



GX20Cr14 (EN 1.4027) Martensitic Stainless Steel Casting Material

Introduction

GX20Cr14 (EN 1.4027) is a martensitic 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

N/A

Reference Standards

Standard	Standard Title	Edition	Specification	Identifier
EN 10283	Corrosion resistant steel castings	2019	GX20Cr14	—

Physical Properties

EN 10283–2019

Property	Value	Note
Density	7.7 kg/dm ³	Test at 20 °C
Specific Heat	460 J/(kg·K)	Test at 20 °C
Thermal Conductivity	29 W/(m·K)	Test at 50 °C
Thermal Expansion	10.5 ×10 ⁻⁶ /K	Temperature range: 20–100 °C
Thermal Expansion	11.5 ×10 ⁻⁶ /K	Temperature range: 20–300 °C
Thermal Expansion	12 ×10 ⁻⁶ /K	Temperature range: 20–500 °C

Chemical Composition

Element	EN 10283 Edition 2019 · wt.% Cast analysis
C	0.16–0.23
Si	≤ 1.00
Mn	≤ 1.00



Element	EN 10283 Edition 2019 · wt.% Cast analysis
P	<= 0.045
S	<= 0.030 ^[1]
Cr	12.50–14.50
Ni	<= 1.00
Cu	<= 0.30
V	<= 0.08

Notes

EN 10283 · Edition 2019

^[1] S: For regulated markets, sulfur content between 0.015 and 0.030 wt.% is recommended.

Heat Treatment

EN 10283–2019 · +QT

Step	Operation	Temperature	Cooling
1	quenching	950–1050 °C	air or liquid
2	tempering	650–750 °C	—

Mechanical Properties

Property	EN 10283 Edition 2019 ^[1]
Yield Strength (Rp0.2)	>= 440 MPa
Tensile Strength	>= 590 MPa
Elongation	>= 12 %

Notes

EN 10283 · Edition 2019

^[1] All properties in this column: wall thickness <= 150 mm; Test block; maximum thickness 150 mm; Room temperature

Welding Conditions

EN 10283–2019

Requirement	Value
Preheat	200–400 °C



Requirement	Value
Interpass Temperature	$\leq 400\text{ }^{\circ}\text{C}$
Post-weld Heat Treatment	Tempering at the same temperature as the base material

Applications

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

Last Updated: 2026-10-13

CASTING QUALITY



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.

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