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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
- Higher hardness and better through-hardenability
- Polishability > 320 grit
- Sensitive etch-graining designs (e.g. HNO_3)
- 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.

Delivered condition

Quenched and tempered to 280–325 HB (≙ approx. 950–1100 MPa)*
Annealed on request

Physical properties (reference values)

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



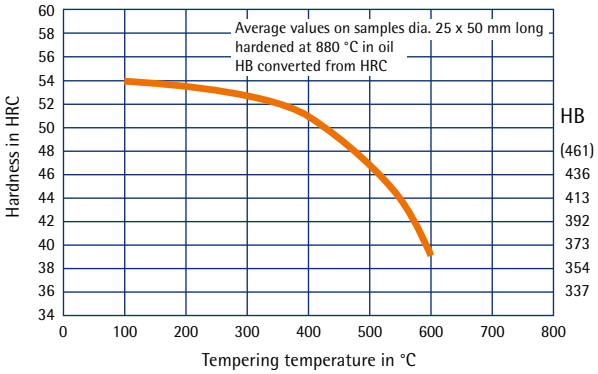
* Surface hardness in Brinell, converted to DIN EN ISO 18265, Table A.1; we offer no quality guarantee with higher hardness requirements

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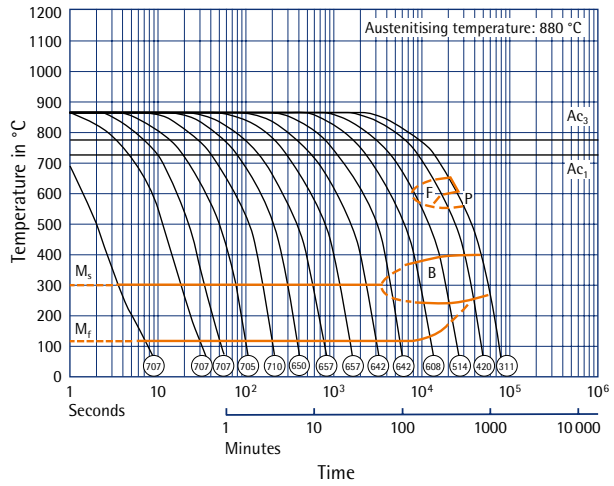
2738 ISO-BM

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

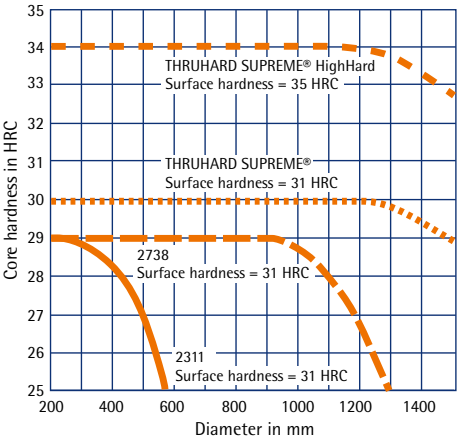
Tempering curve



TTT curve (continuous)



Through-hardenability (schematic)



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