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Industrial Piping Products

Alloy 316Ti Data Sheet

AISI 316Ti / UNS S31635 / DIN 1.4571

Titanium Stabilized Austenitic Stainless Steel

Introduction

Alloy 316Ti is titanium stabilized 316 Stainless Steel with improved endurance at elevated higher temperature as compared to other 316 chemistry. Titanium addition reduces intragranular corrosion (IC) at higher temperatures. Inclusion of titanium alloy increases its mechanical properties to some extent.

Chemical Composition (Typical)

Element	Limits	
	min	max
Carbon	0.000	0.080
Manganese	0.000	2.000
Phosphorus	0.000	0.045
Sulphur	0.000	0.030
Silicon	0.000	1.000
Chromium	16.000	18.000
Nickel	10.000	14.000
Molybdenum	2.000	3.000
Titanium	5x(C+N)	0.7 Max
Iron	Remainder	

Mechanical Properties (Annealed)

Parameter	Value
Yield 0.2 % (Mpa/Nmm^2), Min	205
Tensile (Mpa/Nmm2), Min	515
Elongation (% in 50MM), Min	30
Reduction Area(%), Min	40
Hardness (BHN), Max	217

Physical Properties

Parameter	Value
Density (Kg/m^3)	8027
Elastic Modulus (Gpa)	193
*Co-eff of Expansion (µm/m/°C)	17.5
*Thermal Condc. (W/m.K)	21.5
Electric Resistivity (nΩ.m)) 20°C	740

*Note : @500°C

Corrosion Data

Alloy 316Ti displays better corrosion resistance in standard range of corrosive media as compared to 304 & 316. But shows slightly poor resistance to internal pitting & stress corrosion resistance due to titanium carbo-nitrides particles. SS 316Ti plays superior role while installed at high temperature services in contrast to 304 & 316.

Equivalent Grade Designation

AISI 316Ti
UNS S31635
320 S 17, 320 S18, 320 S31
DIN EN 1.4571
X6CrNiMoTi17-12-2
Z 6 CNDT 17.12

Available Product Forms

Round, Sqaure, Hexagon & Flat Bars
Seamless / Welded Pipes
Seamless / Welded Tubes
Hot & Cold Rolled Plates & Sheets
Forged Bars
Buttweld Pipe Fittings
Forged Fittings
Ferrule Compression Fittings
Forged Flanges
Valves
Guages

Common Manufacturing Specifications

ASTM A182, A193, A194, A213, A240, A269, A276, A312, A314, A403, A479, A959

ASME SA182, SA193, SA194, SA213, SA240, SA269, SA276, SA312, SA314, SA403, SA479, SA959

Alternate to Alloy

Alloy 321 could be best alternate to SS 316Ti with similar titanium alloyed properties. Another would be alloy 316h which offers similar endurance at elevated temperatures as compared to SS 316Ti.

Applications & Industries

Food Processing Equipments
Medical Implants, Sanitaryware & cutlery.
Heat Exchangers
Chemical, Pharmaceutical, brewery, dairy & petrochemical Equipments
Fasteners - Bolts, Screws, Nuts & Springs
Boat & other marine Fittings
Spring set for Valves

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