



## Stainless Steel GX4CrNi13-4 (EN 1.4317)

GX4CrNi13-4 is one type martensitic stainless steel casting grade with 12 Chromium and 4 Nickel in casting standard of EN 10283. It's same as stainless steel CA6NM (UNI J91540) in ASTM A743, ASTM A352 and ASTM A487 standard. It's one "400" series Martensitic Chromium Nickel stainless steel with general high strength corrosion resistant. [castingquality.com](http://www.castingquality.com)

### Casting Methods in Casting Quality Industrial:

- n Sand Casting
- n Investment Casting (Lost Wax Casting, Precision Casting)

### Similar Stainless Steel Grade: [www.castingquality.com](http://www.castingquality.com)

- ASTM A352 Grade CA6NM, UNS J91540.
- ASTM A743 Grade CA6NM, UNS J91540.
- ASTM A487 Grade CA6NM, Class A.
- ASTM A487 Grade CA6NM, Class B.
- ASTM A757 Grade E3N.

### Reference Casting Standards:

- DIN EN 10283 - Corrosion resistant steel castings; German and English version pr EN 10283:2018
- BS EN 10283:2019 Corrosion resistant steel castings

### GX4CrNi13-4 (EN 1.4317) Physical Properties:

- Density: 7.7 kgs/dm<sup>3</sup>
- Specific heat: 460 J(kg-k) at 20 °C
- Thermal conductivity: 26 W/(m-K) at 50 °C  
27 W/(m-K) at 100 °C
- Mean thermal expansion: 10.5 10<sup>-6</sup>k<sup>-1</sup> from 20°C up to 100°C  
11 10<sup>-6</sup>k<sup>-1</sup> from 20°C up to 100°C  
12 10<sup>-6</sup>k<sup>-1</sup> from 20°C up to 100°C

### GX4CrNi13-4 (EN 1.4317) Chemistry Property:

EN 10283		GX4CrNi13-4 (1.4317) Chemical Composition / Physical Properties % (max, except where range is given)							
Name	Number	Carbon	Manganese	Silicon	Sulfur	Phosphorus	Chromium	Nickel	Molybdenum
GX4CrNi13-4	1.4317	0.06	1.00	1.00	0.025	0.035	12.0-13.0	3.50-5.00	0.70

### GX4CrNi13-4 (EN 1.4317) Heat treatment process: [www.castingquality.com](http://www.castingquality.com)

Quenching and solution annealing, per different requirement, Three heat treatment processes are required in EN 10283: QT1, QT2, QT3





## GX4CrNi13-4 (EN 1.4317) Stainless Steel Mechanical Property

Stainless Steel Grade		Heat Treatment			Thickness mm	Test At room temperature			
Name	Number	Symbol	Quenching (+Q) or Sol Annealing (+AT)	Tempering (+T)		Tensile Test, min			Impact Test
					Rp0.2 MPa	Rm MPa	A %	Temperature °F [°C]	
GX4CrNi13-4	1.4317	+QT1	1000-1050	590-620	300	550	760	15	50
		+QT2	1000-1050	500-530	300	830	900	12	35
		+QT3	1000-1050	660-680 560-620	300	500	700	16	50

- +Q means: Quenching in air or liquid.
- +AT means: Solution annealing + quenching in water.
- 1MPa = 1 N/MM<sup>2</sup>.

### GX4CrNi13-4 Welding conditions:

Preheated temperature 20 to 200 °C, post weld heat treatment need temper heat treatment.

### GX4CrNi13-4 Typical Casting Application

- | Pump Castings.
- | Valve Castings.
- | Water Turbines castings: Francis Blade, Runner Crown, and Wicket Gates.
- | Heat Exchanger System.





## Cast Stainless Steel **GX4CrNi13-4** VS **CA6-NM** VS **E3N**

GX4CrNi13-4 is same as CA6-NM in final application, it's chemistry is similar.

Stainless Steel Grade		Chemical Composition / Physical Properties % (max, except where range is given)							
Standard	Grade	Carbon	Manganese	Silicon	Sulfur	Phosphorus	Chromium	Nickel	Molybdenum
GX4CrNi13-4	EN1.4317	0.06	1.00	1.00	0.025	0.035	12.0-13.0	3.50-5.00	0.70
ASTM A352 A743 A487	CA6NM	0.06	1.00	1.00	0.04	0.03	11.5-14.0	3.5-4.5	0.4-1.0
ASTM A757	E3N	0.06	1.00	1.00	0.03	0.03	11.5-14.0	3.5-4.5	0.4-1.0

ASTM A487 Grade CA6NM (Class A or B) and ASTM A757 Grade E3N also require total content of residual elements 0.50 (Cu 0.50, W 0.10, V 0.05)

Stainless Steel Grade			Tensile Strength min		Yield Strength, min		Elongation, min	Reduction of Area, min	Hardness max	Impact Requirement Charpy V-Notch Ft-lbf [J]		
Standard	Grade	UNS	Ksi	MPa	Ksi	MPa	%	%	HB	Average	Single	Temperature ° F [°C]
ASTM A743	CA6NM	J91540	110	755	80	550	15	35	285	-	-	-
ASTM A352	CA6NM	J91540	110-135	760-930	80	550	15	35	-	20 [27]	15 [20]	-100 [-73]
ASTM A487	CA6NM Class A		110-135	760-930	80	550	15	35	-	-	-	-
ASTM A487	CA6NM Class B		100	690	75	515	17	35	255	-	-	-
ASTM A757	E3N		110	760	80	550	15	35	-	20 [27]	15 [20]	-100 [-73]



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 doing 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.

Sand Casting

Investment Casting

Shell Casting

CNC Machining

CAD Design

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**



# Material Data Sheet

Qingdao Casting Quality Industrial Co., Ltd

- I CNC MACHINING
- I CAD/CAM DESIGN

Metal Castings Service in China

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