

MATERIAL NUMBER 1.0308 · CLASS 1.0

# ЭП410-Ш

## Material no. 1.0308

also listed as E235

Chemical composition, mechanical and physical property values, and 69 standard designations from 9 regions.

| DENSITY                       | OTHER DESIGNATIONS     | PROPERTY VALUES   |
|-------------------------------|------------------------|-------------------|
| <b>7.85</b> g/cm <sup>3</sup> | <b>69</b> in 9 regions | <b>13</b> on file |

### Chemical composition

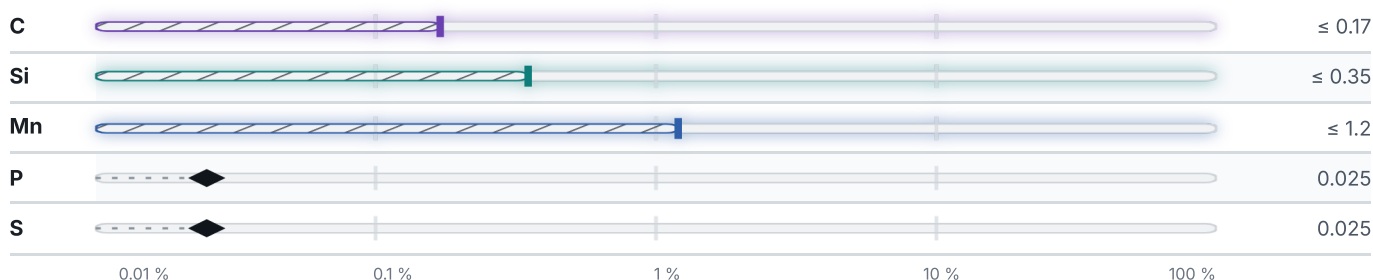
Mass fraction in %

What this alloy is



● Iron — the balance, never listed by a standard — 98.2 % ● Mn — 1.2 % ● Si — 0.4 % ● C — 0.2 % ● Traces & impurities · 0.1 %

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, Cr, Mo.

### Mechanical properties

15 values across 2 conditions

| AS ROLLED | REH<br>N/mm <sup>2</sup> | RM<br>N/mm <sup>2</sup> |
|-----------|--------------------------|-------------------------|
| ≤ 16      | 235                      | 360                     |

| AS ROLLED             | REH<br>N/mm <sup>2</sup> | RM<br>N/mm <sup>2</sup> |         |
|-----------------------|--------------------------|-------------------------|---------|
| 16 – 40               | 225                      | 360                     |         |
| 40 – 65               | 215                      | 360                     |         |
| 65 – 100              | –                        | 340                     |         |
| 65 – 80               | 205                      | –                       |         |
| 80 – 100              | 195                      | –                       |         |
| CONDITION · DIMENSION | RM<br>N/mm <sup>2</sup>  | RE<br>N/mm <sup>2</sup> | A5<br>% |
| to 20                 | 320–410                  | 215                     | 33      |
| 20 - 40               | 320–410                  | 205                     | 32      |

## Physical properties

8 values

| CONDITION · DIMENSION    |       |       | RHO<br>g/cm³ |
|--------------------------|-------|-------|--------------|
| 20                       |       |       | 7.85         |
| PROPERTY                 | VALUE | UNIT  |              |
| Density                  | 7.85  | g/cm³ |              |
| Transformation point Ac1 | 735   | °C    |              |
| Transformation point Ac3 | 854   | °C    |              |
| Transformation point Ar3 | 835   | °C    |              |
| Transformation point Ar1 | 682   | °C    |              |

## Technological properties

| PROPERTY           | VALUE                | UNIT |
|--------------------|----------------------|------|
| Weldability        | without limitations. |      |
| Flake sensitivity  | not predisposed      |      |
| Temper brittleness | not predisposed      |      |

## Heat treatment

7 regimes

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

| STEP                                  | TEMPERATURE            | MEDIUM |
|---------------------------------------|------------------------|--------|
| Annealing                             | Temperature not stated | —      |
| Tempering                             | Temperature not stated | —      |
| Normalizing                           | Temperature not stated | —      |
| Tempering                             | Temperature not stated | —      |
| Annealing                             | Temperature not stated | —      |
| source joins the operations with (or) |                        |        |
| Normalizing                           | Temperature not stated | —      |
| Normalizing                           | Temperature not stated | Air    |
| Normalizing                           | Temperature not stated | —      |
| Normalizing                           | Temperature not stated | —      |
| Normalizing                           | Temperature not stated | —      |
| Normalizing                           | Temperature not stated | —      |
| source joins the operations with (or) |                        |        |
| Annealing                             | Temperature not stated | —      |
| Tempering                             | Temperature not stated | —      |

## Designations across standards

69 designations · 7 documented as identical

| Russia / CIS   |      | 44 | United Kingdom |                       | 6        |
|----------------|------|----|----------------|-----------------------|----------|
| 08Kh15N5D2T-Sh | gost |    | CEW4           |                       | bs       |
| 08X15H5Д2Т     | gost |    | CFS4           |                       | bs       |
| 08X15H5Д2Т-Ш   | gost |    | ERW2           |                       | bs       |
| 10             | gost |    | ERW3           |                       | bs       |
| 10Kh14N5M2L    | gost |    | ERW4           |                       | bs       |
| 10X14H5M2Л     | gost |    | S360           |                       | bs       |
| A2             | gost |    | United States  |                       | 5        |
| CHKH2          | gost |    | G10100         | This grade's own name | uns      |
| CHN2KH         | gost |    | K02504         | This grade's own name | uns      |
| KT-2           | gost |    | 1010           | This grade's own name | aisi-sae |
| L2             | gost |    | 1020           |                       | aisi-sae |
| LR2            | gost |    | A 53 GrA       |                       | astm     |
| P2             | gost |    | Europe         |                       | 4        |
| PA-ZhGr2       | gost |    | E235           | This grade's own name | din-en   |
| PA-ZhGr2D      | gost |    | RSt 37-2       | This grade's own name | din-en   |
| PA-ZhGr2K      | gost |    | S235G2T        | This grade's own name | din-en   |
| PF2            | gost |    | St 35          | This grade's own name | din-en   |
| PL2            | gost |    | China          |                       | 4        |
| PVK2           | gost |    | Q215B          |                       | gb       |
| PZhR2          | gost |    | Q215B-b        |                       | gb       |
| PZhV2          | gost |    | Q215B-F        |                       | gb       |
| St2kp          | gost |    | Q215B-Z        |                       | gb       |
| V2F            | gost |    | France         |                       | 3        |
| VSt2kp         | gost |    | ES235          |                       | afnor    |
| VSt2ps         | gost |    | TS-34a         |                       | afnor    |
| VSt2sp         | gost |    | TU376          |                       | afnor    |
| ACHK-2         | gost |    | Italy          |                       | 1        |
| ACHS-2         | gost |    | Fe360          |                       | uni      |
| ACHV-2         | gost |    | Czechia        |                       | 1        |
| ВНЛ-2          | gost |    | 11353          |                       | csn      |
| ВНС-2-Ш        | gost |    | Croatia        |                       | 1        |
| Ж50-58         | gost |    | Č0361          |                       | hrn      |
| ЖГр2           | gost |    |                |                       |          |
| ЖГр2-20        | gost |    |                |                       |          |
| ЖГр2Д2.5       | gost |    |                |                       |          |
| ЖГр2К1         | gost |    |                |                       |          |
| ЖГр3Д3         | gost |    |                |                       |          |
| ЖГр3Д3-5.5     | gost |    |                |                       |          |
| ЖГр3К0.8       | gost |    |                |                       |          |
| ЖГр3К1         | gost |    |                |                       |          |
| Ст2пс          | gost |    |                |                       |          |
| Ст2сп          | gost |    |                |                       |          |
| ЭП410          | gost |    |                |                       |          |
| ЭП410-Ш        | gost |    |                |                       |          |

**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 3П410-Ш**  
Quotation, availability, mill certificate or a technical question — directly on the material page.

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**ISSUED**  
Aug 20, 2026