HONGCHEN METAL
INDUSTRIAL METAL MATERIALS

PRODUCT DATA SHEET
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PRODUCT SPECIFICATIONS · BAR

Duplex Steel 2101 Round Bar

Chemical composition, mechanical properties and material characteristics

Features

- Duplex Steel 2101 (S32101) is a duplex stainless steel combining high mechanical strength with strong resistance to chloride-bearing environments.
- It is commonly supplied as plate, sheet, coil, pipe, tube, bar, strip, and fabricated components for demanding industrial service.

Typical Applications

- Commonly selected for offshore platforms, chemical pressure vessels, desalination plants, oil & gas pipelines, FGD equipment and heat exchangers—where chloride resistance and higher strength than typical 300-series austenitic grades are needed. Confirm medium, temperature and crevice geometry against the project specification.

Product Parameters

Product Name	2101 / S32101 Bar
Type	Lean Duplex Stainless Steel
Standard	ASTM A240 / A789 / A790; UNS S32101
Surface	No.1 / 1D, 2D, 2B, pickled, sandblasted or shot-blasted; ground finish on request.
Delivery Condition	Solution annealed and pickled (or equivalent condition per order).
Scope of Application	Commonly selected for offshore platforms, chemical pressure vessels, desalination plants, oil & gas pipelines, FGD equipment and heat exchangers—where chloride resistance and higher strength than typical 300-series austenitic grades are needed. Confirm medium, temperature and crevice geometry against the project specification.
Certificate	EN 10204 3.1 mill test certificate as standard; 3.2, PMI, ferrite, ASTM A923 / G48 and impact tests available on request. NACE MR0175 / ISO 15156 compliance available when specified.
Production Technology	Hot- or cold-worked, then solution annealed to restore the balanced ferrite–austenite microstructure and corrosion resistance. Cutting, leveling, slitting and end finishing available. Hot-rolled, forged or cold-drawn routes depending on size; cut-to-length available.
Edge Processing	Cut ends as standard; chamfering, deburring, peeling or centerless grinding available on request.
Diameter	6-300 mm
Length	1-6 m

Chemical Composition

C	Mn	Cr	Ni	Mo	N	Cu
≤0.04	4.0-6.0	21.0-22.0	1.35-1.70	0.1-0.8	0.20-0.25	0.1-0.8

Mechanical Properties

Tensile (MPa)	Yield (MPa)	Elongation (%)	Hardness
≥650	≥450	≥30	≤290HBW

Physical Performance

Density	PREN (typ.)	Thermal Cond.	Modulus
7.8 g/cm³	~26	~15 W/m·K	~200 GPa

Reference: EN 1.4162 / UNS S32101 lean duplex public datasheets

Related Properties

Corrosion Resistance	Offers stronger resistance to chloride pitting, crevice corrosion and stress-corrosion cracking than many 300-series austenitic grades in process, marine and brine duties. Final suitability still depends on chloride level, temperature, pH and whether stagnant crevices are present.
Strength Advantage	Yield and tensile strength are typically higher than common austenitic stainless of similar thickness, which can allow thinner wall or higher allowable stress where the design code permits. Confirm mechanical values against the ordered condition and product form.
Weldability	Can be welded with GTAW, GMAW and SMAW when heat input, interpass temperature and duplex-matched filler are controlled to keep a balanced ferrite–austenite weld microstructure. Poor practice may reduce toughness or corrosion resistance in the HAZ.
Forming & Fabrication	Cold forming is feasible but needs higher force and springback allowance than 304/316 because of the higher strength. Hot forming and subsequent solution annealing should follow the grade procedure to restore corrosion performance.
Service Window	Best suited to chloride-bearing aqueous service inside a limited temperature window. Prolonged holding in the 300–550 °C embrittlement range should be avoided unless the grade data explicitly allow it.

Material guidance for your next project

Send your grade, size and application requirements to our team.

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