AUBERT&DUVAL

Steel
NCAV
12NiCr12

SPECIFICATIONS

AIR : 12 NC 12

COMPOSITION

Carbon.....	0.12
Nickel.....	3.30
Chromium.....	0.75

TYPICAL MECHANICAL PROPERTIES

- Annealed condition: heat to 825°C followed by slow cooling:
  - Brinell Hardness: 217
- Oil quench from 825/850 °C. Temper at 150°C (properties beneath the carburized layer)
  - UTS: 1150 N/mm^2
  - 0.2 % Yield strength: 950 N/mm^2
  - Elongation (5d): 14 %
  - Impact strength KCU: 120 J/cm^2
- Water quench from 825/850°C. Temper at 575°C:
  - UTS: 850 N/mm^2
  - 0.2 % Yield strength: 700 N/mm^2
  - Elongation (5d): 19 %
  - Impact strength KCU: 150 J/cm^2

APPLICATIONS

- Carburized condition: shafts, pins, gears, etc.
- Non-carburized condition: Mechanical parts.

CHARACTERISTICS

- Carburizing and heat treatable nickel-chromium steel.
- After carburizing, hardening and tempering, the surface hardness is around 700 HV.

HEAT TREATMENT

- Carburizing:
  - 900°C approx.

- Harden:
  - Heat to 825/850°C.
  - Oil quench .

- Temper:
  - After carburizing and hardening, the steel is tempered between 140°C and 200°C as required. For use in the non carburized condition, temper in accordance with properties required.

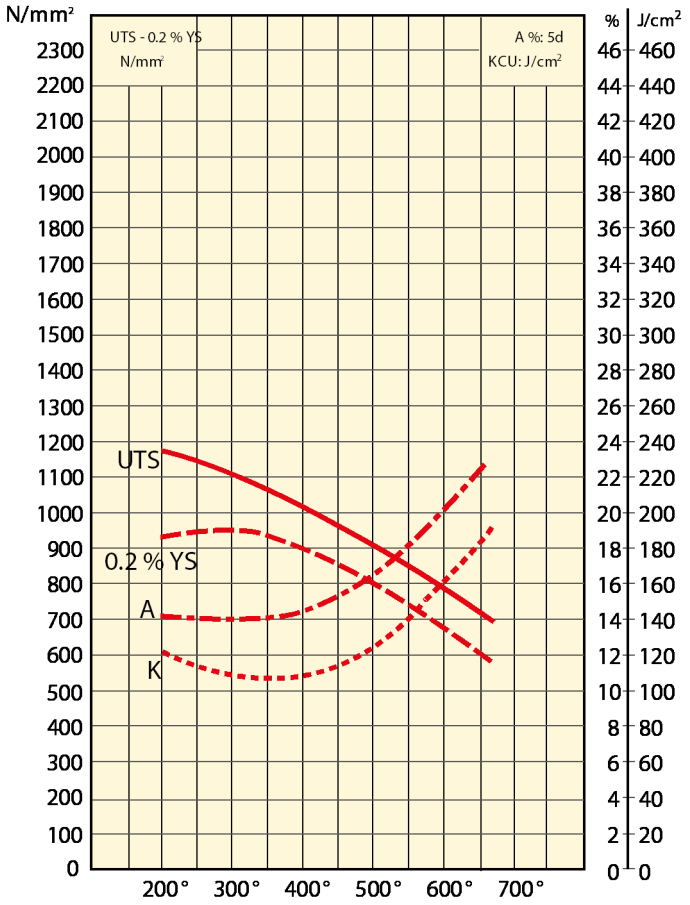
PHYSICAL PROPERTIES

- Density: 7.8

- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 100°C: 11.4 x 10^{-6}
  - between 20°C and 700°C: 13.6 x 10^{-6}

- Critical points:
  - Ac 1: 690°C
  - Ac 3: 815°C

TEMPERING CURVE



Heated to 825/850°C, oil quenched.

(Heat treatment on rough machined blanks)

FORGING

- 1100/900°C

Contact:

www.aubertduval.com