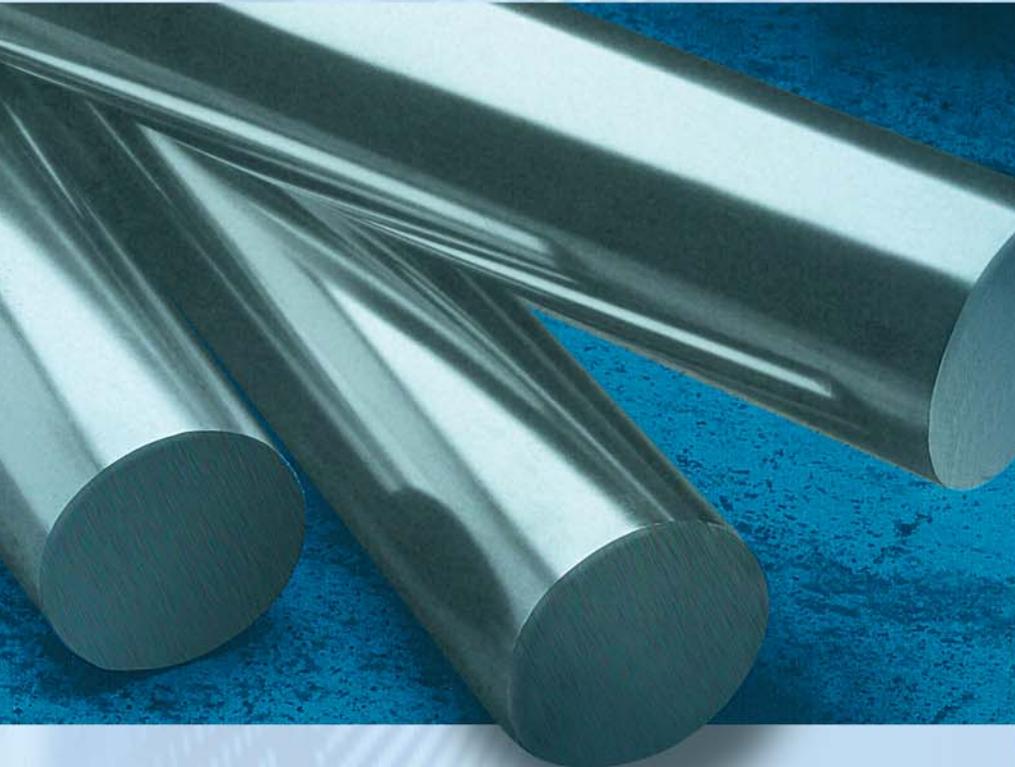


ToughMet® 3 AT 110

C72900, AMS 4596, ASTM B 929



The Tough Alloy for Tough Environments - The Ideal Choice!

- High Strength
- Anti-Galling Properties
- Non-Magnetic
- Excellent Machinability
- Corrosion Resistance
- Good Bearing Properties

Using ToughMet® will provide:

- More Up-Time
- Greater Reliability
- Better Design Flexibility

Stock Availability

Sizes

Outside Diameter, inches

| | |
|------|----|
| 1 | 5 |
| 1½ | 5⅞ |
| 1¾ | 5½ |
| 2 | 6 |
| 2½ | 6¾ |
| 2.77 | 7⅜ |
| 3 | 8⅜ |
| 3¼ | |
| 3½ | |
| 3¾ | |
| 4 | |
| 4½ | |

Minimum Mechanical Properties

| | |
|-------------------------------|--|
| Ultimate Tensile Strength: | 125 ksi (862 MPa) |
| Yield Strength (0.2% Offset): | 110 ksi (758 MPa) |
| Elongation: | 10% |
| Hardness: | 30 Rc |
| Elastic Modulus: | 18.5 x 10 ³ ksi (128 x 10 ³ MPa) |
| Tolerance: | ASTM B 249/ B 249M |
| Chemical Composition: | 15 Ni, 8 Sn, Balance Cu |

Custom size rod and tube available upon request.

ToughMet® 3 AT 110

The Tough Alloy for Tough Environments - To Suit Your Requirements

Tests Show Exceptional Corrosion Resistance of ToughMet® Alloy

- **Sea water:**
 General corrosion rate less than 1 mil per year.
 No intragranular galvanic corrosion.
- **Sea water and cathodic protection (-1.1 volts):**
 No hydrogen embrittlement, including notched areas.
- **High concentrations of chlorides or bromides:**
 No pitting or stress corrosion cracking.
- **Aqueous solutions containing amine-based compounds:**
 No embrittlement or accelerated weight loss corrosion.
- **Environmental data published in NACE Standard MR0175 and ISO 15156 for unrestricted sour well service (tested up to 150°C).**
 Alloy pre-stressed to 90% of Yield Strength
 30 days immersion
NACE Levels I, IV, V
 No sulfide stress corrosion cracking.
 Minimal general corrosion rate (1-3 mil per year).

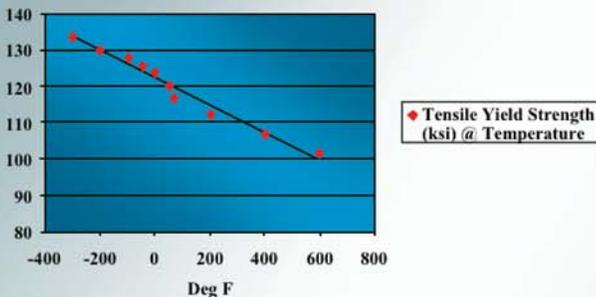
Machinability

ToughMet machines at least 5 times faster than stainless or nickel alloys.



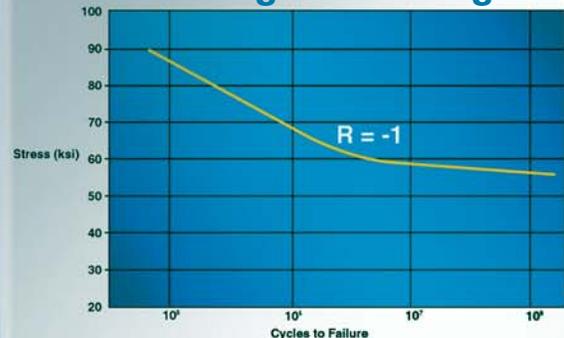
Elevated Temperature

ToughMet® 3 AT 110 Elevated Temperature Tensile Properties



Fatigue Strength

ToughMet® 3 AT Rotating Beam Fatigue



ToughMet® 3 AT demonstrates excellent stability of tensile properties from cryogenic temperatures through 600° F, despite long exposure.

ToughMet® 3 AT has no ductile to brittle transition temperature, as do many high strength steels.

