

Database of Steel and Alloy (Marochnik)

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Characteristics for grade S345 (C345).

Grade :	S345 (C345)
Substitute:	12Г2С, 09Г2С
Classification :	Steel for structural constructions
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Chemical composition in % for grade S345 (C345)

C	Si	Mn	Ni	S	P	Cr	N	Cu
max 0.15	max 0.8	1.3 - 1.7	max 0.3	max 0.04	max 0.035	max 0.3	max 0.012	max 0.3

Mechanical properties under T=20°C for grade S345 (C345)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Sheet, GOST 27772-88	2 - 3.9		490	345	15			
Sheet, GOST 27772-88	4 - 10		490	345	21			
Sheet, GOST 27772-88	10 - 20		470	325	21			
Sheet, GOST 27772-88	20 - 40		460	305	21			
Sheet, GOST 27772-88	40 - 60		450	285	21			
Sheet, GOST 27772-88	60 - 80		440	275	21			
Sheet, GOST 27772-88	80 - 160		430	265	21			

Technological properties for grade S345 (C345)

Weldability:	without limitations.
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Equivalent steels for grade S345 (C345)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy	China	Sweden	Poland	Czechia	Austria
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI	GB	SS	PN	CSN	ONORM
Gr.50type1-4	1.0570 St52-3	SM490	E36-3	50C	1.0570 S355J2G3	Fe510	16Mn	2132	G355	11483	St52F

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]

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).
Helpful for specialists in grade technology, structural engineer, mechanical engineer, metallurgy and metal trader

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