



SPECIFICATIONS

European Standards:

- X17CrNi16-2
- Numerical designation: 1.4057

AIR : Z 15 CN 17-03
WL : 1.4044
BS : S 80
UNS : S43100
AMS : 5628
AISI : 431

TYPICAL MECHANICAL PROPERTIES

- Annealed condition: heat to 680°C followed by air cooling.
 - Brinell hardness: 300

HEAT TREATMENT REFERENCE

- 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 industries.
- Plastics processing industry.
- For the manufacture of welded parts, please use our APX4 steel.

CHARACTERISTICS

- Martensitic stainless steel, equivalent to 13 % chromium steel in terms of corrosion.
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

Contact:

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.