GX2NiCrMoCuN25-20-6 (EN 1.4588) Austenitic Stainless Steel Casting Material

Introduction

GX2NiCrMoCuN25-20-6 (EN 1.4588) is an austenitic stainless steel casting grade specified in EN 10283. The standard covers corrosion-resistant castings for general purposes and defines the applicable delivery conditions and engineering requirements. Casting process options include Investment Casting, Shell Molding Casting and Sand Casting, subject to the applicable specification and component requirements.

Manufacturing Process

Investment Casting
Shell Molding Casting
Sand Casting

Equivalent Grades

CN3MN — ASTM A351 / ASTM A743 / ASTM A744[1]

Notes

[1] Source: ISO 11972:2023, Table A.1 (similar grade reference).

Reference Standards

Standard	Standard Title	Edition	Specification	Identifier
EN 10283	Corrosion resistant steel castings	2019	GX2NiCrMoCuN25-20-6	EN 1.4588
ISO 11972	Corrosion-resistant cast steels for general applications	2023	GX2NiCrMoCuN25-20-6	EN 1.4588

Physical Properties

EN 10283–2019

Property	Value	Note
Density	8.0 kg/dm3	Test at 20 °C
Specific Heat	500 J/(kg·K)	Test at 20 °C
Thermal Conductivity	15 W/(m·K)	Test at 50 °C
Thermal Conductivity	16 W/(m·K)	Test at 100 °C
Thermal Expansion	16.5 ×10?6/K	Temperature range: 20–100 °C
Thermal Expansion	17.5 ×10?6/K	Temperature range: 20–300 °C
Thermal Expansion	18.5 ×10?6/K	Temperature range: 20–500 °C

Chemical Composition

Element	EN 10283 Edition 2019 · wt.% Cast analysis	ISO 11972 Edition 2023 · wt.%
C	<= 0.025	<= 0.02
Si	<= 1.00	<= 1.0
Mn	<= 2.00	<= 2.00
P	<= 0.035	<= 0.035
S	<= 0.020	<= 0.020
Cr	19.00–21.00	19.0–21.0
Ni	24.00–26.00	24.0–26.0
Mo	6.00–7.00	6.00–7.00
Cu	0.50–1.50	0.50–1.50
N	0.10–0.25	0.10–0.25

Heat Treatment

EN 10283–2019 · +AT

Step	Operation	Temperature	Cooling
1	solution annealing	1200–1240 °C	water

ISO 11972–2023 · Solution treated

Step	Operation	Temperature / holding time	Cooling
1	solution treatment	1200–1240 °C; Holding time: >= 4 h	quench in water

Mechanical Properties

Property	EN 10283 Edition 2019[1]	ISO 11972 Edition 2023[2]
Yield Strength (Rp0.2)	>= 210 MPa	>= 210 MPa
Yield Strength (Rp1.0)	>= 235 MPa	— / Not specified
Tensile Strength	>= 480 MPa	>= 480 MPa
Elongation	>= 30 %	>= 30 %
Impact Energy	>= 60 J[3]	>= 60 J[4]

Notes

EN 10283 · Edition 2019

[1] All properties in this column: wall thickness <= 50 mm; Test block; maximum thickness 150 mm; Room temperature; Yield and tensile strength also apply to the casting up to the maximum specified wall thickness.

[3] Impact Energy: KV2 as specified in

ISO 11972 · Edition 2023

[2] All properties in this column: wall thickness <= 50 mm; Room temperature; Test blocks used to verify mechanical properties shall not exceed 150 mm thickness. Properties for samples removed from castings shall be agreed between manufacturer and purchaser.

[4] Impact Energy: Verification of impact tests is required only when indicated by the customer.

Welding Conditions

EN 10283–2019

Requirement	Value
Preheat	20–100 °C[1]
Interpass Temperature	<= 200 °C
Post-weld Heat Treatment	No post-weld heat treatment necessary[2]
Post-weld Heat Treatment	Solution annealing followed by water quenching[3]

Notes

EN 10283 · Edition 2019

[1] Preheat: Preheat depends on casting geometry, thickness and climatic conditions.

[2] Post-weld Heat Treatment: minor welds; Special arrangements may be agreed according to corrosion conditions. With low preheat and interpass temperatures (<=150 °C), post-weld heat treatment may be suppressed by agreement.

[3] Post-weld Heat Treatment: major welds; Air quenching may be agreed for very small, thin castings according to corrosion conditions.

Applications

Typical applications for this corrosion-resistant steel casting family include components exposed to corrosive environments in general engineering service.

Last Updated: 2026-10-16

Casting Quality Industrial

As a professional manufacturer in China, We Casting Quality focus on Metal Parts OEM industry, and provide solutions and services in Metal Casting field as following:

Sand Casting

Investment Casting, Lost Wax process

Shell Casting

Lost Form Casting

Permanent Mold Casting

CNC Machining

CAD Design

Tools/Mold Design

Material Supplied

Cast Iron Castings (Grey Iron, Malleable Iron, Ductile Iron)

Carbon Steel and Alloy Steel Castings

Stainless Steel and Duplex Stainless Steel Castings

Aluminum Castings

Bronze and Brass Castings

Titanium and Cobalt Alloy Castings

What We Can Do

Design Ability

Our engineers will help you to improve the designs based on casting technology, then The simulation software will be processed to verify the casting pouring system. Pro/E, Solidworks, AutoCAD and ProCast are available in Casting Quality Industrial.

Saving Cost

Some manufacture processes may lead high cost. We will analyses the designs and advise the suitable methods to our customers. The best solution will be adopted.

Quality Control

From the raw material selecting to bulk production processing, all procedures will follow PPAP program if necessary. The certificates will be provided including chemistry, hardness, mechanical property or NDT testing.

Production Capacity

The max iron/steel castings can reach 30tons in weight, meanwhile the minus casting is around 1gram only.

We also have prototyping and 3D scanning ability for sample plan.

Logistic Service

The products will be delivered directly to customer’s workshop, which will save plenty of work for clients.

Contact with Us Immediately:

Mark Wang

Email: mark@castingquality.com

WhatsApp: +861396488078

Website: www.castingquality.com

CASTING QUALITY