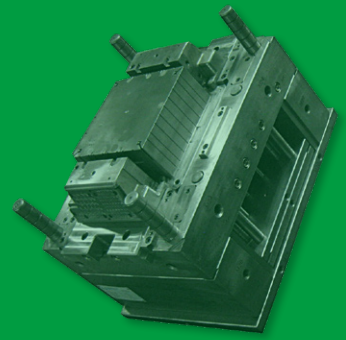


1.2316

Plastic mould steel



1 Main characteristics and applications

Pre-hardened stainless martensitic chrome- molybdenum steel with excellent resistance to corrosion, higher than similar Cr grades (i.e. W1.2083), good polishing and photoengraving properties.

Its applications are equipments and plastic moulds, particularly for corrosive plastic as PVD.

2 Comparable standards

UNI	W.Nr	DIN	AFNOR	AISI/SAE	BS
-	1.2316	~X36CrMo17	~Z35CD17	~442	-

3 Chemical composition (typical; in weight %)

C	Mn	Si	Cr	Mo	Ni	P	S
0.40	0.7	0.30	15.5	1	0.5	0.005	0.003

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

W1.2316 is delivered in quenched and tempered condition, with hardness range 280 - 325 HB (29 - 35 HRC) or in annealed condition with hardness max 240 HB (23 HRC)

7 Critical points

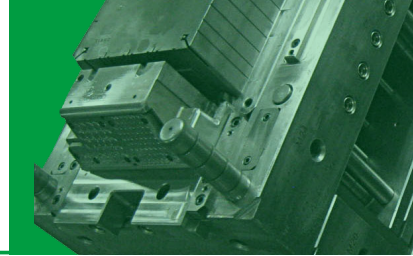
Ac1	800 °C
Ac3	910 °C
Ms	200 °C

8 Physical properties (reference values)

	20°C	100°C	250°C	500°C
Thermal expansion coefficient (10 ⁻⁶ /K)	10.4	10.7	11	11.9
Thermal conductivity (W/mk)	23.5	23.9	24.2	23.2
Young modulus (Kn/mm ²)	218	209	202	180

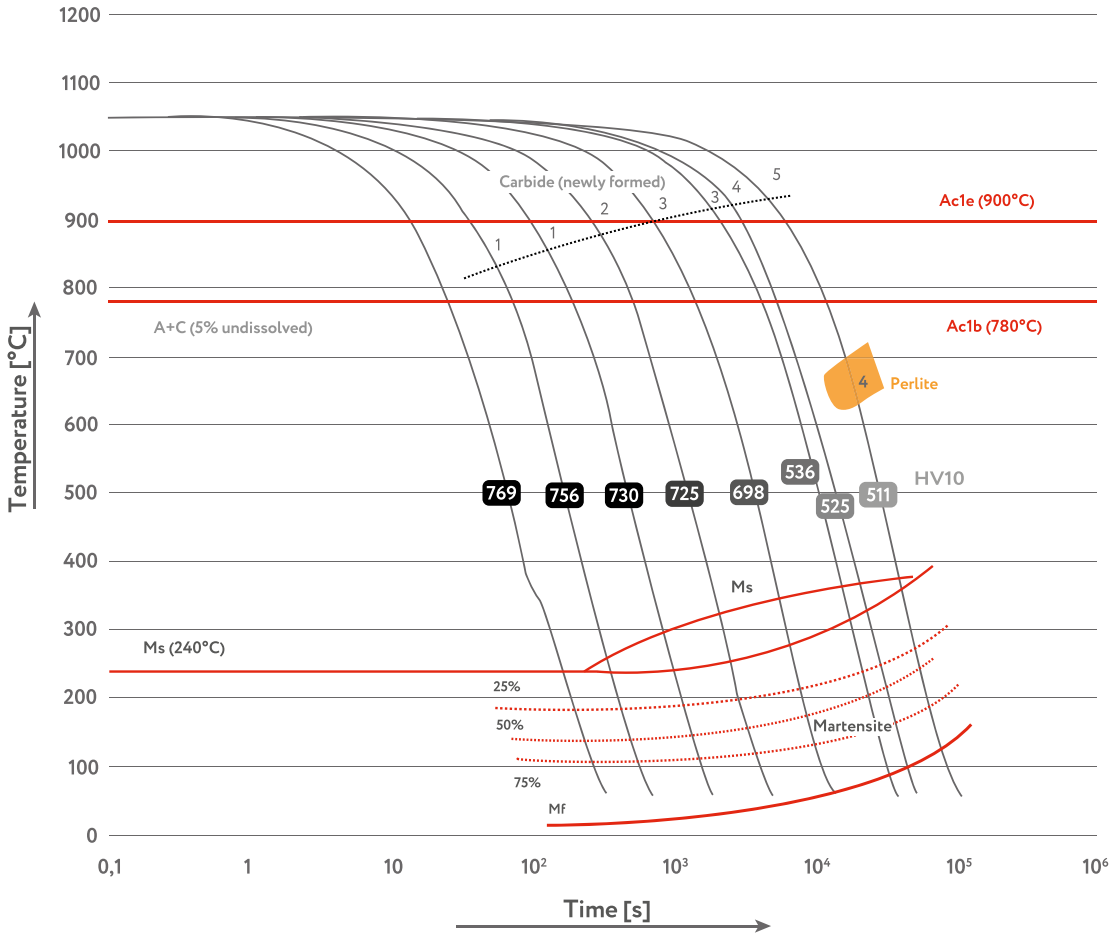
9 Heat treatment

TREATMENT	TEMPERATURE	HOLDING TIME (HT)	COOLING	COMMENTS
Annealing	Heat to 770 - 820 °C	Min. H.T. for 2 minute /mm	Furnace up to 600°C than in air	-
Stress relieving	Heat to 550 - 600 °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	Preheating to 600-700°C Austenitizing to 1000 - 1050 °C	Min. H.T. for 1 minute /mm	Polymer or gas air	Quenched hardness 50 HRC
Tempering	-	-	Air	To be carried out after hardening. 2nd Tempering must be performed to max 30°C below tempering temperature



10 C.C.T. curve

Austenitisation: 1050°C, 15 min.



11 Tempering curve

Tempering diagram 2316

