

Database of Steel and Alloy (Marochnik)

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[Home](#) [European steel grades](#) [Steel and Alloy](#) [Search](#) [Equivalent grades](#) [Grading](#) [GOST Standard](#) [Contacts](#)

YOU HERE: [Steel and Alloy](#) -> [Structural steel](#)

Characteristics for grade VSt4kp (BCт4кп).

Grade :	VSt4kp (BCт4кп)
Classification :	Normal quality structural carbon steel
Equivalent grades:	Go here

Chemical composition in % for grade VSt4kp (BCт4кп)

C	Si	Mn	Ni	S	P	Cr	Cu	As
0.18 - 0.27	max 0.07	0.4 - 0.7	max 0.3	max 0.05	max 0.04	max 0.3	max 0.3	max 0.08

Temperature of critical points for grade VSt4kp (BCт4кп).

$Ac_1 = 735$, $Ac_3(Ac_m) = 840$, $Ar_3(Arc_m) = 825$, $Ar_1 = 680$

Mechanical properties under T=20°C for grade VSt4kp (BCт4кп)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Steel hotrolled	to 20		400-510	255	25			As-delivered state
Steel hotrolled	20 - 40		400-510	245	24			As-delivered state
Steel hotrolled	40 - 100		400-510	235	22			As-delivered state

Technological properties for grade VSt4kp (BCт4кп)

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

Physical properties for grade VSt4kp (BCт4кп)

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				7850		

Equivalent steels for grade VSt4kp (BCт4кп)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	Poland	Czechia	Austria
-	DIN,WNr	JIS	AFNOR	BS	PN	CSN	ONORM

1020	USt42-2	SS41	E25-2	43/25HR 43/25HS	St3SX	11423	St42RG St42RGT
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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](#)

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