

MATERIAL NUMBER 1.7715 · CLASS 1.7

# 12GSBYu-1

## Material no. 1.7715

also listed as 14MoV6-3

Chemical composition, mechanical and physical property values, and 30 standard designations from 8 regions.

**DENSITY****7.85** g/cm<sup>3</sup>**OTHER DESIGNATIONS****30** in 8 regions**PROPERTY VALUES****16** on file

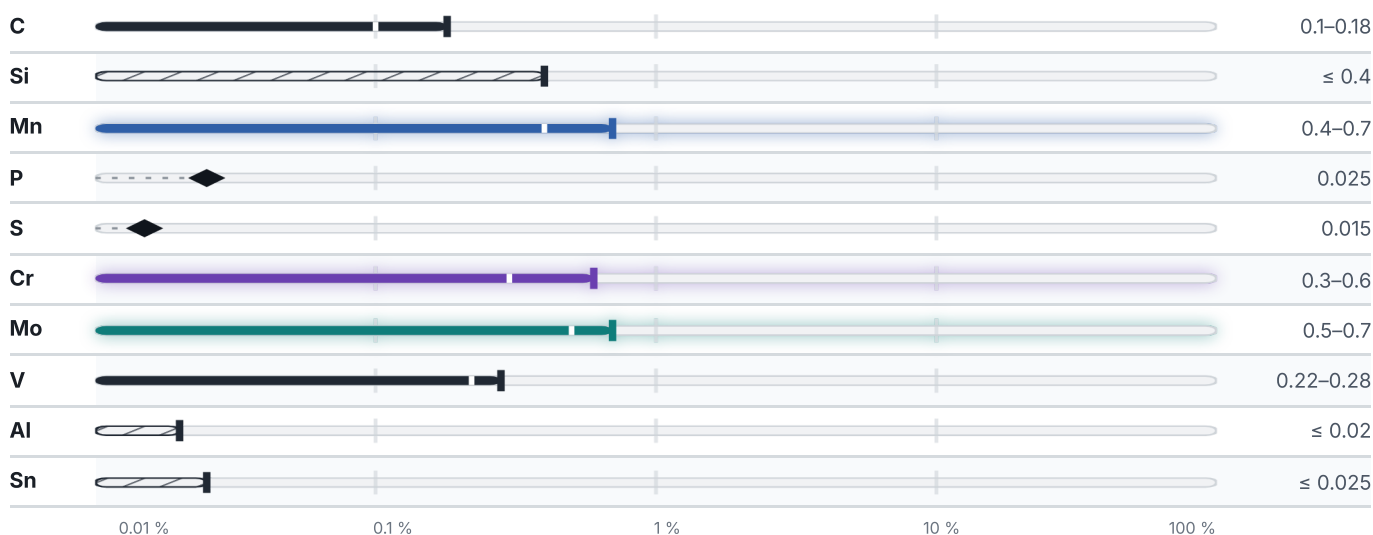
### Chemical composition

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.

## Mechanical properties

16 values across 3 conditions

| CONDITION · DIMENSION                                      | RM<br>N/mm <sup>2</sup> | RE<br>N/mm <sup>2</sup> | A5<br>% | KCU<br>kJ/m <sup>2</sup> | HB      |
|------------------------------------------------------------|-------------------------|-------------------------|---------|--------------------------|---------|
| Sheet, GOST 5520-79                                        | 440–640                 | 295                     | 21      | 790                      | –       |
| 12Kh1MF ( 12X1MΦ ) (normalize)                             | –                       | –                       | –       | –                        | 123–179 |
| 12Kh1MF ( 12X1MΦ ) (hot-rolled, annealing) , GOST 20072-74 | –                       | –                       | –       | –                        | 217     |

| 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, GOST 20072-74    | 470                     | 255                     | 21      | 55     | 980                      |

| 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> |
|-----------------------|-------------------------|-------------------------|---------|--------|--------------------------|
| Forging               | 480                     | 260                     | 20      | 50     | 600                      |

## Physical properties

6 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) | RHO_EL<br>nΩ·m |
|-----------------------|--------------------------|----------|------------------------------|-------------------|----------------|
| 20                    | 7.8                      | 198      | –                            | –                 | 230            |
| 100                   | 7.78                     | 193      | 12.4                         | 44                | 278            |
| 200                   | 7.75                     | 188      | 13                           | 44                | 343            |
| 300                   | 7.72                     | 183      | 13.6                         | 42                | 430            |
| 400                   | 7.68                     | 175      | 14                           | 40                | 532            |
| 500                   | 7.64                     | 167      | 14.4                         | 37                | 647            |
| 600                   | 7.6                      | 157      | 14.7                         | 35                | 775            |
| 700                   | 7.57                     | 151      | 14.9                         | 32                | 962            |
| 800                   | 7.54                     | –        | 14.8                         | 28                | 1087           |
| 900                   | 7.56                     | –        | 12                           | 28                | 1130           |

| PROPERTY                 | VALUE | UNIT              |
|--------------------------|-------|-------------------|
| Density                  | 7.85  | g/cm <sup>3</sup> |
| Transformation point Ac1 | 760   | °C                |
| Transformation point Ac3 | 890   | °C                |
| Transformation point Ar3 | 825   | °C                |
| Transformation point Ar1 | 730   | °C                |

Technological properties

| PROPERTY    | VALUE                | UNIT |
|-------------|----------------------|------|
| Weldability | limited weldability. |      |

Designations across standards

30 designations · 2 documented as identical

|               |                       |     |                |                       |        |
|---------------|-----------------------|-----|----------------|-----------------------|--------|
| Russia / CIS  |                       | 13  | United Kingdom |                       | 4      |
| 120X          | gost                  |     | 1503-660-440   |                       | bs     |
| 12Ch1MF       | gost                  |     | 440            |                       | bs     |
| 12DKHN1MFL    | gost                  |     | 660            |                       | bs     |
| 12GS-1        | gost                  |     | 660-460        |                       | bs     |
| 12GSBYu-1     | gost                  |     | Poland         |                       | 3      |
| 12KH1         | gost                  |     | 12HMF          |                       | pn     |
| 12Kh1MF       | gost                  |     | 13HMF          |                       | pn     |
| 12Kh1MF-PV    | gost                  |     | 15HMF          |                       | pn     |
| 12X1MΦ        | gost                  |     | Europe         |                       | 2      |
| 12XMΦ         | gost                  |     |                |                       |        |
| 1KH2M1        | gost                  |     |                |                       |        |
| ст.12X1MΦ     | gost                  |     | 1.7715         |                       | din-en |
| ЭП430         | gost                  |     | 14MoV6-3       | This grade's own name | din-en |
| United States |                       | 4   | Spain          |                       | 2      |
| A 405 P24     | uns                   |     | 13MoCrV6       |                       | une    |
| K11591        | This grade's own name | uns | F.2621         |                       | une    |
| A 405 P24     | astm                  |     | Czechia        |                       | 1      |
| K11591        | astm                  |     | 15128          |                       | csn    |
|               |                       |     | Hungary        |                       | 1      |
|               |                       |     | KL 10          |                       | 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 12GSBYu-1

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

Start an enquiry

|                        |                   |              |              |
|------------------------|-------------------|--------------|--------------|
| DATASHEET ONLINE       | GRADE SEARCH      | MATERIAL NO. | ISSUED       |
| View the material page | Search all grades | 1.7715       | Aug 20, 2026 |