

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](#) -> [Titanium](#)

Characteristics for grade VT6S (BT6C).

Grade :	VT6S (BT6C)
Classification :	Titanium wrought alloy
Equivalent grades:	Go here

Chemical composition in % for grade VT6S (BT6C)

Fe	C	Si	V	N	Ti	Al	Zr	O	H	Impurity
max 0.25	max 0.1	max 0.15	3.5 - 4.5	max 0.04	87.86 - 90.9	5.3 - 6.5	max 0.3	max 0.15	max 0.015	other 0.3

Comment: Ti is a basis; the percentage of Ti is given approximately.

Mechanical properties under T=20°C for grade VT6S (BT6C)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Sheet, GOST 22178-76			835		10-12			Annealing
Sheet, GOST 22178-76			980		8			Quenching and artificial aging
Bar, GOST 26492-85			755-935		6-9	15-22	250-300	Annealing
Bar, GOST 26492-85			1030		4	14	250	Hardening and ageing
Bar, GOST 26492-85			755-980		7-10	22-30	400	Annealing
Bar, GOST 26492-85			1030		6	20	300	Hardening and ageing

Brinell hardness for VT6S (BT6C) (annealing) ,	HB 10⁻¹ = 241 - 321 MPa
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Technological properties for grade VT6S (BT6C)

Weldability:	without limitations.
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Physical properties for grade VT6S (BT6C)

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				4455		

Equivalent steels for grade VT6S (BT6C)

Warning! Indicated both exact and nearest equivalents.

Germany	England
DIN, WNr	BS
LT31	IM318ELI

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 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

[Top](#)

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