

Database of Steel and Alloy (Marochnik)

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Characteristics for grade AK12 (AK12).

Grade :	AK12 (AK12) (АП2)
Classification :	Aluminium casting alloys
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Chemical composition in % for grade AK12 (AK12)

Fe	Si	Mn	Ti	Al	Cu	Zr	Mg	Zn	Impurity
max 1.5	10 - 13	max 0.5	max 0.1	84.3 - 90	max 0.6	max 0.1	max 0.1	max 0.3	all 2.7

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

Mechanical properties under T=20°C for grade AK12 (AK12)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
cast in a metal mould, GOST 1583-93			147-157		2-3			
die casting, GOST 1583-93			147-157		1-2			

Brinell hardness for AK12 (AK12) , GOST 1583-93	HB 10⁻¹ = 50 MPa
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Technological properties of the material AK12 (AK12) .

Linear shrinkage :	0.8 %
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Physical properties for grade AK12 (AK12)

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	0.7			2650		54.8
100		21.1	168		838	

Equivalent steels for grade AK12 (AK12)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy	China	Sweden	Poland	Czechia	Austria	Inter
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI	GB	SS	PN	CSN	ONORM	ISO
A04130 A14130	G-AISi11 G-AISi12	AC3A	A- S12U	4L33 LM20	ENAC-44200 ENAC-	G- AISi13CuMn	HZL102 ZL102	AlSi12Cu	AlSi11	424330	G- AlSi12	AlSi12 AlSi12(a)

	GK- AlSi12g		A-S13		AlSi12(a)		ZL7						
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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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