

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 15KHM (15XM).

Grade :	15KHM (15XM)
Classification :	Low alloy high-temperature steel
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Chemical composition in % for grade 15KHM (15XM)

C	Si	Mn	Ni	S	P	Cr	Mo	Cu
0.11 - 0.18	0.17 - 0.37	0.4 - 0.7	max 0.3	max 0.035	max 0.035	0.8 - 1.1	0.4 - 0.55	max 0.3

Temperature of critical points for grade 15KHM (15XM).

$Ac_1 = 740$, $Ac_3(Ac_m) = 875$

Mechanical properties under T=20°C for grade 15KHM (15XM)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Pipe, GOST 8731-87			431	225	21			
Bar		longitudinal	540	350	25	67	2700	Normalizing 900 - 920°C, Drawing 630 - 650°C, air,
Bar, GOST 4543-71	Ø 30		440	275	21	55	1180	Guenching 880°C, air, Drawing 650°C, air,

Brinell hardness for 15KHM (15XM) (annealing), GOST 4543-71	HB 10 ⁻¹ = 179 MPa
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Technological properties for grade 15KHM (15XM)

Weldability:	without limitations.
Flakes :	predisposed
Temper brittleness:	not predisposed

Physical properties for grade 15KHM (15XM)

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	2.05			7850		
100		12.2	44	7830	487	
200		13	41	7800		
300		13.3	41	7760		
400		13.7	39	7730		
450	1.72					
500		14	36	7700		
600		14.3	34	7660		
700		14.5				
800		13.4	29			
900		11.2	29			
1000		12.5				
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 15KHM (15XM)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy	Belgium	Spain	China	Sweden	Bulgaria	Hungary	Poland	Romania	Czechia	Austria	Sou Korea
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI	NBN	UNE	GB	SS	BDS	MSZ	PN	STAS	CSN	ONORM	KS
A387Gr.12Cl.2	1.7262	SCM415	12CD4	13CrMo4-5	1.7335	13CrMo4-5	14CrMo45	12CrMo4	12CrMo	2216	13CrMo4-5	13CrMo4-5	15HM	14CrMo4	15121	13CrMo4-4KW	SFVA
K11562	1.7335	SCM415H	13CrMo4-5	1501-620	13CrMo4-5	14CrMo3		14CrMo4-5	12CrMoG		14ChM	KL9					STH#
K11564	1.7337	SFVAF12	5	1501-621		16CrMo3		F.2631	15CrMo		15ChM						STH#
K11572	13CrMo4-4	STBA20	14CrMo4-5	620-440		18CrMo45KG			15CrMoG								
K11597	13CrMo4-5	STBA22	15CD3.5	620-470		18CrMo45KW			15CrMoR								
K11757	5	STFA22	15CD4.05	620-540		A18CrMo4-5KW											
K11789	15CrMo5	STPA20	15CD4.5			B18CrMo4-5KG											
K12062	16CrMo4-4	STPA22															

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]

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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