

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](#) -> [Structural steel](#)

Characteristics for grade 35KH (35X).

Grade :	35KH (35X)
Substitute:	40X, 35XP
Classification :	Alloy structural steel
Equivalent grades:	Go here

Chemical composition in % for grade 35KH (35X)

C	Si	Mn	Ni	S	P	Cr	Cu
0.31 - 0.39	0.17 - 0.37	0.5 - 0.8	max 0.3	max 0.035	max 0.035	0.8 - 1.1	max 0.3

Temperature of critical points for grade 35KH (35X).

$Ac_1 = 743$, $Ac_3(Ac_m) = 782$, $Ar_3(Arc_m) = 730$, $Ar_1 = 693$, $Mn = 360$

Mechanical properties under T=20°C for grade 35KH (35X)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Bar, GOST 4543-71	Ø 25		910	735	11	45	690	Guenching 860°C, oil, Drawing 500°C, water,
Forging	to 100		655	490	16	45	590	Guenching and drawing
Forging	100 - 300		615	395	15	40	540	Guenching and drawing

Brinell hardness for 35KH (35X) (annealing) , GOST 4543-71	HB 10 ⁻¹ = 197 MPa
Brinell hardness for 35KH (35X) (cold-worked) , GOST 4543-71	HB 10 ⁻¹ = 255 MPa
Brinell hardness for 35KH (35X) , Bar GOST 10702-78	HB 10 ⁻¹ = 170 MPa

Technological properties for grade 35KH (35X)

Weldability:	limited weldability.
Flakes :	weakly predisposed
Temper brittleness:	predisposed

Physical properties for grade 35KH (35X)

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	2.14					
100		11.3	47			
200		12	43			

300	2.07	12.9	40			
400		13.7	36			
500	1.76	14.2				
600		14.6				
T	$E \cdot 10^{-5}$	$\alpha \cdot 10^6$	λ	ρ	C	$R \cdot 10^9$

Equivalent steels for grade 35KH (35X)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy	Belgium	Spain	China	Bulgaria	Hungary	Poland	Australia	South Korea
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI	NBN	UNE	GB	BDS	MSZ	PN	AS	KS
5132	1.7033	SCr430	32C4	18C	1.7033	34Cr4	34Cr4	34Cr4	35Cr	34Cr4	34Cr4	30H	5132	SCr430
5132H	34Cr	SCr430H	32C4FF	34Cr4	34Cr4	34Cr4KB		35Cr4		35Ch	Cr1Z			SCr430H
5135	34Cr4	SCr435	34Cr4	530A32	34Cr4KD			F.8221						
5135H	34CrS4	SCr435H		530H32										
G51350				530M32										
H51320														

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

[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

