

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 30KHGS (30XГC).

Grade :	30KHGS (30XГC)
Substitute:	40XΦA, 35XM, 40XH, 35XГCA
Classification :	Alloy structural steel
Equivalent grades:	Go here

Chemical composition in % for grade 30KHGS (30XГC)

C	Si	Mn	Ni	S	P	Cr	Cu
0.28 - 0.35	0.9 - 1.2	0.8 - 1.1	max 0.3	max 0.035	max 0.035	0.8 - 1.1	max 0.3

Temperature of critical points for grade 30KHGS (30XГC).

$Ac_1 = 760$, $Ac_3(Ac_m) = 830$, $Ar_3(Arc_m) = 705$, $Ar_1 = 670$, $Mn = 352$

Mechanical properties under T=20°C for grade 30KHGS (30XГC)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Sheet annealed			500-750		14			
Bar, GOST 4543-71	Ø 25		1080	835	10	45	440	Guenching 880°C, oil, Drawing 540°C, water,
Steel	40		930	820	12	51	690	Guenching 880°C, oil, Drawing 600°C, water,
Steel	80		860	730	14	50	780	Guenching 880°C, oil, Drawing 600°C, water,

Brinell hardness for 30KHGS (30XГC) (annealing) , GOST 4543-71

HB 10 ⁻¹ = 229 MPa

Technological properties for grade 30KHGS (30XГC)

Weldability:	limited weldability.
Flakes :	predisposed
Temper brittleness:	predisposed

Physical properties for grade 30KHGS (30XГC)

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	1.94			7850		210
100	1.85	12	37	7830	493	
200	1.73	12.5	41	7800	504	
300	1.69	12.9	38	7760	512	
400	1.66	13.2	37	7730	533	
500	1.56	13.6	36	7700	554	
600		13.9	35	7670	584	
700			34		622	
800			32		693	
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 30KHGS (30XГC)

Warning! Indicated both exact and nearest equivalents.

Bulgaria	Poland	Czechia
BDS	PN	CSN
30ChGS	30HGS	14331

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

(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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