



1.2343

Hot Work Tool Steel

TECHNICAL SHEET

1 Comparison Standards

W.Nr	DIN	JIS equivalent	AISI/SAE	AFNOR	BS	UNI
1.2343	~X38CrMoV5-1	SKD6	~H11	Z38CDV5	~BH11	X37CrMoV51KU

2 Chemical Composition

C	Si	Mn	P (max)	S (max)	Cr	Mo	V	Supply Condition	Supply Hardness (HB)
0.33-0.41	0.80-1.20	0.25-0.50	0.03	0.02	4.80-5.50	1.10-1.50	0.30-0.50	Annealed	240

3 Main Characteristics and Applications

High-performance hot work tool steel offers exceptional wear resistance combined with unique thermal fatigue properties. This versatile steel allows for air or vacuum hardening, minimizing distortion and cracking risks during heat treatment.

At a working hardness of 50 HRC, it maintains excellent toughness, making it suitable for a broad range of operating conditions. To further enhance tool life, the steel can undergo surface treatments like nitriding (ion, saline, or gaseous) or other thermo-chemical processes.

Applications:

- Extrusion dies
- Punches and Dies
- Hot Work Shear Blades
- Moulds and Inserts for Plastic Injection Moulding
- Extrusion Dies for Aluminum processing

4 Production Route

EAF - LF - VD - Forging - Heat treatment + EFS

5 Physical Properties (Reference Values)

	20°C	100°C	250°C	500°C
Thermal expansion coefficient (10-6/K)	11.3	11.7	12.1	13.2
Thermal Conductivity (W/mk)	18.8	19	22.9	24.9
Young modulus (Kn/mm2)	212	209	197	175

6 Heat Treatment

TREATMENT	TEMPERATURE	HOLDING TIME (HT)	COOLING	COMMENTS
Annealing	Heat to 850 °C	Min. H.T. for 2 minute /mm	Furnace up to 550°C than in air	-
Stress relieving	Heat to 650 - 700 °C	Min. H.T. for 2 minute /mm	Furnace up to 300 - 350°C	It is recommended to eliminate the residual stresses induced by mechanical working after machining
Hardening	Preheating to 350-400°C Second preheating to 750-850°C Heat to hardening temperature to 1000-1020°C	Min. H.T. for 1 minute /mm	Air or Pressure Gas by Vacuum	Quench hardness 52-56 HRC
Tempering	In the range 550-600°C for at least 3 h according to hardness requirements and conditions of use. Tempering must be repeated a second time at a temperature equal to or 20°C lower than the previous. Before tempering, the parts must be preheated to 200-300°C		Air	Typical service hardness: 48-52 HRC



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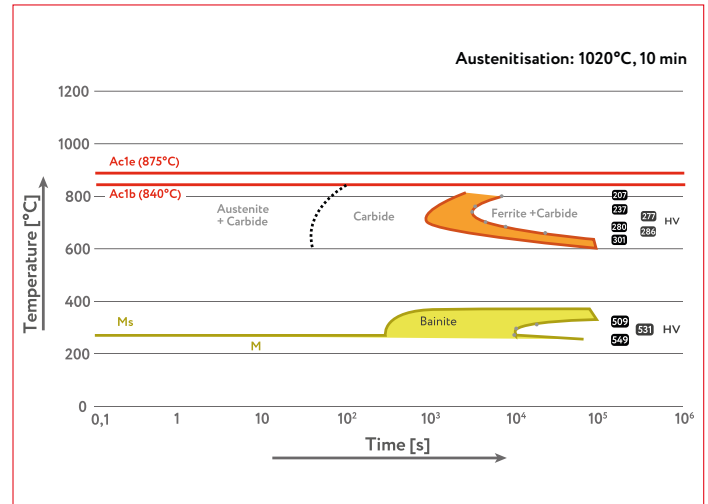
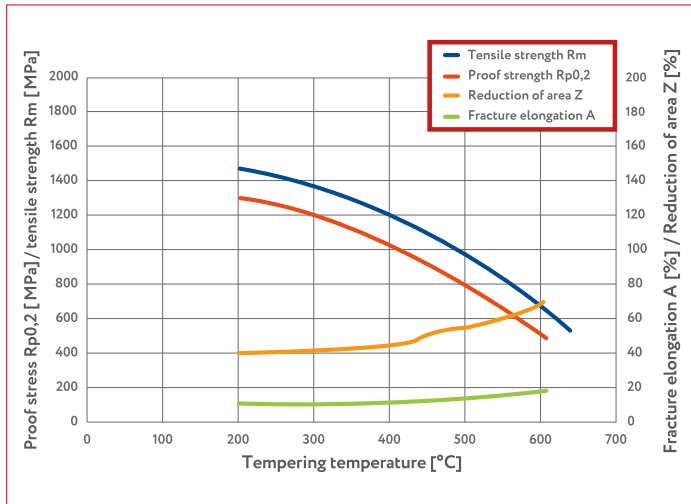
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7 Tempering Curve



8 C.C.T. Curve

