

MATERIAL NUMBER 1.7709 · CLASS 1.7

# 21CrMoV5-7

## Material no. 1.7709

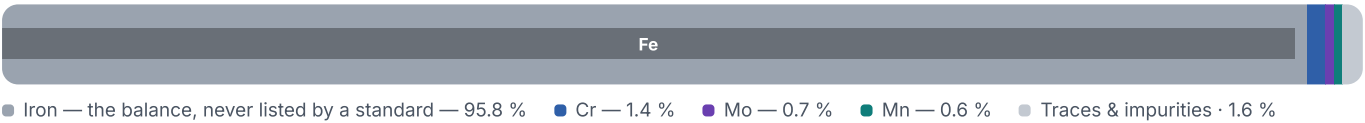
Chemical composition, mechanical and physical property values, and 14 standard designations from 7 regions.

|                              |                                              |                                      |
|------------------------------|----------------------------------------------|--------------------------------------|
| DENSITY<br><b>7.85</b> g/cm³ | OTHER DESIGNATIONS<br><b>14</b> in 7 regions | PROPERTY VALUES<br><b>18</b> on file |
|------------------------------|----------------------------------------------|--------------------------------------|

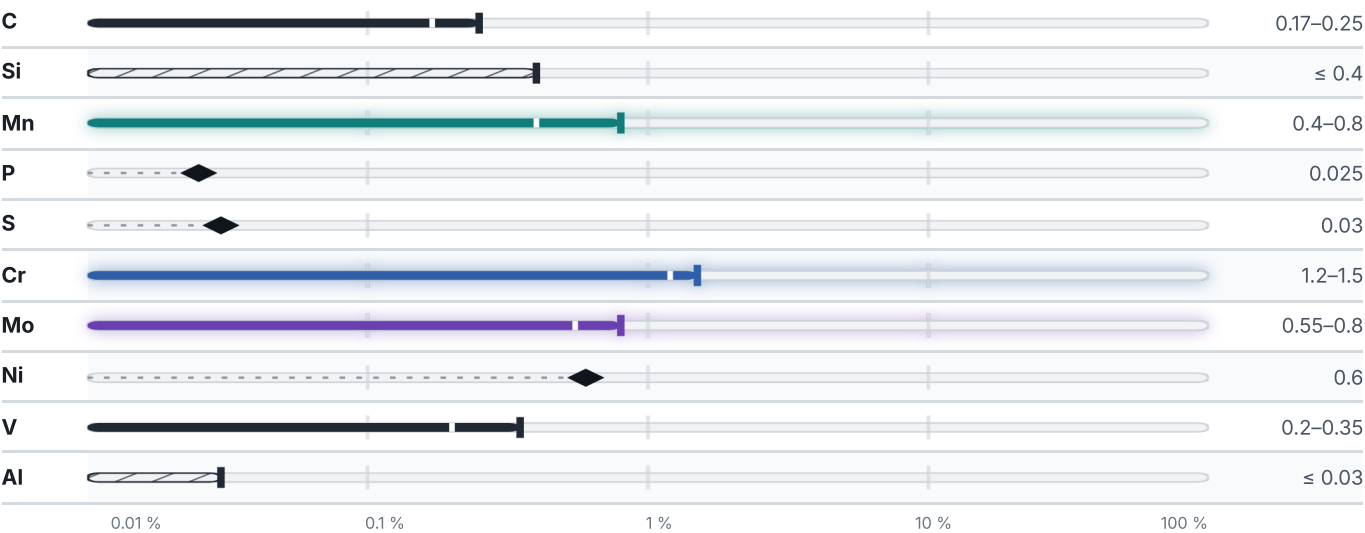
### Chemical composition

Mass fraction in %

What this alloy is



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

computed from composition · °C

|                                |                                |                                |                               |
|--------------------------------|--------------------------------|--------------------------------|-------------------------------|
| PREDICTED AE3<br><b>803</b> °C | PREDICTED AE1<br><b>747</b> °C | PREDICTED ACM<br><b>514</b> °C | PREDICTED BS<br><b>502</b> °C |
|--------------------------------|--------------------------------|--------------------------------|-------------------------------|

## Mechanical properties

14 values across 5 conditions

| CONDITION · DIMENSION                                        |                         |                         |         |        | HB                       |
|--------------------------------------------------------------|-------------------------|-------------------------|---------|--------|--------------------------|
| 25Kh1MF ( 25X1MΦ ) (quenching, tempering)                    |                         |                         |         |        | 241–321                  |
| 25Kh1MF ( 25X1MΦ ) (hot-rolled, annealing) , GOST 20072-74   |                         |                         |         |        | 229                      |
| ANNEALED TO ACHIEVE SPHEROIDIZATION OF THE CARBIDES          |                         |                         |         |        | HB                       |
| Annealed to achieve spheroidization of the carbides          |                         |                         |         |        | 229                      |
| TREATED TO IMPROVE SHEARABILITY                              |                         |                         |         |        | HB                       |
| Treated to improve shearability                              |                         |                         |         |        | 255                      |
| QUENCHING 880 - 900°C, OIL, DRAWING 640 - 660°C, COOLING AIR | RM<br>N/mm <sup>2</sup> | RE<br>N/mm <sup>2</sup> | A5<br>% | Z<br>% | KCU<br>kJ/m <sup>2</sup> |
| max thickness 25                                             | 880                     | 735                     | 14      | 50     | 590                      |
| CONDITION · DIMENSION                                        | RM<br>N/mm <sup>2</sup> | RE<br>N/mm <sup>2</sup> | A5<br>% | Z<br>% | KCU<br>kJ/m <sup>2</sup> |
| Bar, band, GOST 20072-74                                     | 780                     | 665                     | 16      | 50     | 590                      |

## Physical properties

8 values

| CONDITION · DIMENSION    | RHO<br>g/cm <sup>3</sup> | E<br>GPa | ALPHA<br>10 <sup>-6</sup> /K | LAMBDA<br>W/(m·K) | CP<br>J/(kg·K) | RHO_EL<br>nQ·m |
|--------------------------|--------------------------|----------|------------------------------|-------------------|----------------|----------------|
| 20                       | 7.84                     | 217      | –                            | –                 | –              | –              |
| 100                      | –                        | 211      | 11.3                         | 39.8              | 462            | 312            |
| 200                      | 7.79                     | 206      | 11.7                         | 37.9              | –              | 396            |
| 300                      | –                        | 198      | 12.8                         | 36.9              | –              | 475            |
| 400                      | 7.72                     | 191      | 13.9                         | 35.9              | –              | 574            |
| 500                      | –                        | 180      | 14.2                         | 34.8              | –              | 680            |
| 600                      | 7.65                     | 167      | 14.4                         | –                 | –              | 826            |
| PROPERTY                 | VALUE                    |          | UNIT                         |                   |                |                |
| Density                  | 7.85                     |          | g/cm <sup>3</sup>            |                   |                |                |
| Transformation point Ac1 | 760                      |          | °C                           |                   |                |                |
| Transformation point Ac3 | 840                      |          | °C                           |                   |                |                |
| Transformation point Ar3 | 760                      |          | °C                           |                   |                |                |
| Transformation point Ar1 | 680                      |          | °C                           |                   |                |                |

Technological properties

| PROPERTY           | VALUE             | UNIT |
|--------------------|-------------------|------|
| Weldability        | hard weldability. |      |
| Flake sensitivity  | predisposed       |      |
| Temper brittleness | not predisposed   |      |

Designations across standards

14 designations · 1 documented as identical

|                                               |        |           |       |
|-----------------------------------------------|--------|-----------|-------|
| Russia / CIS                                  | 8      | France    | 1     |
| 21Kh1M1F                                      | gost   | 20CDV5-07 | afnor |
| 25Ch1M1F                                      | gost   |           |       |
| 25KH1M1F                                      | gost   | Czechia   | 1     |
| 25KH1MF                                       | gost   | 15320     | csn   |
| 25X1M1Φ                                       | gost   |           |       |
| 25X1M1ΦA                                      | gost   | Slovakia  | 1     |
| 25X1MΦ                                        | gost   | 15 320    | stn   |
| ЭИ10                                          | gost   |           |       |
| Europe                                        | 1      | Poland    | 1     |
| 21CrMoV5-7 <span>This grade's own name</span> | din-en | 21HMF     | pn    |
|                                               |        | Hungary   | 1     |
|                                               |        | MCrMoV    | msz   |

**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 21CrMoV5-7

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

[Start an enquiry](#)

|                        |                   |              |              |
|------------------------|-------------------|--------------|--------------|
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