

Database of Steel and Alloy (Marochnik)

splav.kharkov.com/en

[Home](#) [European steel grades](#) [Steel and Alloy](#) [Search](#) [Equivalent grades](#) [Grading](#) [GOST Standard](#) [Contacts](#)

YOU HERE: [Steel and Alloy](#) -> [High-temperature or heat-resistant steel and alloy](#)

Characteristics for grade 15KH11MF (15X11MΦ).

Grade :	15KH11MF (15X11MΦ) (1X11MΦ)
Classification :	High alloy high-temperature steel
Equivalent grades:	Go here

Chemical composition in % for grade 15KH11MF (15X11MΦ)

C	Si	Mn	Ni	S	P	Cr	Mo	V	Cu
0.12 - 0.19	max 0.5	max 0.7	max 0.6	max 0.025	max 0.03	10 - 11.5	0.6 - 0.8	0.25 - 0.4	max 0.3

Temperature of critical points for grade 15KH11MF (15X11MΦ).

, $A_{c3}(A_{cm}) = 880$

Mechanical properties under T=20°C for grade 15KH11MF (15X11MΦ)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Bar, GOST 5949-75			690	490	15	55	590	Guenching 1030 - 1060°C, oil, Guenching 700 - 740°C, oil,
Bar, GOST 18968-73			740	590-755	15	50	590	Normalizing and drawing

Brinell hardness for 15KH11MF (15X11MΦ) (annealing), Bar GOST 5949-75	HB 10 ⁻¹ = 229 MPa
Brinell hardness for 15KH11MF (15X11MΦ) (normalize, tempering), Bar GOST 18968-73	HB 10 ⁻¹ = 229 - 269 MPa

Technological properties for grade 15KH11MF (15X11MΦ)

Weldability:	hard weldability.
--------------	-------------------

Physical properties for grade 15KH11MF (15X11MΦ)

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			500	
200	2.13	10.6	24.4		525	
300	2.05	10.8	26.1		567	
400	1.93	11.3	27.2		630	
500	1.8	11.7	27.6		700	
600		12	28		800	
700		12.2				

800		12.4				
T	$E \cdot 10^{-5}$	$\alpha \cdot 10^6$	λ	ρ	C	$R \cdot 10^9$

Equivalent steels for grade 15KH11MF (15X11MΦ)

Warning! Indicated both exact and nearest equivalents.

Poland
PN
15H11MF

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]

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/m³]
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

[Top](#)© 2003 - 2013 All rights reserved. [About program.](#)

The entire risk as to use of the Database of Steel and Alloy (Marochnik) content is assumed by you the user

