

Database of Steel and Alloy (Marochnik)

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Characteristics for grade SHKH15SG (ШХ15Г).

Grade :	SHKH15SG (ШХ15Г)
Substitute:	XBГ, ШХ15, 9XC, XBCГ
Classification :	Bearing structural steel
Equivalent grades:	Go here

Chemical composition in % for grade SHKH15SG (ШХ15Г)

C	Si	Mn	Ni	S	P	Cr	Ti	Cu	O
0.95 - 1.05	0.4 - 0.65	0.9 - 1.2	max 0.3	max 0.02	max 0.027	1.3 - 1.65	max 0.01	max 0.25	max 0.0015

Temperature of critical points for grade SHKH15SG (ШХ15Г).

$Ac_1 = 750$, $Ac_3(Ac_m) = 910$, $Ar_1 = 688$, $Mn = 205$

Mechanical properties under T=20°C for grade SHKH15SG (ШХ15Г)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Steel			590-730	370-410	20	45	440	Annealing 790 - 810°C, Cooling oven, 15 °C/h,

Brinell hardness for SHKH15SG (ШХ15Г) (hot-rolled) , Rolled stock GOST 801-78	HB 10 ⁻¹ = 179 - 217 MPa
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Technological properties for grade SHKH15SG (ШХ15Г)

Flakes :	predisposed
Temper brittleness:	predisposed

Physical properties for grade SHKH15SG (ШХ15Г)

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	2.11			7650		
100						
200		13.4				
300		13.6				
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade SHKH15SG (ШХ15СГ)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Spain	China	Bulgaria	Hungary	Poland	Romania	Czechia
-	DIN, WNr	JIS	AFNOR	BS	EN	UNE	GB	BDS	MSZ	PN	STAS	CSN
A485 Gr.2 K19195	1.3520 100CrMn6	SUJ3	100CM6 100CrMn6	535A99	1.3520 100CM6 100CrMn6	100CrMn6	Cr9SiMn GCr15SiMn GCr9SiMn	SchCh15SG	GO4	LH15SG	RUL2 RUL2v	14209

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° - 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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