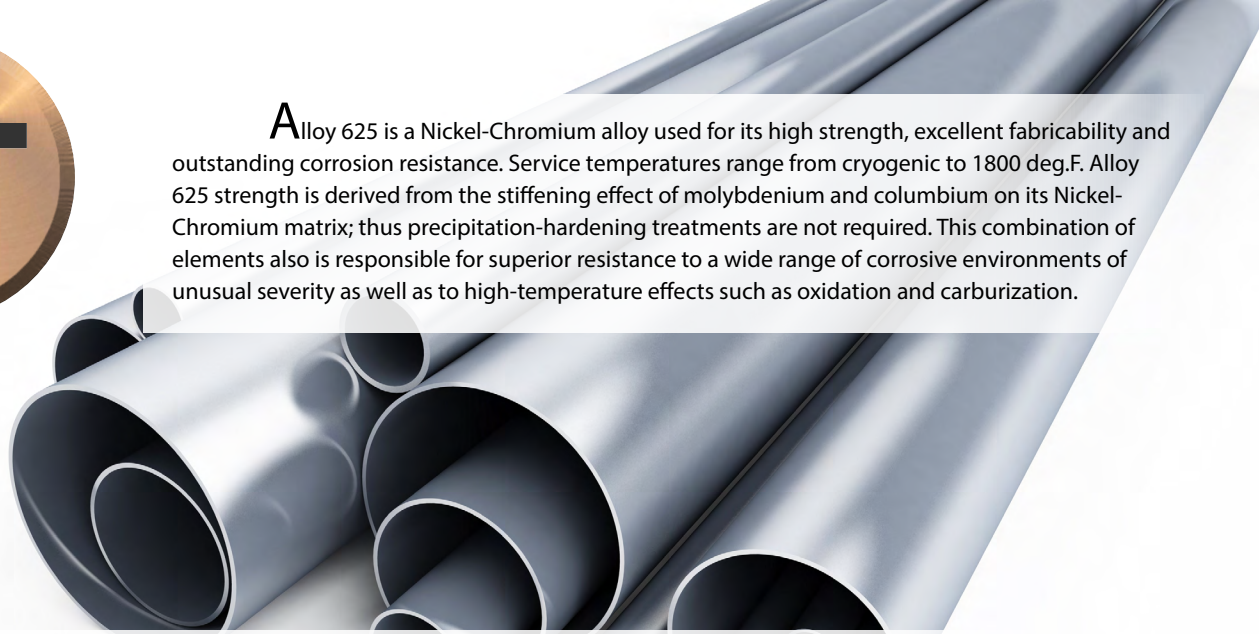
Alloy 625 Nickel-Chromium

AMERITUBE

Alloy 625 is a Nickel-Chromium alloy used for its high strength, excellent fabricability and outstanding corrosion resistance. Service temperatures range from cryogenic to 1800 deg.F. Alloy 625 strength is derived from the stiffening effect of molybdenium and columbium on its Nickel-Chromium matrix; thus precipitation-hardening treatments are not required. This combination of elements also is responsible for superior resistance to a wide range of corrosive environments of unusual severity as well as to high-temperature effects such as oxidation and carburization.



CHEMICAL COMPOSITION

	C	Mn	S	Si	Cr	Ni	Fe	Mo	Co+Ta	Ti	Al	P
MIN/MAX	0.05	0.30	0.003	0.25	20.00 - 23.00	Balance	4.00	9.00	3.50	0.30	0.30	0.015 max

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APPLICABLE SPECIFICATIONS

Pipe Seamless	Pipe Welded	Tube Seamless	Sheet/Plate	Bar	Tube Welded	Fitting	Wire
ASTM B444	ASTM B705	ASTM B444	ASTM B443	ASTM B446	ASTM B704	-	-

APPLICATIONS

Nuclear water reaction components	Bellows and expansion joints	Jet engine exhaust systems	Seawater applications	Chemical process equipment
Aircraft exhaust liners and turbine seals	Turbine shroud rings	Aircraft ducting systems	Chemical processing equipment handling mixed acids	Engine thrust-reverser systems

PHYSICAL PROPERTIES

Density	Electrical Resistivity	Coefficient of Thermal Expansion	Thermal Conductivity	Modulus of Elasticity	Specific Heat Capacity	Melting Point	Specific Gravity
0.305 lb/in^3	49.6 microhm-in. @200°F	7.3 microinches/ in.-°F @ 70-400°F	68 Btu-in./ft^2.-hr.-°F @70°F	205.8 kN/mm^2	0.102 Btu/lb-°F	2350-2460 °F	8.44
8.44 g/cm^3	1.26 microhm-m @100°C	13.1 x 10(-6)m/m-°C @ 21-204°C	9.8 W/M-°C @20°C	29849 ksi	429 J/kg-°C	1290-1350°C	8.44

MAXIUM PRESSURE WORK

P = Maxium work pressure(psi)
S = Minimum tensile strength of material for a specific temper(It is the value of the tensile strength in psi in Mechanica properties table)
D = Exterior diameter of tube
T = Wall thickness of tube

$$P = \frac{2T \times S}{5D}$$

NON DESTRUCTIVE TESTS

Eddy Current Testing
Hydrostatic Testing
Air Underwater Testing
Ultrasonic Testing
(PMI) Positive Material Identification

DESTRUCTIVE TESTS

Microstructure Test
Tensile Test
Expansion Test
Optical Spectrometry Test

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