

Database of Steel and Alloy (Marochnik)

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Characteristics for grade S590 (C590).

Grade :	S590 (C590)
Substitute:	12Г2СМΦ
Classification :	Steel for structural constructions
Equivalent grades:	Is absent

Chemical composition in % for grade S590 (C590)

C	Si	Mn	Ni	S	P	Cr	Mo	V	N	Cu
max 0.15	0.4 - 0.7	1.3 - 1.7	max 0.3	max 0.035	max 0.035	max 0.3	0.15 - 0.25	0.07 - 0.15	max 0.012	max 0.3

Mechanical properties under T=20°C for grade S590 (C590)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Sheet, GOST 27772-88	10 - 36		685	590	14			

Technological properties for grade S590 (C590)

Weldability:	without limitations.
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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 / m ²]
HB	- Brinell hardness , [MPa]

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, carbene 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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