

# 12Cr13

Chemical composition, mechanical and physical property values, and 1 standard designations from 1 regions.

|                                   |                                             |                                      |
|-----------------------------------|---------------------------------------------|--------------------------------------|
| ELASTIC MODULUS<br><b>200</b> GPa | OTHER DESIGNATIONS<br><b>1</b> in 1 regions | PROPERTY VALUES<br><b>12</b> on file |
|-----------------------------------|---------------------------------------------|--------------------------------------|

## Chemical composition

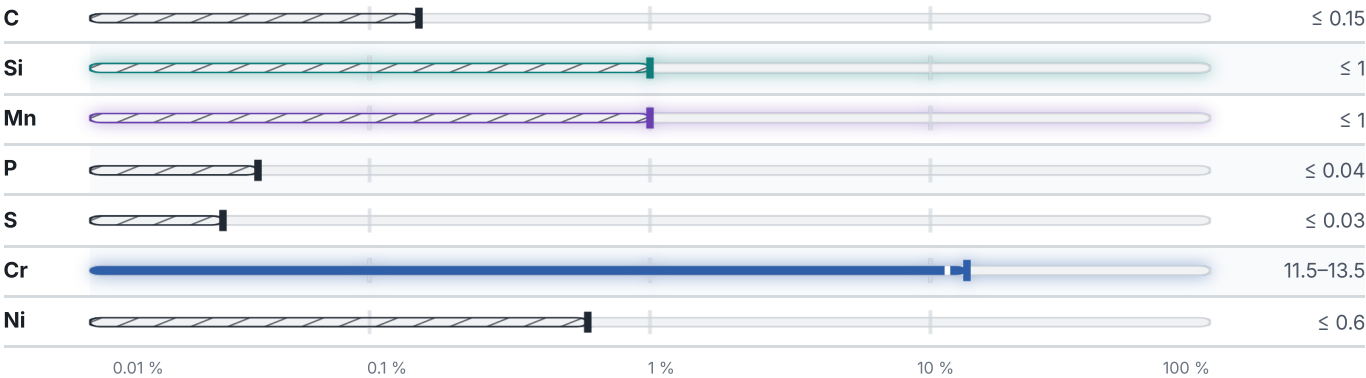
Mass fraction in %

What this alloy is



● Iron — the balance, never listed by a standard — 84.7 % ● Cr — 12.5 % ● Si — 1 % ● Mn — 1 % ● Traces & impurities · 0.8 %

Logarithmic scale, 0.01 % to 100 % — every value here compares directly, decade by decade.



The scale is logarithmic, not the element's raw share of the alloy — the only honest way to fit 0.01 % and 100 % in one picture, and it means every value here can be compared with every other.

## Predicted transformation temperatures

Not enough recorded composition to predict a transformation temperature for this grade — missing: Mo.

## Physical properties

5 values

| CONDITION · DIMENSION | E<br>GPa | ALPHA<br>10 <sup>^-6</sup> /K | LAMBDA<br>W/(m·K) | CP<br>J/(kg·K) |
|-----------------------|----------|-------------------------------|-------------------|----------------|
| 20                    | 215      | —                             | —                 | —              |

| CONDITION · DIMENSION         | E<br>GPa | ALPHA<br>10 <sup>-6</sup> /K | LAMBDA<br>W/(m·K)   | CP<br>J/(kg·K) |
|-------------------------------|----------|------------------------------|---------------------|----------------|
| 100                           | 212      | 10.5                         | 24.2                | —              |
| 200                           | 205      | 11                           | —                   | —              |
| 300                           | 200      | 11.5                         | —                   | —              |
| 400                           | 190      | 12                           | —                   | —              |
| 500                           | 180      | 12.2                         | 28.9                | 460            |
| PROPERTY                      | VALUE    |                              | UNIT                |                |
| Elastic modulus               | 200      |                              | GPa                 |                |
| Thermal expansion coefficient | 11       |                              | 10 <sup>-6</sup> /K |                |
| Thermal conductivity          | 30       |                              | W/(m·K)             |                |
| Specific heat capacity        | 460      |                              | J/(kg·K)            |                |
| Electrical resistivity        | 600      |                              | nΩ·m                |                |

## Heat treatment

8 regimes

| STEP                                                  | TEMPERATURE            | MEDIUM |
|-------------------------------------------------------|------------------------|--------|
| Annealing                                             | Temperature not stated | —      |
| Annealing                                             | Temperature not stated | —      |
| source joins the operations with + / procedural order |                        |        |
| Quenching                                             | Temperature not stated | —      |
| Tempering                                             | Temperature not stated | —      |
| source joins the operations with + / procedural order |                        |        |
| Quenching                                             | Temperature not stated | —      |
| Solution annealing                                    | 1040–1060 °C           | —      |
| Tempering                                             | Temperature not stated | —      |
| Ageing                                                | 680–780 °C             | Oil    |
| Quenching and tempering                               | Temperature not stated | —      |
| Annealing                                             | 780–850 °C             | —      |
| Annealing                                             | Temperature not stated | —      |
| Annealing                                             | 750 °C                 | —      |

Designations across standards

1 designations · 1 documented as identical

|                                           |    |
|-------------------------------------------|----|
| China                                     | 1  |
| 12Cr13 <span>This grade's own name</span> | gb |

**Note on use.** The data is compiled to the best of our knowledge from publicly available standards and manufacturer documentation. It replaces neither material testing nor an inspection document to EN 10204. Please request a mill certificate to EN 10204 2.1, 3.1 or 3.2 together with your enquiry. The standard in its current valid edition always prevails.

### Enquiry about 12Cr13

Quotation, availability, mill certificate or a technical question — directly on the material page.

[Start an enquiry](#)

| DATASHEET ONLINE                       | GRADE SEARCH                      | MATERIAL NO. | ISSUED       |
|----------------------------------------|-----------------------------------|--------------|--------------|
| <a href="#">View the material page</a> | <a href="#">Search all grades</a> | —            | Aug 15, 2026 |