

I Buderus Plastic Mould Steel 2738 ISO-BM

	C	Si	Mn	P	S	Cr	Ni	Mo
Typical analysis	0.36	0.30	1.50	0.020	0.003	2.00	1.00	0.20
Chemical composition as per SEL	0.35–0.45	0.20–0.40	1.30–1.60	≤ 0.030	≤ 0.030	1.80–2.10	0.90–1.20	0.15–0.25

Figures in % by mass

Register of European Steels (SEL)	40 CrMnNiMo 8-6-4
DIN EN ISO 4957	40 CrMnNiMo 8-6-4
AFNOR	40 CMND 8
AISI	~ P 20 + Ni
BS	~ P 20 + Ni

Characteristics

Mould steel for large dimensions > 400 mm thick. Properties as for grade 2311 ISO-BM, but with improved through-hardening.
Nitridable, hard chrome plateable, flame hardenable, polishable, grain-reliable as delivered.

In an extreme dimensional range, and where there is a requirement for

- I Higher hardness and better through-hardening
- I Polishability > 320 grit
- I Sensitive etch-graining designs (e.g. HNO₃)
- I Higher thermal conductivity

we recommend grade 2738mod.TS(HH).

Applications

Tools for compression and injection moulds, bumpers, dashboards, chairs, rubbish bins, bottle crates, television cabinets, etc.

Diecasting mould frames: The material is hardened and tempered as forged steel bar in production lengths. Due to the restricted through-hardening of the grade 2738 ISO-BM, please note that there may be a mixed grain structure at the front surface when sawing to individual lengths.

If this is not desired, we recommend using Thruhard Supreme® 2738mod.TS (280 – 325 HB), or Thruhard Supreme® 2738mod.TS(HH) (310 – 355 HB) for bar thicknesses > 600 mm.

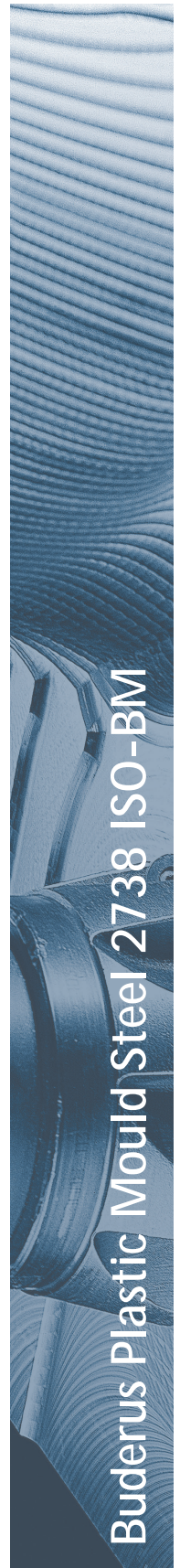
Delivered condition

Quenched and tempered to 280–325 HB (≈ approx. 950–1100 MPa)*

Physical properties (reference values)

Thermal expansion coefficient (10 ⁻⁶ /K)	20–100 °C	20–250 °C	20–500 °C
	11.6	12.8	14.3
Thermal conductivity (W/mK)	20 °C	250 °C	500 °C
	34.0	33.5	33.0
Young's modulus (GPa)	20 °C	250 °C	500 °C
	212	197	175

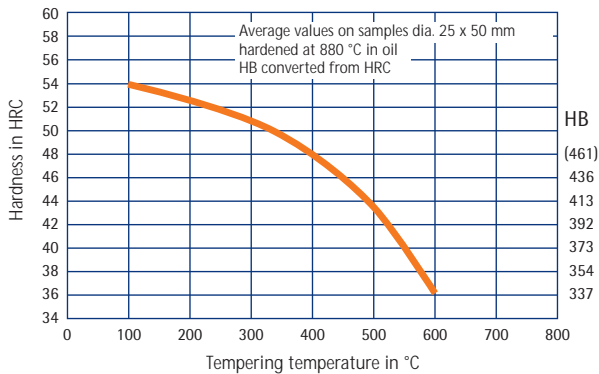
* Surface hardness in Brinell, converted to DIN EN ISO 18265, Table A.1; we offer no quality guarantee with higher hardness requirements



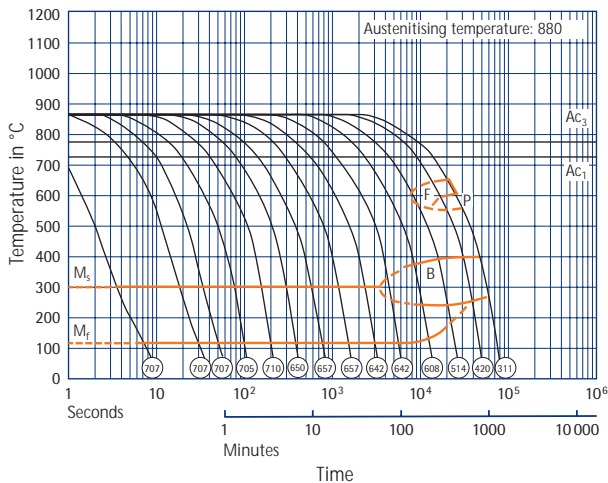
2738 ISO-BM

Heat treatment	
Stress relieving	Temperature: Approx. 600 °C in the annealed state Approx. 550 °C in the quenched and tempered state Duration: 1 hour per 50 mm wall thickness Cooling: Furnace
Soft annealing	Temperature: 720 °C Duration: 1 hour per 25 mm wall thickness Cooling: Furnace
Hardening	Temperature: 880 °C Duration: 1 minute per mm wall thickness
Quenching hardness	Max. 54 HRC in oil, hot bath or vacuum
Tempering	Temperature: See tempering curve Duration: 1 hour per 25 mm wall thickness Cooling: Air
Working hardness	280–325 HB

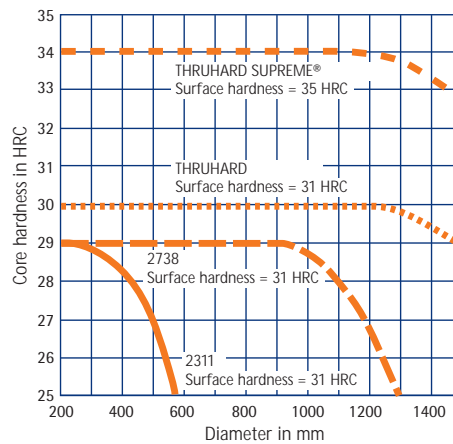
Tempering curve



TTT curve (continuous)



Through-hardening (schematic)



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