

I Buderus Hot Work Tool Steel 2343 ISO-B

	C	Si	Mn	P	S	Cr	Mo	V
Typical analysis	0.38	1.05	0.40	0.025	0.003	5.20	1.30	0.40
Chemical composition as per SEL	0.33–0.41	0.80–1.20	0.25–0.50	≤ 0.030	≤ 0.020	4.80–5.50	1.10–1.50	0.30–0.50

Figures in % by mass

Register of European Steels (SEL)	X 37 CrMoV 5-1
DIN EN ISO 4957	X 37 CrMoV 5-1
AFNOR	Z 38 CDV 5
AISI	H 11
BS	BH 11

Characteristics

Tungsten-free hot work tool steel on a CrMoV base. Insensitive to temperature shock, and with high wear resistance.

Applications

Extruder tools including pipe extruders, such as extrusion stems, die holders, insert and bridge type tools, liners and liner holders, outer mantles.

Highly stressed plastic moulds. Mould inserts with abrasive stress, such as occurs in processing thermosetting plastics, thermoplastics and composite materials

Die-casting moulds, mould inserts, sliders and cores; for processing Al, Mg and zinc die-casting.

Delivered condition

Annealed to max. 229 HB

Hardened and tempered to customer specification on request

Physical properties (reference values)

Thermal expansion coefficient ($10^{-6}/K$)	20–100 °C	20–250 °C	20–500 °C
	10.3	11.6	12.8
Thermal conductivity (W/mK)	20 °C	250 °C	500 °C
	23.0	25.0	27.0
Young's modulus (GPa)	20 °C	250 °C	500 °C
	210	195	172

High-temperature yield strength

Hardened and tempered state	0.2 % yield strength in MPa at temperature			
	450 °C	500 °C	550 °C	600 °C
~ 1570 MPa	1050	960	690	430
~ 1370 MPa	900	830	650	390
~ 1230 MPa	800	720	500	310

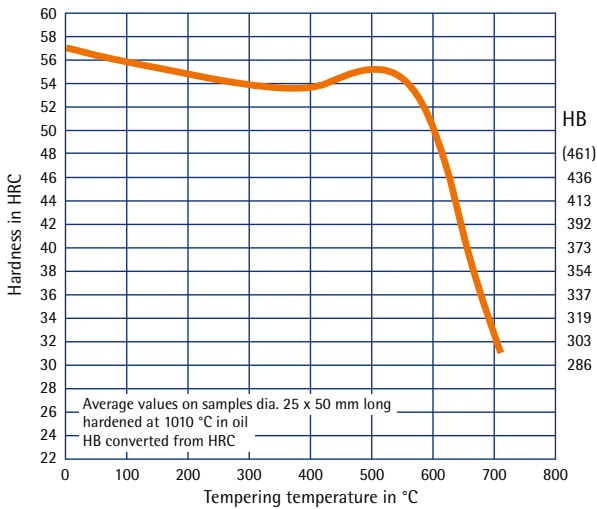
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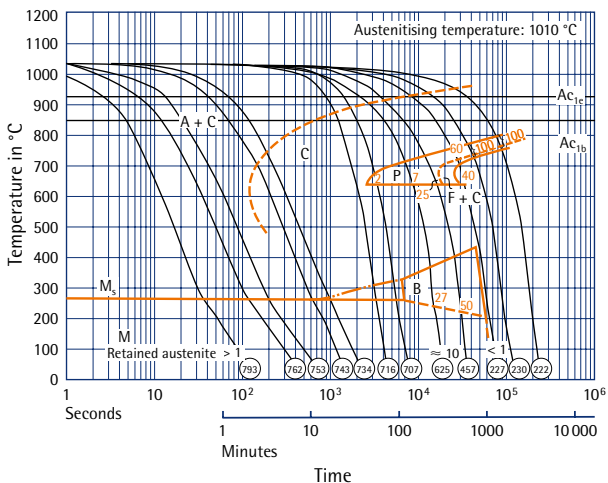
Heat treatment

Stress relieving	Temperature: Approx. 650 °C in the annealed state Approx. 30–50 °C below the tempering temperature in the hardened and tempered state
	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: 1010 °C
	Duration: 30 seconds per mm wall thickness
Quenching hardness	Max. 55 HRC in oil, hot bath, protective atmosphere, vacuum or air
Tempering	Temperature: See tempering curve
	Duration: 1 hour per 25 mm wall thickness
	Cooling: Air
Working hardness	30–50 HRC depending on application

Tempering curve



TTT curve (continuous)



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