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Shanghai LJ Metal Industrial Co.Ltd

Your Reliable & Professional Partner of stainless steel and high alloy

Material No.: 317L/ S31703/ 1.4438

Description

EN symbol (short)	X2CrNiMo18-15-4
Alloy	Alloy 317 L
UNS	S 31703 Grade TP 317 L
AFNOR	X2CrNiMo18-15-4 / NF E.N 10088-1(06-2005) (FR)
BS	X2CrNiMo18-15-4 / B.S. E.N 10088-1(06-2005) (GB)

Density kg/dm^3	7.9
Hardness HB (<=35mm) Rockwell Hardness Number max.	<=350 HRB90 (S 31703-ASTM A 212)
Composition	chromium nickel molybdenum steels
Category	Corrosion resisting steels and alloys
Structure	austenitic
Corrosion	resistant to Intergranular corrosion < 400°C non-corroding
Additional characteristics	chemically resistant

Chemical Composition

		C	Si	Mn	P	S	Cr	Mo	Ni	Cu	N
1.4438	**Min %**						17,50	3,00	13,00		
	Max %	0.03	1,00	2,00	0,045	0,015	19,50	4,00	16,00		0.11
EN10088-2											
Alloy 317 L S 31703	**Min %**						18,00	3,00	11,00		
	Max %	0,035	1,00	2,00	0,045	0,030	20,00	4,00	15,00		
ASTM A 213											

Physical properties

Property	Value
Density: kg/dm^3	7.9
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 (10^3 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 31703-(ASTM A 213)
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 31703-(ASTM A 213)
Elongation A5 (%)	<=20	<=35mm-lengthwise	
Elongation min.%	35		S 31703-(ASTM A 213)

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

Temperature information

Application area		
Operation temperature	-454 ºF to 752 ºF	temperature limit
Explanation report	-454°F only in strain situation III	
Solution heat treatment		
Working temperature	1562 ºF to 2066 ºF	
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, austenic, 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

MAIN FIELDS OF APPLICATION

Details of application	durable in high chlorine concentrations and temperatures
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

Shanghai LJ Metal Industrial Co Ltd - No.1999 Guangtai Road Shanghai 201400 China | Tel: +86 (21) 62501821 | www.ljstainless.com – export@ljstainless.com