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Characteristics for grade 20KH23N18 (20X23H18).

Grade :	20KH23N18 (20X23H18) (X23H18 3H417)
Substitute:	20X23H13, 15X25T
Classification :	High alloy high-temperature steel
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Chemical composition in % for grade 20KH23N18 (20X23H18)

C	Si	Mn	Ni	S	P	Cr
max 0.2	max 1	max 2	17 - 20	max 0.02	max 0.035	22 - 25

Mechanical properties under T=20°C for grade 20KH23N18 (20X23H18)

Assortment	Dimension	Direct.	σ_B	σ_T	δ_5	ψ	KCU	Heat treatment
-	mm	-	MPa	MPa	%	%	kJ / m ²	-
Pipe	Ø 212 x 60	longitudinal	500	200	35	50		Guenching 1100 - 1150°C, air,
Bar, GOST 5949-75		longitudinal	490	196	35	50		Guenching 1100 - 1150°C, air,
Sheet thick, GOST 7350-77			540	265	35			Guenching 1030 - 1130°C, Cooling water,
Sheet thin, GOST 5582-75			510	245	35			Guenching 1080 - 1150°C, Cooling water,
Sheet thin, GOST 4986-79			570		19-38			Guenching 1050 - 1080°C, Cooling air,

Technological properties for grade 20KH23N18 (20X23H18)

Weldability:	limited weldability.
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Physical properties for grade 20KH23N18 (20X23H18)

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	2.04		13.8	7900		1000
100		14.9	15.9		538	
200		15.7				
300	1.86	16.6	18.8			
400	1.8	17.3		7760		
500	1.73	17.5		7720		
600	1.63	17.85	21.7	7670		
700	1.53	17.85		7620		
800	1.44					
900				7540		
T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹

Equivalent steels for grade 20KH23N18 (20X23H18)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	European	Italy	Spain	China	Sweden	Bulgaria	Hungary	Poland	Romania	Czechia	Australia	South Korea
-	DIN, WNr	JIS	AFNOR	BS	EN	UNI	UNE	GB	SS	BDS	MSZ	PN	STAS	CSN	AS	KS
310 310S 314 S31000 S31008 S31400	1.4845 CrNi25-20 X12CrNi25-21 X15CrNiSi25-20 X16CrNi25-20 X8CrNi25-21 X8CrNiSi25-21	SUH310 SUS310 SUS310S	Z12CN25-20 Z12CN26-21 Z8CN25-20	310S16 310S24 310S25 310S31 X8CrNi25-21	1.4843 1.4845 X8CrNi25-21	X22CrNi25-20 X6CrNi25-20 X6CrNi25-21 X6CrNi25-21KG	F.331 X8CrNi25-21	1Cr25Ni20Si2	2361 7RE10AE 8RE10R	Ch23N18	H9	G205 H23N18 H25N20S2	12NiCr250	17255	310S	STS310S

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]

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

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