

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 10KH11N20T3R (10X11H20T3P).

Grade :	10KH11N20T3R (10X11H20T3P)(X12H20T3P ЭИ696)
Classification :	High alloy high-temperature steel
Equivalent grades:	Is absent

Chemical composition in % for grade 10KH11N20T3R (10X11H20T3P)

C	Si	Mn	Ni	S	P	Cr	Ti	Al	B
max 0.1	max 1	max 1	18 - 21	max 0.02	max 0.035	10 - 12.5	2.6 - 3.2	max 0.8	max 0.02

Mechanical properties under T=20°C for grade 10KH11N20T3R (10X11H20T3P)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Sheet cold-rolled			600		40			Guenching 1100°C, air,
Bar, GOST 5949-75			880	590	10	15	290	Hardening and ageing

Physical properties for grade 10KH11N20T3R (10X11H20T3P)

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	1.6		15.2	7900		
100		15.9	16.3			
200		17.4	17.5			
300		18.8	18.8			
400	1.4	19.9	20.5			
500	1.35	20.3	22.6			
600	1.32	21.1	23.8			
700	1.15	21.8	25.1			
800	1.13	21.6	26.8			
900	0.9	21.3	28.5			
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 / 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]

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

[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

