



SPECIFICATIONS

Specific grade

EN : X38CrMoCoV5-3-3*

AFNOR : X38CrMoCoV5-3-3*

* Symbolic designation.

PROPERTIES

- Annealed condition: heat to 830°C, slow cool.
- Softened condition, Brinell hardness approximately 235.

COMPOSITION

Carbon	0.40
Chromium	5.00
Molybdenum.....	3.00
Cobalt	2.70
Vanadium	0.50

APPLICATIONS

- Inserts for forging presses
- Extrusions tools.

QUALITIES

- High wear resistance.
- High toughness.
- Low sensitivity to thermal shock.

HEAT TREATMENT

- Hardening:

- Preheat to 750°C.
- Raise to 1020°C.
- Air cool or gas pressure quench.

For large parts, air cooling may be replaced by quenching into a salt bath at 220°C, followed by cooling in air to room temperature.

It is recommended that heating should take place in a neutral atmosphere.

- Tempering:

- 1st temper at 550°C.
- 2nd temper between 550°C and 650°C according to hardness required.

PHYSICAL PROPERTIES

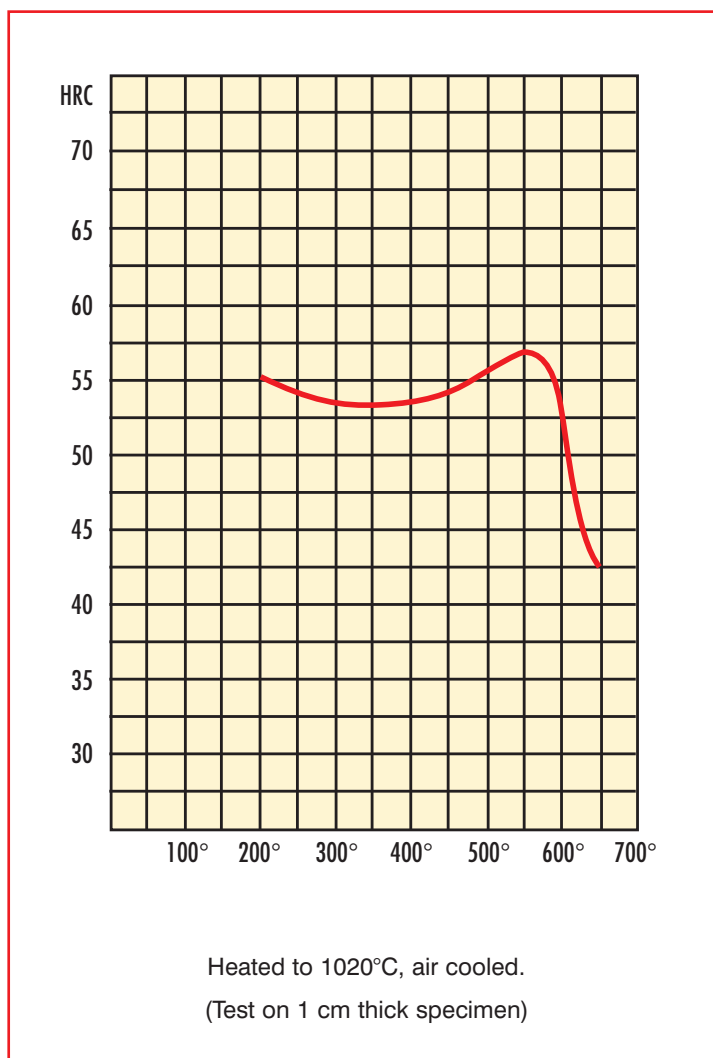
- Mean coefficient of expansion in m/m.°C:

- between 20°C and 100°C: 10.6×10^{-6}
- between 20°C and 300°C: 11.8×10^{-6}
- between 20°C and 500°C: 12.6×10^{-6}
- between 20°C and 700°C: 13.3×10^{-6}

- Critical points:

- Ac 1: 820°C
- Ac 3: 860°C

HARDNESS VS TEMPERING TEMPERATURE



FORGING

- 1150/1000°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.