

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 10G2 (10Г2).

Grade :	10G2 (10Г2)
Substitute:	09Г2
Classification :	Alloy structural steel
Equivalent grades:	Go here

Chemical composition in % for grade 10G2 (10Г2)

C	Si	Mn	Ni	S	P	Cr	Cu
0.07 - 0.15	0.17 - 0.37	1.2 - 1.6	max 0.3	max 0.035	max 0.035	max 0.3	max 0.3

Temperature of critical points for grade 10G2 (10Г2).

$$Ac_1 = 720, \quad Ac_3(Ac_m) = 830, \quad Ar_3(Arc_m) = 710, \quad Ar_1 = 620$$

Mechanical properties under T=20°C for grade 10G2 (10Г2)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Pipe hot strain, GOST 550-75			421	265	21	50	1180	
Pipe, GOST 8731-87			421	265	21			
Bar, GOST 4543-71	Ø 25		420	245	22	50		Guenching
Sheet trick, GOST 1577-93			400		29			Annealing
Sheet trick, GOST 1577-93			440		28			Normalizing

Brinell hardness for 10G2 (10Г2) (annealing), GOST 4543-71	HB 10 ⁻¹ = 197 MPa
Brinell hardness for 10G2 (10Г2), Pipe GOST 550-75	HB 10 ⁻¹ = 197 MPa

Technological properties for grade 10G2 (10Г2)

Weldability:	without limitations .
Flakes :	not predisposed
Temper brittleness:	not predisposed

Physical properties for grade 10G2 (10Г2)

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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	2.04			7790		
100		11.3				
200			38			
300			37			
400		14.7	36			
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 10G2 (10Г2)

Warning! Indicated both exact and nearest equivalents.

USA	England
-	BS
1513	201

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]

Weldability :

- without limitations** - welding is done without heating and subsequent heat treating
limited weldability - welding is possible under heating up to 100-120 grade and subsequent heat treating
hard weldability - obtaining the quality welding needs the additional operations: heating up to 200-300 grade; the heat treating is annealing

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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