



## GX2NiCrMoN25-20-5 (EN 1.4416) Austenitic Stainless Steel Casting Material

### Introduction

GX2NiCrMoN25-20-5 (EN 1.4416) 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

N/A

### Reference Standards

| Standard | Standard Title                     | Edition | Specification     | Identifier |
|----------|------------------------------------|---------|-------------------|------------|
| EN 10283 | Corrosion resistant steel castings | 2019    | GX2NiCrMoN25-20-5 | —          |

### Physical Properties

#### EN 10283–2019

| Property             | Value                     | Note                         |
|----------------------|---------------------------|------------------------------|
| Density              | 8.0 kg/dm <sup>3</sup>    | Test at 20 °C                |
| Specific Heat        | 500 J/(kg·K)              | Test at 20 °C                |
| Thermal Conductivity | 17 W/(m·K)                | Test at 50 °C                |
| Thermal Conductivity | 21 W/(m·K)                | Test at 100 °C               |
| Thermal Expansion    | 14.5 ×10 <sup>-6</sup> /K | Temperature range: 20–100 °C |
| Thermal Expansion    | 15.8 ×10 <sup>-6</sup> /K | Temperature range: 20–300 °C |
| Thermal Expansion    | 17 ×10 <sup>-6</sup> /K   | Temperature range: 20–500 °C |

### Chemical Composition



| Element | EN 10283<br>Edition 2019 · wt.%<br>Cast analysis |
|---------|--------------------------------------------------|
| C       | <= 0.030                                         |
| Si      | <= 1.00                                          |
| Mn      | <= 1.00                                          |
| P       | <= 0.035                                         |
| S       | <= 0.020                                         |
| Cr      | 19.00–21.00                                      |
| Ni      | 24.00–26.00                                      |
| Mo      | 4.50–5.50                                        |
| Cu      | <= 0.50 <sup>[1]</sup>                           |
| N       | 0.12–0.20                                        |

## Notes

### EN 10283 · Edition 2019

<sup>[1]</sup> Cu: Applies unless otherwise agreed; unspecified elements shall not be intentionally added without purchaser agreement except for finishing the heat.

## Heat Treatment

### EN 10283–2019 · +AT

| Step | Operation          | Temperature  | Cooling |
|------|--------------------|--------------|---------|
| 1    | solution annealing | 1160–1200 °C | water   |

## Mechanical Properties

| Property               | EN 10283<br>Edition 2019 <sup>[1]</sup> |
|------------------------|-----------------------------------------|
| Yield Strength (Rp0.2) | >= 185 MPa                              |
| Yield Strength (Rp1.0) | >= 210 MPa                              |
| Tensile Strength       | >= 450 MPa                              |
| Elongation             | >= 30 %                                 |
| Impact Energy          | >= 60 J <sup>[2]</sup>                  |

## Notes

**EN 10283 · Edition 2019**

<sup>[1]</sup> All properties in this column: wall thickness  $\leq 150$  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.

<sup>[2]</sup> Impact Energy: KV2 as specified in

**Welding Conditions****EN 10283–2019**

| Requirement              | Value                                                         |
|--------------------------|---------------------------------------------------------------|
| Preheat                  | 20–100 °C <sup>[1]</sup>                                      |
| Interpass Temperature    | $\leq 200$ °C                                                 |
| Post-weld Heat Treatment | Solution annealing followed by water quenching <sup>[2]</sup> |
| Post-weld Heat Treatment | Solution annealing followed by water quenching <sup>[3]</sup> |

**Notes****EN 10283 · Edition 2019**

<sup>[1]</sup> Preheat: Preheat depends on casting geometry, thickness and climatic conditions.

<sup>[2]</sup> Post-weld Heat Treatment: minor welds; Air quenching may be agreed for very small, thin castings according to corrosion conditions.

<sup>[3]</sup> 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.

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## 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:

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