ALLOY C263

AMS 5872 / UNS N07623

Alloy C263 (Nimonic® 263) is an age-hardenable nickel-cobalt-chromium-molybdenum superalloy engineered to deliver an excellent balance of high-temperature strength, oxidation resistance, and fabrication capability. Designed to provide superior ductility and weldability in the annealed condition, Alloy C263 offers significantly easier forming and joining characteristics than higher-strength gamma-prime alloys such as Waspaloy® or René 41. While its elevated-temperature strength is slightly lower than those alloys, Alloy C263 provides outstanding performance up to 1650°F (900°C) and is ideally suited for fabricated components in aircraft turbine engines and land-based gas turbines, including combustor assemblies, transition liners, rings, and hot-section hardware.

Products & Sizes		
Coil	Sheet	Plate
0.040" - 0.125"	0.040" - 0.125"	0.1875"

C263 Chemical Composition

	Element	Min	Max
Ni	Nickel	-	52.00
Co	Cobalt	-	20.00
Cr	Chromium	-	20.00
Mo	Molybdenum	6.0	2.4
Ti	Titanium	-	0.6

Industry Standards

- B50A774
- W.Nr. 2.4650
- Predominantly produced by AOD-ESR melt method. Hot worked, solution treated (annealed), then descaled

Industry Applications

- Low Temperature Combustors
- Transition Liners
- Ring Components

Physical Properties

This grade has excellent forming and welding characteristics.

Property	Value
Density	0.302 lbs/in3

Non-magnetic

Alloy C263 plate - Nimonic 263 plate has high strength up to 1500ºF (816°C) and good oxidation resistance up to 1800ºF (982°C).

Annealed Condition

Alloy C263 nickel plate has excellent ductility and may be formed by cold working.

Mechanical Properties

Plate has excellent welding characteristics and can be welded by most customary techniques, such as inert gas tungsten arc (TIG), gas metal arc welding (GMAW), electron beam and resistance welding. Oxyacetylene and submerged arc processes are not recommended. Avoid excessive heat input when welding and when a filler metal is required a matching C-263 filler metal

should be used. This grade is typically used in the fully aged condition. Following forming and welding, a full solution anneal prior to aging is often employed to develop optimum properties.

Hardness

Typically 200 BHN. Grain structure is austenitic at both cryogenic and elevated temperatures.

Typical Stock Removal Rate

20 surface feet/minute with high speed tools. 80 surface feet/minute with carbide.

Care

Care must be taken to ensure a rigid machine setup and sharp tools, so that work hardening and surface glazing do not occur.