

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 45KHNM (45XHM).

Grade :	45KHNM (45XHM)
Substitute:	40XH2MA
Classification :	Tool steel for roller
Equivalent grades:	Is absent

Chemical composition in % for grade 45KHNM (45XHM)

C	Si	Mn	Ni	S	P	Cr	Mo
0.4 - 0.5	0.17 - 0.37	0.5 - 0.8	1.2 - 1.6	max 0.04	max 0.04	1.3 - 1.7	0.1 - 0.3

Temperature of critical points for grade 45KHNM (45XHM).

$Ac_1 = 750$, $Ac_3(Ac_m) = 780$

Mechanical properties under T=20°C for grade 45KHNM (45XHM)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Forging	100 - 300		635	440	14	40	540	Normalizing

Brinell hardness for 45KHNM (45XHM) (normalize) ,	HB 10 ⁻¹ = 197 - 248 MPa
Brinell hardness for 45KHNM (45XHM) (quenching, tempering) ,	HB 10 ⁻¹ = 197 - 262 MPa

Technological properties for grade 45KHNM (45XHM)

Weldability:	is not used.
Flakes :	predisposed
Temper brittleness:	weakly predisposed

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]

Weldability :

- without limitations** - welding is done without heating and subsequent heat treeting
- limited weldability** - welding is possible under heating up to 100-120 grade and subsequent heat treeting
- hard weldability** - obtaining the quality welding needs the additional operations: heating up to 200-300 grade; the heat treeting ia 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

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