

# Database of Steel and Alloy ( Marochnik )

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## Characteristics for grade V94 ( B94 ).

|                           |                          |
|---------------------------|--------------------------|
| <b>Grade :</b>            | V94 ( B94 )              |
| <b>Classification :</b>   | Aluminium wrought alloys |
| <b>Equivalent grades:</b> | Is absent                |

### Chemical composition in % for grade V94 ( B94 )

| Fe         | Si         | Mn         | Ni         | Cr          | Ti             | Al               | Cu           | Mg           | Zn           | Impurity                     |
|------------|------------|------------|------------|-------------|----------------|------------------|--------------|--------------|--------------|------------------------------|
| max<br>0.2 | max<br>0.2 | max<br>0.1 | max<br>0.1 | max<br>0.05 | 0.02 -<br>0.08 | 88.47 -<br>91.08 | 1.8 -<br>2.4 | 1.2 -<br>1.6 | 5.9 -<br>6.8 | other, each 0.05; all<br>0.1 |

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

### Mechanical properties under T=20°C for grade V94 ( B94 )

| Assortment | Dimension | Direct. | $\sigma_B$ | $\sigma_T$ | $\delta_5$ | $\psi$ | KCU                 | Heat treatment       |
|------------|-----------|---------|------------|------------|------------|--------|---------------------|----------------------|
| -          | mm        | -       | MPa        | MPa        | %          | %      | kJ / m <sup>2</sup> | -                    |
|            |           |         | 520        | 440        | 15         | 45     |                     | Hardening and ageing |

|                                                        |                               |
|--------------------------------------------------------|-------------------------------|
| Brinell hardness for V94 ( B94 ) (quenching, ageing) , | HB 10 <sup>-1</sup> = 150 MPa |
|--------------------------------------------------------|-------------------------------|

### Physical properties for grade V94 ( B94 )

| 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    | 0.71               |                          | 155.4          | 2850              |              |                   |
| 100   |                    | 21.9                     |                |                   |              |                   |

#### 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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