

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 45KH14N14V2M (45X14H14B2M).

Grade :	45KH14N14V2M (45X14H14B2M)
Classification :	High alloy high-temperature steel
Equivalent grades:	Go here

Chemical composition in % for grade 45KH14N14V2M (45X14H14B2M)

C	Si	Mn	Ni	S	P	Cr	Mo	W
0.4 - 0.5	max 0.8	max 0.7	13 - 15	max 0.02	max 0.035	13 - 15	0.25 - 0.4	2 - 2.8

Mechanical properties under T=20°C for grade 45KH14N14V2M (45X14H14B2M)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Bar, GOST 5949-75			710	315	20	35		Drawing 810 - 830°C, air,

Brinell hardness for 45KH14N14V2M (45X14H14B2M) (annealing), Bar GOST 5949-75	HB 10 ⁻¹ = 197 - 285 MPa
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Technological properties for grade 45KH14N14V2M (45X14H14B2M)

Weldability:	hard weldability.
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Physical properties for grade 45KH14N14V2M (45X14H14B2M)

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	2.08		14	8000		815
100	1.96		16			875
200	1.9	17	17	7930		945
300	1.81		19		507	1000
400	1.73	18	20	7840	511	1055
500	1.66		21		523	1098
600	1.57	18	22	7760	528	1142
700	1.49		24			1172
800	1.41	19		7660		
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 45KH14N14V2M (45X14H14B2M)

Warning! Indicated both exact and nearest equivalents.

USA	Japan	France	England	Hungary	Poland	Czechia
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-	JIS	AFNOR	BS	MSZ	PN	CSN
S66009	SUH31	Z35CNWS14-14	331S42	SZ8	4H14N14W2M	17322

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 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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