

## 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<sup>2</sup>  
- 0.2 % Yield strength: 1790 N/mm<sup>2</sup>  
- Elongation (5d): 9 %  
- Reduction of area: 40 %  
- Toughness K1c: 52 MPavm

## 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

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- 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

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- Density: 7.66
- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 300°C:  $13.6 \times 10^{-6}$
- Modulus of elasticity in N/mm<sup>2</sup>:
  - at 20°C:  $202 \times 10^3$
- Critical points:
  - Ac 1: 780°C
  - Ac 3: 900°C

Contact:

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