

Database of Steel and Alloy (Marochnik)

splat.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 VSt4ps (BCт4пс).

Grade :	VSt4ps (BCт4пс)
Substitute:	BCт4пс
Classification :	Normal quality structural carbon steel
Equivalent grades:	Go here

Chemical composition in % for grade VSt4ps (BCт4пс)

C	Si	Mn	Ni	S	P	Cr	Cu	As
0.18 - 0.27	0.05 - 0.17	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 VSt4ps (BCт4пс).

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

Mechanical properties under $T=20^{\circ}C$ for grade VSt4ps (BCт4пс)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ/m^2	-
			390	240	33	70	1080	
Steel hotrolled	to 20		410-530	265	24			As-delivered state
Steel hotrolled	20 - 40		410-530	255	23			As-delivered state
Steel hotrolled	40 - 100		410-530	245	21			As-delivered state

Technological properties for grade VSt4ps (BCт4пс)

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

Physical properties for grade VSt4ps (BCт4пс)

T	$E \cdot 10^{-5}$	$\alpha \cdot 10^6$	λ	ρ	C	$R \cdot 10^9$
Grade	MPa	1/Grade	Watt/(m·Grade)	kg/m ³	J/(kg·Grade)	Ohm·m
20	1.96			7850		
100	1.83					
200	1.74					

300	1.67					
400	1.58					
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade VSt4ps (BCτ4nc)

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	St3SX	11423	St42RG

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 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

