AUBERT&DUVAL

Steel

ADC3

X36CrMoV5-1

ADC3W: Consumable electrode remelted steel

SPECIFICATIONS

European standard:

EN : X36CrMoV5-1*

AFNOR: X35CrMoV5*

W.Nr : 1.2340

DIN : X36CrMoV5-1

AISI : ~H11

*Symbolic designation

PHYSICAL PROPERTIES

- Density: 7.8

- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 200°C: 11.5×10^{-6}
  - between 20°C and 400°C: 12.3×10^{-6}
  - between 20°C and 600°C: 12.9×10^{-6}

- Critical points:
  - Ac 1: 840°C
  - Ac 3: 900°C

COMPOSITION

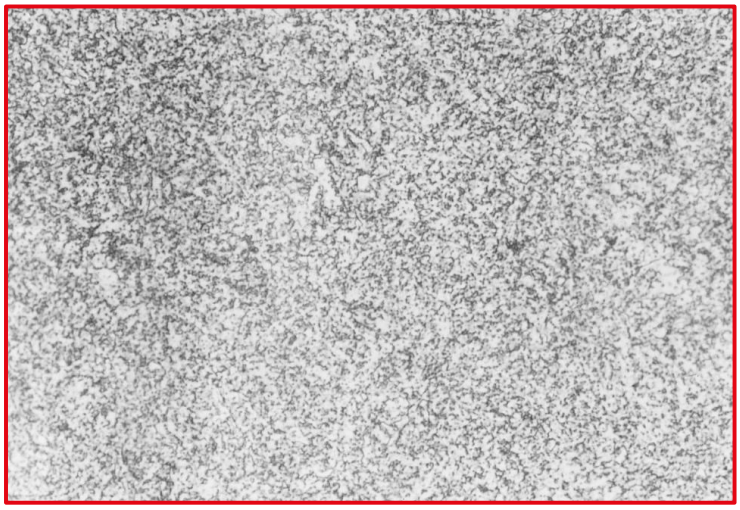
Carbon	0.35
Chromium	5.00
Moybdenum	1.30
Vanadium	0.40

APPLICATIONS

- Dies for light alloy die casting
- Tools for extruding aluminium alloys.

CHARACTERISTICS

- High level of toughness
- Good resistance to high temperature oxydation
- Excellent thermal fatigue resistance



AS-DELIVERED STRUCTURE IN THE ANNEALED CONDITION

According to process B2254

Correct structure
(Mx500)

- Brinnel hardness of approximately 235 in the softened condition.

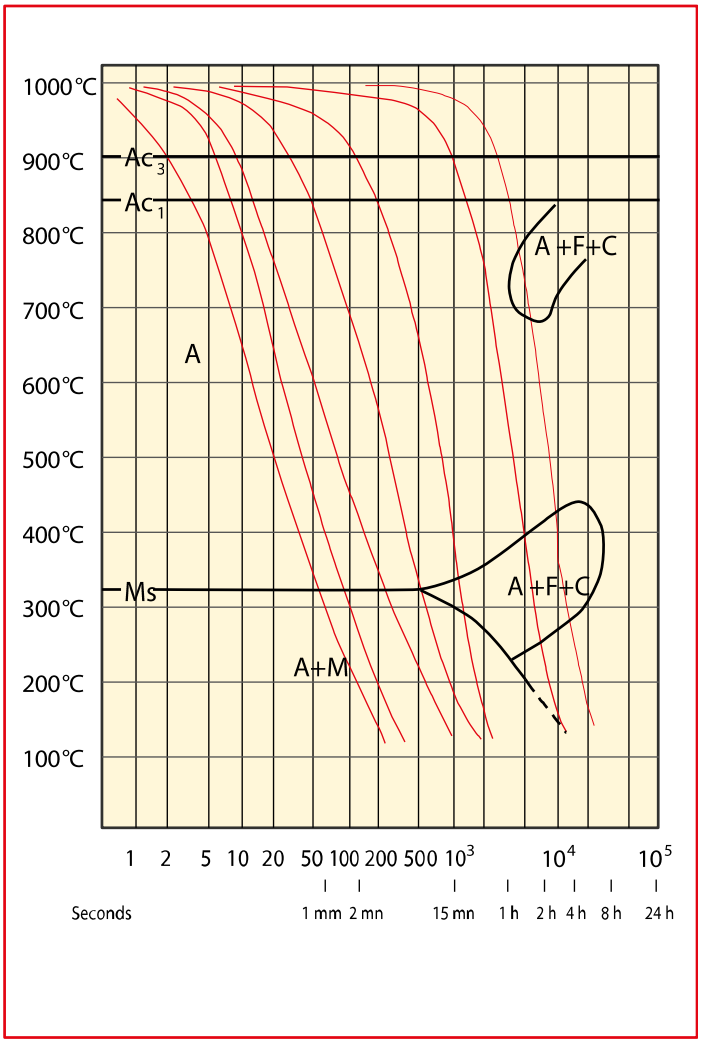
HEAT TREATMENT

- Harden:
  - Preheating in 2 steps : 600°C and 800°C
  - Austenitizing temperature : 990°C

Quench to reach a maximum cooling rate with a high gas pressure.

In case of large dies, a martempering bath is suitable, with a stop quenching at 500°C that can be followed by a cooling in air or by a second stop quenching below 250°C.

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



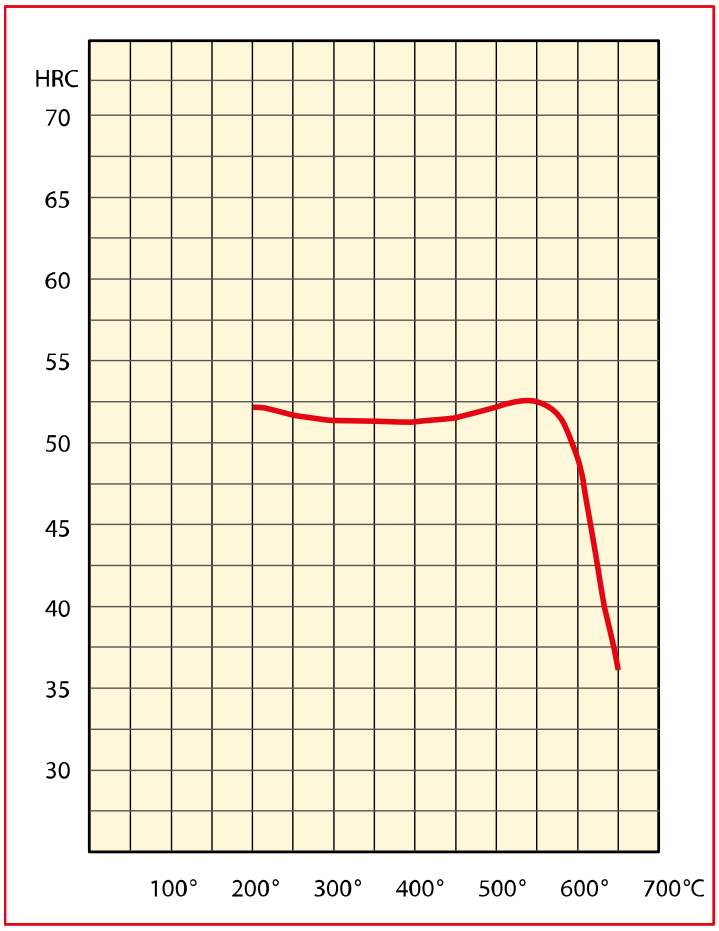
CCT DIAGRAM

Austenitizing at 990°C

HEAT TREATMENT

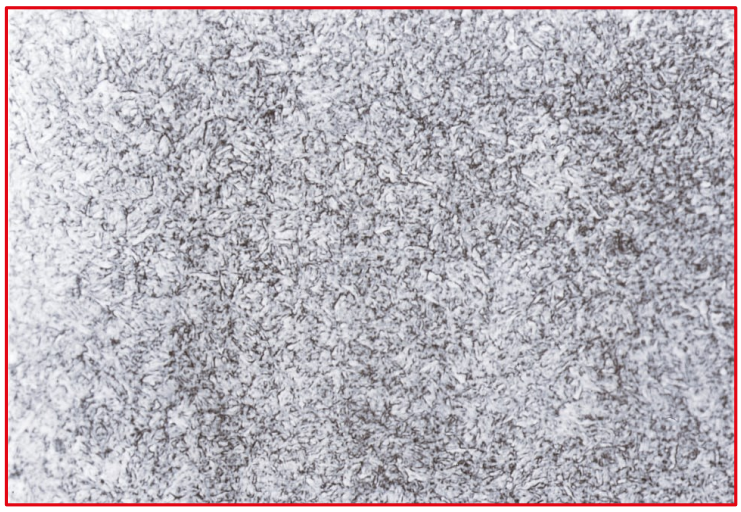
- Temper:
  - 1st temper at 550°C
  - 2nd temper between 550°C and 650°C according to hardness required

TEMPERING CURVE



TEMPERING CURVE

1 cm thick test piece

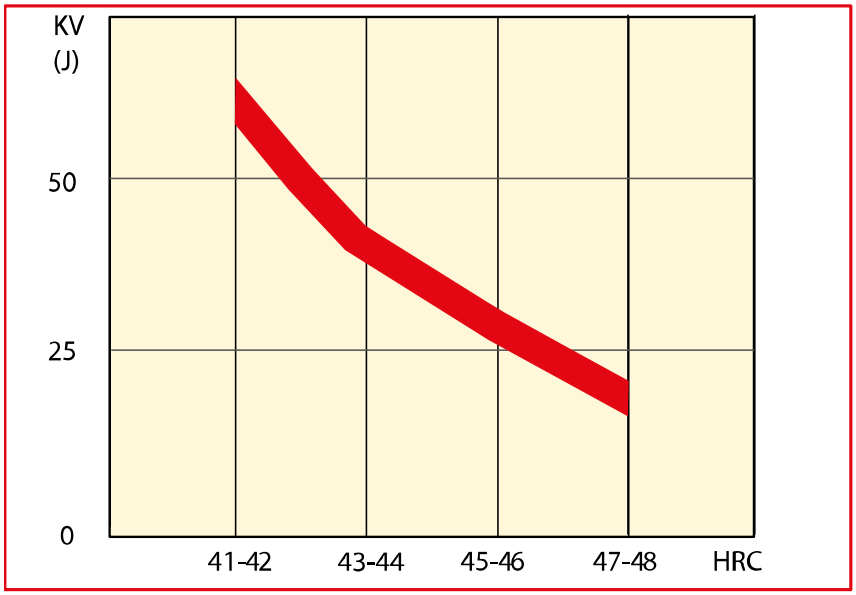


STRUCTURE AFTER HEAT TREATMENT

According to process B2254

Correct structure
(Mx500)

MECHANICAL PROPERTIES



VARIATION OF CHARPY IMPACT WITH HARDNESS

SURFACE TREATMENT

• ADC3 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.

WELDING

• **Parent metal in the annealed condition:**

- Preheat to 250-300°C

- Weld repair:

- Filler metal **SR3S**
- Stress relieve at 750°C
- Slow cool (furnace and air)

• **Parent metal in the annealed condition:**

- Preheat to 250-300°C

- Workshop repair:

- Filler metal **SR3S**
- Stress relieve at 50°C below the temperature of the last temper carried out
- Air cool

- On-site repair:

- Filler metal **MARVAL18S**
- Air cool.

Contact:

www.aubertduval.com