meusburger

MATERIAL NO.: 1.2343 / 1.2343 ESR*

DESIGNATION ACCORDING TO:

DIN:	X 37 CrMoV 5-1
AFNOR:	Z 38 CDV 5
UNI:	X 37 CrMoV 5-1 KU
AISI:	H11 / H11 ESR

TYPCIAL ANALYSIS:

C	0.38
Si	1.00
Mn	0.40
S	0.03 (ESR 0.002)
Cr	5.30
Mo	1.20
V	0.40

HARDNESS: max. 230 HB (≈ max. 780 N/mm²)

THERMAL CONDUCTIVITY AT 200 °C: 27 $\frac{W}{m\,K}$

TECHNICAL TIP:

- Susceptible to corrosion: during maching, continuous corrosion protection has to be ensured (especially during wire EDM)
- **1.2343 ESR** is highly suitable for mirror polishing

COEFFICIENT OF THERMAL EXPANSION [10^{-6}/K]

100 °C	200 °C	300 °C	400 °C	500 °C	600 °C	700 °C
10.9	11.4	12.0	12.6	12.9	13.1	13.2

CHARACTER:

- High-alloy **hot-work steel** with high toughness and heat resistance, hot cracks resistance and good thermal conductivity;
  for very high requirements available in grade *ESR (Electro-Slag Remelted)

APPLICATION:

- Cavity plates and inserts for plastic injection moulds;
  *ESR for die casting applications (Al, Mg, Zn)

MACHINING:

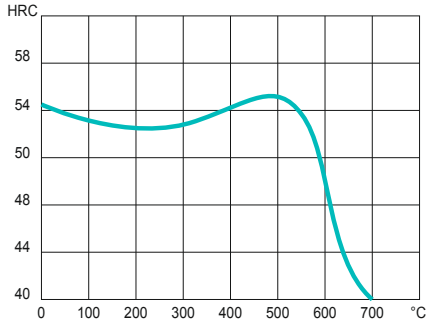
- Polishing:
  highly suitable
- Etching:
  very easily feasible (graining)
- EDM:
  in the hardened and tempered condition, treat again for stress relief about 20 °C below the last tempering temperature
- Nitriding:
  increases the wear resistance and prevents the bonding of casting material

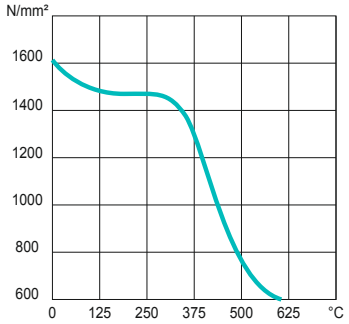
HEAT TREATMENT:

- Soft annealing:
  750 to 800 °C for about 4 to 5 hours
  slow controlled cooling inside the furnace: 10 to 20 °C per hour to about 600 °C;
  further cooling in air, **max. 205 HB**
- Nitriding:
  before nitriding, stress-relieving heat treatment at 550 °C (Meusburger standard) is recommended.
- Hardening:
  1000 to 1040 °C
  keeping curing temperature for 15 to 30 minutes
  cooling in oil/air/compressed gas/hot bath
  obtainable hardness: **50–56 HRC**
- Tempering:
  slow heating to tempering temperature immediately after hardening;
  minimum time in furnace: 1 hour per 20 mm part thickness;
  repeated tempering is recommended

TEMPERING GRAPH:

HIGH TEMPERATURE STRENGTH CHART:





ESR) Electro-Slag Remelted*

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