

Database of Steel and Alloy (Marochnik)

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Characteristics for grade D18 (Д18).

Grade :	D18 (Д18) (1180)
Classification :	Aluminium wrought alloys
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Chemical composition in % for grade D18 (Д18)

Fe	Si	Mn	Cr	Al	Cu	Mg	Zn	Impurity
max 0.5	max 0.5	max 0.2	max 0.1	94.35 - 97.6	2.2 - 3	0.2 - 0.5	max 0.1	other, each 0.05; all 0.15

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

Mechanical properties under T=20°C for grade D18 (Д18)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Wire			300	170	24	50		Hardening and ageing
Wire			160	60	25			Annealing

Brinell hardness for D18 (Д18) (quenching, ageing) ,	HB 10 ⁻¹ = 70 MPa
Brinell hardness for D18 (Д18) (annealing) ,	HB 10 ⁻¹ = 38 MPa

Physical properties for grade D18 (Д18)

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	0.71			2740		39
100		23.4	172		922	

Equivalent steels for grade D18 (Д18)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	European	Italy	Inter
-	DIN, WNr	JIS	AFNOR	EN	UNI	ISO
AA2117	3.1305 AlCuMg0.5	2117	A-U2G2117	ENAW-2117 ENAW-AlCu2.5Mg	P-AlCu2.5MgSi	2117 AlCu2.5Mg AlCu2Mg

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) condition 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 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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