



Variant:

APX4W: Consumable electrode remelted grade

SPECIFICATIONS

European standards:

- X4CrNiMo16-5-1
- Numerical designation: 1.4418

AIR: Z 8 CND 17-04

MECHANICAL PROPERTIES

- Annealed condition: heat to 680 °C followed by air cooling.
 - Brinell Hardness: 270
- Oil quench from 1000/1100 °C. Temper at 400 °C:
 - UTS: 1200 N/mm²
 - 0.2 % Yield strength: 950 N/mm²
 - Elongation (5d): 16 %
 - Impact strength KCU: 100 J/cm²
- Oil quench from 1000/1100 °C. Temper at 580 °C:
 - UTS: 1000 N/mm²
 - 0.2 % Yield strength: 750 N/mm²
 - Elongation (5d): 18 %
 - Impact strength KCU: 120 J/cm²

COMPOSITION

Carbon	0.06
Chromium	16.00
Nickel	4.00
Molybdenum	1.00

APPLICATIONS

- Nuclear energy.
- Aerospace industry, marine applications.
- Chemical, oil and steam industry.
- Suitable for manufacture of weldable safety-critical parts.
- Plastics processing industries.

CHARACTERISTICS

- Martensitic stainless steel, with a level of corrosion resistance between a 13 % chromium steel and the 18-8 series.
- Resistant to sea water, saline atmosphere and salt spray.
- Very good resistance to organic acids and some mineral acids.
- Very suitable where a high polish is required.
- Good weldability.

HEAT TREATMENT

- Harden:
 - Heat to 1000/1100 °C.
 - Oil or water quench, gas pressure quenching is an option depending on the shape.

It is recommended that heating should take place in an inert atmosphere.

- Temper:
 - According to properties required.

PHYSICAL PROPERTIES

- Density: 7.7
- Mean coefficient of expansion in m/m.°C:
 - between 20 °C and 100 °C: 10.1×10^{-6}
 - between 20 °C and 300 °C: 10.7×10^{-6}
 - between 20 °C and 500 °C: 11.5×10^{-6}
- Modulus of elasticity in N/mm²:
 - at 20 °C: 211×10^9
- Thermal conductivity in W.m/m².°C:
 - à 20 °C: 19
- Electrical resistivity in $\mu\Omega$.cm²/cm:
 - at 20 °C: 70
 - at 500 °C: 105

FORGING

- 1100/900 °C

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