

I Buderus Cold Work Tool Steel 2379 ISO-B

	C	Si	Mn	P	S	Cr	Mo	V
Typical analysis	1.55	0.20	0.30	0.030	0.005	12.0	0.80	1.00
Chemical composition as per SEL	1.45–1.60	0.10–0.60	0.20–0.60	≤ 0.030	≤ 0.030	11.0–13.0	0.70–1.00	0.70–1.00

Figures in % by mass

Register of European Steels (SEL)	X 153 CrMoV 12
DIN EN ISO 4957	X 153 CrMoV 12
AFNOR	Z 160 CDV 12
AISI	~ D 2
BS	BD 2

Characteristics

Very wear-resistant and low-distortion heavy-duty blanking tool steel with outstanding toughness achieved by special heat treatment; nitridable.

Applications

Blanking and punching dies, and precision-blanking dies. Cold-extrusion tools, fracture-prone and complicated cuts, shearing blades; in the nitrided state for cutting austenitic grades. Highly stressed plastic moulds, mould inserts with abrasive stress.

Delivered condition

Annealed to max. 255 HB

Physical properties (reference values)

Thermal expansion coefficient ($10^{-6}/K$)	20–100 °C	20–250 °C	20–500 °C
	9.0	12.0	13.0
Thermal conductivity (W/mK)	20 °C	250 °C	500 °C
	20.0	21.0	22.0
Young's modulus (GPa)	20 °C	250 °C	500 °C
	215	196	180

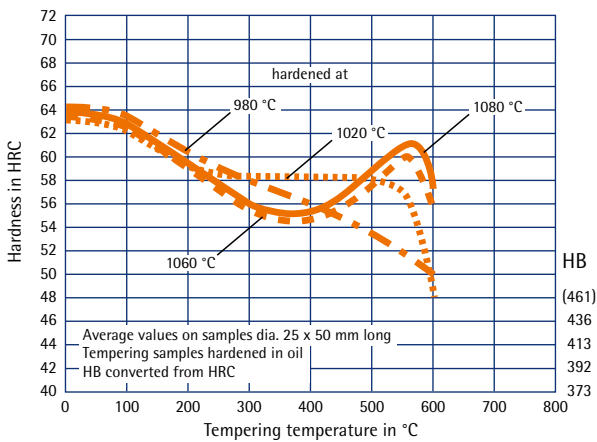
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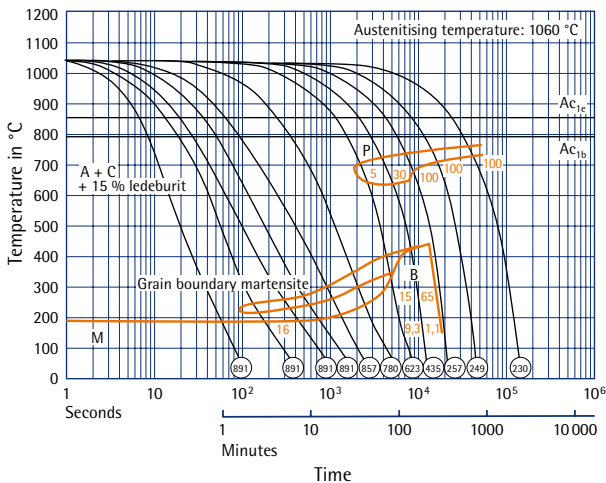
Heat treatment	
Stress relieving	Temperature: Approx. 650 °C in the annealed state Approx. 200 °C in the hardened state after special hardening Duration: 1 hour per 50 mm wall thickness Cooling: Furnace
Soft annealing	Temperature: 820 °C Duration: 1 hour per 25 mm wall thickness Cooling: Furnace
Hardening	Temperature: 980–1080 °C, see tempering curve Duration: 90 seconds per mm wall thickness
Quenching hardness	Max. 63 HRC in oil, hot bath, vacuum or air
Tempering	Temperature: See tempering curve Duration: 1 hour per 25 mm wall thickness Cooling: Air
Working hardness	58–63 HRC

Special heat treatment: Hardening 1050–1080 °C (up to 1100 °C). Tempering 500–520 °C or 550–570 °C for subsequent gas or bath nitriding.

Tempering curve



TTT curve (continuous)



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