



## Casting Material: Stainless Steel SS321

SS321 is not a Casting Grade in ASTM A351 and A743 standard, just listed in ASTM A182 and ASTM A240. SS321 contains titanium for chromium carbide stabilization. Generally Ti will oxidize rapidly in the melt if exposed to air in typical sand/investment casting processes, but based on the little content, it's no problem in our Casting process.

We will follow the SS321 Casting material as below standard.

Similar Metal grade in different application:

UNS	Grade	BS	EN	DIN	DIN	JIS	China
S32100	321	321S31	58B	1.4541	X6CrNiTi8-10	SUS321	0Cr18Ni9Ti
S32109	321H	321S51	-	1.4878	X10CrNiTi8-10	SUS321H	1Cr18Ni9Ti

[www.castingquality.com](http://www.castingquality.com)

**ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications**

**ASTM A182 -Standard Specification for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service**

**SS321 Chemical Composition Requirements, %** [www.castingquality.com](http://www.castingquality.com)

Standard	Grade	UNS	C	Mn	P	S	Si	Ni	Cr	N	Ti
ASTM 182	F321	S32100	0.08	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0		0.70
	F321H	S32109	0.04-0.10	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0		0.70
ASTM A240	321	S32100	0.08	2.00	0.045	0.030	0.75	9.0-12.0	17.0-19.0	0.1	0.70
	321H	S32109	0.04-0.10	2.00	0.045	0.030	0.75	9.0-12.0	17.0-19.0		0.70

Grade F 321 shall have a titanium content of not less than five times the carbon content and not more than 0.70 %. [www.castingquality.com](http://www.castingquality.com)

Grade F 321H shall have a titanium content of not less than 4 times the carbon content and not more than 0.70 %. [www.castingquality.com](http://www.castingquality.com)

Grade SS321:  $(Ti \ 5 \times (C+N), \text{ MIN}, 0.70 \text{ max})$   
[www.castingquality.com](http://www.castingquality.com)

Grade SS321H:  $Ti \ 4 \times (C+N) \text{ min}, 0.70 \text{ max})$   
[www.castingquality.com](http://www.castingquality.com)





## SS321 Mechanical Test Requirements

Standard	Grade	UNS	Tensile Ksi	Tensile Mpa	Yield Ksi	Yield MPa	Elongation	Reduction	Hardness Brinel	Hardness Rockwell B
ASTM 182	F321	S32100	75	515	30	205	30	50	-	-
	F321H	S32109	75	515	30	205	30	50	-	-
ASTM A240	321	S32100	75	515	30	205	40.0	-	217	95
	321H	S32109	75	515	30	205	40.0	-	-	-

[www.castingquality.com](http://www.castingquality.com)

**SS321 Heat treatment process:** Solution treat and Quench, Heat to 1900°F [1040°C] minimum, hold for sufficient time to heat casting to temperature, quench in water or rapid cool by other means (Quenching cool below 500°F [260°C]) [www.castingquality.com](http://www.castingquality.com) [www.castingquality.com](http://www.castingquality.com)

**Manufacture process in Qingdao Casting Quality company:** Sand Casting, Precision Investment Casting (Lost Wax Casting).

### Why Choose SS321?

Sometime, SS321 is basic austenitic stainless steel 304 with Titanium content, but SS321 has better property in application in temperature up to 900°C. Titanium gives it greater inter-granular corrosion resistance; this grades perform well in the 425-900 °C range. 304L is not good for high temperature strength, mainly for resistance to intergranular corrosion.

As a professional casting manufacture, Qingdao Casting Quality Industrial pay much attention to the quality and technology, our products are much more casting and forging parts. We are mainly do Sand Casting, Investment Casting (Lost Wax Casting or Precision Casting) and Die Casting .Today, its products are marketed globally through many countries.

## Our Services

Casting Quality focus on Metal Parts industry, we provide professional service in Metal Casting field.

1. Sand Casting
2. Investment Casting
3. Shell Casting
4. CNC Machining
5. CAD Design
6. Tools/Mold Design



Many buyers from all over the world purchase products from China. But do you know the quality of products in China? Maybe you only pay the surface and price, but the inner quality is lost.

Housing Casting Design in Solidworks

## What makes Casting Quality the best?

### Innovation

Our engineers are more than just designers...they're pioneers. Our team use CAD/CAM to do the simulation of casting parts .Through the advanced technology, we can know the weight and structure. We also visited so many factories to know their difference and improve our products every year.

### Quality

We're obsessed with quality. Casting Quality constantly strives to exceed our customers' expectations in durability and performance. In fact, we will control the whole process from the original material to the finished parts , include the technology .Uniquely-designed Quality Control System focuses on ensuring four product goals: 1) Eligible Chemistry , 2) Hardness 3) Property and 4) Affordable Pricing. The result is the best casting products value in the industry.

### Service

We're in Qingdao,China, It has convenient transportation of road and sea. Courteous service is part of who we are, and we do it better than anyone in the industry. With Casting Quality you can expect friendly, knowledgeable, and prompt customer service.

### Fulfillment

Shipping orders complete and on-time is of paramount importance to our customers. We will count the delivery date and result before accept your order. Casting Quality consistently ranks as one of the best in speed of delivery and fill rates.

### ***SERVICE IN QINGDAO CASTING QUALITY INDUSTRIAL***

- I SAND CASTING**
- I INVESTMENT CASTING**
- I SHELL CASTING**
- I PERMANENT MOLD CASTING**
- I CNC MACHINING**
- I CAD/CAM DESIGN**



# Casting Quality





## Introduction

As professional supplier of castings in China, Qingdao Casting Quality Industrial Co., Ltd provide our clients perfect solution in metal industry. We focus on providing service and quality exceeding customer's expectation, at highly competitive prices.

The production process includes sand casting, investment casting, die casting, lost foam casting, centrifugal casting and permanent casting. Today, its products are marketed globally through many countries.

Why Choose Casting Quality As Your Partner?

### **Integrity**

We will honestly inform our clients of our capacity and quality level. All clients have the right to get the actual details including production process, quality, shipment and defects. The honesty will be benefit to both parts.

### **Innovation**

Our engineers are more than just designers. They are pioneers. Our team use CAD/CAM to make the simulation of casting parts. Through the advanced technology, we can know the weight and structure. We also visit many other factories to know the differences and to improve our products every year.

### **Quality**

We are obsessed with quality. Casting Quality constantly strives to exceed our customers' expectations in durability and performance. In fact, we will control the whole processes from the original material to the finished parts, Uniquely-designed Quality Control System focuses on ensuring four product goals: 1) Eligible Chemistry, 2) Hardness 3) Mechanical Property and 4) Affordable Pricing.

### **Service**

We are located in Qingdao, China, The transportation is convenient for both road and sea. Courteous service is part of who we are, and we do it better than anyone in the industry. With Casting Quality you can expect friendly, knowledgeable and prompt customer service. Shipping orders complete and on-time is of paramount importance to our customers. We will count the delivery date and result before accepting your order .Casting Quality consistently

# INTEGRITY

# QUALITY

# INNOVATION



## Sand Casting

Sand casting is divided into many types: GREEN SAND CASTING, RESIN SAND CASTING AND SODIUM SILICATE BONDED SAND CASTING. Green sand casting is the lowest cost method to get a product, whose surface finish is not good too. Resin sand casting will get a good surface and precision dimensions, so it is widely used in automobile industry.

Casting Quality Industrial mainly cast Gray Iron, Ductile Iron, Malleable Iron, Wear Resistant Cast Iron, Carbon Steel, Stainless Steel, Brass/Bronze and Aluminum.

Unit weight range from 100g to 20tons.



## Investment Casting

As highly versatile casting process, Investment Casting has for some time been perceived as a comparatively expensive process. But when compared to alternative processes which require extensive welding or machining, an investment cast component can often dramatically reduce overall part production costs.

Casting Quality Industrial would adapt three investment casting methods to reach our clients' quality requirement: Water Glass (Colloidal Silica-sodium), Silica Sol technology; or Colloidal Silica-sodium Silicate Compound. Water Glass technology is the worst quality but cheapest. Silica Sol technology is the best quality but most expensive. We will analyze the usage and drawings tolerance to choose an economic method.

Unit weight range from 1g to 100Kgs.





## Centrifugal Casting

Centrifugal Casting mainly produce the pipes or pipe figure products , such as ductile iron pipe , cast iron soil pipe , glass roller , Furnace Roller and radiant



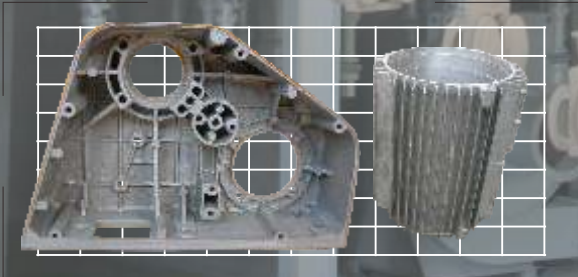
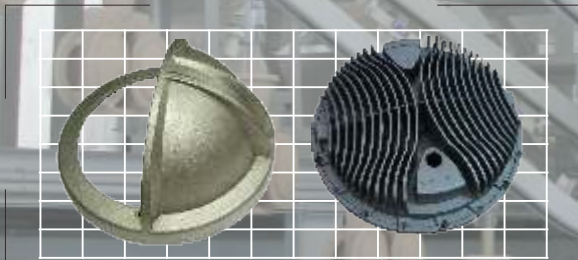
## Lost Foam Casting

Lost-foam casting (LFC) is a type of evaporative-pattern casting process that is similar to investment casting except foam is used for the pattern instead of wax. This process takes advantage of the low boiling point of foam to simplify the investment casting process by removing the need to melt the wax out of the mold. Casting Quality Industrial only supply ductile iron or steel parts by lost foam casting method, such as valve body, impeller, pipe fittings, electrode and simply figure parts .



## Die Casting

Die casting is a metal casting process that is characterized by forcing molten metal under high pressure into a mold cavity. Die Casting is generally use to make aluminum and zinc alloy parts.



## Permanent Casting

permanent casting and low pressure casting, Casting Quality only used to make aluminum castings, permanent casting can get a better surface and dimensions than sand castings, low pressure casting can get a stably structure which are suitable to the endure pressure parts.

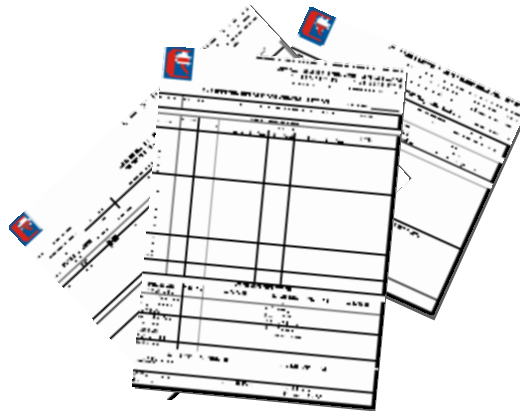




## Quality Control

Experienced inspection team of Casting Quality conducts the entire quality control procedure from raw material to finished products. All inspectors are well trained and have rich product knowledge & inspection experiences.

- \* Raw Material Control.
- \* Chemistry Spectrum Analysis
- \* Mechanical Property
- \* Metallographic Analysis
- \* Ultrasonic Testing
- \* Magnetic Testing.
- \* Radiographic Testing.
- \* Dimension Inspection.
- \* Visual Inspection
- \* Dimension Checking
- \* Chemical Analysis
- \* Penetrant Testing
- \* Leak Testing
- \* Hardness Test







**Valve & Fittings**



**Marine Fittings**



**Automobile Parts**



**Accessories**

## Qingdao Casting Quality Industrial Co., Ltd.

Add: Room 0329, No. 51 Taiping Road, Qingdao City, Shandong Province, China (P.O.: 266002)

Tel: +86 532 82972996

Fax: +86 532 82972913

Website: [www.castingquality.com](http://www.castingquality.com)

Mail: [mark@castingquality.com](mailto:mark@castingquality.com)