



MATERIAL No.: 317LN/ S31726/ 1.4439

DESCRIPTION

EN symbol (short)	X2CrNiMoN17-13-5	Density kg/dm³	8,1
Alloy	Alloy 317 LN	Hardness HB (<=35mm)	<=350
UNS	S 31726 Grade TP 317 LN	Rockwell Hardness Number max.	B90 (S 31726-ASTM A 249)
AFNOR	X2CrNiMoN17-13-5 / NF E.N 10088-1(06-2005) (FR)	Composition	chromium nickel molybdenum steels
BS	X2CrNiMoN17-13-5 / B.S. E.N 10088-1(06-2005) (GB)	Category	Corrosion resisting steels and alloys
		Structure	austenitic
		Corrosion	resistant to intercrystalline corrosion < 400°C non-corroding
		Additional characteristics	chemically resistant

CHEMICAL COMPOSITION

		C	Si	Mn	P	S	Cr	Mo	Ni	Cu	N
1.4439	Min %						16,50	4,00	12,50		0,12
	Max %	0,03	1,00	2,00	0,045	0,015	18,50	5,00	14,50		0,22
(Key to steel 2010)											
Alloy 317 LN S 31726	Min %						17,00	4,00	13,50		0,10
	Max %	0,03	1,00	2,00	0,040	0,030	20,00	5,00	17,50	0,75	0,20
ASTM A 312 (S 31726)											

PHYSICAL PROPERTIES

Property	Value
Density: kg/dm³	8,1
Hardness: HB	<=350

(<=35mm) Rockwell Hardness Number max.		B90 (S 31726-ASTM A 249)			
magnetizable		no			
polishable		good			
Temperature T °C/F (°C/F)	Specific heat J / kgK (Btu / lb °F)	Thermal conductivity W/mK (Btu·in / ft²·h·°F)	Electric resistance μΩ · cm (Ω circ mill / ft)	Modulus of elasticity kN/mm² (10³ ksi)	Expansion rate from 70°F bis T 10⁻⁶ / K (10⁻⁶ / °F)
20 / 68	0,50 (--)			200 (--)	16,5 (--)
100 / 212					17,5 (--)
200 / 392					17,5 (--)
300 / 572					18,5 (--)
400 / 752					18,5 (--)
500 / 932					
Temperature		1%Yield strength in high temperatures		Tensile strenght in high temperatures	
°C / °F		Rp 1,0		Rm	
		N/mm² / ksi		N/mm² /ksi	
100 / 212		255 / 37,00		520 / 75,40	
200 / 392		210 / 30,45		460 / 66,70	
300 / 572		190 / 27,55		440 / 63,80	
400 / 752		175 / 25,40			
ksi value calculated					

MECHANICAL PROPERTIES (20°C / 68°F)

0,2% Yield strength Rp 0,2 (N/mm²)/(ksi)	>285 />41,3		
Yield strength (ksi) /(Mpa)	35/ 250		S 31726-(ASTM A 249)
1%Yield strength Rp 1,0(N/mm²) / (ksi)	>315 /> 45,7		
Tensile strength Rm (N/mm²) /(ksi)	580-800 / 72,5-116		
Tensile strength ksi (Mpa)	80 / (550)		S 31726-(ASTM A 249)
Elongation A5 (%)	<=20	<=35mm-lengthwise	
Elongation min.%	35		S 31726-(ASTM A 249)

impact work ISO-V (J)	>85
E-Module (Mpa)	200 000

TEMPERATURE INFORMATION

Application area		
Operation temperature	-454 °F to 752 °F	temperature limit
Explanation report	-454°F only in strain situation III	
Solution heat treatment		
Working temperature	1940 °F to 2084 °F	
Processing information	cool down:water/air	
Working temperature	1760 °F to 1904 °F	
Explanation report	>= 30 min.	
Processing information	cool down:air	
Solution heat treatment		
Working temperature	1562 °F to 2066 °F	
Processing information	cool down:water/air	

STANDARDS / INFORMATION

Standards	Description
ASTM A 182	Standard Specification for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings and Valves and Parts for High-Temperature Service
ASTM A 213	Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes
ASTM A 249	Standard Specification for Welded austenitic steel boiler, Superheaters, heat-exchangers, and condenser Tubes
ASTM A 269	Standard Specification for Seamless and welded, austenitic, and stainless steel tubing for general purposes
ASTM A 312	Standard Specification for Seamless and welded austenitic stainless steel pipes
ASTM A 403	Standard Specification for Wrought Austenitic Stainless Steel Piping Fittings
ASTM A 479	Rods and cross-sections made of stainless and heat-resistant steel used in boilers and other pressure tanks
DIN EN 10088-1 (09/2005)	Stainless steels Part 1: List of stainless steels
DIN EN 10088-3 (09/2005)	stainless steels. Technical delivery conditions for semi-finished products, bars, rods, wire selection and bright products of corrosion resisting steels for

	general and construction purposes
DIN EN 10217-7	Welded steel pipes under compression load Pipes made from stainless steel
DIN EN 10296-2 (02/2006)	Welded circular steel pipes for machine construction and general technical service stainless steel
DIN EN 10297-2 (02/2006)	Welded circular steel pipes for machine construction and general technical service stainless steel. Pipes made from stainless steel

PROCESS INFORMATION

Cold forming	Heat treatment generally not required
Welding	
- Material classification acc. CEN ISO/TR 15608	8.1
- Type	well weldable protective gas resistance welding manual arc welding (E)
- Add. material	1.4440

MAIN FIELDS OF APPLICATION

Details of application	durable in high chlorine concentrations and temperatures
Certifications	
Chemical Industry	for processing phosphoric acid
petrochemical industry	
offshore plants	Sea water desalination plant
cellulose/paper industry	different components

RANGE OF PRODUCTS

Product type	Product
Plates / Sheets	plates/sheets plate/sheet cuts
Fittings	welded elbows welded reductions Welded T-pieces seamless elbows seamless reductions seamless T-pieces

Bumped boiler ends / caps / round blanks	from bar steel
Pipes / Tubes	welded pipes/tubes seamless pipes/tubes
Bar steel	flat steel round bar steel

Pipe/Tube/Fitting/Flange/Valve/Plate

Stainless Steel/Nickel Alloy/Duplex

