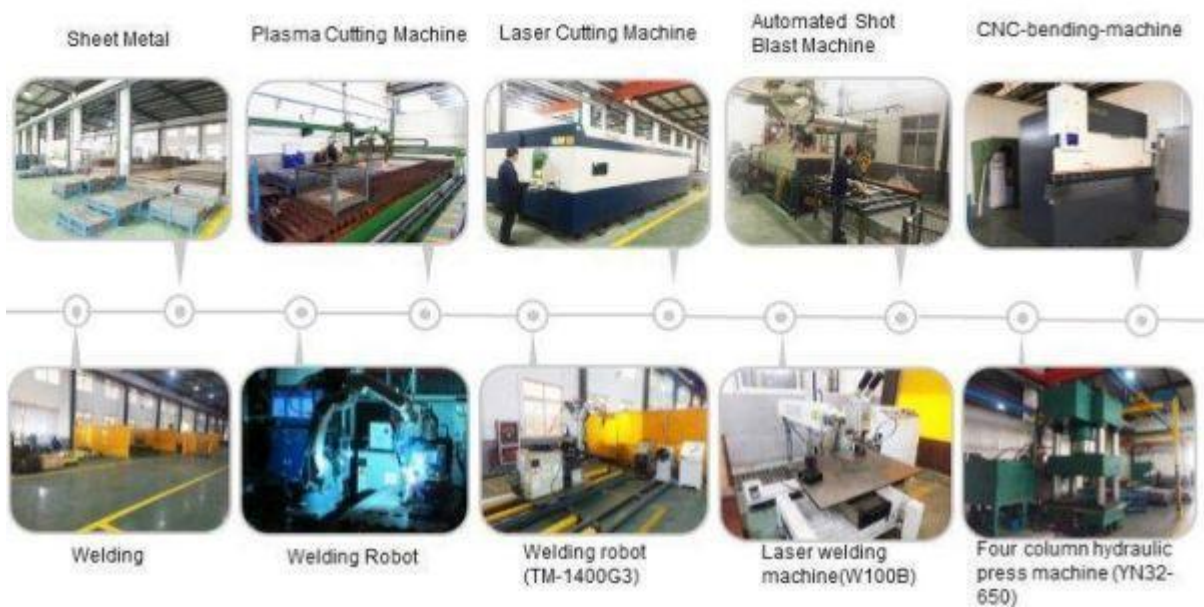


Ultrasonic cleaning drying machine (PR-8-180TG)

ADVANCED MACHINING TECHNOLOGY



OTHER PRODUCTION CAPABILITIES



Major Machining Equipment List:

Machining Capabilities	
Turn Center 3 Axis: 1	CNC Lathe: 35
Vert Machine Cntr 4 Axis: 49	Oblique Guide CNC Lathe: 2
Horizontal Machine Cntr 4 Axis: 1	Engne Lathe: 6

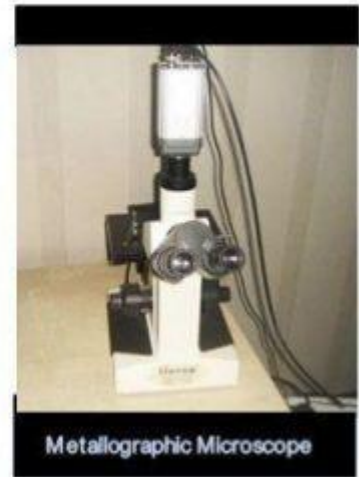
CNC Milling: 10	Special Lathe: 5
Vert Lift Milling : 4	Radial; Drilling : 4
Universal Milling : 2	CNC Porous Drilling : 6
Plane Milling : 2	Special CNC Drill Lathe : 6
Face Milling: 3	Cylindrical Drilling: 11

**We provide various test facilities as mentioned under:**

1. Chemical analysis
2. Tensile strength
3. Elongation rate
4. Shrinkage rate
5. Impact test
6. Harness test
7. Metallography
8. Non-destructive tests(including dye-penetrant, ultrasonic, magnetic particle and radiography)
9. Surface roughness test
10. CMM test
11. Chemical & Mechanical
12. 3D Scanning
13. Yield Strength
14. Dimensional
15. Microscopic Measurement

**Key Testing Equipment:**

TEST FACILITIES CAPABILITIES



TEST FACILITIES CAPABILITIES



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TEST FACILITIES CAPABILITIES



**APQP and Inspection Report:**

- APQP-Casting
- 1. Process Flow Diagrams
- 2. Control Plan
- 3. Process FMEA
- 4. Casting Process Instruction
- 5. Solidification Simulation
- 6. Heat Treatment Work Instruction
- 7. Casting Final Quality Control WI

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8. Visual Inspection VI For Surface Irregularities	
APQP-Machining	
<ol style="list-style-type: none"> <li>1. Process Flow Diagrams</li> <li>2. Control Plan</li> <li>3. Process FMEA</li> <li>4. Machining Process Instruction</li> <li>5. Gauge List And Validation Plan</li> <li>6. Final Quality Control Work Instruction</li> </ol>	
Inspection Report-Casting	
<ol style="list-style-type: none"> <li>1. Material Test Report(A)]</li> <li>2. Material Test Report(B)</li> <li>3. Magnetic Particle Inspection Report</li> <li>4. Ultrasonic Examination Report</li> <li>5. Radiographic Test Report</li> <li>6. Destructive Test Report</li> <li>7. Coating Test Report</li> <li>8. Visual Inspection Report</li> <li>9. Casting Inspection Report</li> </ol>	
Inspection Report-Machining	
<ol style="list-style-type: none"> <li>1. Dimensional Inspection Report(A)</li> <li>2. Dimensional Inspection Report(B)</li> <li>3. CMM Report</li> </ol>	
Other Quality Document	
<ol style="list-style-type: none"> <li>1. PPAP Checklist</li> <li>2. Measurement System Analysis Study</li> <li>3. Process Capability Studies</li> <li>4. Corrective Action Report(8D)</li> <li>5. Packaging Instruction</li> </ol>	

### Competition advantages:

<p>Advantages 1:High Engineering and Technical Capability</p>	<ul style="list-style-type: none"> <li>· An industry's senior engineering technical team , with special skills and rich experience in product design, casting ,heat treating and machining fields.</li> <li>· Based on customer needs, in the beginning of product development, offer a solution of a casting design to optimize the product design, then reduce costs and creating the best value for the customers</li> <li>· Special Techniques Enable us to Be Competent with key processes at Wax Injection &amp; Shell Making when Manufacturing parts with sophisticated inner structure.</li> <li>· Use casting simulation analysis system software , try our best to to ensure the success of the one-time trial sample.</li> </ul>
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<p>Advantages 2: Advanced Inspection Equipment, Process &amp; Strong Quality Assurance Capacity</p>	<ul style="list-style-type: none"> <li>· Our testing equipments are not only advanced in the industry, and also has a very complete range, they are hardware guarantee to ensure us continue to provide high-quality products for our customers.</li> <li>· Always follow ISO9001 and TS16949 quality management systems, 5S and Kanban site management to guarantee of the quality.</li> <li>· IQC, IPQC and FQC quality management team to control all production processes effectively to prevent the generation of unqualified product.</li> <li>· Our casting ' PPM ≤7500 Machining ' PPM ≤1200</li> <li>· We stick to the quality management philosophy that “Starting from the customer needs and ending with their satisfaction, focusing on customer demands and exceeding their expectations”.</li> </ul>
<p>Advantages 3: Great Customer Service</p>	<ul style="list-style-type: none"> <li>· QIANHAO can provide customers with good service, our staff have abundant commercial experience, good language ability, and rich foundry and mechanical background. We are committed to providing customers with accurate, careful and speedy service. We are committed to providing customers with accurate, careful and speedy service.</li> <li>· Quotation, Quality Complaints and Email Response can usually be quickly and efficiently feedback within 48 hours.</li> <li>· We have carried out an information-based management which is driven by an ERP and PMC system, to ensure on time delivery rate: 95% and aiming for 99.9%.</li> </ul>
<p>Advantages 4: Powerful Deep-processing capability and commitment are important core competitive advantage different from others in the industry</p>	<ul style="list-style-type: none"> <li>· The machining and foundry facilities have independent management teams to maximize focus and skill sets</li> <li>· QIANHAO has completed a transformation and upgraded to a process focused manufacturer with expanded production capabilities and is committed to being a one stop solution for top-end markets</li> <li>· High technical expertise in machining, and casting with sheet metal, welding and assembling capabilities is the good choice for you.</li> </ul>

# PACKING&SHIPPING



## Trade assurance

- ◆ 100% Refund of trade assurance amount
- ◆ Maintain the time and quality of arrival
- ◆ Keep your transaction more safe





## FAQ

### **Q1:Where can I get product&price information?**

A1:Send us e-mail , we will contact you as we receive your mail.

### **Q2: How soon can I get samples?**

A2: Depending on your specific project, it usually takes 10 to 20 days.

### **Q3:How to enjoy the OEM services?**

A3:Usually, base on your design drawings or original samples, we give some technical proposals and a quotation to you, after your agreement, we produce for you.

### **Q4:Can you make machining parts based on our samples?**

A4:Yes, we can make measurement based on your samples to make drawings for machining parts making.

### **Q5: Is it possible to know how are my products going on without visiting your company?**

A5: We will offer a detailed production schedule and send weekly reports with digital pictures and videos which show the machining progress.