X8CrNi25-21 / 1.4845 / 310S stainless steel Material data sheet

1.4845 (310S) is a low-carbon austenitic stainless steel containing 25% chromium and 20% nickel. With its high chromium-nickel alloy system and carbon content of ≤0.08%, it still has excellent oxidation resistance and intergranular corrosion resistance at high temperatures of 1100°C, and has good weldability. It is often used in industrial furnace tubes, high-temperature exhaust systems and heat-resistant components that require frequent welding.

310S stainless steel equivalent grade

Standard	Equivalent Grade	Notes
EN (Europe)	1.4845 / X8CrNi25-21	Official EN designation
UNS	S31008	Unified Numbering System code for 310S
AISI/ASTM	310S	Low carbon version of AISI 310
JIS (Japan)	SUS310S	Japanese Industrial Standard
GB (China)	06Cr25Ni20	Chinese national equivalent grade
BS (UK)	310S31	British Standard designation
ISO	X8CrNi25-21	Often matches EN standard

310S stainless steel chemical composition

Element	% Present (in product form)	
	C, H, P, L	TW* / TS*
Carbon (C)	≤0.10	≤0.15
Silicon (Si)	≤1.50	≤0.75
Manganese (Mn)	≤2.00	≤2.00
Phosphorous (P)	≤0.045	≤0.045
Sulfur (S)	≤0.015	≤0.030
Chromium (Cr)	24.00 - 26.00	24.00 - 26.00
Nickel (Ni)	19.00 - 22.00	19.00 - 22.00
Nitrogen (N)	≤0.11	-
Iron (Fe)	Balance	Balance

310S stainless steel mechanical properties

			Product Form		
			C, H, P	L	TW* / TS*
Thickness a or diamter d (mm)			a ≤ 12	d ≤ 25	-
Hardness HB max. [1) 2) 3)]			192	192	-
Proof Strength[3)]		$R_{p0.2}$ N/mm²	210	210	230
		$R_{p1.0}$ N/mm²	230	230	270
Tensile Strength		R^m N/mm²	500 - 700	500 - 700	min. 500
Elongation min. in %	Long Products		35[1)]	35[1)]	33[4)] / 35[5)]
	Flat Products	0.5 ≤ a/d < 3	33[4)5)]	33[4)5)]	35[4)5)6)]
		3 ≤ a/d	35[4)5)]	35[4)5)]	35[4)5)6)]

310S stainless steel Creep Properties

	1% Elongation[1)] for		Rupture[2)] for		
Temperature °C	1,000 h N/mm²	10,000 h N/mm²	1,000 h N/mm²	10,000 h N/mm²	100,000 h N/mm²
600	100	90	170	130	80
700	45	30	80	40	18
800	18	10	35	18	7
900	10	4	15	8.5	3

310S stainless steel Coefficient of linear thermal expansion

200°C	15.5
400°C	17.0
600°C	17.5
800°C	18.5
1000°C	19.0

310S Stainless Steel Product Form

Seamless and Welded Pipes
Stainless Steel Plates & Sheets
Rods, Bars, Fittings
Custom polished or pickled surface (Ra ≤ 0.8μm)
All products are available with EN 10204 3.1/3.2 MTC, and certifications like PED, DNV, TUV upon request.These products are available in a wide variety of sizes.

