

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 20KH1M1F1TR (20X1M1Φ1TP).

Grade :	20KH1M1F1TR (20X1M1Φ1TP)(ЭП182)
Classification :	Relaxation-resistant steel
Equivalent grades:	Is absent

Chemical composition in % for grade 20KH1M1F1TR (20X1M1Φ1TP)

C	Si	Mn	Ni	S	P	Cr	Mo	V	Ti	B
0.17 - 0.24	max 0.37	max 0.5	max 0.5	max 0.03	max 0.03	0.9 - 1.4	0.8 - 1.1	0.7 - 1	0.05 - 0.12	max 0.005

Temperature of critical points for grade 20KH1M1F1TR (20X1M1Φ1TP).

$Ac_1 = 800 - 830$, $Ac_3(Ac_m) = 890 - 930$

Mechanical properties under T=20°C for grade 20KH1M1F1TR (20X1M1Φ1TP)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Rolled stock, GOST 20072-74		longitudinal	780	665	15	50	590	Guenching 980°C, oil, Drawing 700°C, 5 - 7h,

Brinell hardness for 20KH1M1F1TR (20X1M1Φ1TP) (hot-rolled, annealing) , GOST 20072-74

HB 10 ⁻¹ = 229 MPa

Physical properties for grade 20KH1M1F1TR (20X1M1Φ1TP)

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	2.15			7850		
100	2.12		42.3			
200	2.08	12	40.6			
300	2.02	12.3	40.2			
400	1.94	12.85	39.8			
500	1.83	13	39.4			
600	1.74	13.5	38.9			
700	1.53	13.55	38.5			
800			38.1			
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]

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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