

# Database of Steel and Alloy ( Marochnik )

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## Characteristics for grade 9KHF ( 9XΦ ).

|                    |                         |
|--------------------|-------------------------|
| Grade :            | 9KHF ( 9XΦ )            |
| Classification :   | Alloy tool steel        |
| Equivalent grades: | <a href="#">Go here</a> |

## Chemical composition in % for grade 9KHF ( 9XΦ )

| C         | Si        | Mn        | Ni      | S        | P        | Cr        | V          | Cu      |
|-----------|-----------|-----------|---------|----------|----------|-----------|------------|---------|
| 0.8 - 0.9 | 0.1 - 0.4 | 0.3 - 0.6 | max 0.4 | max 0.03 | max 0.03 | 0.4 - 0.7 | 0.15 - 0.3 | max 0.3 |

## Temperature of critical points for grade 9KHF ( 9XΦ ).

|                             |
|-----------------------------|
| $A_{c1} = 700$ , $Mn = 215$ |
|-----------------------------|

## Mechanical properties under T=20°C for grade 9KHF ( 9XΦ )

| Assortment                   | Dimension | Direct. | $\sigma_B$ | $\sigma_T$ | $\delta_5$ | $\psi$ | KCU                 | Heat treatment |
|------------------------------|-----------|---------|------------|------------|------------|--------|---------------------|----------------|
| -                            | mm        | -       | MPa        | MPa        | %          | %      | kJ / m <sup>2</sup> | -              |
| Band annealed , GOST 2283-79 | 0.1 - 4   |         | 930        |            |            |        |                     |                |

|                                                                     |                               |
|---------------------------------------------------------------------|-------------------------------|
| Brinell hardness for 9KHF ( 9XΦ ) (heat treatment) , GOST 5950-2000 | HB 10 <sup>-1</sup> = 241 MPa |
|---------------------------------------------------------------------|-------------------------------|

## Equivalent steels for grade 9KHF ( 9XΦ )

Warning! Indicated both exact and nearest equivalents.

| USA | Germany                             | Japan | Bulgaria | Poland | Czechia        | Austria    |
|-----|-------------------------------------|-------|----------|--------|----------------|------------|
| -   | DIN, WNr                            | JIS   | BDS      | PN     | CSN            | ONORM      |
| L2  | 1.1056<br>1.2056<br>80CrV2<br>90Cr3 | SKC11 | 8ChF     | NCV1   | 19419<br>19423 | BOHLERB400 |

## 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]

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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