

Database of Steel and Alloy (Marochnik)

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Characteristics for grade AL7 (АЛ7).

Grade :	AL7 (АЛ7)
Classification :	Aluminium casting alloys
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Chemical composition in % for grade AL7 (АЛ7)

Fe	Si	Mn	Ti	Al	Cu	Zr	Pb	Mg	Zn	Sn	Impurity
max 1	max 1.2	max 0.1	max 0.2	92.9 - 96	4 - 5	max 0.1	max 0.01	max 0.03	max 0.2	max 0.01	all 2.1

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

Mechanical properties under T=20°C for grade AL7 (АЛ7)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
			200-230		3-6			
sand (mould) casting			260	200	3			Hardening and ageing

Brinell hardness for AL7 (АЛ7) ,	HB 10 ⁻¹ = 60 - 70 MPa
Brinell hardness for AL7 (АЛ7) (quenching, ageing), sand (mould) casting	HB 10 ⁻¹ = 85 MPa

Technological properties of the material AL7 (АЛ7) .

Linear shrinkage :	1.4 %
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Physical properties for grade AL7 (АЛ7)

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			138.6	2800		
100		23				

Equivalent steels for grade AL7 (АЛ7)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	China	Inter
-	DIN, WNr	JIS	GB	ISO
A02950	G-AlCu4Ti	AC1A	ZAlCu4	AlCu4Ti

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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