

Database of Steel and Alloy (Marochnik)

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Characteristics for grade VT1-1 (BT1-1).

Grade :	VT1-1 (BT1-1)
Classification :	Titanium
Equivalent grades:	Is absent

Chemical composition in % for grade VT1-1 (BT1-1)

Fe	C	Si	N	Ti	O	H	Impurity
max 0.25	max 0.08	max 0.12	max 0.05	99.038 - 99.7	max 0.15	max 0.012	other 0.3

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

Mechanical properties under T=20°C for grade VT1-1 (BT1-1)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
			450-600	380-500	25	50		

Brinell hardness for VT1-1 (BT1-1) ,	HB 10 ⁻¹ = 131 - 163 MPa
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Technological properties for grade VT1-1 (BT1-1)

Weldability:	without limitations.
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Technological properties of the material VT1-1 (BT1-1).

Melting temperature :	1668 °C
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Physical properties for grade VT1-1 (BT1-1)

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	1.12		18.85	4505	540	
100		8.2				

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 / m ²]
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/m ³]
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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