

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 09KH14N19V2BR (09X14H19B2BP).

Grade :	09KH14N19V2BR (09X14H19B2BP)(1X14H18B2BP ЭИ695P)
Classification :	High alloy high-temperature steel
Equivalent grades:	Is absent

Chemical composition in % for grade 09KH14N19V2BR (09X14H19B2BP)

C	Si	Mn	Ni	S	P	Cr	W	Nb	B
0.07 - 0.12	max 0.6	max 2	18 - 20	max 0.02	max 0.035	13 - 15	2 - 2.8	0.9 - 1.3	max 0.005

Mechanical properties under T=20°C for grade 09KH14N19V2BR (09X14H19B2BP)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Bar, GOST 5949-75			510	215	35	50		Guenching 1140 - 1160°C, air,
Blank for pipe			500	220	38	50	1400	Guenching 1100°C, water,

Technological properties for grade 09KH14N19V2BR (09X14H19B2BP)

Weldability:	hard weldability.
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Physical properties for grade 09KH14N19V2BR (09X14H19B2BP)

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			8100		816
100		15.9	13.7	8070		873
200		16.5	16.2	8030		934
300		17.2	18.6	7980		988
400		16.6	20.5	7940		1036
500		18	22.6	7890		1078
600	1.58	18.3	24.4	7850		1114
700	1.51	18.6		7800		1115
800		18.7	26.4	7750		1172
900		19	28			1198
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 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 / 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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