

I Buderus Plastic Mould Steel Thruhard Supreme® 2738mod.TS(HH)

	C	Si	Mn	P	S	Cr	Ni	Mo	V
Typical analysis	0.26	0.10	1.45	0.015	0.002	1.25	1.05	0.50	0.12

Figures in % by mass

Characteristics

Recently developed plastic mould steel, distinguished from grades 2311 and 2738 by:

- I Higher hardness and better through-hardenableity
- I Polishability up to 600 grit (high gloss finish reliability on request)
- I Grain reliability even with sensitive etch-graining designs
- I Improved weldability
- I Higher thermal conductivity.

Nitridable, hard chrome plateable, flame hardenable as delivered; its higher basic hardness provides better support for surface finishing (such as PVD coating).

Applications

Compression and injection moulds to accommodate large dimensions such as bumpers, dashboards, chairs, rubbish bins, bottle crates, television cabinets, etc.

Delivered condition

- I HighHard: 2738mod.TS(HH)
Quenched and tempered to 310–355 HB (Δ approx. 1050–1200 MPa)*
- Normal hardness: 2738mod.TS
I Quenched and tempered to 280–325 HB (Δ approx. 950–1100 MPa)*

Physical properties (reference values)

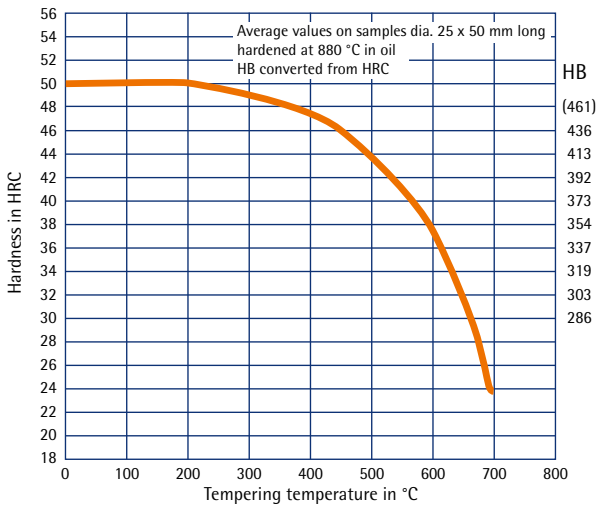
Thermal expansion coefficient ($10^{-6}/K$)	20–100 °C	20–250 °C	20–500 °C
	10.8	12.2	13.9
Thermal conductivity (W/mK)	20 °C	250 °C	500 °C
	37.4	41.3	39.8
Young's modulus (GPa)	20 °C	250 °C	500 °C
	204	188	160

* Surface hardness in Brinell, converted to DIN EN ISO 18265, Table A.1

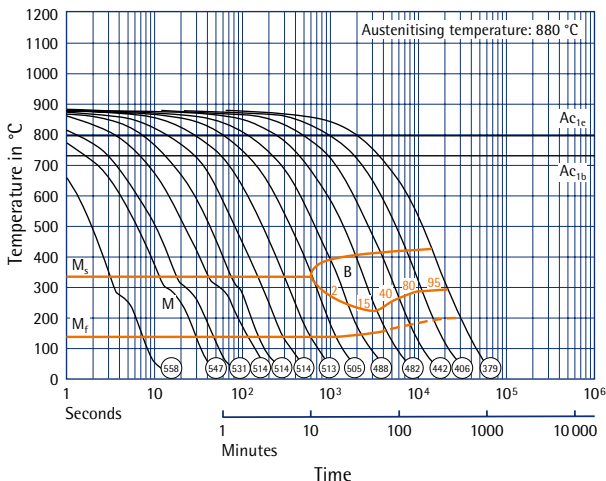
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Heat treatment	
Stress relieving	Temperature: Approx. 600 °C in the annealed state Approx. 560 °C in the quenched and tempered state Duration: 1 hour per 50 mm wall thickness Cooling: Furnace
Soft annealing	Temperature: 720 °C Duration: 1 hour per 25 mm wall thickness Cooling: Furnace
Hardening	Temperature: 880 °C Duration: 1 minute per mm wall thickness
Quenching hardness	Max. 50 HRC in water, polymer, oil or vacuum
Tempering	Temperature: See tempering curve Duration: 1 hour per 25 mm wall thickness Cooling: Air
Working hardness	280–355 HB

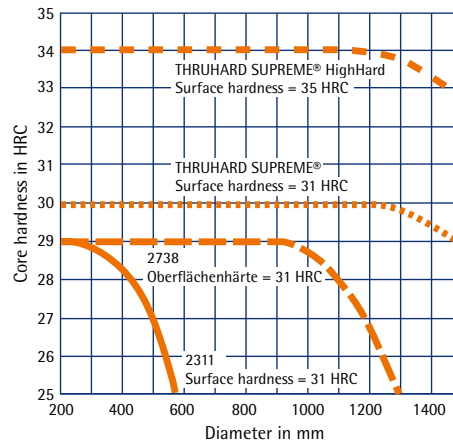
Tempering curve



TTT curve (continuous)



Through-hardening (schematic)



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