



SPECIFICATIONS

European Standards:

- X4CrNiMo16-5-1
- Numerical designation: 1.4418

AIR : Z 8 CND 17-04

TYPICAL MECHANICAL PROPERTIES

- Annealed condition: heat to 680°C followed by air cooling.
 - Brinell hardness: 270

HEAT TREATMENT REFERENCE

- 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

We do not recommend using this steel in the tempering range from 400°C to 560°C which corresponds to the least favourable impact strength values.

COMPOSITION

Carbon..	0.06
Chromium.....	16.00
Nickel.....	4.00
Molybdenum.....	1.00

APPLICATIONS

- Nuclear energy.
- Aerospace industry.
- marine applications.
- Chemical industry.
- Plastic industry.
- Welded assembly

CHARACTERISTICS

- Martensitic stainless steel, equivalent to 18 % 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.
- 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 | • Thermal conductivity in W.m/m ² .°C: | |
| | | - at 20°C: | 19 |
| • Mean coefficient of expansion in m/m.°C: | | • Electrical resistivity in μΩ.cm ² /cm: | |
| - between 20°C and 100°C: | 10.1 x 10 ⁻⁶ | - at 20°C: | 72 |
| - between 20°C and 300°C: | 10.7 x 10 ⁻⁶ | - at 500°C: | 105 |
| - between 20°C and 500°C: | 11.5 x 10 ⁻⁶ | | |
| • Modulus of elasticity in N/mm ² : | | | |
| - at 20°C: | 211 x 10 ³ | | |

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.