AUBERT&DUVAL

Steel

ML18PQ

X2NiCoMo18-8-5

Melting: Vacuum induction melted and consumable electrode remelted steel

SPECIFICATIONS

- X2NiCoMo18-8-5

AIR : E-Z 2 NKD 18
WL : 1.6359
BS : S 162
UNS : K92890
AMS : 6512

COMPOSITION

Carbon.....	<0.03
Nickel.....	18.00
Cobalt.....	8.00
Molybdenum.....	5.00
Titanium.....	0.50

TYPICAL MECHANICAL PROPERTIES

- Solution treatment: heat to 825°C followed by air cooling
  - Brinell hardness: 302
  - UTS: 1070 N/mm^2
  - 0.2 % Yield strength: 870 N/mm^2
  - Elongation (5d): 14 %

HEAT TREATMENT REFERENCE

- After aging at 480°C for 4 hours, mechanical properties at 20°C are as follows:
  - UTS: 1850 N/mm^2
  - 0.2 % Yield strength: 1780 N/mm^2
  - Elongation (5d): 9 %
  - Impact strength KCU: 40 J/cm^2

APPLICATIONS

- High strengh and fatigue stressed rotation parts, mainly used for turbine shafts, compressor shafts

CHARACTERISTICS

- Precipitation hardened maraging type steel vacuum melted and consumable electrode remelted
- High yield strength and good impact strength.
- Good weldability, high cycle fatigue
- Surface hardening by nitriding is possible

HEAT TREATMENT

- Starting from the solution treated condition, hardening is achieved using the following aging treatment:
  - Heat to 480°C
  - Holding at temperature for 4 hours.

A very slight contraction of the part of approximately 0.05 % occurs during aging treatment for a holding time of 4 hours.

PHYSICAL PROPERTIES

- Density: 8.0

- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 100°C: 10.3×10^{-6}
  - between 20°C and 300°C: 10.8×10^{-6}
  - between 20°C and 500°C: 11.7×10^{-6}

- Modulus of elasticity in N/mm^2:
  - at 20°C: 186×10^3

- Electrical resistivity in $\mu\Omega.cm^2/cm$
  - at 20°C: 60 (softened)
  - at 20°C: 38 (aged)

- Surface treatment:
  - Surface hardening by nitriding is possible.
    Please contact us

FORGING

- 1250/800°C

WELDING

ML18PQ is highly suitable for TIG or MIG welding. Assembly is carried out in the softened or aged condition.
The weld bead can be hardened by the same ageing treatment as the parent metal without requiring solution treatment of the welded assembly.

Contact:

www.aubertduval.com