

Database of Steel and Alloy (Marochnik)

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Characteristics for grade St1 (Cт1).

Grade :	St1 (Cт1)
Classification :	Normal quality structural carbon steel
Equivalent grades:	Is absent

Mechanical properties under T=20°C for grade St1 (Cт1)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Steel hotrolled	20 - 40		310-420		33			

Brinell hardness for St1 (Cт1) (normalize) ,	HB 10 ⁻¹ = 110 MPa
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Technological properties for grade St1 (Cт1)

Weldability:	without limitations.
Flakes :	not predisposed
Temper brittleness:	not predisposed

Physical properties for grade St1 (Cт1)

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		

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 $20^{\circ} - T$), [1/Grade]
- λ - Thermal (heat) condition coefficient, [Watt/(m·Grade)]
- ρ - Density, [kg/m³]
- C** - Specific heat (range $20^{\circ} - T$), [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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