

Database of Steel and Alloy (Marochnik)

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Characteristics for grade VSt5sp (BCт5сп).

Grade :	VSt5sp (BCт5сп)
Substitute:	Cт6сп, BCт4сп
Classification :	Normal quality structural carbon steel
Equivalent grades:	Go here

Chemical composition in % for grade VSt5sp (BCт5сп)

C	Si	Mn	Ni	S	P	Cr	Cu	As
0.28 - 0.37	0.15 - 0.35	0.5 - 0.8	max 0.3	max 0.05	max 0.04	max 0.3	max 0.3	max 0.08

Temperature of critical points for grade VSt5sp (BCт5сп).

$A_{c1} = 730$, $A_{c3}(A_{cm}) = 825$, $A_{r3}(A_{rcm}) = 815$, $A_{r1} = 690$

Mechanical properties under T=20°C for grade VSt5sp (BCт5сп)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Forging	100 - 300	longitudinal	350	175	24	50	590	Normalizing
Forging	300 - 500	longitudinal	350	175	22	45	540	Normalizing
Forging	500 - 800	longitudinal	350	175	20	40	490	Normalizing

Technological properties for grade VSt5sp (BCт5сп)

Weldability:	limited weldability.
Flakes :	not predisposed
Temper brittleness:	not predisposed

Physical properties for grade VSt5sp (BCт5сп)

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	1.98			7850		
100	1.96					
200	1.91					
300	1.85					

400	1.64					
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade VSt5sp (BCτ5cп)

Warning! Indicated both exact and nearest equivalents.

USA	Germany
-	DIN,WNr
A570-50	St50-2

Specification :**Mechanical properties :**

- σ_B** - Tensile strength , [MPa]
σ_T - Yield stress , [MPa]
δ₅ - 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 in 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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