



## ATT 2738 ATT 2738 HH

### CHEMICAL ANALYSIS (PERCENTAGE BY MASS)

	C	Si	Mn	P	S	Cr	Ni	Mo
Guide analysis	0.36	0.30	1.50	0.020	0.003	2.00	1.00	0.20
Standard	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

### CHARACTERISTICS

Mold steel for large dimensions > 400 mm thickness. Properties as with material ATT 2311 with improved through-hardening. Nitridable, hard-chrome platable, flame hardenable, polishable and grain-reliable as supplied.

For extreme dimensions and for

- higher hardness and better through-hardening
- polishability > grain size 320
- delicate grain designs (e. g. HNO<sub>3</sub>)

we recommend ATT 2738 MOD TS / ATT 2738 MOD TS HH.

### APPLICATION

Tools for compression and injection molds for bumpers, instrument panels, chairs, garbage containers, bottle crates, TV cabinets etc.

### DELIVERED CONDITION

ATT 2738 is hardened and tempered to 280 – 325 HB (approx. 950 – 1,100 MPa)\*

ATT 2738 HH is hardened and tempered to 310 - 355 HB (approx. 1,050 - 1,200 MPa)

### PHYSICAL PROPERTIES

Thermal Conductivity (W/m.K) at	20°C	250°C	500°C
	34.0	33.5	33.0
Thermal Expansion (µm/m) from 20°C to	100°C	250°C	500°C
	11.6	12.8	14.3
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.

SEL	40CrMnNiMo8-6-4
DIN EN ISO 4957	40CrMnNiMo8-6-4
AFNOR	40CMND8
AISI	~P20 + Ni
BS	~P20 + Ni

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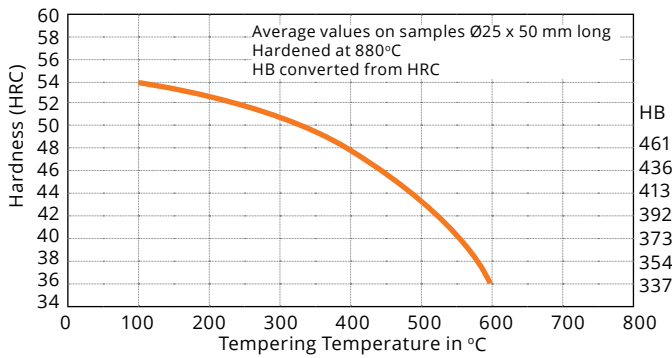


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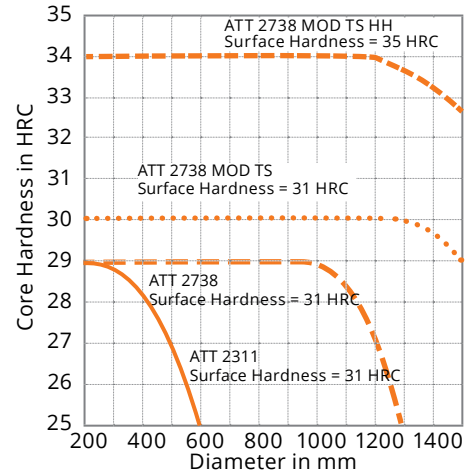
### HEAT TREATMENT

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 25mm wall thickness
	Cooling	Furnace
Hardening	Temperature	880°C
	Duration	1 min per mm wall thickness
Quenching hardness	Max. 54 HRC	in oil, hot bath or vacuum
	Temperature	See tempering curve
Tempering	Duration	1 hour per 25 mm wall thickness
	Cooling	Air
Working hardness	280-325 HB	ATT 2738
	310-355 HB	ATT 2738 HH

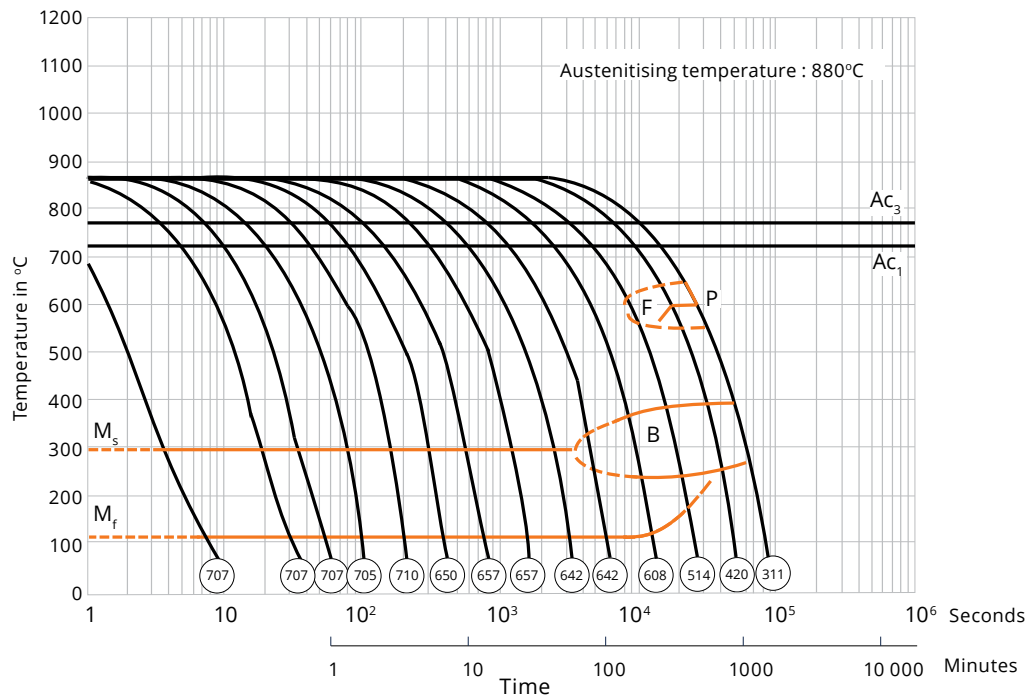
### Tempering curve



### Through-hardenability (schematic)



### TTT curve (continuous)



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