AUBERT&DUVAL

Steel

NC310YW

40SiNiCrMoV10

SPECIFICATIONS

40SiNiCrMoV10

UNS : K54015

AMS : 6499

COMPOSITION

Carbon	0.40
Silicon	2.70
Nickel	1.75
Chromium	0.85
Molybdenum	0.40
Vanadium	0.20

MECHANICAL PROPERTIES

- Annealed condition: Heat to 955°C for 1 hour, transfer to a furnace at 700°C, hold at temperature for 24 hours followed by slow cooling:
  - Brinell Hardness: < 269

- Oil quench from 920°C/940°C. Sub-zero treatment. Double temper at 300°C:
  - UTS: 2150 N/mm^2
  - 0.2 % Yield strength: 1790 N/mm^2
  - Elongation (5d): 9 %
  - Reduction of area: 40 %
  - Toughness K1c: 52 $MPa\sqrt{m}$

APPLICATIONS

- Main applications:
  - Torsion bars
  - Gears
  - Transmission shafts

CHARACTERISTICS

- This high strength steel is used for parts subject to high mechanical stresses and high fatigue stress.
- For applications in which parts are exposed to contact friction, NC310YW can be carburised.
- Its high tempering temperature (300°C) enables carburised components to be surface coated, and it can also be used at high working temperatures (>150°C).

HEAT TREATMENT

- Hardening:
  - Heat to 920°C/940°C.
  - Oil quench.

- Sub-zero treatment:
  - Cool to -75°C and hold for 4 hours. Please note that this process should not be carried out more than 4 hours after quenching.

- Double temper at 300°C

PHYSICAL PROPERTIES

- Density: 7.66

- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 300°C: 13.6×10^{-6}

- Modulus of elasticity in N/mm^2:
  - at 20°C: 202×10^3

- Critical points:
  - Ac 1: 780°C
  - Ac 3: 900°C

Contact:

www.aubertduval.com