

## Nickel-based Alloy

# AD730®

NiCr16Co9Fe4Mo3W3Ti3Al2

## SPECIFICATIONS

European standard:

NiCr16Co9Fe4Mo3W3Ti3AL2

## TYPICAL MECHANICAL PROPERTIES

- Heat treatment condition: 1080°C/OQ +730/760°C/AC

On metal supplied ready use:

- Tensile test at ambient temperature:
  - UTS: 1580 N/mm<sup>2</sup>
  - 0.2 % Yield strength: 1200 N/mm<sup>2</sup>
  - Elongation (5d): 20 %
- Tensile test at 600C:
  - UTS: 1500 N/mm<sup>2</sup>
  - 0.2 % Yield strength: 1130 N/mm<sup>2</sup>
  - Elongation (5d): 15 %
- Tensile test at 750C:
  - UTS: 1100 N/mm<sup>2</sup>
  - 0.2 % Yield strength: 1000 N/mm<sup>2</sup>
  - Elongation (5d): 10 %

## SUB-SOLVUS HEAT TREATMENT

1070°C/1080°C Air cooling or faster + 730°C/760°C Air Cooling

- Fine grain microstructure (average size finer than ASTM 7)
- Provides the best Tensile Strength / Creep / Fatigue resistance compromise
- Strengthening provided by fine precipitation of  $\gamma'$  precipitates into the grains

## COMPOSITION

|                  |      |
|------------------|------|
| Iron .....       | 4    |
| Chromium .....   | 16   |
| Cobalt .....     | 9    |
| Molybdenum ..... | 3    |
| Tungsten .....   | 3    |
| Aluminum .....   | 2    |
| Titanium .....   | 4    |
| Niobium .....    | 1    |
| Nickel .....     | Base |

## APPLICATIONS

- Aero Engines and Land Turbines: Engines disks, buckets, fasteners, blades
- Specialties : Hot parts for turbo shafts in motorsport
- Hot Tooling

## CHARACTERISTICS

- Good high temperature fatigue creep resistance
- High microstructural stability up to 750°C
- Better oxydation resistance than Waspaloy or 720 Alloy

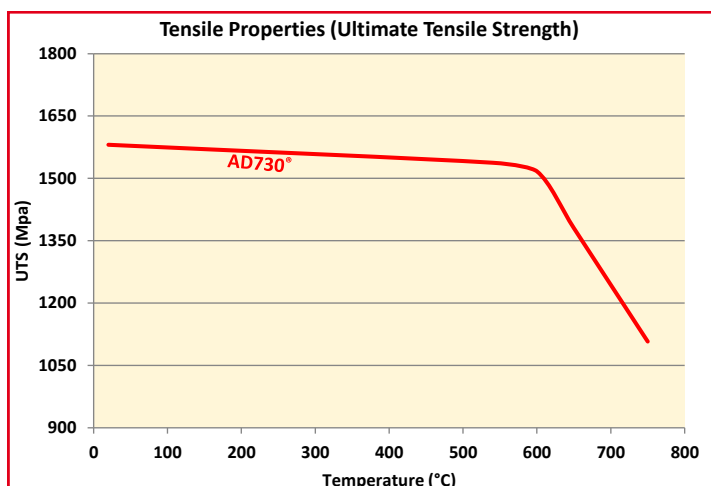
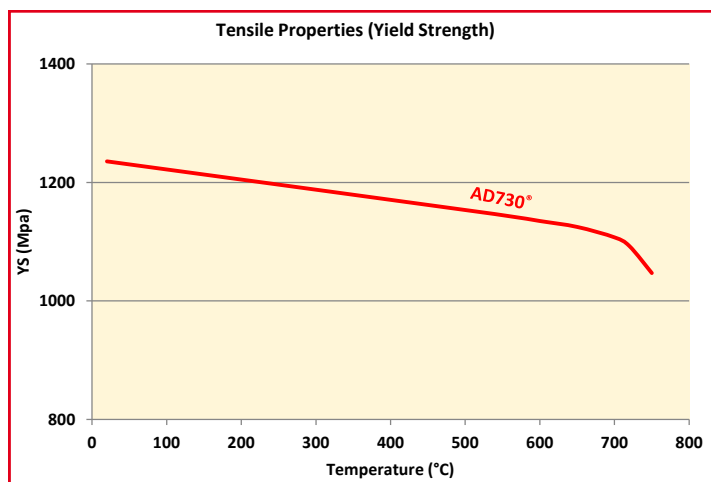
## OTHER HEAT TREATMENT

- Super-solvus heat treatment is possible to enhance creep and fatigue crack growth performance.
- Contact us for more information

## PHYSICAL PROPERTIES

- Density: 8.23g/cm<sup>3</sup>
- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 400°C: 13.4 x 10<sup>-6</sup>
  - between 20°C and 600°C: 14.5 x 10<sup>-6</sup>
  - between 20°C and 800°C: 15.8 x 10<sup>-6</sup>
- Thermal Conductivity in W/m.°C
  - at 200°C: 13.12
  - at 400°C: 15.35
  - at 600°C: 20.38
  - at 800°C: 23.62

## MECHANICAL PROPERTIES



Contact:

[www.aubertduval.com](http://www.aubertduval.com)

The data provided in this document represent typical or average values rather than maximum or minimum guaranteed values. The applications indicated for the grades described are given as guidance only in order to help the reader in his personal assessment. Please note that these do not constitute a guarantee whether implicit or explicit as to whether the grade selected is suited to specific requirements. Aubert & Duval's liability shall not under any circumstances extend to product selection or to the consequences of that selection.