



Variant:

APXW: Consumable electrode remelted grade

SPECIFICATIONS

European Standards:

- 17CrNi16-2
- Numerical designation: 1.4057

AECMA :

- Designation: FE-PM42, FE-PM3901.
- X15CrNi17-3.

AIR : Z 15 CN 17-03

WL : 1.4044

BS : S 80

UNS : S43100

AISI : 431

MECHANICAL PROPERTIES

- Annealed condition: heat to 680 °C followed by air cooling.
 - Brinell hardness: 300
- Oil quench from 1020 °C. Temper at 400 °C.
 - UTS: 1400 N/mm²
 - 0.2 % Yield strength: 1050 N/mm²
 - Elongation (5d): 13 %
- Oil quench from 1020 °C. Temper at 630 °C.
 - UTS: 1000 N/mm²
 - 0.2 % Yield strength: 750 N/mm²
 - Elongation (5d): 15 %
 - Impact strength KCU: 40 J/cm²

We do not recommend using this steel in the tempering range from 400 °C to 600 °C which corresponds to the least favourable impact strength values.

COMPOSITION

Carbon	0.16
Chromium	17.00
Nickel	2.00

APPLICATIONS

- Nuclear energy.
- Aerospace industry, marine applications.
- Chemical, oil and steam industry.
- Plastics processing industry.
- For the manufacture of welded parts, please use our APX4 steel.

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.

HEAT TREATMENT

- Harden:
 - Heat to 1020 °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:
 - Depending on properties required.

PHYSICAL PROPERTIES

- Density: 7.7
- Mean coefficient of expansion in m/m.°C:
 - between 20 °C and 100 °C: 10.8×10^{-6}
 - between 20 °C and 300 °C: 11.3×10^{-6}
 - between 20 °C and 500 °C: 12.1×10^{-6}
- Modulus of elasticity in N/mm²:
 - at 20 °C: 211×10^3
- Thermal conductivity in W.m/m².°C:
 - at 20 °C: 19
 - at 500 °C: 24
- Specific heat capacity in J/g.°C: 0.48
- Electrical resistivity in $\mu\Omega.cm^2/cm$:
 - at 20 °C: 72
 - at 500 °C: 103
- Magnetic properties:
 - magnetic induction (T) in a magnetic field of 20,000 A/m: 1.5

FORGING

- 1100/900 °C

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