

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 20KH2N4A (20X2H4A).

Grade :	20KH2N4A (20X2H4A)
Substitute:	20XГHP, 15XH2TA, 20XГHTP
Classification :	Alloy structural steel
Equivalent grades:	Go here

Chemical composition in % for grade 20KH2N4A (20X2H4A)

C	Si	Mn	Ni	S	P	Cr	Cu
0.16 - 0.22	0.17 - 0.37	0.3 - 0.6	3.25 - 3.65	max 0.025	max 0.025	1.25 - 1.65	max 0.3

Temperature of critical points for grade 20KH2N4A (20X2H4A).

$Ac_1 = 710$, $Ac_3(Ac_m) = 800$, $Ar_1 = 640$

Mechanical properties under T=20°C for grade 20KH2N4A (20X2H4A)

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		1270	1080	9	45	780	Guenching and drawing

Brinell hardness for 20KH2N4A (20X2H4A) (annealing) , GOST 4543-71

HB 10 ⁻¹ = 269 MPa

Technological properties for grade 20KH2N4A (20X2H4A)

Weldability:	hard weldability.
Flakes :	predisposed
Temper brittleness:	weakly predisposed

Physical properties for grade 20KH2N4A (20X2H4A)

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	2.03			7850		
100			24			

Equivalent steels for grade 20KH2N4A (20X2H4A)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	France	England	Italy	Bulgaria	Poland	Czechia
-	DIN, WNr	AFNOR	BS	UNI	BDS	PN	CSN
3120 3316H	19CrNi8	20NC6	822M17	20CrNi4	20Ch2N4A	20H2N4A	16231

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).
 Helpful for specialists in grade technology, structural engineer, mechanical engineer, metallurgy and metal trader

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