

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 30KHN3A (30XH3A).

Grade :	30KHN3A (30XH3A)
Substitute:	30X2ГН2, 25X2ГНТА, 34XH2M
Classification :	Alloy structural steel
Equivalent grades:	Go here

Chemical composition in % for grade 30KHN3A (30XH3A)

C	Si	Mn	Ni	S	P	Cr	Cu
0.27 - 0.33	0.17 - 0.37	0.3 - 0.6	2.75 - 3.15	max 0.025	max 0.025	0.6 - 0.9	max 0.3

Temperature of critical points for grade 30KHN3A (30XH3A).

$A_{c1} = 700$, $A_{c3}(A_{cm}) = 800$, $A_{r3}(A_{rcm}) = 680$, $A_{r1} = 610$, $M_n = 305$

Mechanical properties under $T=20^{\circ}\text{C}$ for grade 30KHN3A (30XH3A)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m^2	-
Bar	$\varnothing 5$		1670	1420	13	50	660	Guenching 850°C , oil, Drawing 200°C , air,
Bar	$\varnothing 20$		1670	1370	12	45	490	Guenching 850°C , oil, Drawing 200°C , air,
Bar, GOST 4543-71	$\varnothing 25$		980	785	10	50	780	Guenching 820°C , oil, Drawing 530°C , water,

Brinell hardness for 30KHN3A (30XH3A) (annealing), GOST 4543-71

$HB\ 10^{-1} = 241\ \text{MPa}$

Technological properties for grade 30KHN3A (30XH3A)

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

Physical properties for grade 30KHN3A (30XH3A)

T	$E\ 10^{-5}$	$\alpha\ 10^6$	λ	ρ	C	$R\ 10^9$
Grade	MPa	1/Grade	Watt/(m·Grade)	kg/m^3	J/(kg·Grade)	Ohm·m
20	2.15		34	7850		268

100	2.07	10.8	35	7830	494	317
200	1.95	11.5	36	7800	504	387
300	1.87	12.2	36	7770	518	469
400	1.75	12.8	36	7730	536	567
500	1.71	13.2	35	7700	558	681
600		13.5	31	7670	587	817
700			28	7690	657	981
800			27	7650	703	
900				7600	695	
1000					687	
T	$E \cdot 10^{-5}$	$\alpha \cdot 10^6$	λ	ρ	C	$R \cdot 10^9$

Equivalent steels for grade 30KHN3A (30XH3A)

Warning! Indicated both exact and nearest equivalents.

Germany	Japan	France	Bulgaria	Poland	Czechia
DIN, WNr	JIS	AFNOR	BDS	PN	CSN
1.5755 30NiCr14 31NiCr14	SNC631 SNC836	30NC11 30NC11FF 30NC12	30ChN3A	37HN3A	16440

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, carbene 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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