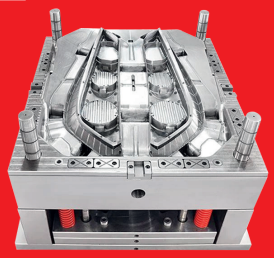

1.2083 ESR

Plastic Mould Steel

TECHNICAL SHEET

1 Comparision Standards

W.Nr	DIN	JIS equivalent	AISI/SAE	AFNOR	BS	UNI
1.2083	X42Cr13	SUS420F	420C	-	-	-

2 Chemical Composition

C	Si	Mn	P (max)	S (max)	Cr
0.36-0.42	≤ 1.00	≤ 1.00	0.03	0.03	12.50-14.50

Supply Condition	Supply Hardness (HB)
Annealed	240

3 Main Characteristics and Applications

1.2083 ESR featuring excellent high-gloss polishability, along with superior corrosion resistance, wear resistance, and machinability. The electroslag remelting (ESR) process ensures exceptional homogeneity and cleanliness. The 1.2083 ESR grade, enhanced with Vanadium, delivers outstanding mirror-finish polishability and enhanced corrosion resistance. Its surface finish is 70% smoother compared to standard grades.

Applications:

- White goods industry
- Blow Moulds and Extrusion Dies
- Injection Moulds
- Optical Lenses
- Food Processing Equipment
- Medical Devices
- Automotive Industry

4 Production Route

Electro - slag - remelting(ESR) - Forging - Heat treatment +A

5 Physical Properties (Reference Values)

	20°C	100°C	250°C	500°C
Thermal expansion coefficient (10-6/K)	11.1	11.4	11.8	12.6
Thermal Conductivity (W/mk)	20.5	22.1	23.6	25.1
Young modulus (Kn/mm2)	218	210	202	180

8 Heat Treatment

TREATMENT	TEMPERATURE	HOLDING TIME (HT)	COOLING	COMMENTS
Annealing	Heat to 780 - 800 °C	Min. H.T. for 2 minute /mm	Air or Furnace	To achieve a hardness below 240 HB (23 HRC) and enhance machinability
Stress relieving	Heat to 30 °C below tempering temperature	Min. H.T. for 2 minute /mm	Air or Furnace	It is recommended to eliminate the residual stresses induced by mechanical working after machining
Hardening	Heat to 1000 - 1050 °C	Min. H.T. for 1 minute /mm	Oil - Gas air	
Tempering	Heat to 170 - 270 °C	Min. H.T. for 3 minute /mm	Air	Tempering should be done soon after hardening at 170 - 270 °C, based on the desired hardness. Maintain the process for at least 2 hours and repeat it at least twice, each time at a temperature 30°C lower than the previous cycle

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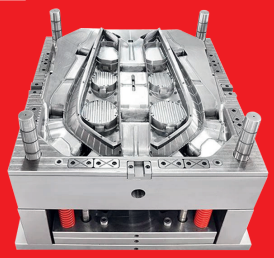
SandeepEnterprises STEEL SOLUTIONS

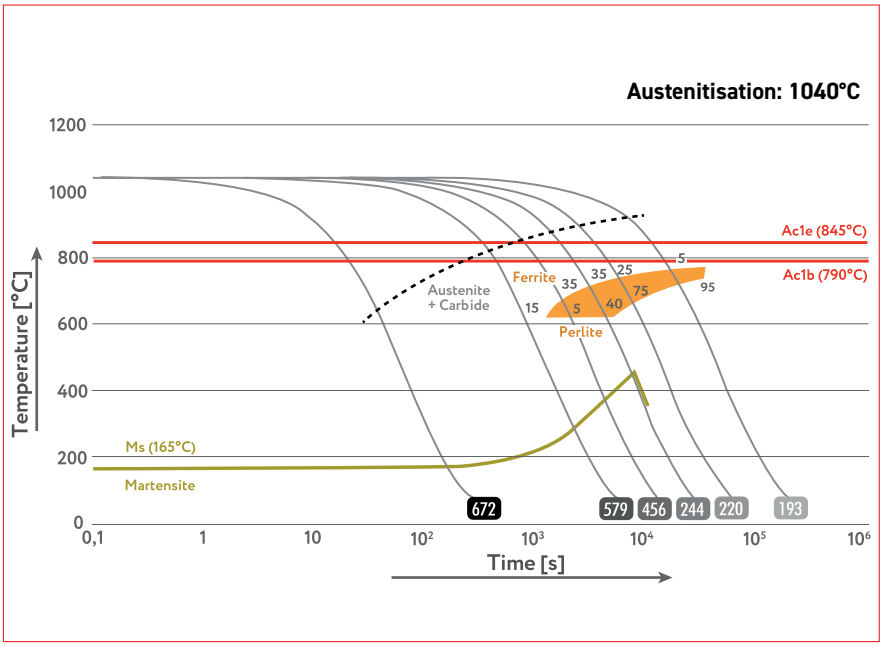


1.2083 ESR

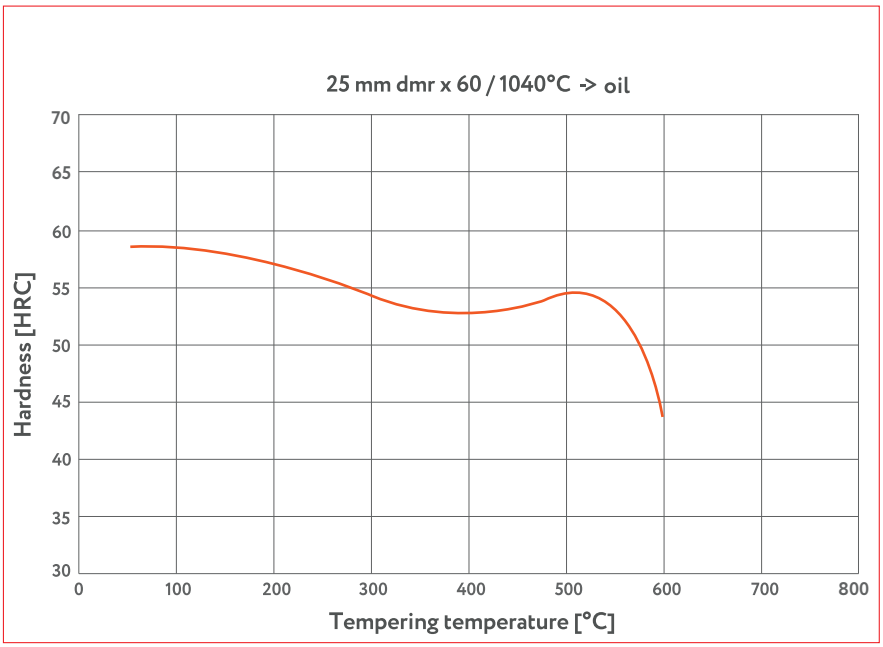
Plastic Mould Steel

TECHNICAL SHEET

9 C.C.T. Curve



10 Tempering Curve



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