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全球钢号百科！

Global Steel Grade Encyclopedia

涵盖的行业或国家与地区类别

ASTM 国材料与试验协会　GJB 国家军用标准　SAE 动力机械工程师协会　EU 前欧洲标准化　AISI 美国钢铁学会　DIN 德国工业标准　AMS 国空航天材料规范　ISO 国际标准　JASO 日本汽车标准组织

EN 欧洲标准　JB 中国机械行业标准　UNS 统一编号系统　UNI 意大利标准　ASME 美国机械工程师协会　SS 瑞典标准　GB 国家标准　JIS 日本工业标准

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

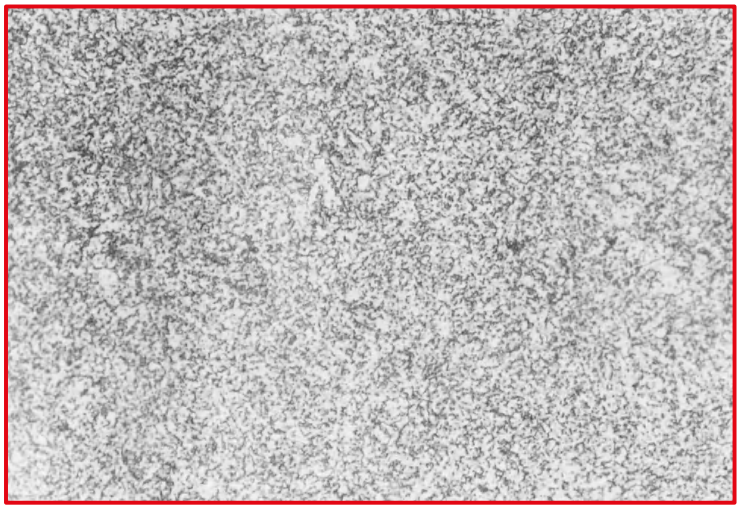
Carbon	0.35
Chromium	5.00
Moybdenum	1.30
Vanadium	0.40

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)

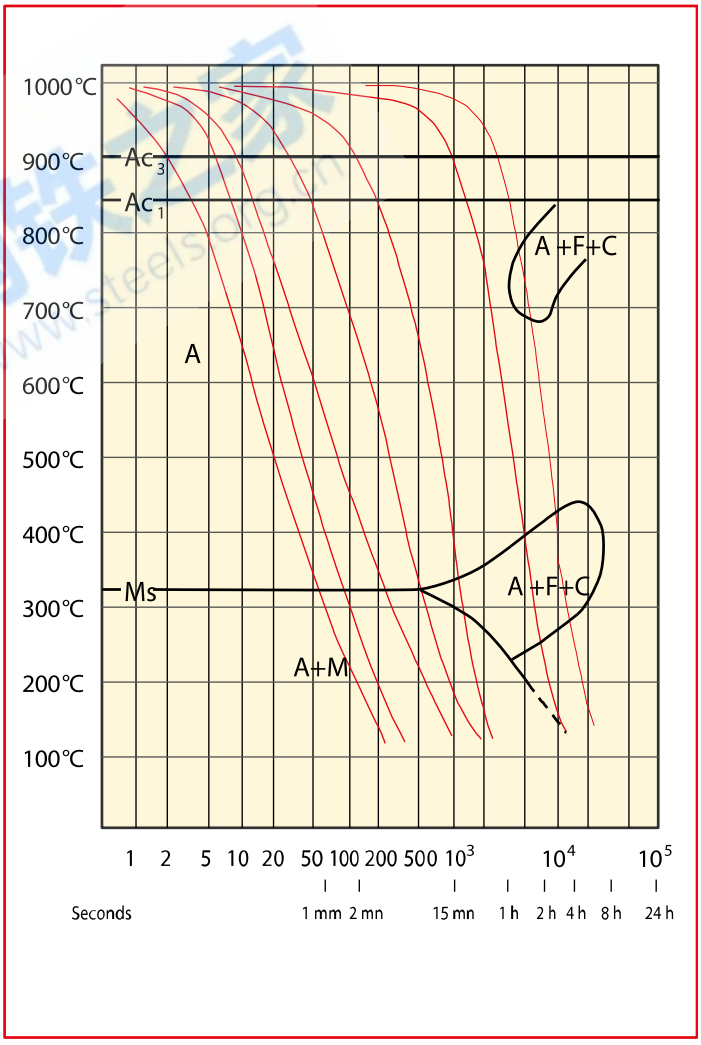
- Brinnel hardness of approximately 235 in the softened condition.

HEAT TREATMENT

- Harden:
  - Preheat to 750°C.
  - Raise to 990°C
  - Air cool or gas pressure quench

For large parts, air cooling may be replaced by quenching into a salt bath at 280°C, followed by cooling in air to room temperature.

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



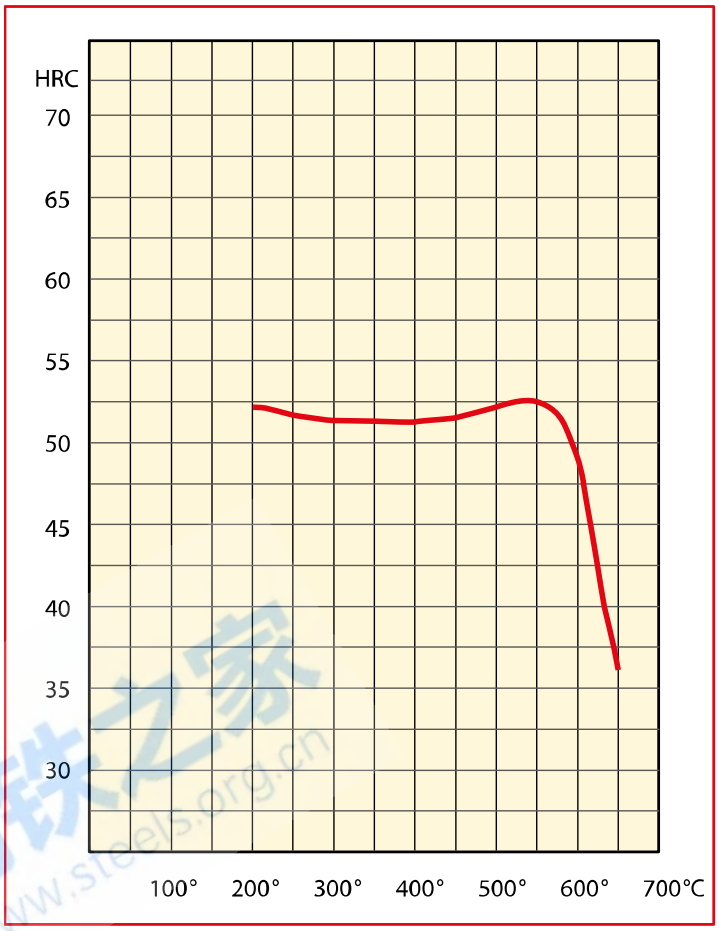
CCT DIAGRAM

Austenitizing at 990°C

HEAT TREATMENT

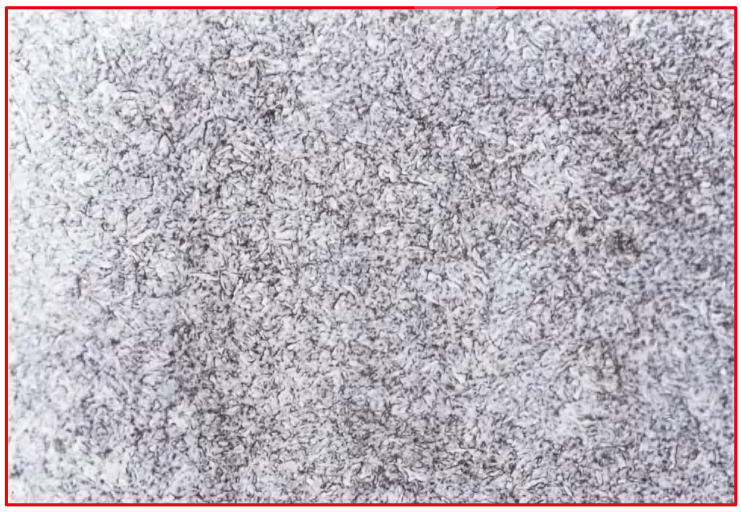
- Temper:
  - 1st temper at 550°C
  - 2nd temper between 550°C and 650°C according to hardness required

TEMPERING CURVE



TEMPERING CURVE

1 cm thick test piece

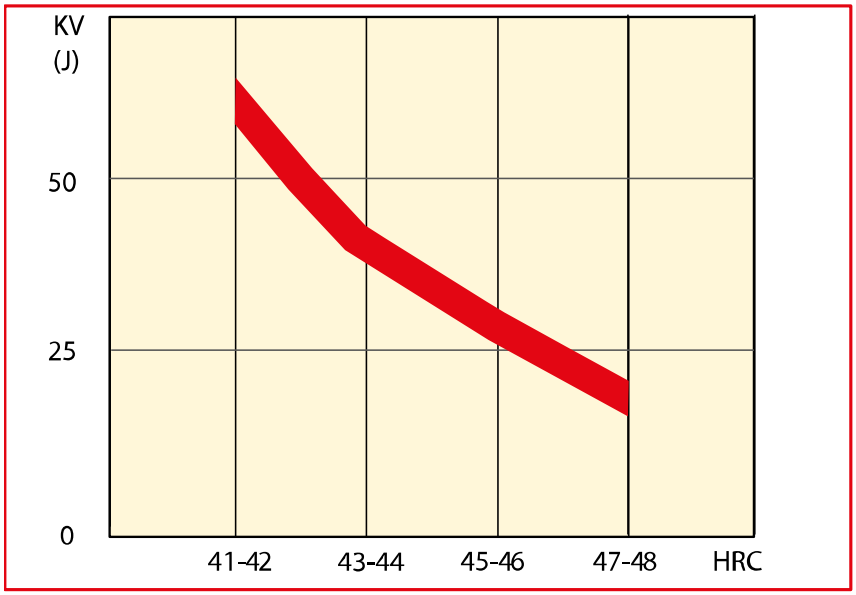


STRUCTURE AFTER HEAT TREATMENT

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.