

Database of Steel and Alloy (Marochnik)

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

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

Characteristics for grade 25KHGSA (25XГCA).

Grade :	25KHGSA (25XГCA)
Substitute:	20XГCA
Classification :	Alloy structurall steel
Equivalent grades:	Go here

Chemical composition in % for grade 25KHGSA (25XГCA)

C	Si	Mn	Ni	S	P	Cr	Cu
0.22 - 0.28	0.9 - 1.2	0.8 - 1.1	max 0.3	max 0.025	max 0.025	0.8 - 1.1	max 0.3

Temperature of critical points for grade 25KHGSA (25XГCA).

$Ac_1 = 755$, $Ac_3(Ac_m) = 840$, $Ar_1 = 690$

Mechanical properties under T=20°C for grade 25KHGSA (25XГCA)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Bar, GOST 4543-71	Ø 15		1080	835	10	40	590	Guenching 880°C, oil, Drawing 480°C, water,
Sheet trick, GOST 11269-76			490-690		21			Normalizing
Sheet trick, GOST 11269-76			1030		10		490	Guenching and drawing
Sheet thin, GOST 11268-76			490-690		21			Normalizing
Sheet thin, GOST 11268-76			1080		10			Guenching and drawing

Brinell hardness for 25KHGSA (25XГCA) (annealing) , GOST 4543-71	HB 10 ⁻¹ = 217 MPa
Brinell hardness for 25KHGSA (25XГCA) (normalize) , Sheet trick GOST 11269-76	HB 10 ⁻¹ = 149 - 207 MPa

Technological properties for grade 25KHGSA (25XГCA)

Weldability:	without limitations.
Flakes :	predisposed

Temper brittleness:

predisposed

Physical properties for grade 25KHGSA (25XГСА)

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	2.13		35	7850		306
100	2.06	12.2	36	7830	496	338
200	1.94	13	37	7790	504	415
300	1.87	13.6	37	7760	512	501
400	1.75	14	39	7730	533	573
500	1.68	14.2	34	7690	554	660
600	1.63	14.4	32	7650	584	830
700	1.43	14.5	31	7610	622	1000
800	1.3	12.3	29		693	1100
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 25KHGSA (25XГСА)

Warning! Indicated both exact and nearest equivalents.

Bulgaria	Poland
BDS	PN
25ChGSA	25HGS

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 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

[Top](#)

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