

# Database of Steel and Alloy ( Marochnik )

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## Characteristics for grade NMZHMts28-2.5-1.5 ( HMЖМц28-2.5-1.5 ).

|                           |                                                  |
|---------------------------|--------------------------------------------------|
| <b>Grade :</b>            | NMZHMts28-2.5-1.5 ( HMЖМц28-2.5-1.5 ) ( Монель ) |
| <b>Classification :</b>   | Copper-nickel alloys                             |
| <b>Equivalent grades:</b> | <a href="#">Go here</a>                          |

### Chemical composition in % for grade NMZHMts28-2.5-1.5 ( HMЖМц28-2.5-1.5 )

| Ni+Co       | Fe    | C       | Si       | Mn        | S        | P        | Cu      | As       | Pb        | Mg      | Sb        | Bi        | Impurity |
|-------------|-------|---------|----------|-----------|----------|----------|---------|----------|-----------|---------|-----------|-----------|----------|
| 65.6 - 69.8 | 2 - 3 | max 0.2 | max 0.05 | 1.2 - 1.8 | max 0.01 | max 0.01 | 27 - 29 | max 0.01 | max 0.003 | max 0.1 | max 0.002 | max 0.002 | all 0.6  |

Comment: Ni+Co is a basis; the percentage of Ni+Co is given approximately.

### Mechanical properties under T=20°C for grade NMZHMts28-2.5-1.5 ( HMЖМц28-2.5-1.5 )

| Assortment           | Dimension | Direct. | $\sigma_B$ | $\sigma_T$ | $\delta_5$ | $\psi$ | KCU                 | Heat treatment |
|----------------------|-----------|---------|------------|------------|------------|--------|---------------------|----------------|
| -                    | mm        | -       | MPa        | MPa        | %          | %      | kJ / m <sup>2</sup> | -              |
| Bar, GOST 1525 - 91  |           |         | 490        |            | 20         |        |                     |                |
| Bar, GOST 1525 - 91  |           |         | 440        |            | 35         |        |                     |                |
| Band, GOST 5187-2003 |           |         | 570        |            | 4-6.5      |        |                     |                |
| Band, GOST 5187-2003 |           |         | 440        |            | 22-25      |        |                     |                |
| Strip, GOST 5063-73  |           |         | 440        |            | 25         |        |                     |                |
| Strip, GOST 5063-73  |           |         | 570        |            | 6.5        |        |                     |                |

|                                                                          |                               |
|--------------------------------------------------------------------------|-------------------------------|
| <b>Brinell hardness for NMZHMts28-2.5-1.5 ( HMЖМц28-2.5-1.5 ) , soft</b> | HB 10 <sup>-1</sup> = 135 MPa |
| <b>Brinell hardness for NMZHMts28-2.5-1.5 ( HMЖМц28-2.5-1.5 ) , hard</b> | HB 10 <sup>-1</sup> = 210 MPa |

### Technological properties of the material NMZHMts28-2.5-1.5 ( HMЖМц28-2.5-1.5 ) .

|                                |               |
|--------------------------------|---------------|
| <b>Melting temperature :</b>   | 1350 °C       |
| <b>Forging temperature :</b>   | 1170 - 920 °C |
| <b>Annealing temperature :</b> | 870 - 950 °C  |

### Physical properties for grade NMZHMts28-2.5-1.5 ( HMЖМц28-2.5-1.5 )

| 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  | 1.82 |    |  | 8820 |  | 430 |
| 100 |      | 14 |  |      |  |     |

### Equivalent steels for grade NMZHMts28-2.5-1.5 ( HMЖMц28-2.5-1.5 )

Warning! Indicated both exact and nearest equivalents.

| USA   | Germany                           | France        | Poland | Czechia  | Inter  |
|-------|-----------------------------------|---------------|--------|----------|--------|
| -     | DIN, WNr                          | AFNOR         | PN     | CSN      | ISO    |
| 04400 | 2.4361<br>LC-NiCu30Fe<br>NiCu30Fe | NiCu32Fe1.5Mn | NiCu30 | Ni70Cu30 | NiCu30 |

### 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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