

NIMONIC 263

UNS N07263

Age-hardenable Ni–Co–Cr–Mo alloy

Fabricable age-hardenable alloy with strong welded ductility and high-temperature creep capability.

01 PRODUCT INTRODUCTION

NIMONIC 263 is an air-melted age-hardenable nickel-cobalt-chromium-molybdenum alloy developed for sheet and fabricated assemblies. It offers excellent ductility and weldability in the annealed condition, followed by useful proof stress and creep strength after solution treatment and aging. Compared with more highly strengthened superalloys, NIMONIC 263 is easier to form and join while retaining performance to approximately 800–900°C. Final selection should consider product form, heat treatment, atmosphere, design temperature, stress, thermal cycling and the governing aerospace specification.

02 ENGINEERING POSITION

Core advantage	Age-hardened strength, oxidation resistance and welded fabrication near 800–900°C
Applications	Aircraft turbine combustors · transition liners · rings · hot-section sheet · welded engine assemblies
Material class	Age-hardenable Ni–Co–Cr–Mo alloy

03 COMMON INDUSTRY USE

Industry focus	Aircraft turbine combustors · transition liners · rings · hot-section sheet · welded engine assemblies
Design note	Use grade-specific creep, rupture, fatigue and heat-treatment data.

Composition & Physical Data

04 CHEMICAL COMPOSITION

Ni	Balance	Cr	19.0–21.0%
Co	19.0–21.0%	Mo	5.6–6.1%
Ti	1.9–2.4%	C	0.04–0.08%
Al	≤ 0.6%	Fe	≤ 0.7%

05 PHYSICAL PROPERTIES

Density	Approx. 8.36 g/cm ³
Condition	Solution treated / aged by grade
Data status	Typical reference; specification controls acceptance

06 MATERIAL IDENTITY

Common name	NIMONIC 263
UNS	N07263
Alloy family	Age-hardenable Ni–Co–Cr–Mo alloy
Source basis	Published alloy data and governing aerospace specifications

Mechanical & High-Temperature Performance

07 MECHANICAL PROPERTIES

Strength basis	Product form, grain structure, solution treatment and aging determine properties.
Design data	Use specification minimums and approved creep/rupture curves.

08 SERVICE PERFORMANCE

Primary service	Age-hardened strength, oxidation resistance and welded fabrication near 800–900°C
Oxidation	Review scale stability, thermal cycling and atmosphere.
Creep / rupture	Use long-term data at actual stress and temperature.
Fatigue	Assess strain range, dwell time, surface condition and notches.

09 APPLICATIONS

Typical use	Aircraft turbine combustors · transition liners · rings · hot-section sheet · welded engine assemblies
Critical review	Confirm weldability, strain-age cracking, coatings and inspection requirements.

Fabrication, Welding & Heat Treatment

10 FORMING & MACHINING

Forming	Use superalloy practice and account for rapid work hardening.
Machining	Rigid setup, sharp tooling, positive feeds and coolant are recommended.

11 WELDING GUIDANCE

Processes	Use qualified aerospace welding procedures.
Filler metal	Select grade-compatible filler and verify hot-service compatibility.
Heat input	Control restraint, interpass temperature and dilution.
Cleanliness	Remove sulfur, oxides, grease and iron contamination.

12 HEAT TREATMENT

Typical route: solution treat near 1150°C, water quench or controlled cool, then age at about 800°C for 8 hours and air cool.

Quality control	Confirm WPS/PQR, heat-treatment records, NDE and traceability.
-----------------	--

Product Forms, Standards & Procurement

13 PRODUCT FORMS

Forms	Sheet · plate · bar · wire · forgings · welded fabrications
Condition	Solution treated or aged according to grade and specification

14 RFQ INFORMATION

Material	NIMONIC 263 · UNS N07263 · governing specification
Dimensions	Form, thickness, tolerances, length and quantity
Testing	Chemistry, tensile, hardness, grain size, NDE and special tests
Documents	EN 10204 3.1 MTR, heat traceability and compliance certificates

15 TECHNICAL DISCLAIMER

Values shown are nominal or typical references and may vary by product form, section size, heat treatment and governing specification. They do not replace design calculations, creep or fatigue qualification, applicable aerospace requirements or the certified material test report.

Contact	sales@nickelalloy.net · www.nickelalloy.net
---------	---