

ATI Allegheny Ludlum AL 600™ Nickel-Base Alloy, UNS N06600

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Allegheny Ludlum is a nickel-chromium alloy designed for use from cryogenic to elevated temperatures in the range of 1093 degrees Celsius. AL 600 alloy is non-magnetic and readily weldable. The alloy is used in a variety of corrosion resisting applications. The high nickel content of the alloy provides a level of resistance to reducing environments, while the chromium content of the material provides resistance to weaker oxidizing environments. The high nickel content of the material provides exceptional resistance to chloride stress corrosion cracking. The forming properties are similar to those of stable austenitic stainless steels. Specific uses include furnace parts, heat treatment fixtures, chemical and food processing, and nuclear reactors. Information provided by Allegheny Ludlum

Order this product through the following link:

http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-AL-600-Nickel-Base-Alloy-UNS-N06600.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|--------------------------|----------|
| Density | 8.42 g/cc | 0.304 lb/in ³ | |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|----------------------------|------------------------------|------------------------------|
| Hardness, Rockwell B | 80 | 80 | Typical Annealed |
| Tensile Strength, Ultimate | 640 MPa | 92800 psi | Typical Annealed |
| Tensile Strength, Yield | 255 MPa @Strain 0.200 % | 37000 psi @Strain 0.200 % | Typical; Annealed |
| Elongation at Break | 45 % | 45 % | typical in 2"; Annealed |
| Modulus of Elasticity | 207 GPa | 30000 ksi | |
| Poissons Ratio | 0.29 | 0.29 | |
| Shear Modulus | 76.0 GPa | 11000 ksi | |
| Charpy Impact | 244 J | 180 ft-lb | Typical; machined from plate |

| Thermal Properties | Metric | English | Comments |
|--------------------|-----------------------------|----------------------------|----------|
| CTE, linear | 12.4 μm/m-°C | 6.89 μin/in-°F | |
| | @Temperature 20.0 - 93.0 °C | @Temperature 68.0 - 199 °F | |
| | 13.7 μm/m-°C | 7.61 μin/in-°F | |
| | @Temperature 20.0 - 315 °C | @Temperature 68.0 - 599 °F | |
| | 14.6 μm/m-°C | 8.11 μin/in-°F | |

| Thermal Properties | @Temperature 20.0 - Metric 338 °C | @Temperature 68.0 - English 100 °F | Comments |
|------------------------|---|--|----------|
| Specific Heat Capacity | 0.460 J/g-°C | 0.110 BTU/lb-°F | |
| Thermal Conductivity | 14.8 W/m-K | 103 BTU-in/hr-ft ² -°F | |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|----------|----------|-------------------------|
| Carbon, C | 0.050 % | 0.050 % | |
| Chromium, Cr | 15.5 % | 15.5 % | |
| Copper, Cu | 0.10 % | 0.10 % | |
| Iron, Fe | 8.0 % | 8.0 % | |
| Manganese, Mn | 0.25 % | 0.25 % | |
| Nickel, Ni | 76 % | 76 % | as balance; includes Co |
| Silicon, Si | 0.20 % | 0.20 % | |
| Sulfur, S | 0.0020 % | 0.0020 % | |

| Electrical Properties | Metric | English | Comments |
|-----------------------|---------|---------|----------|
| Magnetic Permeability | <= 1.02 | <= 1.02 | |

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