

Alloy 330 Datasheet

Alloy 330 is a nickel-chromium alloy offering excellent oxidation resistance at high temperatures for industrial applications.

Alloy / Grade	Alloy 330
Common Forms	Plate, Sheet, Round Bar, Pipe, Mesh.
Key Feature	Excellent Carburization & Oxidation Resistance.
Service Focus	The alloy resists the absorption of carbon and nitrogen, preventing the material from becoming brittle during carburizing and carbonitriding cycles.

1. Product Overview

Alloy 330 is an austenitic nickel-iron-chromium alloy with a specific addition of 1.25% silicon. It was developed specifically to handle the rigors of the industrial heat-treating environment, offering exceptional resistance to carburization and thermal shock.

Grade	Core Description	Typical Service Focus
Alloy 330	Alloy 330 is an austenitic nickel-iron-chromium alloy with a specific addition of 1.25% silicon. It was...	In heat treating furnaces, metals undergo brutal conditions: rapid heating, quenching, and exposure to...
Supply Capability	Plate, Sheet, Round Bar, Pipe, Mesh.	Standard mill forms, cut-to-size material and project supply
Technical Review	Confirm final values by product form, heat treatment and material certificate	The alloy resists the absorption of carbon and nitrogen, preventing the material from becoming brittle...

2. Key Features

- In heat treating furnaces, metals undergo brutal conditions: rapid heating, quenching, and exposure to carbon-rich atmospheres. Standard stainless...
- The alloy resists the absorption of carbon and nitrogen, preventing the material from becoming brittle during carburizing and carbonitriding cycles.
- Designed to withstand rapid temperature changes, such as oil quenching, without cracking or severe distortion.
- The microstructure remains stable even after long-term exposure to intermediate temperatures, unlike Incoloy 800 or 300 series stainless.

Further information under:	https://www.nickelcasting.com/nickel-alloys/alloy-330/
Home page:	www.nickelcasting.com
Email:	ni@Nickelcasting.com

Technical Data

The following values are provided as general reference data for engineering review and procurement planning. Confirm final values against the applicable specification, product form, heat treatment condition and material certificate.

3. Chemical Composition (%)

Element	Content (%)
Nickel (Ni)	34.0 - 37.0
Chromium (Cr)	17.0 - 20.0
Silicon (Si)	1.0 - 1.5
Iron (Fe)	Balance
Manganese (Mn)	2.0 max
Carbon (C)	0.08 max

4. Standard Specifications

Product Form	ASTM / ASME Standards
Plate, Sheet, Strip	ASTM B536, ASME SB536
Bar & Rod	ASTM B511, ASME SB511
Pipe (Seamless & Welded)	ASTM B535, ASTM B710, ASME SB535
Pipe Fittings	ASTM B366, ASME SB366

5. Mechanical Properties - Typical at Room Temperature

Property	Typical Values (Room Temp)
Tensile Strength	80 - 95 ksi (550 - 655 MPa)
Yield Strength (0.2% Offset)	30 - 45 ksi (205 - 310 MPa)
Elongation	35 - 45 %
Hardness (Rockwell B)	70 - 85 HRB

Note: Values are typical or specification reference values. Purchase requirements should be confirmed against the required standard, drawing and material test report.

Applications and Ordering Information

Use this section to define inquiry requirements and accelerate technical confirmation for Alloy 330 products.

6. Typical Applications

Industry / Area	Typical Components
Industrial Service	*Note: Alloy 330 remains ductile even after long-term service.
Chemical / Process Equipment	Trays, baskets, and fixtures used to hold parts during carburizing and hardening cycles.
Oil, Gas & Marine	Retorts and muffles that must contain controlled atmospheres at high temperatures.
High-Temperature / Power	Heating tubes in gas-fired furnaces that are subjected to intense thermal cycling.
Precision Components	Pigtails and headers in pyrolysis furnaces requiring carburization resistance.

7. Available Supply Forms

Pipe & Tube	Plate & Sheet	Bar & Rod
Pipe Fittings	Flanges	Wire & Strip
Forgings	Custom Cutting	Project Supply

8. Information to Include When Requesting a Quote

- Required grade: Alloy 330, with ASTM / ASME / AMS specification if applicable.
- Product form: pipe, tube, plate, sheet, bar, fittings, flanges, forgings or machined parts.
- Dimensions: outside diameter, wall thickness, length, width, thickness or drawing number.
- Quantity, delivery destination and required delivery schedule.
- Special requirements: cutting, machining, heat treatment, NDT, PMI, test report or material certificate.

Company Information	
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Home Page	www.nickelcasting.com
Product Page	https://www.nickelcasting.com/nickel-alloys/alloy-330/

Disclaimer

This datasheet is provided for general reference only. Actual values may vary by product form, heat treatment, manufacturing condition and applicable specification. Please contact us for confirmed specifications, test reports and material certificates before ordering.