

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 60G (60Г).

Grade :	60G (60Г)
Substitute:	65Г
Classification :	Spring structural steel
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Chemical composition in % for grade 60G (60Г)

C	Si	Mn	Ni	S	P	Cr	Cu
0.57 - 0.65	0.17 - 0.37	0.7 - 1	max 0.25	max 0.035	max 0.035	max 0.25	max 0.2

Temperature of critical points for grade 60G (60Г).

$A_{c1} = 726$, $A_{c3}(A_{cm}) = 765$, $A_{r3}(A_{rcm}) = 741$, $A_{r1} = 689$, $Mn = 270$

Mechanical properties under T=20°C for grade 60G (60Г)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Rolled stock, GOST 14959-79			980	785	8	30		Guenching 830°C, oil, Drawing 470°C,
Band cold-worked, GOST 2283-79			740-1180					
Band annealed, GOST 2283-79			640-740		10-15			

Brinell hardness for 60G (60Г) (without heat treatment), GOST 14959	HB 10 ⁻¹ = 285 MPa
Brinell hardness for 60G (60Г) (heat treatment), Rolled stock GOST 14959-79	HB 10 ⁻¹ = 241 MPa
Brinell hardness for 60G (60Г) (normalize), Sheet trick GOST 1577-93	HB 10 ⁻¹ = 269 MPa
Brinell hardness for 60G (60Г) (annealing), Sheet trick GOST 1577-93	HB 10 ⁻¹ = 229 MPa

Technological properties for grade 60G (60Г)

Weldability:	is not used.
Flakes :	weakly predisposed
Temper brittleness:	predisposed

Physical properties for grade 60G (60Г)

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			7810		
100		11.6			483	
200		11.9			487	
300		12.9				
400		13.8			529	
500						
600		14.6			575	
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 60G (60Г)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy	Belgium	Spain	China	Sweden	Bulgaria	Hungary	Poland	Romania	Czechia	Austria	Australia	Switzerland	South Korea
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI	NBN	UNE	GB	SS	BDS	MSZ	PN	STAS	CSN	ONORM	AS	SNV	KS

1060	1.0601	S58C	1C60	060A2	1.0601	1C60	C60-1	C60	60	1665	60	C60E	60	OLC60	12061	BOHLERV960	1060	C60	SM58C
1064	1.1221	S60C-	2C60	060A62	1.1221	C60		C60E		1678	60G		60G	OLC60AT				Ck60	
1561	C60E	CSP	AF70	080A62	1CS60	C60E					C60			OLC60X					
G10600	C61	S65C-	C60	1449-	2CS60	C60R					C60E								
G10640	Ck60	CSP	C60E	CS	C60														
G15610	C60		C60RR	1449- HS	C60E														
			XC60	60HS															
			XC65	C60															
				C60E															
				CS60															

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 in 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

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