

Database of Steel and Alloy (Marochnik)

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Characteristics for grade VSt3kp (BCт3кп).

Grade :	VSt3kp (BCт3кп)
Substitute:	BCт3пс
Classification :	Normal quality structural carbon steel
Equivalent grades:	Is absent

Chemical composition in % for grade VSt3kp (BCт3кп)

C	Si	Mn	Ni	S	P	Cr	Cu	As
0.14 - 0.22	max 0.07	0.3 - 0.6	max 0.3	max 0.05	max 0.04	max 0.3	max 0.3	max 0.08

Temperature of critical points for grade VSt3kp (BCт3кп).

$A_{c1} = 735$, $A_{c3}(A_{cm}) = 850$, $A_{r3}(A_{rcm}) = 835$, $A_{r1} = 680$

Mechanical properties under T=20°C for grade VSt3kp (BCт3кп)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Rolled stock hotrolled	to 20		360-460	235	27			

Technological properties for grade VSt3kp (BCт3кп)

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

Physical properties for grade VSt3kp (BCт3кп)

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	2.13			7850		
100	2.08					
200	2.02					
300	1.95					
400	1.87					
500	1.76					

600	1.67					
700	1.53					
T	$E \cdot 10^{-5}$	$\alpha \cdot 10^6$	λ	ρ	C	$R \cdot 10^9$

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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