

Database of Steel and Alloy (Marochnik)

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Characteristics for grade AL1 (АЛ1).

Grade :	AL1 (АЛ1)
Classification :	Aluminium casting alloys
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Chemical composition in % for grade AL1 (АЛ1)

Fe	Si	Ni	Al	Cu	Mg	Zn	Impurity
max 0.8	max 0.7	1.75 - 2.25	90.1 - 93.25	3.75 - 4.5	1.25 - 1.75	max 0.1	all 1.4

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

Mechanical properties under T=20°C for grade AL1 (АЛ1)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
			180-210		0.5-1			

Brinell hardness for AL1 (АЛ1) ,	HB 10 ⁻¹ = 85 - 90 MPa
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Technological properties of the material AL1 (АЛ1) .

Casting temperature :	720 °C
Linear shrinkage :	1.3 %

Physical properties for grade AL1 (АЛ1)

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			168	2750		
100		22.3				

Equivalent steels for grade AL1 (АЛ1)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	Italy	Czechia	Inter
-	DIN, WNr	JIS	AFNOR	BS	UNI	CSN	ISO
A02420	AlCu4NiMg	AC5A	A-U4NT	AlCu4Ni2Mg2	AlCu4NiMg	424315	AlCu4Ni2Mg2

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 / m ²]
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) conduction coefficient , [Watt/(m·Grade)]
ρ	- Density , [kg/m ³]
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, carbon 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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