

INCOLOY® 25-6Mo

UNS N08926 · W.Nr. 1.4529

Fe–Ni–Cr–Mo super-austenitic alloy

High-molybdenum corrosion-resistant alloy for chloride, seawater and acidic process service.

01 PRODUCT INTRODUCTION

INCOLOY 25-6MO is a super-austenitic stainless alloy with approximately 6% molybdenum and a controlled nitrogen addition. Nickel and chromium support resistance across reducing and oxidizing environments, while molybdenum and nitrogen improve resistance to pitting and crevice corrosion. Copper enhances sulfuric-acid resistance. The alloy is used in flue-gas desulfurization, pollution-control, chemical processing, seawater and pulp-and-paper equipment. The final engineering choice should consider product form, heat-treatment condition, design temperature, loading mode, joining method and the applicable ASTM, AMS, ASME or NACE requirement.

02 ENGINEERING POSITION

Core advantage	Chloride pitting and crevice corrosion, seawater, acidic brines and sulfuric/phosphoric acid service
Applications	Flue-gas desulfurization · air-pollution control · seawater equipment · chemical processing · pulp-mill bleach systems · heat exchangers
Material class	Fe–Ni–Cr–Mo super-austenitic alloy

SELECTION NOTE

Confirm product form, heat treatment, design code, temperature and actual process chemistry before specification.

03 COMMON INDUSTRY USE

Industry focus	Flue-gas desulfurization · air-pollution control · seawater equipment · chemical processing · pulp-mill bleach systems · heat exchangers
Identity	INCOLOY® 25-6Mo · UNS N08926

Composition & Physical Data

Official limiting composition and typical physical constants.

04 CHEMICAL COMPOSITION

WEIGHT %

Ni	24.0–26.0%	Cr	19.0–21.0%
Mo	6.0–7.0%	Cu	0.5–1.5%
N	0.15–0.25%	C	≤ 0.02%
Mn	≤ 2.0%	Fe	Balance

SOURCE CONTROL

Use the applicable ASTM, AMS, ASME or NACE product specification and certified MTR for acceptance.

05 TYPICAL PHYSICAL PROPERTIES

ROOM TEMPERATURE

Density	8.08 g/cm ³	Melting range	Approx. 1320–1380°C
Specific heat	Approx. 435–450 J/kg·°C	Condition	Annealed / aged
Magnetism	Low permeability	Data status	Typical reference

06 MATERIAL IDENTITY

Common name	INCOLOY® alloy 25-6Mo
UNS / W.Nr.	N08926 / 1.4529
Alloy family	Fe–Ni–Cr–Mo super-austenitic alloy
Product standard	ASTM A240 · A480 · B366 · B472 · B625 · B649 · B673 · B674 · B677 · B751 · B775 · B804 · B829

ACCEPTANCE RULE

Physical and chemistry references do not replace the certified material test report.

Mechanical & Service Performance

Condition-dependent strength and service-selection guidance.

07 MECHANICAL PROPERTIES

Mechanical requirements depend on product form, thickness and applicable ASTM specification; use certified minimums for design.

08 SERVICE PERFORMANCE

Primary service	Chloride pitting and crevice corrosion, seawater, acidic brines and sulfuric/phosphoric acid service
Oxidation / hot corrosion	Assess atmosphere, carburization, nitriding, sulfidation and thermal cycling for hot service.
Aqueous corrosion	Review chlorides, reducing acids, oxidizing salts and intergranular-corrosion condition.
Creep / rupture	Use code-approved allowable stresses and grade-specific long-term data at temperature.
Welded service	Verify filler metal, heat input, post-weld condition and service environment.

09 TYPICAL APPLICATIONS

Industries	Flue-gas desulfurization · air-pollution control · seawater equipment · chemical processing · pulp-mill bleach systems · heat exchangers
Critical review	Review stress state, thermal cycling, galvanic coupling and environmental contaminants.

IMPORTANT Official bulletin values are representative. Critical service requires code compliance, certified material data and suitable testing.

Fabrication, Welding & Heat Treatment

Practical controls for maintaining alloy performance.

10 FORMING & MACHINING

Cold forming	Use nickel-alloy tooling practice and account for work hardening where applicable.
Hot working	Use grade-specific temperature windows and avoid prolonged reheating.
Machining	Rigid setup, sharp tooling, positive feed and adequate coolant are recommended.

11 WELDING GUIDANCE

Processes	GTAW, GMAW and SMAW may be used with qualified procedures.
Filler metal	Select grade-compatible filler metal and verify service compatibility.
Heat input	Control interpass temperature, dilution and unnecessary reheating.
Cleanliness	Remove oil, grease, oxides and iron contamination before welding.

12 HEAT TREATMENT

Normally supplied solution annealed; verify solution treatment, rapid cooling and product-form requirements.

QUALITY CONTROL

Confirm WPS/PQR, filler metal, NDE, heat-treatment records and traceability.

Product Forms, Standards & Procurement

A practical specification and quotation checklist.

13 REFERENCE STANDARDS

ASTM A240 · A480 · B366 · B472 · B625 · B649 · B673 · B674 · B677 · B751 · B775 · B804 · B829

14 COMMON PRODUCT FORMS

Forms	Plate · sheet · strip · bar · wire · pipe · tube · fittings · forgings
Condition	Annealed, solution treated or age hardened by grade and specification

15 RFQ INFORMATION

Material	INCOLOY® 25-6Mo · UNS N08926 · governing ASTM/AMS/ASME specification
Dimensions	Form, OD/ID, wall or thickness, tolerances, length and quantity
Testing	Chemistry, tensile, hardness, PMI, NDE and customer-specific tests
Documents	EN 10204 3.1 MTR, heat traceability and compliance certificates

16 TECHNICAL DISCLAIMER

Values shown are typical or specification-level references and may vary by product form, thickness, heat treatment and governing standard. They do not replace engineering design calculations, corrosion review, applicable codes or the certified material test report.

Source basis	Special Metals technical literature and applicable ASTM / ASME / NACE requirements
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