

## SPECIFICATIONS

European standards:

- X40CrMoVN16-2
- Numerical designation: 1.4123

UNS : S42025

AMS : 5925

## COMPOSITION

Carbon.....	0.42
Chromium.....	16.00
Molybdenum.....	1.80
Vanadium.....	0.35
Nitrogen.....	0.20

## TYPICAL MECHANICAL PROPERTIES

- Annealed condition: Heat to 840°C followed by slow cooling:
  - Brinell Hardness: 207

### HEAT TREATMENT REFERENCE

- Oil or gas quench from 1050°C. Sub zero treatment (-70/-80°C). Temper at 180°C:
  - HRC: 59

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

- Oil or gas quench from 1075°C. Sub-zero treatment (-70/-80°C). Double temper at 500°C.
  - HRC: 59

*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: 1200 N/mm<sup>2</sup>
  - 0.2 % Yield strength: 900 N/mm<sup>2</sup>

*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.*

## APPLICATIONS

- Bearings, bearing components, ball-screws.
- Spherical bearings.
- Valve seats.
- Guide collars.

## CHARACTERISTICS

- Consumable electrode remelted martensitic stainless steel combining remarkable corrosion resistance with a very high level of hardness (>440C).
- The well-balanced composition provides a structure free from coarse carbides resulting in excellent fatigue resistance.

## HEAT TREATMENT

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

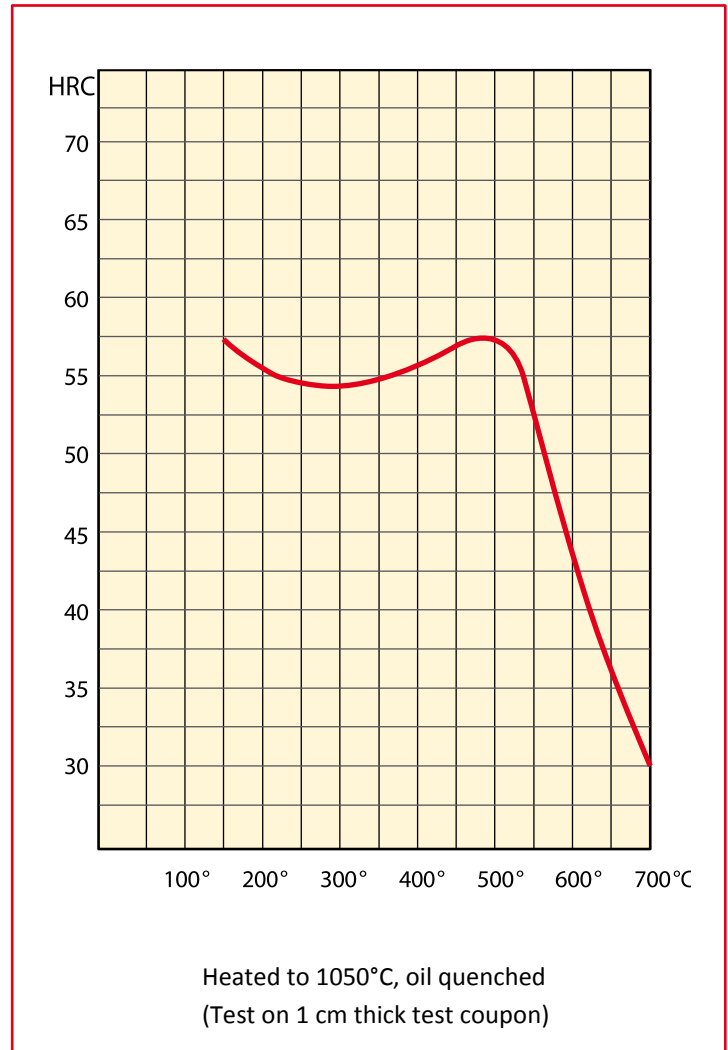
## PHYSICAL PROPERTIES

- Density: 7.7
- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 100°C:  $10.40 \times 10^{-6}$
  - between 20°C and 200°C:  $10.55 \times 10^{-6}$
  - between 20°C and 300°C:  $10.80 \times 10^{-6}$
  - between 20°C and 500°C:  $11.45 \times 10^{-6}$
- Critical points:
  - Ac 1: 840°C
  - Ac 3: 1000°C

## FORGING

- 1200/1000°C

## TEMPERING CURVE



Contact:

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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.