



SPECIFICATIONS

X50CrSiMnVN16-1

UNS : S42716

AMS : 5926

MECHANICAL PROPERTIES

- Annealed condition: heat to 850°C followed by slow cooling:
 - Brinell hardness: 249

- Oil or gas quench 1070°C. Sub-zero treatment (-70/-80°C).
Temper at 180°C.
 - HRC: 58

This is the recommended treatment cycle for maximum hardness and very good corrosion resistance.

- Oil or gas quench 1070°C. Sub-zero treatment (-70/-80°C).
Double temper at 500°C.
 - HRC: 58

This treatment is recommended for hot work applications, with a high level of hardness and moderate corrosion resistance.

- Oil or gas quench from 1050°C. Double temper at 650°C.
 - UTS: 1240 N/mm²
 - 0.2% Yield Strength: 1025 N/mm²

This treatment is recommended where induction hardening of the surface is to be undertaken. The tempering temperature can be adjusted according to the core strength required.

COMPOSITION

Carbon	0.50
Chromium	16.00
Silicon	2.00
Manganese	1.00
Molybdenum	0.30
Vanadium	0.30
Nitrogen	0.10

APPLICATIONS

- Bearings, ball-screws for industrial applications, gears.
- Valves.
- Injection systems for automotive.
- Cold work in corrosive environment.

CHARACTERISTICS

- Air melted martensitic stainless steel combining remarkable corrosion resistance with a high level of hardness.
- The well-balanced composition provides a structure free from coarse carbides, improving impact and fatigue resistance.
- Good properties at elevated temperatures.
- Induction hardenable.

HEAT TREATMENT

- Harden:
 - Heat to 1050/1075°C
 - Oil or gas quench (> 3bars).
 - Sub-zero treatment can be used if required
- Temper:
 - Depending on hardness required

PHYSICAL PROPERTIES

- Density: 7.7
- Mean coefficient of expansion in m/m.°C:
 - between 20°C and 100°C: 10.40×10^{-6}
 - between 20°C and 200°C: 10.55×10^{-6}
 - between 20°C and 300°C: 10.80×10^{-6}
 - between 20°C and 500°C: 11.45×10^{-6}
- Critical points:
 - Ac 1: 875°C
 - Ac 3: 1000°C

FORGING

- 1200/1000°C

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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.