

Database of Steel and Alloy (Marochnik)

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Characteristics for grade M1 (M1).

Grade :	M1 (M1)
Classification :	Copper
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Chemical composition in % for grade M1 (M1)

Fe	Ni	S	As	Pb	Zn	O	Sb	Bi	Sn	-
max 0.005	max 0.002	max 0.004	max 0.002	max 0.005	max 0.004	max 0.05	max 0.002	max 0.001	max 0.002	Cu+Ag min 99.9

Mechanical properties under T=20°C for grade M1 (M1)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Pipe, GOST 617-2006	Ø 200		180-190		32			
Wire, GOST 16130-90			350					
soft cold-rolled, GOST 1173-2006			200-260		42			
hard cold-rolled, GOST 1173-2006			290		6			

Brinell hardness for M1 (M1) , soft GOST 1173-2006	HB 10 ⁻¹ = 55 MPa
Brinell hardness for M1 (M1) , hard GOST 1173-2006	HB 10 ⁻¹ = 95 MPa

Friction coefficient of the material M1 (M1).

Friction coefficient with oil :	0.011
Friction coefficient without oil :	0.43

Technological properties of the material M1 (M1).

Melting temperature :	1083 °C
Casting temperature :	1150 - 1250 °C
Linear shrinkage :	2.1 %

Physical properties for grade M1 (M1)

T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹
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Grade	MPa	1/Grade	Watt/(m·Grade)	kg/m ³	J/(kg·Grade)	Ohm·m
20	1.28		387	8940	390	17.8
100	1.32	16.7				

Equivalent steels for grade M1 (M1)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI
C11000 C12200	2.0090 ECu57 ECu58 SF-Cu	C1100 C1220	Cu-B	C106	Cu-ETP	Cu-DHP

Specification :**Mechanical properties :**

- σ_B - Tensile strength , [MPa]
 σ_T - Yield stress , [MPa]
 δ_5 - Specific elongation at fracture , [%]
 ψ - Reduction of area , [%]
KCU - Impact strength , [kJ / m²]
HB - Brinell hardness , [MPa]

Physical properties :

- T** - Test temperature , [Grade]
E - Young modulus , [MPa]
 α - Coefficient of linear expansion (range 20° - T) , [1/Grade]
 λ - Thermal (heat) condition coefficient , [Watt/(m·Grade)]
 ρ - Density , [kg/m³]
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 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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