

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 38KH2MYUA (38X2MIOA).

Grade :	38KH2MYUA (38X2MIOA) (38XMIOA)
Substitute:	38X2IOA, 38XBΦЮ, 20X3MBΦ, 38X2Ю
Classification :	Relaxation-resistant steel
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Chemical composition in % for grade 38KH2MYUA (38X2MIOA)

C	Si	Mn	Ni	S	P	Cr	Mo	Al	Cu
0.35 - 0.42	0.2 - 0.45	0.3 - 0.6	max 0.3	max 0.025	max 0.025	1.35 - 1.65	0.15 - 0.25	0.7 - 1.1	max 0.3

Temperature of critical points for grade 38KH2MYUA (38X2MIOA).

$Ac_1 = 800$, $Ac_3(Ac_m) = 940$, $Ar_1 = 730$
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Mechanical properties under T=20°C for grade 38KH2MYUA (38X2MIOA)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Pipe, GOST 21729-76			392		20			
Bar, GOST 4543-71	Ø 30		980	835	14	50	880	Guenching and drawing

Brinell hardness for 38KH2MYUA (38X2MIOA) (annealing) , GOST 4543-71	HB 10 ⁻¹ = 229 MPa
Brinell hardness for 38KH2MYUA (38X2MIOA) (cold-worked) , GOST 4543-71	HB 10 ⁻¹ = 255 MPa

Technological properties for grade 38KH2MYUA (38X2MIOA)

Weldability:	is not used.
Flakes :	predisposed
Temper brittleness:	not predisposed

Physical properties for grade 38KH2MYUA (38X2MIOA)

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	2.09		33	7710		
100	2.02	11.5	33		496	
200	1.94	11.8	32		517	
300	1.9	12.7	31		533	
400	1.81	13.4	20		546	

500	1.74	13.9	20		575	
600	1.62	14.7	28		609	
700	1.47	14.9	27		638	
800	1.37		27		676	
T	$E \cdot 10^{-5}$	$\alpha \cdot 10^6$	λ	ρ	C	$R \cdot 10^9$

Equivalent steels for grade 38KH2MYUA (38X2MIOA)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy	Spain	China	Sweden	Poland	Czechia	South Korea
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI	UNE	GB	SS	PN	CSN	KS
Cl.A J24056 K24065 K24728	1.8509 41CrAlMo7	SACM645	40CAD6-12	905M39	41CrAlMo7	41CrAlMo7	F.174	38CrMoAl	2940	38HMJ	15340	SACM645

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

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