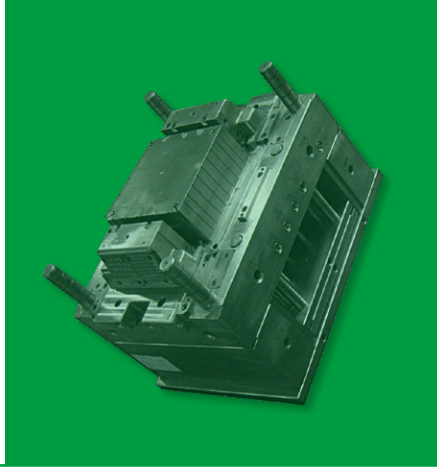
1.2085

Plastic mould steel



1 Main characteristics and applications

Pre-hardened Martensitic stainless chromium steel with excellent corrosion resistance, higher than similar Cr grades (i.e. W1.2083) characterized by special alloying with the addition of Sulphur.
W1.2085 is used for core parts and mould bases of corrosion resistance plastic moulds or where equipment needs to be made with excellent workability and excellent corrosion resistance.

2 Comparable standards

UNI	W.Nr	DIN	AFNOR	AISI/SAE	BS
-	1.2085	~X33Crs16	~Z33CS16	~442+S	-

3 Chemical composition (typical; in weight %)

C	Mn	Si	Cr	Mo	Ni	P	S
0.33	1.0	1.0	16	Max 1.0	Max 1.0	0.005	0.08

4 Production technology

EAF – LF – VD - Forging – Heat treatment QT

5 US specification

In according to standard EN10228-3 Class 4 and standard SEP 1921 Class E/e

6 Delivery condition

W1.2085 is delivered in quenched and tempered condition, with hardness range 280 - 325 HB (29 – 35 HRC).

7 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

8 Critical points

Ac1 790 °C
Ac3 890 °C
Ms 190 °C

9 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	In order to obtain hardness lower than 250 HB (24 HRC) to improve machinability
Stress relieving	Heat to 590 - 650 °C	Min. H.T. for 2 minute /mm	Air or furnace	To be carried out after machining, is recommended to eliminate the residual stresses induced by mechanical working
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 carried out after hardening. 2nd Tempering must be performed to max 30°C below tempering temperature

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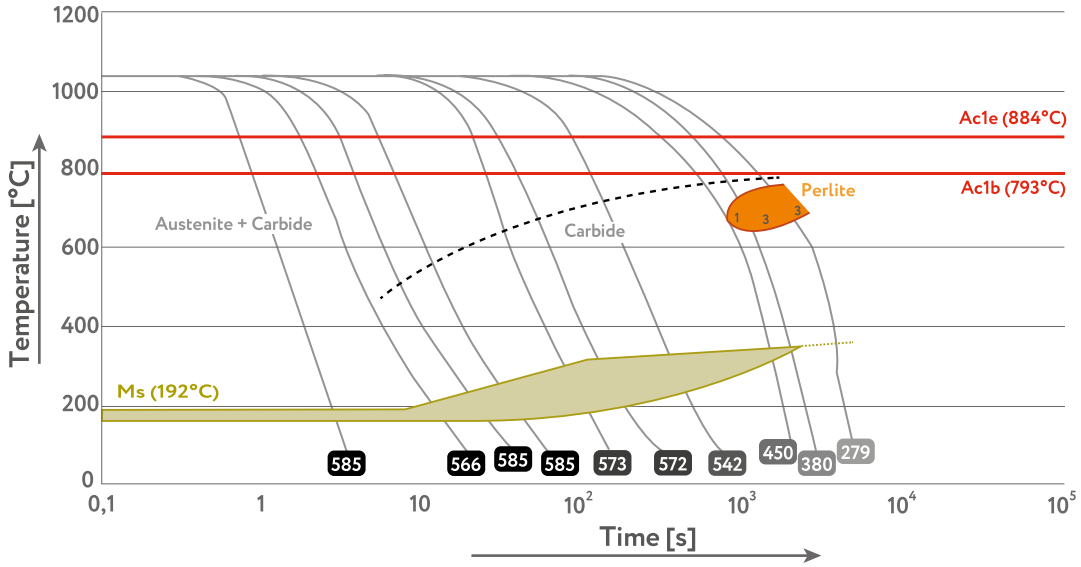
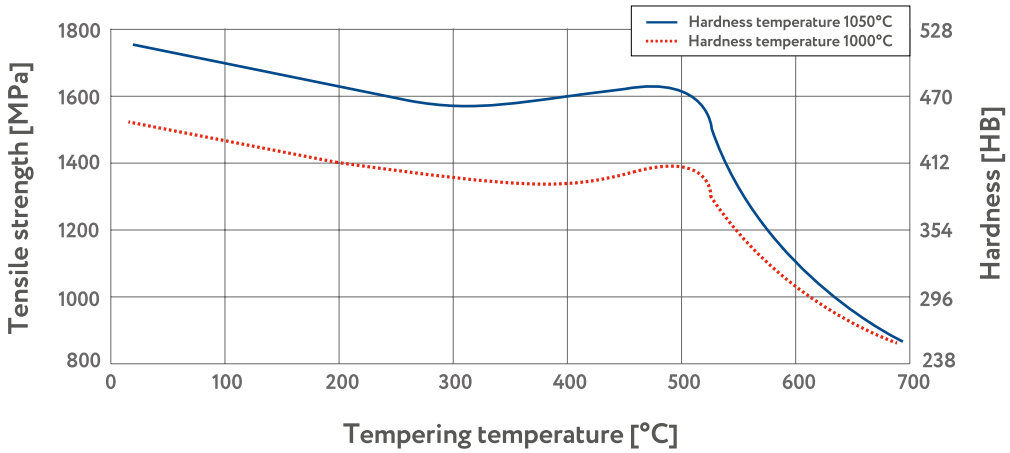
10 C.C.T. curve

Austenitisation: 1035°C



11 Tempering curve

Holding time: 30 min./oil, Tempering: 2x2h, Specimen size: square 20x20mm



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