

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 14KH17N2 (14X17H2).

Grade :	14KH17N2 (14X17H2) (1X17H2 ЭИ268)
Substitute:	20X17H2
Classification :	Corrosion-resistant high-temperature steel
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Chemical composition in % for grade 14KH17N2 (14X17H2)

C	Si	Mn	Ni	S	P	Cr	Ti	Cu
0.11 - 0.17	max 0.8	max 0.8	1.5 - 2.5	max 0.025	max 0.03	16 - 18	max 0.2	max 0.3

Temperature of critical points for grade 14KH17N2 (14X17H2).

$Ac_1 = 720$, $Ac_3(Ac_m) = 830$, $Ar_1 = 700$

Mechanical properties under T=20°C for grade 14KH17N2 (14X17H2)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Bar, GOST 5949-75	Ø 60		1080	835	10	30	490	Guenching 975 - 1040°C, oil, Drawing 275 - 350°C, air,
Bar, GOST 5949-75	Ø 60		835	635	16	55	750	Guenching 1000 - 1030°C, oil, Drawing 620 - 660°C, air,
Forging, GOST 25054-81	to 1000		686	539	12-15	30-40	490-590	Guenching 980 - 1020°C, oil, Drawing 680 - 700°C, air,
Sheet trick, GOST 7350-77			1080	885	10			Guenching and drawing

Brinell hardness for 14KH17N2 (14X17H2) (quenching, tempering) , GOST 25054-81	HB 10 ⁻¹ = 228 - 293 MPa
Brinell hardness for 14KH17N2 (14X17H2) (annealing) , Bar GOST 5949-75	HB 10 ⁻¹ = 285 MPa
Brinell hardness for 14KH17N2 (14X17H2) (annealing) , Bar GOST 18907-73	HB 10 ⁻¹ = 302 MPa

Technological properties for grade 14KH17N2 (14X17H2)

Weldability:	hard weldability.
Temper brittleness:	predisposed

Physical properties for grade 14KH17N2 (14X17H2)

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	1.97		20.9	7750		720
100		9.8	21.7			780

200		10.6	22.6			840
300	1.67	10.8	23.4			890
400		11	24.3			990
500	1.51	11.1	25.1			1040
600	1.36	11.8	25.9			1110
700		11	26.8			1130
800		10.7	28			1160
900		11.4	29.7			1170
1000		11.5				1180
T	$E \cdot 10^{-5}$	$\alpha \cdot 10^6$	λ	ρ	C	$R \cdot 10^9$

Equivalent steels for grade 14KH17N2 (14X17H2)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England
-	DIN, WNr	JIS	AFNOR	BS
431	X20CrNi72 X22CrNi17	SUS431	Z15CN16-02	431S29

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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