

Steel R6110 X38CrMoV5-3

SPECIFICATIONS _____

European standard:

EN: X38CrMoV5-3 AFNOR: X38CrMoV5-3

W.Nr : 1.2367

DIN: X38CrMoV5-5

PHYSICAL PROPERTIES _

• Density: 7.7

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

- between 20°C and 100°C: 11.0 x 10⁻⁶

- between 20°C and 300°C: 11.8 x 10⁻⁶

- between 20°C and 500°C: 12.8 x 10⁻⁶

- between 20°C and 700°C: 13.4 x 10⁻⁶

• Critical points:

- Ac 1: 830°C

- Ac 3: 885°C

COMPOSITION

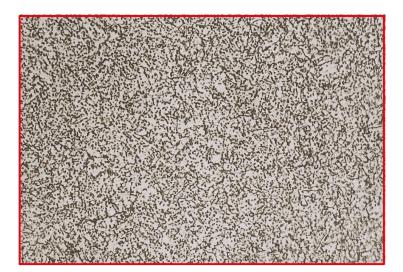
Carbon	0.40
Chromium	5.00
Moybdenum	3.00
Vanadium	0.50

APPLICATIONS —

- Inserts and punches for drop-stamping and forging
- Dies for light alloy die casting
- Extrusion tools

CHARACTERISTICS ____

- Good resistance to high temperature oxydation
- Low sensitivity to thermal shock
- Excellent resistance to wear
- Excellent dimensional stability



STRUCTURE IN THE ANNEALED CONDITION

According to process B2196

Correct structure (Mx500)

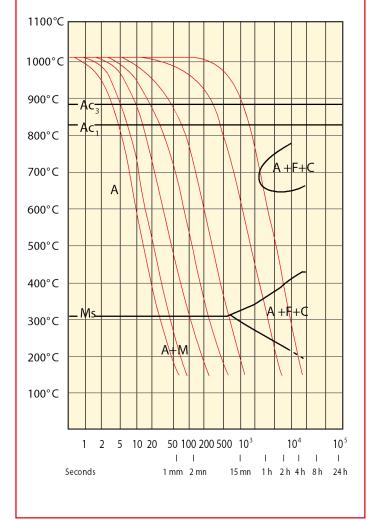
• Brinnel hardness of approximately 235 in the softened condition.

HEAT TREATMENT,

- Harden:
 - Preheat to 750°C.
 - Raise to 1000°C
 - Air cool or gas pressure quench

For large parts, air cooling may be replaced by quenching into a salt bath at 240°C, followed by cooling in air to room temperature.

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



CCT DIAGRAM

Austenitizing at 1010°C

HEAT TREATMENT _____

TEMPERING CURVE _____

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

TEMPERING CURVE

1 cm thick test piece

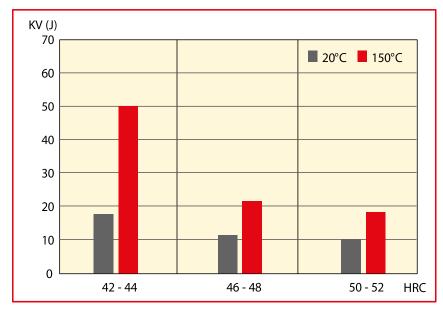




STRUCTURE AFTER HEAT TREATMENT
According to process B2196

Correct structure (Mx500)

MECHANICAL PROPERTIES —



VARIATION OF IMPACT STRENGTH WITH HARDNESS FOR DIFFERENT WORKING TEMPERATURES

• We recommended adequate preheating before commissioning the tools to increase their thoughness

SURFACE TREATMENT -

• R6110 is suitable for all nitriding processes. This treatment results in a hard surface layer providing improved resistance to erosion and wear. The hardness obtained after nitriding treatment is of the order of 1000 Vickers.

Contact:

www.aubertduval.com

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.

