

Database of Steel and Alloy (Marochnik)

splat.kharkov.com/en

[Home](#) [European steel grades](#) [Steel and Alloy](#) [Search](#) [Equivalent grades](#) [Grading](#) [GOST Standard](#) [Contacts](#)

YOU HERE: [Steel and Alloy](#) -> [Structural steel](#)

Characteristics for grade 09G2S (09Г2С).

Grade :	09G2S (09Г2С)
Substitute:	09Г2, 09Г2ДТ, 09Г2Т, 10Г2С
Classification :	Low alloy structural steel for welding construct
Equivalent grades:	Go here

Chemical composition in % for grade 09G2S (09Г2С)

C	Si	Mn	Ni	S	P	Cr	N	Cu	As
max 0.12	0.5 - 0.8	1.3 - 1.7	max 0.3	max 0.04	max 0.035	max 0.3	max 0.008	max 0.3	max 0.08

Temperature of critical points for grade 09G2S (09Г2С).

$A_{c1} = 725$, $A_{c3}(A_{cm}) = 860$, $A_{r3}(A_{rcm}) = 780$, $A_{r1} = 625$

Mechanical properties under T=20°C for grade 09G2S (09Г2С)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Sheet, GOST 5520-79			430-490	265-345	21		590-640	
Pipe, GOST 10705-80			490	343	20			

Technological properties for grade 09G2S (09Г2С)

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

Physical properties for grade 09G2S (09Г2С)

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						
100		11.4				
200		12.2				
300		12.6				
400		13.2				

500		13.8				
T	E 10⁻⁵	α 10⁶	λ	ρ	C	R 10⁹

Equivalent steels for grade 09G2S (09Г2С)

Warning! Indicated both exact and nearest equivalents.

Germany	Japan	China	Bulgaria	Hungary	Romania
DIN, WNr	JIS	GB	BDS	MSZ	STAS
13Mn6 9MnSi5	SB49	12Mn	09G2S	VH2	9SiMn16

Specification :**Mechanical properties :**

- σ_B** - Tensile strength , [MPa]
σ_T - Yield stress , [MPa]
δ₅ - 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 ia annealing

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

[Top](#)© 2003 - 2013 All rights reserved. [About program.](#)

The entire risk as to use of the Database of Steel and Alloy (Marochnik) content is assumed by you the user

