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Shanghai LJ Metal Industrial Co.Ltd

Your Reliable & Professional Partner of stainless steel and high alloy

Material No.: 316Ti/S31635/1.4571

Description

EN symbol (short)	X6CrNiMoTi 17-12-2	**Density kg/dm³**	8,0
AISI	AISI 316 Ti	**Hardness HB30**	<=215
UNS	S 31635 Grade TP 316Ti	**Composition**	Nickel Chrome Molybdenum steel
AFNOR	X6CrNiMoTi 17-12-2 / NF EN 10088-1 (06/2005) (FR)	**Category**	Stainless steels steel, resistant to rust and acids
BS	X6CrNiMoTi 17-12-2 /B.S. EN 10088-1 (06/2005) (GB)	**Structure**	austenitic
Registered work's label	Cronifer 1810Ti	**Corrosion**	resistant to intergranular corrosion high corrosion resistance against pitting corrosion

Chemical Composition

		C	Si	Mn	P	S	Cr	Mo	Ni	Ti	N
1.4571	**Min %**						16,50	2,00	10,50		
	Max %	0,08	1,00	2,00	0,045	0,015*	18,50	2,50	13,50	5xC<=0,7	
(Key to steel 2010) *S: for long term products: S<=0,30, ...for untreated products: S=0,015-0,030 Norms allow deviations for S, Ni, Cu											
AISI 316 Ti S 31635	**Min %**						16,00	2,00	10,00		
	Max %	0,08	0,75	2,00	0,045	0,030	18,00	3,00	14,00	>=5x(C+N)<=0,7	0,10

Physical properties

Property	Value
Density: kg/dm³	8,0
Hardness: HB30	<=215
magnetizable	non

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	500(-)	15(-)	0,75 (-)	200 (-)	16,5(-)
200 / 392				186 (-)	17,5 (-)
300 / 572				172 (-)	18,0 (-)
400 / 752				165 (-)	18,5 (-)
500 / 932					19,0 (-)

Temperature	1,0% Yield strength in high temperatures	0,2% Yield strength in high temperatures	Tensile strength in high temperatures	E-Module in high temperatures
°C /°F	Rp 0, 2	Rp 1,0	Rm	
	N/mm² / ksi	N/mm² / ksi	N/mm² / ksi	N /mm²
50 / 122	205 / 29,73	240 / 34,80	490 / 71	
100 / 212	190 / 27,55	220 / 31,90	440 /63,8	16,500
200 / 392	165 / 23,90	192 / 27,80	390 / 56,6	17,500
300 / 572	145 / 21,00	175 / 25,40	375 / 54,4	18,500
400 / 752	135 / 19,60	164 / 23,80	375 / 54,4	18,500
500 / 932	129 / 18,70	158 / 22,90	360 / 52,2	19,000

tubes up to 20mm width; sheets up tp 50mm width
ksi value calculated

MECHANICAL PROPERTIES (20°C / 68°F)

1% Yield strength Rp 1,0 (Mpa/ksi)	260 / 37,7	
Tensile strength Rm (Mpa /ksi)	520-670/ 75,4- 97,2	
Elongation A5 (%)	40	
notch impact average ISO-V	100/60 J	<75 mm transverse

TEMPERATURE INFORMATION

Application area		
Operation temperature	-166 ºF to 932 ºF	-454 °F minimum operating temperature by only in strain situation III
Solution heat treatment		
Working temperature	1886 ºF to 2030 ºF	
Explanation report	cool down: water/air	

annealing	
Working temperature	1436 ºF to 1544 ºF
Explanation report	cool down: water/oil,
Solution heat treatment	
Working temperature	1562 ºF to 2102 ºF
Explanation report	cool down: 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 276	Rods and cross-sections made of stainless and heat-resistant steel
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

Chip removing process	hardly machinable
Welding	
- Material classification acc. CEN ISO/TR 15608	**8.1**
- Type	WIG manual arc welding submerged arc welding Laser welding

	MAG solid wire
- Add. material	1.4430;1.4576 laser welding; consult specialist literature

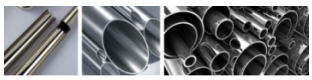
MAIN FIELDS OF APPLICATION

Details of application	- good corrosion resistance to nitric acid and organic cold acid solutions - application areas; chemical industry; textile industry; cellulose industry
Certifications	
Chemical Industry	for processing nitric acid the production of acetic acid apparatus construction
cellulose/paper industry	chemical digestion containers
Environmental technology	clarification plants
textile industry	
cellulose/paper industry	
Apparatus engineering	
water management	
pharmaceutical industry	
crude oil	

RANGE OF PRODUCTS

Product type	**Product**
Processing / Construction	from sheets from pipes, fittings, flanges (welded)
Plates / Sheets	plates/sheets plate/sheet cuts
Fittings	welded elbows welded reductions Welded T-pieces seamless elbows seamless reductions seamless T-pieces Other Fittings a.o. Weldolets, Nipples
Flanges / Collars / Flared tube ends	various flanges (weld neck flange, blind flange etc.)
Bumped boiler ends / caps / round blanks	from sheets

Pipes / Tubes	welded pipes/tubes welded square pipes/tubes Hollow bar seamless pipes/tubes
Bar steel	flat steel section steel round bar steel hexagon steel
Equipment	screws, screw nuts, shims, straight turning parts, designed components



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