

## I Buderus Die Steel 2711 ISO-B MOD

	C	Si	Mn	P	S	Cr	Ni	Mo	V
Typical analysis	0.52	0.20	0.95	0.015	0.001	1.05	2.00	0.75	0.12
Chemical composition as per SEL	0.50–0.60	0.10–0.40	0.60–0.90	≤ 0.030	≤ 0.030	0.80–1.20	1.50–1.80	0.35–0.55	0.05–0.15

Figures in % by mass

Register of European Steels (SEL)	~ 55 NiCrMoV 7 mod
DIN EN ISO 4957	~ 55 NiCrMoV 7 mod
AFNOR	~ 55 NCD 07-05 mod
AISI	~ L 6 mod

### Characteristics

Plastic mold steel with good toughness, good strength at elevated temperatures and high compressive strength. Nitridable and hard-chrome plateable. Flame-hardenable. Good polishability and suitable for photo-etching. Due to its superior through-hardenability compared to standard 1.2711, blocks made from 2711 ISO-B MOD can also be used in pre-hardened condition.

### Applications

Large compression- & injection molds subjected to high mechanical- & thermal stresses. At higher working hardness, also suitable for processing SMC and GMT, in combination with surface coating if possible.

### Delivered condition

Annealed to max. 248 HB; Quenched and tempered to 280–325 HB or 370–415 HB (△ approx. 950–1100 MPa or 1250–1400 MPa)\* or to customer specification.

### Physical properties (reference values)

Thermal expansion coefficient (10 <sup>-6</sup> /K)	20–100 °C	20–250 °C	20–500 °C
	12.2	13.1	14.2
Thermal conductivity (W/mK)	20 °C	250 °C	500 °C
	36.0	37.5	34.8
Young's modulus (GPa)	20 °C	250 °C	500 °C
	215	198	175

### High-temperature yield strength

Quenched and tempered state	0.2 % yield strength in MPa at temperature			
	450 °C	500 °C	550 °C	600 °C
~ 1570 MPa	910	750	470	230
~ 1370 MPa	830	605	410	215
~ 1180 MPa	630	480	305	165

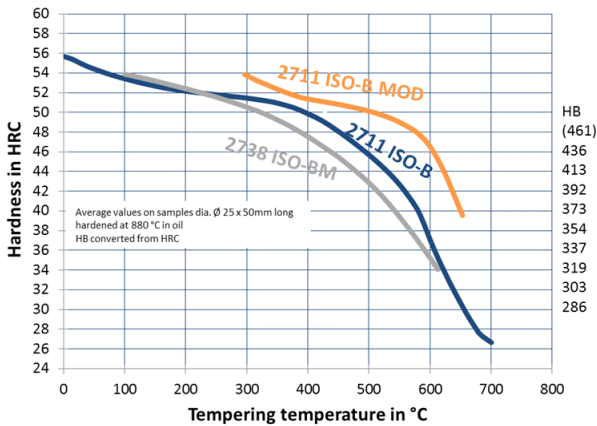
\* Surface hardness in Brinell, converted to DIN EN ISO 18265, Table A.1



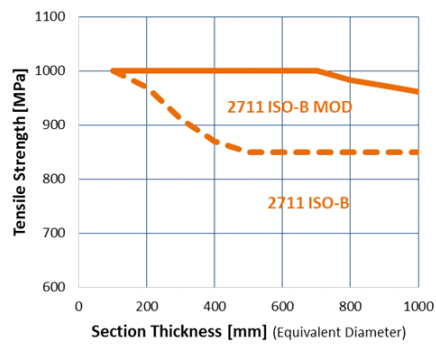
# 2711 ISO-B MOD

Heat treatment		
Stress relieving	Temperature:	Approx. 650 °C in the annealed state
	Duration:	1 hour per 50 mm wall thickness
	Cooling:	Furnace
Soft annealing	Temperature:	700 °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. 58 HRC	in water/oil, protective atmosphere/oil, oil, hot bath or vacuum
Tempering	Temperature:	See tempering curve
	Duration:	1 hour per 25 mm wall thickness
	Cooling:	Air
Working hardness	280–415 HB	depending on application

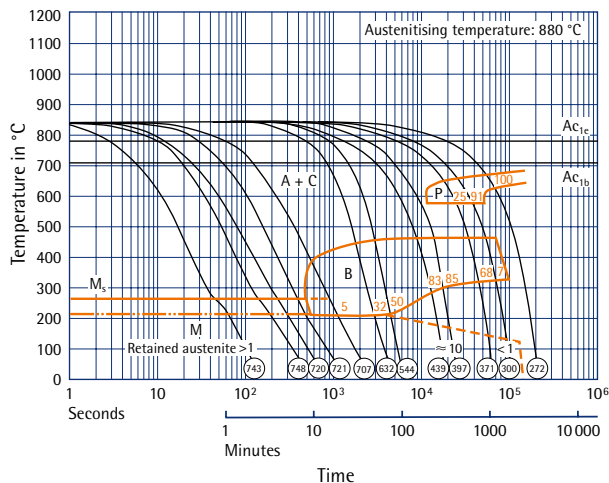
## Tempering curve



## Comparison of core hardness (schematic curve)



## TTT curve (continuous)



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