

Database of Steel and Alloy (Marochnik)

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Characteristics for grade KHN77TYUR (XH77TIOP).

Grade :	KHN77TYUR (XH77TIOP) (ЭИ437Б ХН77ТЮР-ВД ЭИ437Б-ВД)
Classification :	High-temperature or heat-resistant alloy
Equivalent grades:	Go here

Chemical composition in % for grade KHN77TYUR (XH77TIOP)

Fe	C	Si	Mn	Ni	S	P	Cr	Ce	Ti	Al	B	Pb
max 1	max 0.07	max 0.6	max 0.4	70.076 - 77.4	max 0.007	max 0.015	19 - 22	max 0.02	2.4 - 2.8	0.6 - 1	max 0.01	max 0.001

Comment: Ni is a basis; the percentage of Ni is given approximately.

Mechanical properties under T=20°C for grade KHN77TYUR (XH77TIOP)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Sheet, GOST 24982-81	to 3.9		930		20			Guenching 1080 - 1120°C, Cooling water, Ageing 750°C, 5h,
Bar, GOST 23705-79		longitudinal	740	620	15	20	400	Guenching 1080°C, 8h, air, Ageing 700°C, 16h, air,

Brinell hardness for KHN77TYUR (XH77TIOP) (quenching), Bar GOST 23705-79	HB 10 ⁻¹ = 255 - 321 MPa
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Technological properties for grade KHN77TYUR (XH77TIOP)

Weldability:	hard weldability.
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Physical properties for grade KHN77TYUR (XH77TIOP)

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	1.96		12.6	8200		
100		12.67	13.9	8180		1247
200		12.9	15.6	8140		1262
300		13.3	17.2	8110		1282
400		13.8	18.8	8070		1300
500		14.2	20.9	8040		1308
600	1.57	14.6	23.5	8000		1288
700	1.47	15.1	25.1	7960		1272
800	1.28	15.5	28.2	7920		1253
900		16.2	31.1	7870		1232
1000		16.8				

T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹
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Equivalent steels for grade KHN77TYUR (XH77TIOP)

Warning! Indicated both exact and nearest equivalents.

Germany	Japan
DIN, WNr	JIS
2.4952 NiCr20TiAl	NCF80A

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).
 Helpfull for specialists in grade technology, structural engineer, mechanical engineer, metallurgy and metal trader

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