

MATERIAL NUMBER 1.4571 · CLASS 1.4

# A 182 Grade F316Ti

Material no. 1.4571

also listed as X6CrNiMoTi17-12-2

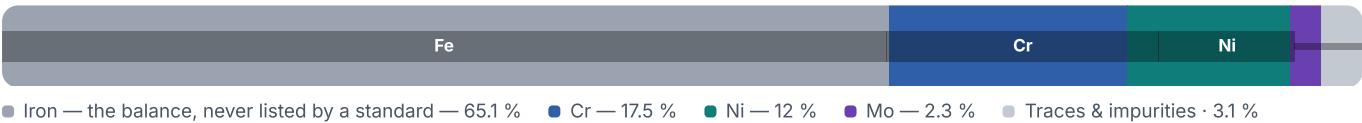
Chemical composition, mechanical and physical property values, and 72 standard designations from 17 regions.

|                                       |                                   |                                               |                                      |
|---------------------------------------|-----------------------------------|-----------------------------------------------|--------------------------------------|
| DENSITY<br><b>8</b> g/cm <sup>3</sup> | ELASTIC MODULUS<br><b>199</b> GPa | OTHER DESIGNATIONS<br><b>72</b> in 17 regions | PROPERTY VALUES<br><b>21</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

This grade's composition falls outside the published model's validated range (a low-alloy composition window), so no transformation temperature is predicted here.

## Mechanical properties

14 values across 4 conditions

| CONDITION · DIMENSION                |  | RM<br>N/mm <sup>2</sup> | A5<br>%                 | Z<br>% | HB  |     |     |
|--------------------------------------|--|-------------------------|-------------------------|--------|-----|-----|-----|
| Rolled stock hotrolled, GOST 1414-75 |  | 410                     | 22                      | 34     | –   |     |     |
| Rolled stock, GOST 1414-75           |  | 460–510                 | 7                       | –      | –   |     |     |
| Rolled stock GOST 1414-75            |  | –                       | –                       | –      | 160 |     |     |
| CONDITION · DIMENSION                |  | RM<br>N/mm <sup>2</sup> | RE<br>N/mm <sup>2</sup> | A<br>% | HB  | HRB | HV  |
| Plate/Sheet Hot-rolled               |  | 520                     | 205                     | 40     | –   | –   | –   |
| Hot-rolled                           |  | –                       | –                       | –      | 187 | 90  | 200 |
| SOFT ANNEALED                        |  |                         |                         |        |     |     | HB  |
| Soft annealed                        |  |                         |                         |        |     |     | 215 |
| SOLUTION ANNEALED                    |  |                         |                         |        |     |     | HB  |
| Solution annealed                    |  |                         |                         |        |     |     | 210 |

## Physical properties

13 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) |
|-------------------------------|--------------------------|----------|-------------------------------|-------------------|----------------|
| 20                            | 7.83                     | 198      | –                             | –                 | –              |
| 100                           | –                        | 183      | 11.9                          | 78                | 470            |
| 200                           | –                        | –        | 12.5                          | 67                | –              |
| 300                           | –                        | 166      | –                             | –                 | 479            |
| 400                           | –                        | –        | 13.6                          | –                 | 517            |
| 500                           | –                        | –        | 14.2                          | –                 | –              |
| 600                           | –                        | –        | –                             | –                 | 571            |
| PROPERTY                      | VALUE                    |          | UNIT                          |                   |                |
| Density                       | 8                        |          | g/cm <sup>3</sup>             |                   |                |
| Elastic modulus               | 199                      |          | GPa                           |                   |                |
| Thermal expansion coefficient | 15.7                     |          | 10 <sup>^-6</sup> /K          |                   |                |
| Thermal conductivity          | 15                       |          | W/(m·K)                       |                   |                |
| Specific heat capacity        | 500                      |          | J/(kg·K)                      |                   |                |
| Electrical resistivity        | 750                      |          | nΩ·m                          |                   |                |

| PROPERTY                 | VALUE | UNIT |
|--------------------------|-------|------|
| Transformation point Ac1 | 735   | °C   |
| Transformation point Ac3 | 866   | °C   |
| Transformation point Ar3 | 840   | °C   |
| Transformation point Ar1 | 685   | °C   |

Technological properties

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

Heat treatment

1 regimes

| STEP               | TEMPERATURE            | MEDIUM |
|--------------------|------------------------|--------|
| Solution annealing | Temperature not stated | —      |

Designations across standards

72 designations · 2 documented as identical

|                |      |                       |                    |  |          |
|----------------|------|-----------------------|--------------------|--|----------|
| Russia / CIS   |      | 12                    | United States      |  | 8        |
| 08Ch16N11M3T   | gost |                       | S31635             |  | uns      |
| 08Ch17N13M2T   | gost |                       | 316H               |  | aisi-sae |
| 08KH17N13M2T   | gost |                       | 316Ti              |  | aisi-sae |
| 08X17H13M2T    | gost |                       | 318                |  | aisi-sae |
| 08X17H13M2T    | gost |                       | S31635             |  | aisi-sae |
| 10Ch17N13M2T   | gost | This grade's own name | A 182 Grade F316Ti |  | astm     |
| 10Ch17N13M3T   | gost |                       | A312               |  | astm     |
| 10KH17N13M2T   | gost |                       | TP 316Ti           |  | astm     |
| 10X17H13M2T    | gost |                       | France             |  | 6        |
| 10X17H13M2T    | gost |                       |                    |  |          |
| X17H13M2T      | gost |                       | Z6 CNDT 17.12      |  | afnor    |
| ЭН448          | gost |                       | Z6CNDNB17-12B      |  | afnor    |
| United Kingdom |      | 9                     | Z6CNDT17-13        |  | afnor    |
|                |      |                       | Z6CNDT17-2         |  | afnor    |
| 2 1            | bs   |                       | Z6CNT17-12         |  | afnor    |
| 320 S 31       | bs   |                       | Z6NDT17-12         |  | afnor    |
| 320S17         | bs   |                       | China              |  | 6        |
| 320S18         | bs   |                       |                    |  |          |
| 321S12         | bs   |                       | 0Cr18Ni12Mo2Ti     |  | gb       |
| 4 Ti           | bs   |                       | 0Cr18Ni12Mo3Ti     |  | gb       |
| 58J            | bs   |                       | 1Cr18Ni12Mo2Ti     |  | gb       |
| EN58J          | bs   |                       | 1Cr18Ni12Mo3Ti     |  | gb       |
| S17EN58J       | bs   |                       | Cr18Ni12Mo2T       |  | gb       |
|                |      |                       | OCr18Ni12Mo2Ti     |  | gb       |

|                             |        |                       |                     |       |   |
|-----------------------------|--------|-----------------------|---------------------|-------|---|
| Spain                       |        | 5                     | Sweden              |       | 3 |
| F.310.B                     | une    |                       | 2350                | ss    |   |
| F.3535                      | une    |                       | 2350-02             | ss    |   |
| F.3552                      | une    |                       | 2353                | ss    |   |
| F.3552-X 6 CrNiMoTM 7-12-03 | une    |                       | Czechia             |       | 3 |
| X6CrNiMoTi17-12-2           | une    |                       | 17347               | csn   |   |
| Japan                       |        | 4                     | 17347PH             | csn   |   |
| 316Ti                       | jis    |                       | 17348               | csn   |   |
| SUS 316Ti                   | jis    |                       | Austria             |       | 2 |
| SUS 316TiTB                 | jis    |                       | X6CrNiMoi17-17-122S | onorm |   |
| SUS 316TiTP                 | jis    |                       | X6CrNiMoTi17-12-2S  | onorm |   |
| Poland                      |        | 4                     | Slovakia            |       | 1 |
| H17N13M2T                   | pn     |                       | 17 348              | stn   |   |
| H17N13M2T H18N10MT          | pn     |                       | Serbia              |       | 1 |
| H17N13M2T lub H18N10MT      | pn     |                       | Č.4574              | srps  |   |
| H18N10MT                    | pn     |                       | former Yugoslavia   |       | 1 |
| Europe                      |        | 3                     | Č.4574              | jus   |   |
| 1.4571                      | din-en |                       | Finland             |       | 1 |
| X10CrNiMoTi18-10            | din-en |                       | 761                 | sfs   |   |
| X6CrNiMoTi17-12-2           | din-en | This grade's own name |                     |       |   |
| Italy                       |        | 3                     |                     |       |   |
| X6CrNiMoTi 17 12 KG         | uni    |                       |                     |       |   |
| X6CrNiMoTi 17 12 KW         | uni    |                       |                     |       |   |
| X6CrNiMoTi1712              | uni    |                       |                     |       |   |

**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 A 182 Grade F316Ti

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

Start an enquiry

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