

## I Buderus Plastic Mould Steel 2738 Efficient®

	C	Si	Mn	P	S	Cr	Ni	Mo
Typical analysis	0.36	0.30	1.50	0.020	0.003	2.00	0.50	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 thickness ≤ 600 mm (width upon request). 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. HNO<sub>3</sub>)
- I Higher thermal conductivity

we recommend grade 2738mod.TS(HH).

### Applications

Small and medium-sized injection moulds, press moulds and mould frames up to 600 mm thick.

### Delivered condition

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

### Physical properties (reference values)

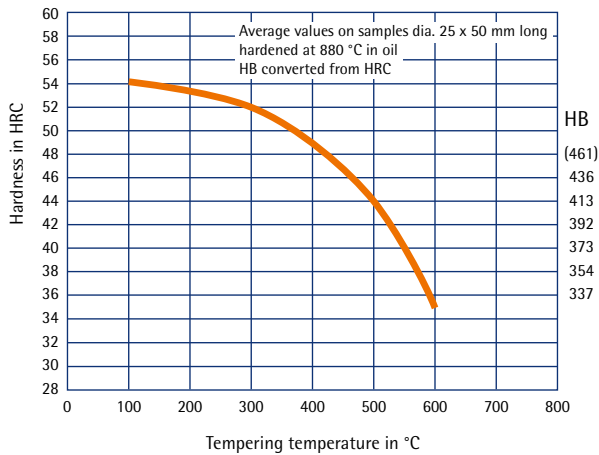
Thermal expansion coefficient (10 <sup>-6</sup> /K)	20–100 °C	20–250 °C	20–500 °C
	11.6	12.8	14.3
Thermal conductivity (W/mK)	20 °C	250 °C	500 °C
	34.0	33.5	33.0
Young's modulus (GPa)	20 °C	250 °C	500 °C
	212	197	175

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

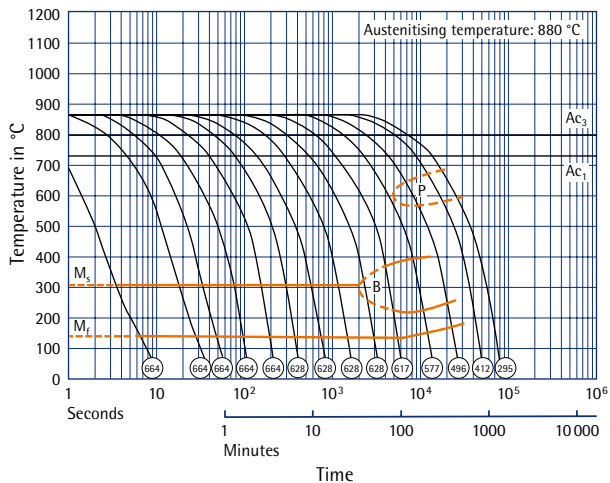
## 2738 Efficient®

Heat treatment		
Stress relieving	Temperature:	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	

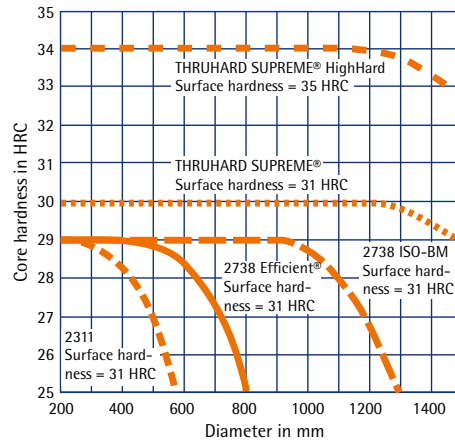
### Tempering curve



### TTT curve (continuous)



### Through-hardening (schematic)



Legal notice: Buderus Edelstahl GmbH has taken every possible care in compiling this information; the data is nevertheless subject to intervening changes. Buderus Edelstahl GmbH disclaims all liability and any warranty as regards the accuracy, currency, correctness and completeness of the information provided. The information provided is merely descriptive and indicative in nature, and binding only when expressly agreed as undertakings in a contract made with Buderus Edelstahl GmbH. Buderus Edelstahl GmbH moreover reserves the right to make changes at any time without prior notice. Buderus Edelstahl GmbH disclaims all liability for loss or damage of any kind, including consequential loss, arising in connection with use of the information provided. © Buderus Edelstahl GmbH, Wetzlar, 11/2013