

I Buderus Hot Work Tool Steel 9966 SUPER C

	C	Si	Mn	P	S	Cr	Ni	Mo	V
Typical analysis	0.33	0.25	0.20	0.003	0.002	1.50	3.00	0.80	0.30

Figures in % by mass

Characteristics

Patented NiCrMoV-hot work tool steel with good high-temperature strength (comparable to steels 2343 and 2344), but with much higher toughness. Higher wear-resistance than die steel 2714.

Applications

Dies that are susceptible to fracture, and die inserts with deep impressions, die holders.
Crack-susceptible extrusion moulds for aluminium forming.
Crack-prone plastic moulds.

Delivered condition

Annealed to max. 265 HB

Quenched and tempered to customer specification on request
to max. 440 HB (\triangle approx. 1500 MPa)*

Physical properties (reference values)

Thermal expansion coefficient ($10^{-6}/K$)	20–100 °C	20–250 °C	20–500 °C
	11.0	12.2	13.7
Thermal conductivity (W/mK)	20 °C	250 °C	500 °C
	31.0	33.0	32.0
Young's modulus (GPa)	20 °C	250 °C	500 °C
	215	198	179

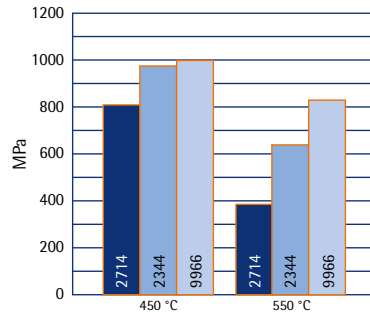
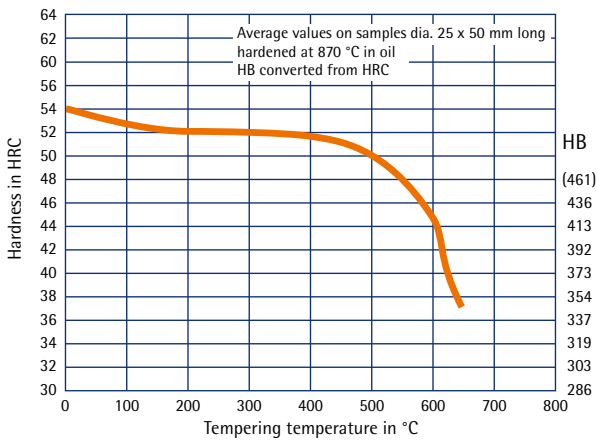
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* Surface hardness in Brinell, converted to DIN EN ISO 18265, Table A.1

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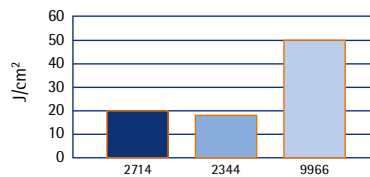
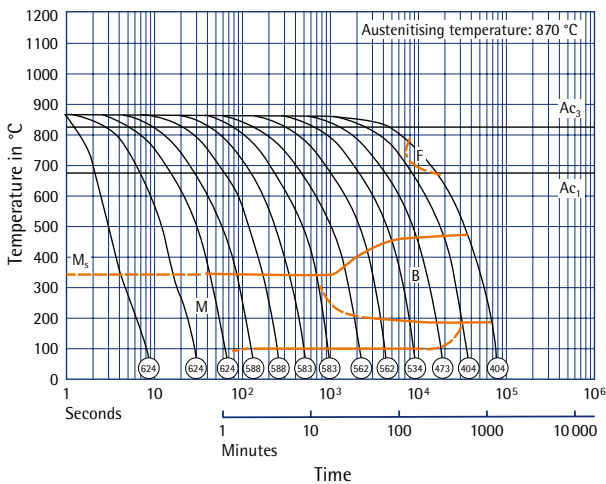
Heat treatment	
Stress relieving	Temperature: Approx. 650 °C in the annealed state 40 °C below tempering temperature in the quenched and tempered state Duration: 1 hour per 50 mm wall thickness Cooling: Furnace
Soft annealing	Temperature: 670 °C Duration: 1 hour per 25 mm wall thickness Cooling: Furnace
Hardening	Temperature: 870 °C Duration: 1 minute per mm wall thickness
Quenching hardness	Max. 57 HRC in oil, salt bath or vacuum
Tempering	Temperature: See tempering curve Duration: 1 hour per 25 mm wall thickness Cooling: Air
Working hardness	300–440 HB

Tempering curve



Comparison of high-temperature yield point
Quenched and tempered to 1400 MPa

TTT curve (continuous)



Comparison of impact value
Quenched and tempered to 1400 MPa
ISO-V samples surface transverse, 20 °C

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