

MATERIAL NUMBER 1.8159 · CLASS 1.8

# 51CrMnV4KU

Material no. 1.8159

also listed as 50CrV4

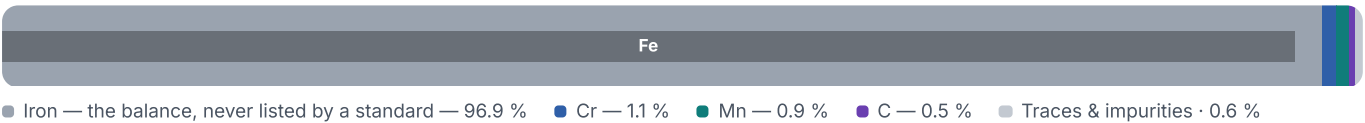
Chemical composition, mechanical and physical property values, and 73 standard designations from 26 regions.

|                             |                                               |                                      |
|-----------------------------|-----------------------------------------------|--------------------------------------|
| DENSITY<br><b>7.7</b> g/cm³ | OTHER DESIGNATIONS<br><b>73</b> in 26 regions | PROPERTY VALUES<br><b>15</b> on file |
|-----------------------------|-----------------------------------------------|--------------------------------------|

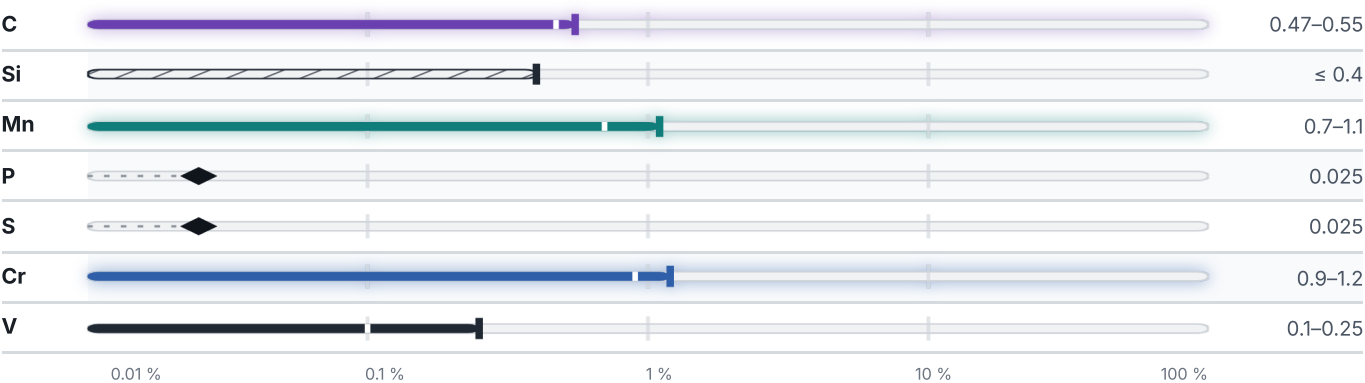
## Chemical composition

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

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

## Mechanical properties

13 values across 4 conditions

| CONDITION · DIMENSION                                    | RM<br>N/mm <sup>2</sup> | RE<br>N/mm <sup>2</sup> | A5<br>% | Z<br>%                  |
|----------------------------------------------------------|-------------------------|-------------------------|---------|-------------------------|
| Bar                                                      | 1300                    | 1100                    | 10      | 45                      |
| Rolled stock, GOST 14959-79                              | 1270                    | 1080                    | 8       | 35                      |
| CONDITION · DIMENSION                                    |                         |                         |         | HB                      |
| (without heat treatment) , Rolled stock<br>GOST 14959-79 |                         |                         |         | 302                     |
| (heat treatment) , Rolled stock GOST<br>14959-79         |                         |                         |         | 269                     |
| CONDITION · DIMENSION                                    |                         | RM<br>N/mm <sup>2</sup> | A5<br>% |                         |
| 0.1 - 4                                                  |                         | 880                     | 8       |                         |
| CONDITION · DIMENSION                                    |                         |                         |         | RM<br>N/mm <sup>2</sup> |
| 0.1 - 4                                                  |                         |                         |         | 780–1180                |

## 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>nΩ·m |
|--------------------------|--------------------------|----------|------------------------------|-------------------|-------------------|----------------|
| 20                       | 7.8                      | 218      | –                            | 40                | –                 | 320            |
| 100                      | 7.78                     | 215      | 11.7                         | 39                | 490               | –              |
| 200                      | 7.75                     | 210      | 12.2                         | 38                | 505               | –              |
| 300                      | 7.72                     | 200      | 12.9                         | 37                | 510               | –              |
| 400                      | 7.68                     | 188      | 13.5                         | 36                | 530               | –              |
| 500                      | 7.65                     | 178      | 14                           | 33                | 560               | –              |
| 600                      | 7.61                     | 160      | 14.4                         | 31                | 580               | –              |
| 700                      | –                        | 142      | 14.6                         | 29                | 620               | –              |
| 800                      | –                        | 132      | 13.1                         | 28                | 700               | –              |
| PROPERTY                 |                          |          |                              | VALUE             | UNIT              |                |
| Density                  |                          |          |                              | 7.7               | g/cm <sup>3</sup> |                |
| Transformation point Ac1 |                          |          |                              | 752               | °C                |                |
| Transformation point Ac3 |                          |          |                              | 788               | °C                |                |
| Transformation point Ar3 |                          |          |                              | 746               | °C                |                |
| Transformation point Ar1 |                          |          |                              | 688               | °C                |                |

## Technological properties

| PROPERTY           | VALUE              | UNIT |
|--------------------|--------------------|------|
| Weldability        | is not used.       |      |
| Flake sensitivity  | not predisposed    |      |
| Temper brittleness | weakly predisposed |      |

## Designations across standards

73 designations · 8 documented as identical

|                                           |          |                                           |        |
|-------------------------------------------|----------|-------------------------------------------|--------|
| <b>United States</b>                      | 9        | <b>Spain</b>                              | 4      |
| G61500 <span>This grade's own name</span> | uns      | 51CrV4                                    | une    |
| H61500 <span>This grade's own name</span> | uns      | CrV4                                      | une    |
| 6145 <span>This grade's own name</span>   | aisi-sae | F.1430-51                                 | une    |
| 6150 <span>This grade's own name</span>   | aisi-sae | F1430                                     | une    |
| 6150H <span>This grade's own name</span>  | aisi-sae |                                           |        |
| G41500                                    | aisi-sae | <b>Italy</b>                              | 4      |
| G61500                                    | aisi-sae | 48Si7                                     | uni    |
| H61500                                    | aisi-sae | 50CrV4                                    | uni    |
| A331                                      | astm     | 51CrMnV4KU                                | uni    |
|                                           |          | 51CrV4                                    | uni    |
| <b>United Kingdom</b>                     | 7        |                                           |        |
| 51CrV4                                    | bs       | <b>Hungary</b>                            | 4      |
| 735A30                                    | bs       | 51CrV4                                    | msz    |
| 735A50                                    | bs       | CrV 3                                     | msz    |
| 735A51                                    | bs       | CrV3Z                                     | msz    |
| 735A54                                    | bs       | SZ2                                       | msz    |
| 735h51                                    | bs       |                                           |        |
| EN 47                                     | bs       | <b>Europe</b>                             | 3      |
|                                           |          | 1.8159                                    | din-en |
| <b>France</b>                             | 7        | 50CrV4 <span>This grade's own name</span> | din-en |
| 50CrV4                                    | afnor    | 51CrV4 <span>This grade's own name</span> | din-en |
| 50CrV4RR                                  | afnor    |                                           |        |
| 50CV4                                     | afnor    | <b>Japan</b>                              | 3      |
| 50CrV4                                    | afnor    | SCM445H                                   | jis    |
| 51CrV4                                    | afnor    | SUP10                                     | jis    |
| 51CrV4                                    | afnor    | SUP10-CSP                                 | jis    |
| 55CrV4                                    | afnor    |                                           |        |
| <b>Russia / CIS</b>                       | 7        | <b>Romania</b>                            | 3      |
| 50ChFA                                    | gost     | 51VCr11A                                  | stas   |
| 50HFA                                     | gost     | 51VMnCr11                                 | stas   |
| 50KHFA                                    | gost     | 51VMnCr11AT                               | stas   |
| 50KHGFA                                   | gost     |                                           |        |
| 50KHGFA                                   | gost     | <b>Bulgaria</b>                           | 3      |
| 50XΦA                                     | gost     | 50ChFA                                    | bds    |
| 50XΦA                                     | gost     | 50ChGFA                                   | bds    |
|                                           |          | 51CrV4                                    | bds    |

|                                                |        |                      |        |
|------------------------------------------------|--------|----------------------|--------|
| <b>China</b>                                   | 2      | <b>Slovakia</b>      | 1      |
| 50CrVA                                         | gb     | 15 260               | stn    |
| 50CrVA                                         | gb     |                      |        |
| <b>Sweden</b>                                  | 2      | <b>Latin America</b> | 1      |
| 2230                                           | ss     | 6150                 | copant |
| SIS 14 2230 <span>This grade's own name</span> | ss     | <b>Brazil</b>        | 1      |
| <b>Poland</b>                                  | 2      | 6151                 | abnt   |
| 50HF                                           | pn     | <b>Serbia</b>        | 1      |
| 50HS                                           | pn     | Č.4830               | srps   |
| <b>Australia / New Zealand</b>                 | 2      | <b>Croatia</b>       | 1      |
| 6150                                           | as-nzs | Č.4830               | hrn    |
| 6150H                                          | as-nzs | <b>Türkiye</b>       | 1      |
| <b>International</b>                           | 1      | Ç 6150               | mke    |
| 51CrV4                                         | iso    | <b>Belgium</b>       | 1      |
| <b>United States / Aerospace</b>               | 1      | 50CrV4               | nbn    |
| 6448                                           | ams    | <b>South Korea</b>   | 1      |
| <b>Czechia</b>                                 | 1      | SPS6                 | ks     |
| 15260                                          | csn    |                      |        |

**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 51CrMnV4KU

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

[Start an enquiry](#)

#### DATASHEET ONLINE

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#### MATERIAL NO.

1.8159

#### ISSUED

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