

# Database of Steel and Alloy ( Marochnik )

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## Characteristics for grade AK9 ( AK9 ).

|                           |                          |
|---------------------------|--------------------------|
| <b>Grade :</b>            | AK9 ( AK9 ) ( АП4В )     |
| <b>Classification :</b>   | Aluminium casting alloys |
| <b>Equivalent grades:</b> | <a href="#">Go here</a>  |

## Chemical composition in % for grade AK9 ( AK9 )

| Fe      | Si     | Mn        | Ni      | Al          | Cu    | Mg        | Zn      | Impurity |
|---------|--------|-----------|---------|-------------|-------|-----------|---------|----------|
| max 1.3 | 8 - 11 | 0.2 - 0.5 | max 0.3 | 85.1 - 91.6 | max 1 | 0.2 - 0.4 | max 0.5 | all 3    |

Comment: **Al** is a basis; the percentage of **Al** is given approximately.

## Mechanical properties under T=20°C for grade AK9 ( AK9 )

| Assortment                          | Dimension | Direct. | $\sigma_B$ | $\sigma_T$ | $\delta_5$ | $\psi$ | KCU                 | Heat treatment                        |
|-------------------------------------|-----------|---------|------------|------------|------------|--------|---------------------|---------------------------------------|
| -                                   | mm        | -       | MPa        | MPa        | %          | %      | kJ / m <sup>2</sup> | -                                     |
| cast in a metal mould, GOST 1583-93 |           |         | 196        |            | 0.5        |        |                     | <b>Ageing</b>                         |
| cast in a metal mould, GOST 1583-93 |           |         | 245        |            | 1          |        |                     | <b>Quenching and artificial aging</b> |

|                                                                              |                                          |
|------------------------------------------------------------------------------|------------------------------------------|
| <b>Brinell hardness for AK9 ( AK9 ) , cast in a metal mould GOST 1583-93</b> | <b>HB 10 <sup>-1</sup> = 70 - 90 MPa</b> |
|------------------------------------------------------------------------------|------------------------------------------|

## Equivalent steels for grade AK9 ( AK9 )

Warning! Indicated both exact and nearest equivalents.

| USA                          | Germany                                 | Japan        | France                   | England | European                                            | Italy    | China | Sweden   | Poland  | Czechia | Austria   | Inter               |
|------------------------------|-----------------------------------------|--------------|--------------------------|---------|-----------------------------------------------------|----------|-------|----------|---------|---------|-----------|---------------------|
| -                            | DIN, WNr                                | JIS          | AFNOR                    | BS      | EN                                                  | UNI      | GB    | SS       | PN      | CSN     | ONORM     | ISO                 |
| A-0359.0<br>A03600<br>A13600 | GAISI9Mg<br>GD-AISI12<br>G—<br>AISi10Mg | AC4A<br>ADC3 | A-<br>S10G<br>A-<br>S12U | LM9     | ACAISI10Mg(a)<br>ENAC-43000<br>ENAC-<br>AISi10Mg(a) | GAISI9Mg | ZL104 | AISI10Mg | AISI9Mg | 424331  | GAISI10Mg | AISI10Mg<br>AISI9Mg |

## Specification :

### Mechanical properties :

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

Database of steels and alloys (Marochnik) contains information about chemical composition and properties more than 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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