

Short name	40CrMnMo7
No.	1.2311
AISI	P20

Typical chemical composition, %	C	0.38
	Si	0.30
	Mn	1.50
	Cr	1.90
	Mo	0.20

PROPERTIES AND USES

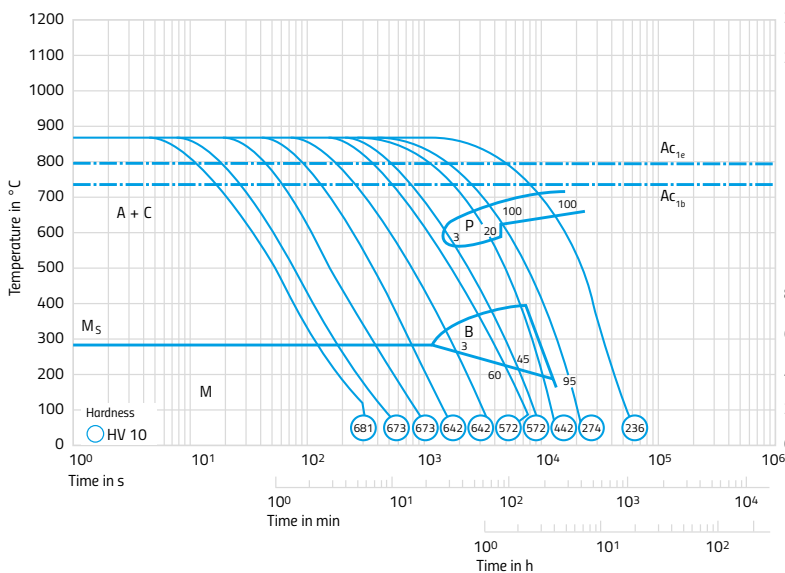
Low-sulfur mold steel supplied as heat-treated for service strength. Preferable if die sinking is to be done by spark erosion or photochemical machining or if excellent polishability is required. The usual service strength of MFR is

approx. 1000 N/mm². If, in exceptional cases, a higher strength should be required, please refer to the following heat-treatment instructions.

HOT WORKING AND HEAT TREATMENT

Forging	1150–850 °C (2100–1560 °F)
Soft annealing	720–740 °C (1330–1360 °F) 2–4 hrs/furnace cooling
Brinell Hardness in the annealed condition	Max. 220 HB
Stress relieving	Approx. 600 °C (1110 °F) 2–4 hrs/furnace cooling
Preheating for hardening	450–650 °C (840–1200 °F)
Hardening temperature	840–860 °C (1540–1580 °F)
Quenching	Oil or hot bath of 200–230 °C (390–450 °F) (for thin wall thickness)
Tempering	To service hardness as shown in the tempering diagram (min. 1 hr/25 mm thickness)

CONTINUOUS TTT CURVE



TEMPERING CURVE (APPROX. VALUES)

