

Waspaloy Datasheet

Waspaloy offers excellent strength and corrosion resistance for high-temperature aerospace and industrial applications.

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|----------------------|--|
| Alloy / Grade | Waspaloy |
| Common Forms | Round Bar, Forgings, Wire, Sheet. |
| Key Feature | Superior strength at temperatures >1300 deg F. |
| Service Focus | The material of choice for jet engine turbine discs and shafts that spin at high RPMs in extreme heat. |

1. Product Overview

Waspaloy is an age-hardenable, nickel-based superalloy with excellent high-temperature strength and good corrosion resistance by oxidation. It is used for critical rotating applications at temperatures up to 1600 deg F (870 deg C), where it outperforms Inconel 718 .

| Grade | Core Description | Typical Service Focus |
|-------------------|---|---|
| Waspaloy | Waspaloy is an age-hardenable, nickel-based superalloy with excellent high-temperature strength and good... | Waspaloy is the upgrade path for aerospace engineers when Inconel 718 is not enough. While Inconel 718... |
| Supply Capability | Round Bar, Forgings, Wire, Sheet. | Standard mill forms, cut-to-size material and project supply |
| Technical Review | Confirm final values by product form, heat treatment and material certificate | The material of choice for jet engine turbine discs and shafts that spin at high RPMs in extreme heat. |

2. Key Features

- Waspaloy is the upgrade path for aerospace engineers when Inconel 718 is not enough. While Inconel 718 loses strength rapidly above 1300 deg F,...
- The material of choice for jet engine turbine discs and shafts that spin at high RPMs in extreme heat.
- Excellent resistance to oxidation and gas turbine combustion environments at temperatures as high as 1750 deg F (954 deg C).
- The addition of Cobalt and Molybdenum provides solid-solution strengthening that remains stable during prolonged heat exposure.

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|-----------------------------------|---|
| Further information under: | https://www.nickelcasting.com/nickel-alloys/waspaloy/ |
| 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) | Balance (approx. 58%) |
| Chromium (Cr) | 18.0 - 21.0 |
| Cobalt (Co) | 12.0 - 15.0 |
| Molybdenum (Mo) | 3.5 - 5.0 |
| Titanium (Ti) | 2.75 - 3.25 |
| Aluminum (Al) | 1.2 - 1.6 |
| Carbon (C) | 0.02 - 0.10 |

4. Standard Specifications

| Product Form | Standards (AMS) |
|----------------------|--|
| Bar, Forgings, Rings | AMS 5706, AMS 5707, AMS 5708, AMS 5709 |
| Sheet, Strip, Plate | AMS 5544 |
| Wire (Welding) | AMS 5828 |

5. Mechanical Properties - Typical at Room Temperature

| Property | Typical Values (Room Temp) |
|------------------------------|------------------------------------|
| Tensile Strength | 175 - 195 ksi (1205 - 1345 MPa) |
| Yield Strength (0.2% Offset) | 115 - 130 ksi (790 - 895 MPa) |
| Elongation | 20 - 25 % |
| Hardness (Brinell) | 340 - 390 HB |
| Creep Rupture (1500 deg F) | High stress to rupture @ 100 hours |

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 Waspaloy products.

6. Typical Applications

| Industry / Area | Typical Components |
|------------------------------|---|
| Industrial Service | *Note: Properties are dependent on the specific solution and aging heat treatment cycle (e.g., AMS 5708). |
| Chemical / Process Equipment | Compressor and turbine discs, shafts, and spacers requiring high tensile strength at 1200-1600 deg F. |
| Oil, Gas & Marine | High-strength bolts and fasteners used in the hot sections of engines and airframes. |
| High-Temperature / Power | Turbine seals and casings that must maintain dimensional stability under thermal stress. |
| Precision Components | Structural components exposed to high aerodynamic heating and propulsion exhaust. |

7. Available Supply Forms

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|---------------|----------------|----------------|
| 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: Waspaloy, 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 | |
|---------------------|---|
| Address | Shanghai, China |
| Email | ni@Nickelcasting.com |
| Home Page | www.nickelcasting.com |
| Product Page | https://www.nickelcasting.com/nickel-alloys/waspaloy/ |

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.