

# MP159 Datasheet

MP159 provides superior strength, wear, and corrosion resistance for aerospace, medical, and industrial applications.

<b>Alloy / Grade</b>	MP159
<b>Common Forms</b>	Round Bar, Rod, Wire, Fastener Stock.
<b>Key Feature</b>	High strength at elevated temperatures (up to 1100 deg F).
<b>Service Focus</b>	Maintains ultra-high tensile strength and ductility in the 1100 deg F range, ideal for hot-section aerospace components.

## 1. Product Overview

MP159 is a nickel-cobalt-based multiphase alloy. It is the high-temperature sibling of MP35N . Through a combination of cold work and age hardening, it achieves ultra-high strength (up to 265 ksi) and maintains its mechanical properties at temperatures up to 1100 deg F (593 deg C).

Grade	Core Description	Typical Service Focus
MP159	MP159 is a nickel-cobalt-based multiphase alloy. It is the high-temperature sibling of MP35N . Through a...	Designers choose MP159 when they need the incredible tensile strength of MP35N but the application involves...
Supply Capability	Round Bar, Rod, Wire, Fastener Stock.	Standard mill forms, cut-to-size material and project supply
Technical Review	Confirm final values by product form, heat treatment and material certificate	Maintains ultra-high tensile strength and ductility in the 1100 deg F range, ideal for hot-section...

## 2. Key Features

- Designers choose MP159 when they need the incredible tensile strength of MP35N but the application involves heat (such as jet engine actuators)...
- Maintains ultra-high tensile strength and ductility in the 1100 deg F range, ideal for hot-section aerospace components.
- Immune to crevice corrosion in seawater and resistant to mineral acids, making it durable in harsh marine/aerospace environments.
- Exceptional fatigue resistance forged by the "Multiphase" strengthening mechanism (Cold Work + Phase Transformation + Aging).

<b>Further information under:</b>	<a href="https://www.nickelcasting.com/nickel-alloys/mp159/">https://www.nickelcasting.com/nickel-alloys/mp159/</a>
<b>Home page:</b>	<a href="http://www.nickelcasting.com">www.nickelcasting.com</a>
<b>Email:</b>	<a href="mailto:ni@Nickelcasting.com">ni@Nickelcasting.com</a>

## 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 (%)
Cobalt (Co)	34.0 - 37.0
Nickel (Ni)	24.5 - 26.5
Chromium (Cr)	18.0 - 20.0
Iron (Fe)	8.0 - 10.0
Molybdenum (Mo)	6.0 - 8.0
Titanium (Ti)	2.5 - 3.2
Aluminum (Al)	0.10 - 0.30

### 4. Standard Specifications

Product Form	Standards (AMS)
Bar (Solution Heat Treated)	AMS 5841
Bar (Sol. Treated + Cold Drawn)	AMS 5842
Bar (Sol + Cold Drawn + Aged)	AMS 5843

### 5. Mechanical Properties - Typical at Room Temperature

Property	Typical Values (Room Temp)
Tensile Strength	260 - 275 ksi (1790 - 1900 MPa)
Yield Strength (0.2% Offset)	250 - 265 ksi (1724 - 1827 MPa)
Elongation	8 - 12 %
Reduction of Area	30 - 45 %
Shear Strength	150 - 160 ksi

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 MP159 products.

## 6. Typical Applications

Industry / Area	Typical Components
Industrial Service	*Note: Achieving these properties requires cold working (typically 45-50%) followed by aging at 1225 deg F.
Chemical / Process Equipment	Critical bolts and screws in jet engines requiring strength at 1100 deg F where Ti-alloys or A286 would fail.
Oil, Gas & Marine	Actuator rods and drive shafts in aerospace control systems subjected to high stress and heat.
High-Temperature / Power	Retaining rings and high-tension springs used in the compressor and turbine sections.
Precision Components	High-performance fasteners for top-fuel and Formula 1 engines requiring extreme tensile strength.

## 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: MP159, 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	<a href="https://www.nickelcasting.com/nickel-alloys/mp159/">https://www.nickelcasting.com/nickel-alloys/mp159/</a>

## 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.