

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 5KHNM (5XHM).

Grade :	5KHNM (5XHM)
Substitute:	5XHB, 5XГМ, 4XМФC, 5XHBC, 4X5B2ФC
Classification :	Die tool steel
Equivalent grades:	Go here

Chemical composition in % for grade 5KHNM (5XHM)

C	Si	Mn	Ni	S	P	Cr	Mo	Cu
0,5 - 0,6	0,1 - 0,4	0,5 - 0,8	1,4 - 1,8	max 0,03	max 0,03	0,5 - 0,8	0,15 - 0,3	max 0,3

Temperature of critical points for grade 5KHNM (5XHM).

$Ac_1 = 730$, $Ac_3(Ac_m) = 780$, $Ar_3(Arc_m) = 640$, $Ar_1 = 610$, $Mn = 230$

Mechanical properties under T=20°C for grade 5KHNM (5XHM)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Steel	100 - 200		1570	1420	9	35	340	Guenching 850°C, oil, Drawing 460 - 520°C,

Brinell hardness for 5KHNM (5XHM) (annealing) , GOST 5950-2000	HB 10 ⁻¹ = 241 MPa
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Technological properties for grade 5KHNM (5XHM)

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

Physical properties for grade 5KHNM (5XHM)

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						
100			38			300
200		12.6	40			250
300			42			200
400			42			160
500			44			
600		14.2	46			
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 5KHNM (5XHM)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy	Spain	China	Sweden	Bulgaria	Hungary	Poland	Romania	Czechia	Austria	South Korea
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI	UNE	GB	SS	BDS	MSZ	PN	STAS	CSN	ONORM	KS
L6 T61206	1.2711 1.2713 55NiCrMoV5 55NiCrMoV6 56CrNiMoV7 G55NiCrMoV6	SKT3 SKT4	55NCDV7 55NiCrMoV7	BH224/5	1.2714 55NiCrMoV7	44NiCrMoV7KU 55NiCrMoV7KU	F.520S	5CrNiMo	2550	5ChNM	NK	WNL WNL1	55MoCrNi16 55VMoCrNi16	19662	W502	STF4

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 / m ²]
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/m ³]
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 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).
Helpful for specialists in grade technology, structural engineer, mechanical engineer, metallurgy and metal trader

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