

Database of Steel and Alloy (Marochnik)

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Characteristics for grade AL21 (АЛ21).

Grade :	AL21 (АЛ21)
Classification :	Aluminium casting alloys
Equivalent grades:	Is absent

Chemical composition in % for grade AL21 (АЛ21)

Fe	Si	Mn	Ni	Cr	Al	Cu	Mg	Zn	Impurity
max 0.6	max 0.5	0.15 - 0.25	2.6 - 3.6	0.1 - 0.2	87.35 - 91.75	4.6 - 6	0.8 - 1.3	max 0.3	all 1.3

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

Mechanical properties under T=20°C for grade AL21 (АЛ21)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
			180-210		1			
sand (mould) casting			220	200	1.5			

Brinell hardness for AL21 (АЛ21) ,	HB 10⁻¹ = 65 - 75 MPa
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Technological properties of the material AL21 (АЛ21) .

Linear shrinkage :	1.3 %
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Physical properties for grade AL21 (АЛ21)

T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹
Grade	MPa	1/Grade	Watt/(m·Grade)	kg/m ³	J/(kg·Grade)	Ohm·m
20			117.6	2830		
100		22.9				

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 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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