

MATERIAL NUMBER 1.6582 · CLASS 1.6

# 16 444

## Material no. 1.6582

also listed as 34CrNiMo6

Chemical composition, mechanical and physical property values, and 84 standard designations from 24 regions.

| DENSITY                       | OTHER DESIGNATIONS      | PROPERTY VALUES   |
|-------------------------------|-------------------------|-------------------|
| <b>7.73</b> g/cm <sup>3</sup> | <b>84</b> in 24 regions | <b>16</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 | PREDICTED AE1 | PREDICTED ACM | PREDICTED BS  |
|---------------|---------------|---------------|---------------|
| <b>760</b> °C | <b>736</b> °C | <b>606</b> °C | <b>491</b> °C |

Mechanical properties

12 values across 4 conditions

|                                                      |                         |                         |         |        |                          |
|------------------------------------------------------|-------------------------|-------------------------|---------|--------|--------------------------|
| QUENCHED AND TEMPERED · ROUND PRODUCTS               |                         |                         |         |        | A<br>% · Lo = 5,65 √So   |
| ≤ 16                                                 |                         |                         |         |        | 9                        |
| 16 – 40                                              |                         |                         |         |        | 10                       |
| 40 – 100                                             |                         |                         |         |        | 11                       |
| 100 – 160                                            |                         |                         |         |        | 12                       |
| 160 – 250                                            |                         |                         |         |        | 13                       |
| SOFT ANNEALED                                        |                         |                         |         |        | HB                       |
| Soft annealed                                        |                         |                         |         |        | 248–255                  |
| QUENCHING AND DRAWING                                | 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> |
| Ø 25                                                 | 1080                    | 930                     | 12      | 50     | 780                      |
| CONDITION · DIMENSION                                |                         |                         |         |        | HB                       |
| 38KH2N2MA ( 38X2H2MA )<br>(annealing) , GOST 4543-71 |                         |                         |         |        | 269                      |

Physical properties

8 values

|                          |          |                               |                   |                |                |
|--------------------------|----------|-------------------------------|-------------------|----------------|----------------|
| CONDITION · DIMENSION    | 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                       | 213      | –                             | 38                | –              | 322            |
| 100                      | 206      | 11.9                          | 37                | 490            | 398            |
| 200                      | 194      | 12.5                          | 35                | 502            | 482            |
| 300                      | 180      | 13.1                          | 35                | 523            | 592            |
| 400                      | 174      | 13.3                          | 33                | 532            | 740            |
| 500                      | 164      | 13.8                          | 32                | 565            | 910            |
| 600                      | 157      | 14.1                          | 30                | 590            | 1090           |
| 700                      | 141      | 14.6                          | 28                | 615            | 1300           |
| 800                      | 129      | 11.8                          | 28                | 670            | –              |
| PROPERTY                 | VALUE    |                               | UNIT              |                |                |
| Density                  | 7.73     |                               | g/cm <sup>3</sup> |                |                |
| Transformation point Ac1 | 753      |                               | °C                |                |                |
| Transformation point Ac3 | 790      |                               | °C                |                |                |

| PROPERTY                 | VALUE | UNIT |
|--------------------------|-------|------|
| Transformation point Ar3 | 490   | °C   |
| Transformation point Ar1 | 370   | °C   |

Technological properties

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

Heat treatment

1 regimes

| STEP                                                  | TEMPERATURE            | MEDIUM |
|-------------------------------------------------------|------------------------|--------|
| source joins the operations with + / procedural order |                        |        |
| Quenching                                             | Temperature not stated | —      |
| Tempering                                             | Temperature not stated | —      |

Designations across standards

84 designations · 4 documented as identical

|              |      |    |                           |                       |          |
|--------------|------|----|---------------------------|-----------------------|----------|
| Russia / CIS |      | 14 | United States             |                       | 10       |
| 30KHNML      | gost |    | F1270                     | This grade's own name | uns      |
| 30XHMЛ       | gost |    | G43400                    |                       | uns      |
| 34ChN1M      | gost |    | 4330                      |                       | aisi-sae |
| 34XH1M       | gost |    | 4337                      |                       | aisi-sae |
| 36KH2N2MFA   | gost |    | 4340                      |                       | aisi-sae |
| 36KH2N2MFA   | gost |    | G43376                    |                       | aisi-sae |
| 36X2H2MΦA    | gost |    | G43400                    |                       | aisi-sae |
| 36XH1MΦA     | gost |    | G43499                    |                       | aisi-sae |
| 38Ch2N2MA    | gost |    | J23015                    |                       | aisi-sae |
| 38KH2N2MA    | gost |    | A829                      |                       | astm     |
| 38KH2N2MA    | gost |    | United States / Aerospace |                       | 5        |
| 38X2H2MA     | gost |    |                           |                       |          |
| 38XHMA       | gost |    | 6359                      |                       | ams      |
| 40KHN2MA     | gost |    | 6409                      |                       | ams      |
|              |      |    | 6414                      |                       | ams      |
|              |      |    | 6415                      |                       | ams      |
|              |      |    | 6454                      |                       | ams      |
|              |      |    | China                     |                       | 5        |
|              |      |    | 34Cr2Ni2Mo                |                       | gb       |
|              |      |    | 34CrNi3Mo                 |                       | gb       |
|              |      |    | 34CrNiMo                  |                       | gb       |
|              |      |    | 40CrNiMoA                 |                       | gb       |
|              |      |    | ZG34CrNiMo                |                       | gb       |

|                                               |        |                                                |        |
|-----------------------------------------------|--------|------------------------------------------------|--------|
| <b>Italy</b>                                  | 5      | <b>Japan</b>                                   | 3      |
| 34CrNiMo6                                     | uni    | SNCM431                                        | jis    |
| 35CrNiMo6                                     | uni    | SNCM439                                        | jis    |
| 35NiCrMo6                                     | uni    | SNCM447                                        | jis    |
| 35NiCrMo6KB                                   | uni    |                                                |        |
| KB                                            | uni    | <b>Hungary</b>                                 | 3      |
| <b>Romania</b>                                | 5      | 34CrNiMo6                                      | msz    |
| 34MoCrNi15                                    | stas   | Ao30CrNiMo6-6                                  | msz    |
| 34MoCrNi15q                                   | stas   | NCMo 5                                         | msz    |
| 34MoCrNi16                                    | stas   | <b>Sweden</b>                                  | 2      |
| 34MoCrNi16q                                   | stas   | 2541                                           | ss     |
| T30MoCrNi14                                   | stas   | SIS 14 2541 <span>This grade's own name</span> | ss     |
| <b>Europe</b>                                 | 4      | <b>Poland</b>                                  | 2      |
| 1.6582                                        | din-en | 34HNM                                          | pn     |
| 34CrNiMo6 <span>This grade's own name</span>  | din-en | 34HNMA                                         | pn     |
| G34CrNiMo6 <span>This grade's own name</span> | din-en | <b>Bulgaria</b>                                | 2      |
| GS-34CrNiMo6V                                 | din-en | 30ChNML                                        | bds    |
| <b>United Kingdom</b>                         | 4      | 34CrNiMo6                                      | bds    |
| 34CrNiMo6                                     | bs     | <b>International</b>                           | 1      |
| 816M40                                        | bs     | 36CrNiMo6                                      | iso    |
| 817M40                                        | bs     | <b>Slovakia</b>                                | 1      |
| EN 24                                         | bs     | 16 343                                         | stn    |
| <b>France</b>                                 | 4      | <b>Serbia</b>                                  | 1      |
| 34CrNiMo6                                     | afnor  | Č.5431                                         | srps   |
| 34CrNiMo8                                     | afnor  | <b>Croatia</b>                                 | 1      |
| 35CND6                                        | afnor  | Č.5431                                         | hrn    |
| 35NCD6                                        | afnor  | <b>Australia / New Zealand</b>                 | 1      |
| <b>Spain</b>                                  | 4      | 4340                                           | as-nzs |
| 34CrNiMo6                                     | une    | <b>Austria</b>                                 | 1      |
| 40NiCrMo7                                     | une    | BOHLERV155                                     | onorm  |
| F.1272                                        | une    | <b>Belgium</b>                                 | 1      |
| F.1272-40NiCrMo7                              | une    | 35CrNiMo6                                      | nbn    |
| <b>Czechia</b>                                | 4      | <b>South Korea</b>                             | 1      |
| 16 444                                        | csn    | SNCM447                                        | ks     |
| 16342                                         | csn    |                                                |        |
| 16343                                         | csn    |                                                |        |
| 16440                                         | 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.

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ISSUED

Sep 8, 2026