

AEROVAL AIST



ACCIAIERIE VALBRUNA

MATERIAL DESCRIPTION

Austenitic Stainless Steel stabilized by the addition of Titanium. Since this grade is an austenitic one, it can not be precipitation hardened; mechanical properties can be increased by cold working only. AIST exhibits good intergranular corrosion resistance.

APPLICATIONS

AIST can be used for aircraft components as collector rings, exhaust manifolds, expansion joints. Generally AISC is used for applications subjected to intermittent heating from 450° and 900°C as: pressure vessels, welded structures, high-temp. chemical processing and gas turbine blades.

CORROSION AND OXIDATION RESISTANCE

Because of the Titanium addition capable to enhance the intergranular corrosion resistance, AIST can be used for many different applications as chemical and oil processing, textile manufacturing and food industry.

AIST provide a good resistance to scale formation up to 860°C.

WELDABILITY

AIST can be welded. If filler metal is requested AWS E/ER347 should be used. Post-weld heat treatment is not strictly needed unless high temperature service is required.

DESIGNATIONS

AISI	AFNOR	UNS	AECMA	EN
321	Z6CNT18-10	S32100	FE-PA 13/FE-PA 3601	X6CrNiTi18-10/1.4541/1.4544

CHEMICAL COMPOSITION (chemistry shall conform to the following percentages by weight)

Element	Fe	C	Mn	Si	P	S	Cr	Ni	Ti	Cu	Mo
Min[%]	Bal.	-	-	-	-	-	17.00	9.00	5xC	-	-
Max[%]		0.08	2.00	1.00	0.045	0.030	19.00	12.00	0.70	-	-

PHYSICAL PROPERTIES

Density (gr/cm ³ at 20°C)	7,90
Modulus of elasticity (GPa)	200
Mean Coefficient of Thermal Expansion (10 ⁻⁶ /°C)	20° → 200°C: 16.5 20° → 400°C: 17.5 20° → 500°C: 18.0
Thermal Conductivity (W/mK at 20°C)	15.0
Electrical resistivity (μΩ×m at 20°C)	0,730
Magnetic Permeability	Non-magnetic

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MECHANICAL PROPERTIES

Condition	HB	Ultimate Tensile Strength (N/mm ²)	0.2% Yield Strength (N/mm ²), min	Elongation [5D] (%), min
Annealing	220 max	500 - 750	205	40

HEAT TREATMENTS

Condition	Temperatures	Soaking times	Cooling
Annealing	1000° - 1080°C	Commensurate to section	Water

HOT WORKING

Process	Heating temperatures	Cooling
Forging	900° - 1150°C	Air

SPECIFICATIONS

EN	ASTM	AMS	FEDERAL STANDARDS
10088 - 3	A276; A182; A479	5645	QQ - S - 763



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