

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 08 (08).

Grade :	08 (08)
Substitute:	10
Classification :	High quality structural carbon steel
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Chemical composition in % for grade 08 (08)

C	Si	Mn	Ni	S	P	Cr	Cu	As
0.05 - 0.12	0.17 - 0.37	0.35 - 0.65	max 0.3	max 0.4	max 0.035	max 0.1	max 0.3	max 0.08

Temperature of critical points for grade 08 (08).

Ac ₁ = 735 , Ac ₃ (Ac _m) = 874 , Ar ₃ (Arc _m) = 854 , Ar ₁ = 680
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Mechanical properties under T=20°C for grade 08 (08)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Sheet heat-treatment, GOST 4041-71	4 - 8		270-410		32			
Bar cold-drawn , GOST 10702-78			310-410			55		Annealing
Rolled stock, GOST 1050-88	to 80		320	196	33	60		Normalizing
Rolled stock, GOST 10702-78			370		8	55		
Strip, GOST 1577-93	6 - 60		320	196	33	60		Normalizing

Brinell hardness for 08 (08) (hot-rolled) , GOST 1050-88	HB 10 ⁻¹ = 131 MPa
Brinell hardness for 08 (08) (cold-drawn, cold-worked) , GOST 1050-88	HB 10 ⁻¹ = 179 MPa
Brinell hardness for 08 (08) , Sheet GOST 4041-71	HB 10 ⁻¹ = 109 MPa
Brinell hardness for 08 (08) , Rolled stock GOST 1050-88	HB 10 ⁻¹ = 131 MPa

Technological properties for grade 08 (08)

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

Physical properties for grade 08 (08)

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	2.03			7871		
100	2.07	12.5	60	7846	482	178
200	1.82	13.4	56	7814	498	252
300	1.53	14	51	7781	514	341
400	1.41	14.5	47	7745	533	448
500		14.9	41	7708	555	575
600		15.1	37	7668	584	725
700		15.3	34	7628	626	898
800		14.7	30	7598	695	1073
900		12.7	27	7602	703	1124
1000		13.8			695	

T	E 10⁻⁵	α 10⁶	λ	ρ	C	R 10⁹
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Equivalent steels for grade 08 (08)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy	Belgium	Spain	China	Sweden	Bulgaria	Hungary	Poland	Romania	Czechia	Austria	Australia	Switzerland	South Korea
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI	NBN	UNE	GB	SS	BDS	MSZ	PN	STAS	CSN	ONORM	AS	SNV	KS
1008	1.1121	S10C	AF-34	040A10	1.1121	2C10	C10-2	C10E	08	1146	08	C10	08X	OLC10X	12010	RC12	1010	Ck10	SM10C
1010	C10	S9CK	C10RR	045A10	2C10	2C15		F.151	08F	1265			10				A1010		SM9CK
1011	C10D	SPHE	XC10	045M10	C10E	C10											CA1010		
G10080	Ck10	SWR1		C10E													HA1010		
G10100	DC01																		
M1010	DC04G1																		
	DD13																		
	St12																		

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 20⁰ - T) , [1/Grade]
 λ - Termal (heat) condition coefficient , [Watt/(m · Grade)]
 ρ - Density , [kg/m³]
C - Specific heat (range 20⁰ - T) , [J/(kg · Grade)]
R - Electrical resistance , [Ohm · m]

Weldability :

- without limitations** - welding is done without heating and subsequent heat treeting
limited weldability - welding is possible under heating up to 100-120 grade and subsequent heat treeting
hard weldability - obtaining the quality welding needs the additional operations: heating up to 200-300 grade; the heat treeting ia annealing

Database of steels and alloys (Marochnik) contains information about chemical composition and properties more then 2500 steels and alloys (stainless steel, alloy steel, carbone 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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