

Database of Steel and Alloy (Marochnik)

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Characteristics for grade 25L (25Л).

Grade :	25L (25Л)
Substitute:	20Л, 30Л
Classification :	Non-alloy casting steel
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Chemical composition in % for grade 25L (25Л)

C	Si	Mn	S	P
0.22 - 0.3	0.2 - 0.52	0.45 - 0.9	max 0.06	max 0.06

Temperature of critical points for grade 25L (25Л).

$A_{c1} = 735$, $A_{c3}(A_{cm}) = 840$, $A_{r3}(A_{rcm}) = 824$, $A_{r1} = 680$

Mechanical properties under T=20°C for grade 25L (25Л)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Casting, GOST 977-88	to 100		441	235	19	30	392	Normalizing 880 - 900°C, Drawing 610 - 630°C,
Casting, GOST 977-88			491	294	22	33	343	

Brinell hardness for 25L (25Л) ,

HB 10 ⁻¹ = 124 - 207 MPa

Technological properties for grade 25L (25Л)

Weldability:	limited weldability.
Flakes :	not predisposed
Temper brittleness:	not predisposed

Technological properties of the material 25L (25Л) .

Linear shrinkage :	2.2 - 2.3 %
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Heat treatment of the material 25L (25Л)

Normalizing 880 - 900 ° C, Tempering 610 - 630 ° C

Physical properties for grade 25L (25Л)

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			51	7830		
100		11.5	76		470	
200		12.9	65		483	
300		13	44			
400		13.2	38		525	
500		13.5				
600					571	
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 25L (25Л)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	Italy	Sweden	Bulgaria	Hungary	Poland	Romania	Czechia	Austria
-	DIN,WNr	JIS	AFNOR	BS	UNI	SS	BDS	MSZ	PN	STAS	CSN	ONORM
2A A10 GrLCA GrWCB N1	1.0443 1.0446 GS-45 GS45	SC410 SC46	230-400-M A48M1 FA-M	161-430 161-430A	FeG45	1305	25LI 25LII	Ao450FK	L450 LII400	OT450-3	422640	GS45

Specification :
Mechanical properties :

- σ_B** - Tensile strength , [MPa]
σ_T - Yield stress , [MPa]
δ₅ - 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° - T) , [1/Grade]
λ - Thermal (heat) condition coefficient , [Watt/(m·Grade)]
ρ - Density , [kg/m³]
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).
Helpful for specialists in grade technology, structural engineer, mechanical engineer, metallurgy and metal trader

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