AUBERT&DUVAL

Nickel-based Alloy

PER72

NiCr18Co15TiMoAl

SPECIFICATIONS

- NiCr18Co15TiMoAl

COMPOSITION

Carbon	0.04
Chromium	18.00
Colbalt	15.00
TItanium	5.00
Molybdenum	3.00
Aluminum	2.50
Tungsten	1.20
Nickel	Base

TYPICAL MECHANICAL PROPERTIES

On metal supplied ready for use:

- Tensile test at ambient temperature:
  - UTS: 1530 N/mm^2
  - 0.2 % Yield strength: 1150 N/mm^2
  - Elongation (5d): 14 %

- Rapid tensile test at temperature:

Temperature in °C	UTS in (N/mm^2)	0.2 % Yield strength in (N/mm^2)	Elongation (5d) in %
600	1430	1100	20
700	1230	1020	20
800	980	750	20
900	550	350	15

- Creep:

Temperature in °C	Average load in N/mm^2 causing creep fracture in 1000 hrs
600	950
650	680
700	500
750	335
950	40

APPLICATIONS

- Parts subject to both a hot corrosive environment and to a high level of mechanical stress, such as discs, blades...
- This grade has been predominantly developed in the aerospace industry
- For applications at extremely high temperature it is possible to use other heat treatment conditions to produce significantly different properties (please contact us).

CHARACTERISTICS

Precipitation hardened, nickel-based superalloy with:

- Excellent resistance to high temperature oxydation
- Good mechanical properties at high temperature

HEAT TREATMENT

- Solution treatment & ageing:
  1100°C / 4 hrs / Air cool + 650°C / 24 hrs / Air cool + 760°C / 16 hrs / Air cool.

PHYSICAL PROPERTIES

- Density:
  - at 20°C: 8.20
  - at 400°C: 8.10
  - at 800°C: 7.95

- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 200°C: 12.6×10^{-6}
  - between 20°C and 400°C: 12.9×10^{-6}
  - between 20°C and 600°C: 13.9×10^{-6}
  - between 20°C and 800°C: 14.9×10^{-6}

- Modulus of elasticity in N/mm^2:
  - at 20°C: 227×10^3
  - at 400°C: 193×10^3
  - at 700°C: 168×10^3

- Thermal conductivity in $W.m/m^2.°C$:
  - at 20°C: 11.0
  - at 200°C: 13.5
  - at 400°C: 16.2
  - at 600°C: 19.0
  - at 800°C: 21.5
  - at 1000°C: 24.5

FORGING

- Please contact us

Contact:

www.aubertduval.com