

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 5KHV2S (5XB2C).

Grade :	5KHV2S (5XB2C)
Substitute:	6XB2C
Classification :	Die tool steel
Equivalent grades:	Go here

Chemical composition in % for grade 5KHV2S (5XB2C)

C	Si	Mn	Ni	S	P	Cr	Mo	W	V	Cu
0.45 - 0.55	0.8 - 1.1	0.15 - 0.45	max 0.35	max 0.03	max 0.03	0.9 - 1.2	max 0.3	1.8 - 2.3	max 0.3	max 0.3

Temperature of critical points for grade 5KHV2S (5XB2C).

$Ac_1 = 775$, $Ac_3(Ac_m) = 860$, $Mn = 295$

Mechanical properties under T=20°C for grade 5KHV2S (5XB2C)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Steel			1470	1290	10	30	230	Guenching 880°C, oil, Drawing 500°C, 2h,

Brinell hardness for 5KHV2S (5XB2C) (annealing) ,

HB 10 ⁻¹ = 229 - 255 MPa

Technological properties for grade 5KHV2S (5XB2C)

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

Physical properties for grade 5KHV2S (5XB2C)

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						300
100					462	
200						420

300					462	
400						
500						690
600					655	
700						
800						1080
900					832	1150
1000					752	
T	$E \cdot 10^{-5}$	$\alpha \cdot 10^6$	λ	ρ	C	$R \cdot 10^9$

Equivalent steels for grade 5KHV2S (5XB2C)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	France	England	European	Italy	Spain	Poland	Czechia	Austria
-	DIN, WNr	AFNOR	BS	EN	UNI	UNE	PN	CSN	ONORM
S1	1.2542	55WC20	BS1	1.2550	55WCrV8KU	45WCrSi8	NZ3	19733	K455
S2	45WCrV7			55WCrV8					
SI	60WCrV			60WCrV8					

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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