

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 18KH11MNFБ (18X11MHΦБ).

Grade :	18KH11MNFБ (18X11MHΦБ)(2X11MΦБH ЭП291)
Classification :	High alloy high-temperature steel
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Chemical composition in % for grade 18KH11MNFБ (18X11MHΦБ)

C	Si	Mn	Ni	S	P	Cr	Mo	V	Nb
0.15 - 0.21	max 0.6	0.6 - 1	0.5 - 1	max 0.025	max 0.03	10 - 11.5	0.8 - 1.1	0.2 - 0.4	0.2 - 0.45

Mechanical properties under T=20°C for grade 18KH11MNFБ (18X11MHΦБ)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Bar, GOST 5949-75			740	590-735	15	50	590	Guenching 1080 - 1130°C, air, Drawing 660 - 770°C, air,
Bar, GOST 18968-73			740	590-735	15	50	590	Normalizing and drawing

Brinell hardness for 18KH11MNFБ (18X11MHΦБ) (annealing), Bar GOST 5949-75	HB 10 ⁻¹ = 225 MPa
Brinell hardness for 18KH11MNFБ (18X11MHΦБ) (normalize, tempering), Bar GOST 18968-73	HB 10 ⁻¹ = 229 - 269 MPa

Technological properties for grade 18KH11MNFБ (18X11MHΦБ)

Weldability:	hard weldability.
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Physical properties for grade 18KH11MNFБ (18X11MHΦБ)

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	2.28			7850		
100	2.22	10.3	21.4		485	
200	2.13	10.6	25.1		530	
300	2.05	10.8	25.9		590	
400	1.93	11.3	26.3		667	
500	1.8	11.7	27.2		770	
600		11.8	28		900	
700		12				
800		12.4				
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 18KH11MNFB (18X11MHΦБ)

Warning! Indicated both exact and nearest equivalents.

Germany
DIN,WNr
X22CrMoV12-1

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	- Termal (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 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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