Alloy C263 is an age-hardenable nickel-cobalt-chromium-molybdenum alloy designed specifically to combine very good aged strength properties with excellent fabrication characteristics in the annealed condition. Its oxidation resistance is comparable to that of other gamma-prime-strengthened superalloys. The alloy has excellent forming and welding characteristics. Alloy C263 can be fabricated using both hot and cold working. Matching composition welding wire is available.

Alloy C263 welding wire is an aluminum-titanium age hardening nickel base superalloy welding wire. Gas tungsten arc welding is normally carried out using argon shielding gas. Argon +5% hydrogen has been used. Alloy C263 base metal is normally welded in the annealed condition 2100°F, rapid cool. After welding, the assembly may be aged 8 hours at 1470°F, air cool. Repair welding of alloy C263 components may be done in the age hardened condition.

Specifications

UNS: N07263 **W. Nr./EN:** 2.4650 **AMS:** 5872E (sheet), 5966(weld wire) **GE:** B50A771, B50A783 **RR:** 9500/16

Chemical Composition, %

	Cr	Ni	Mo	Co	Al	Ti	Al+Ti	B	C	Fe	Mn	Si	P	S	Ag*	Bi*	Pb*	Cu
MIN	19.0		5.6	19.0	0.3	1.9	2.4	–	0.04	–	–	–	–	–	–	–	–	–
MAX	21.0	balance	6.1	21.0	0.6	2.4	2.8	0.005	0.08	0.7	0.6	0.4	0.015	0.007	0.0005	0.0001	0.002	0.2

** weld wire only*

Features

- Excellent fabrication and welding characteristics
- Good oxidation resistance
- High strength in age-hardened condition

Applications

- Turbine engine applications
- Transition liners
- Welding GTD222 investment castings

Physical Properties

Density: 0.302 lb/in^3 **Melting Range:** 23722-2470°F

Temperature, °F	70	200	400	600	800	1000	1200	1400	1600	1800
Electrical Resistivity μ ohm • in	45.3	45.8	46.5	47.5	48.2	49.1	49.6	49.4	48.9	48.9
Thermal Conductivity, Btu • in/ft^2 • hr • °F	81	89	103	115	128	141	154	167	182	195
Coefficient* of Thermal Expansion, in/in°F x 10^{-6}	–	6.2	6.7	7.1	7.2	7.6	7.9	8.3	9.0	9.9

** 70°F to indicated temperature.*

Tensile Properties

Approximate Initial Stress, ksi

Cold Rolled Sheet, Solution-Treated and Aged, 0.5% Creep

Temperature, °F	1000	1100	1200	1300	1400	1500	1600
10 hours	–	–	–	–	52.0	32.0	18.4
100 hours	–	–	–	55.0	34.0	19.2	9.9
1,000 hours	–	–	60.0	38.0	21.0	10.7	–

Cold Rolled Sheet, Solution-Treated and Aged, 1.0% Creep

Temperature, °F	1000	1100	1200	1300	1400	1500	1600
10 hours	–	–	–	–	53.5	35.0	20.4
100 hours	–	–	–	56.5	37.0	21.0	10.2
1,000 hours	–	–	62.0	42.0	23.3	11.4	–

Cold Rolled Sheet, Solution-Treated and Aged, Creep Rupture

Temperature, °F	1000	1100	1200	1300	1400	1500	1600
10 hours	–	109.0	90.0	74.0	57.0	38.0	24.0
100 hours	115.0	95.0	77.0	60.0	41.0	25.0	14.1
1,000 hours	100.0	82.0	64.0	45.0	27.0	14.5	6.8

** 70°F to indicated temperature.*