

# Database of Steel and Alloy (Marochnik)

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## Characteristics for grade 18KH2N4VA ( 18X2H4BA ).

|                    |                         |
|--------------------|-------------------------|
| Grade :            | 18KH2N4VA ( 18X2H4BA )  |
| Classification :   | Alloy structural steel  |
| Equivalent grades: | <a href="#">Go here</a> |

## Chemical composition in % for grade 18KH2N4VA ( 18X2H4BA )

| C          | Si          | Mn          | Ni      | S         | P         | Cr          | W         | Cu      |
|------------|-------------|-------------|---------|-----------|-----------|-------------|-----------|---------|
| 0.14 - 0.2 | 0.17 - 0.37 | 0.25 - 0.55 | 4 - 4.4 | max 0.025 | max 0.025 | 1.35 - 1.65 | 0.8 - 1.2 | max 0.3 |

## Mechanical properties under T=20°C for grade 18KH2N4VA ( 18X2H4BA )

| Assortment        | Dimension | Direct. | $\sigma_B$ | $\sigma_T$ | $\delta_5$ | $\psi$ | KCU                 | Heat treatment                            |
|-------------------|-----------|---------|------------|------------|------------|--------|---------------------|-------------------------------------------|
| -                 | mm        | -       | MPa        | MPa        | %          | %      | kJ / m <sup>2</sup> | -                                         |
| Bar, GOST 4543-71 | Ø 15      |         | 1050       | 800        | 12         | 50     |                     | Guenching 950°C, oil, Drawing 550°C, air, |

|                                                                       |                               |
|-----------------------------------------------------------------------|-------------------------------|
| Brinell hardness for 18KH2N4VA ( 18X2H4BA ) (annealing), GOST 4543-71 | HB 10 <sup>-1</sup> = 269 MPa |
|-----------------------------------------------------------------------|-------------------------------|

## Physical properties for grade 18KH2N4VA ( 18X2H4BA )

| T     | E 10 <sup>-5</sup> | $\alpha$ 10 <sup>6</sup> | $\lambda$      | $\rho$            | C            | R 10 <sup>9</sup> |
|-------|--------------------|--------------------------|----------------|-------------------|--------------|-------------------|
| Grade | MPa                | 1/Grade                  | Watt/(m·Grade) | kg/m <sup>3</sup> | J/(kg·Grade) | Ohm·m             |
| 20    | 2                  |                          |                | 7950              |              |                   |
| 100   |                    | 11.7                     | 36             | 7930              |              |                   |
| 200   |                    | 12.2                     | 36             | 7900              |              |                   |
| 300   |                    | 12.7                     | 35             | 7860              |              |                   |
| 400   |                    | 13.1                     | 35             | 7830              |              |                   |
| 500   |                    | 13.5                     | 34             | 7800              |              |                   |
| 600   |                    | 13.9                     | 33             | 7760              |              |                   |
| T     | E 10 <sup>-5</sup> | $\alpha$ 10 <sup>6</sup> | $\lambda$      | $\rho$            | C            | R 10 <sup>9</sup> |

## Equivalent steels for grade 18KH2N4VA ( 18X2H4BA )

Warning! Indicated both exact and nearest equivalents.

|          |       |        |         |       |
|----------|-------|--------|---------|-------|
| Germany  | Japan | France | England | Spain |
| DIN, WNr | JIS   | AFNOR  | BS      | UNE   |

|                     |         |        |        |            |
|---------------------|---------|--------|--------|------------|
| 1.6587<br>17CrNiMo6 | SNCM815 | 18NCD6 | 820A16 | 14NiCrMo13 |
|---------------------|---------|--------|--------|------------|

**Specification :****Mechanical properties :**

- $\sigma_B$  - Tensile strength , [MPa]  
 $\sigma_T$  - Yield stress , [MPa]  
 $\delta_5$  - Specific elongation at fracture , [ % ]  
 $\psi$  - Reduction of area , [ % ]  
**KCU** - Impact strength , [ kJ / m<sup>2</sup> ]  
**HB** - Brinell hardness , [MPa]

**Physical properties :**

- T** - Test temperature , [Grade]  
**E** - Young modulus , [MPa]  
 $\alpha$  - Coefficient of linear expansion ( range 20° - T ) , [1/Grade]  
 $\lambda$  - Thermal (heat) condition coefficient , [Watt/(m·Grade)]  
 $\rho$  - Density , [kg/m<sup>3</sup>]  
**C** - Specific heat ( range 20° - T ) , [J/(kg·Grade)]  
**R** - Electrical resistance , [Ohm·m]

Database of steels and alloys (Marochnik) contains information about chemical composition and properties more then 2500 steels and alloys (stainless steel, alloy steel, carbone steel, structural steel, tool steel, cast iron, aluminum alloy, titanium alloy, copper alloy, nickel alloy, magnesium alloy and others).  
 Helpfull for specialists in grade technology, structural engineer, mechanical engineer, metallurgy and metal trader

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