



1.2085

Plastic Mould Steel

TECHNICAL SHEET

1 Comparison Standards

W.Nr	DIN	JIS equivalent	AISI/SAE	AFNOR	BS	UNI
1.2085	~X33CrS16	-	~442+S	~Z33CS16	-	-

2 Chemical Composition

C	Si	Mn	P (max)	S (max)	Cr	Ni	Supply Condition	Supply Hardness (HB)
0.28-0.38	≤ 1.0	≤ 1.40	0.03	0.05-0.10	15.00-17.00	≤ 1.0	Q & T	280 - 320

3 Main Characteristics and Applications

A pre-hardened martensitic stainless chromium steel with exceptional corrosion resistance, surpassing that of similar Cr grades (such as 1.2083), and distinguished by its unique alloy composition that includes the addition of sulfur.

Applications:

- Mould Bases
- Injection Moulds
- Core Inserts
- Cavity Inserts
- Extrusion Dies
- Blow Molding

4 Production Route

EAF - LF - VD - Forging - Heat treatment QT

5 Physical Properties (Reference Values)

	20°C	100°C	250°C	500°C
Thermal expansion coefficient (10-6/K)	10.5	10.7	12	13.2
Thermal Conductivity (W/mk)	22.2	22.7	21	24.5
Young modulus (Kn/mm2)	215	211	203	180

6 Heat Treatment

TREATMENT	TEMPERATURE	HOLDING TIME (HT)	COOLING	COMMENTS
Annealing	Heat to 850 - 880 °C	Min. H.T. for 2 minute /mm	Air or Furnace	To achieve a hardness below 250 HB (24 HRC) and enhance machinability
Stress relieving	Heat to 590 - 650 °C	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	Air or Polymer (depending of size)	-
Tempering	Heat to 550 - 610 °C	Min. H.T. for 3 minute /mm	Air or Furnace	To be performed after hardening, conduct a second tempering at a temperature no more than 30 °C below the initial tempering temperature



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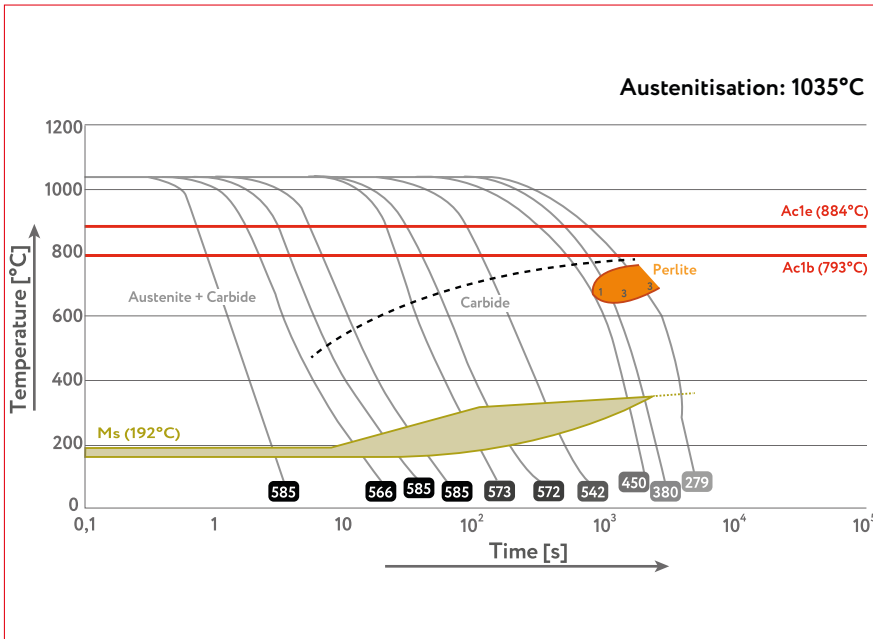


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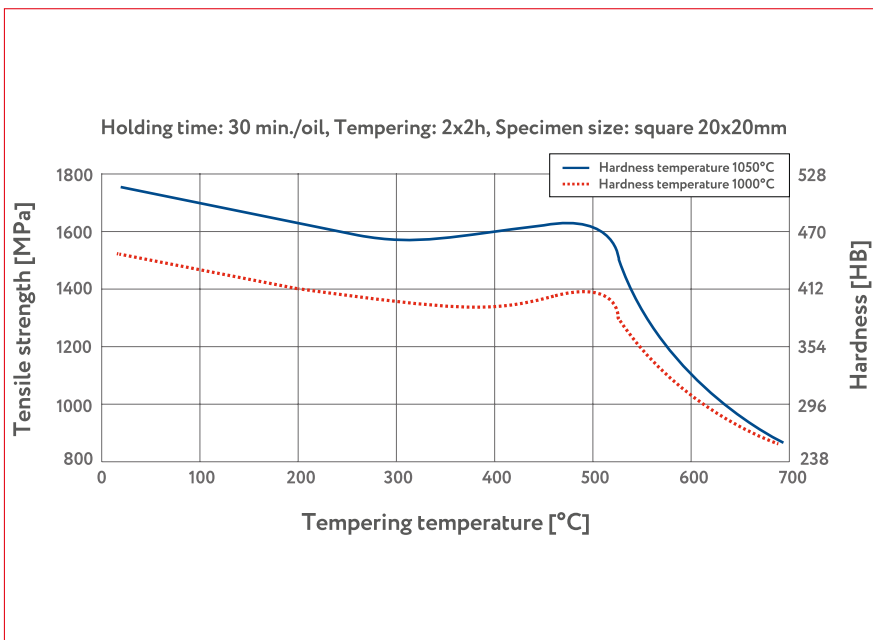
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7 C.C.T. Curve



8 Tempering Curve



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