

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 34KHN3M (34XH3M).

Grade :	34KHN3M (34XH3M)
Substitute:	35XHB, 35XГНМ, 38Х2НМ, 34ХН1М, 34ХН3МА, 34ХН3МФА
Classification :	Alloy structural steel
Equivalent grades:	Is absent

Chemical composition in % for grade 34KHN3M (34XH3M)

C	Si	Mn	Ni	S	P	Cr	Mo
0.3 - 0.4	0.17 - 0.37	0.5 - 0.8	2.75 - 3.25	max 0.035	max 0.03	0.7 - 1.1	0.25 - 0.4

Temperature of critical points for grade 34KHN3M (34XH3M).

$A_{c1} = 720$, $A_{c3}(A_{cm}) = 790$, $A_{r3}(A_{rcm}) = 490$

Mechanical properties under T=20°C for grade 34KHN3M (34XH3M)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Forging	100 - 300		785	640	12	38	490	Normalizing

Brinell hardness for 34KHN3M (34XH3M) ,

HB 10⁻¹ = 277 - 321 MPa

Technological properties for grade 34KHN3M (34XH3M)

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

Physical properties for grade 34KHN3M (34XH3M)

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	2.07			7830		
100	2.03	10.8	36	7810		
200	1.98	11.6	37	7780		
300	1.92	12.5	37			

400	1.82	13.3	37	7710		
500	1.73	13.5	35			
600		13.7	31	7650		
700			28			
T	$E \cdot 10^{-5}$	$\alpha \cdot 10^6$	λ	ρ	C	$R \cdot 10^9$

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

[Top](#)

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