

## 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<sup>2</sup>
  - 0.2 % Yield strength: 870 N/mm<sup>2</sup>
  - 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<sup>2</sup>
  - 0.2 % Yield strength: 1780 N/mm<sup>2</sup>
  - Elongation (5d): 9 %
  - Impact strength KCU: 40 J/cm<sup>2</sup>

## APPLICATIONS

- High strength 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

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- 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

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- Density: 8.0
- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 100°C:  $10.3 \times 10^{-6}$
  - between 20°C and 300°C:  $10.8 \times 10^{-6}$
  - between 20°C and 500°C:  $11.7 \times 10^{-6}$
- Modulus of elasticity in N/mm<sup>2</sup>:
  - at 20°C:  $186 \times 10^3$
- Electrical resistivity in  $\mu\Omega \cdot \text{cm}^2/\text{cm}$ 
  - at 20°C: 60 (softened)
  - at 20°C: 38 (aged)
- Surface treatment:
  - Surface hardening by nitriding is possible.  
Please contact us

## FORGING

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- 1250/800°C

## WELDING

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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](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.