COLD WORK TOOL STEELS

Application Segments

Cold Work

Available Product Variants

Long Products* | Plates

* Presented data refer exclusivly to long products. Please observe the detailed explanations at the end of the data sheet (pdf).

Product Description

BÖHLER K329 belongs to the group of 8% chromium steels and is a modified 1.2360 (AISI A8) type. BÖHLER K329 is the classic among the chipper steels and is mainly used for machining knives in the woodworking industry, but also for knives in the paper and recycling industries. BÖHLER K329 is popular among knife customers worldwide not only on account of its excellent properties, but also because BÖHLER is able to supply customized solutions thanks to its broad product portfolio.

Process Melting

Airmelted

Properties

- Toughness & Ductility : good
- Wear Resistance : high
- Compressive strength : good
- Dimensional stability : good

Applications

- Machine knife (for producers)

Technical data

Material designation	
~1.2360	SEL
~A8	AISI

Chemical composition (wt. %)

C	Si	Mn	Cr	Mo	V
0.52	0.95	0.40	8.00	1.40	0.35

Material characteristics

	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K329	★★★	★★★	★★★★	★★★★
BÖHLER K305	★★★★★	★★★	★★	★★★★★
BÖHLER K306	★★★★	★★★	★★★★	★★★
BÖHLER K313	★★★★	★★★	★★★	★★★
BÖHLER K320	★★★	★★★	★★★	★★★
BÖHLER K600	★	★★★	★★★★★	★
BÖHLER K601	★	★★★	★★★★	★★
BÖHLER K605	★★	★★★	★★★★	★

Delivery condition

Annealed

Hardness (HB)	max. 240

Heat treatment

Annealing

Temperature	800 to 850 °C	Slow controlled cooling in furnace at a rate of 10 to 20 °C/hr (18 to 36 °F/hr) down to approximately 600 °C (1112 °F) || Further cooling in air.

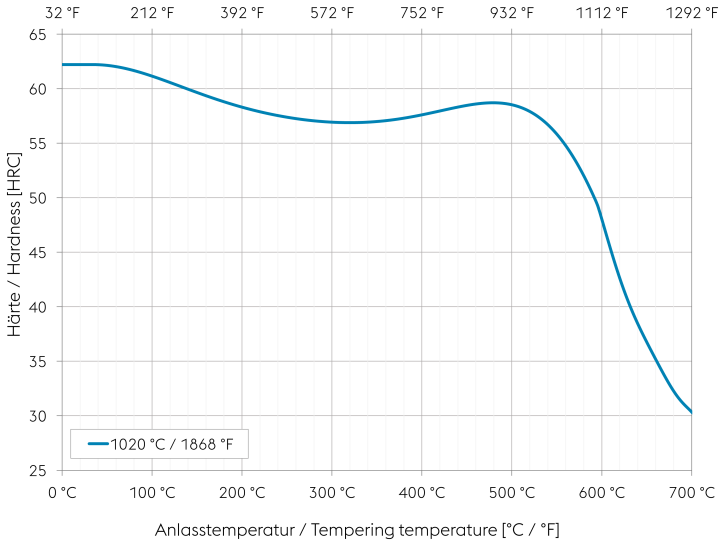
Stress relieving

Temperature	650 °C	After through heating, hold in neutral atmosphere for 1-2 hours. || Slow cooling in furnace || Intended to relieve stresses caused by extensive machining or in complex shapes.

Hardening and Tempering

Temperature	1,000 to 1,040 °C	Quenching: Oil, salt bath (500 to 550 °C | 932 to 1022 °F), air. || Holding time after temperature equalization: 15 to 30 minutes. || After hardening, tempering to the desired working hardness according to the tempering chart.

Tempering chart



Specimen size: square 20 mm (0,787 inch)

Slow heating to tempering temperature immediately after hardening.

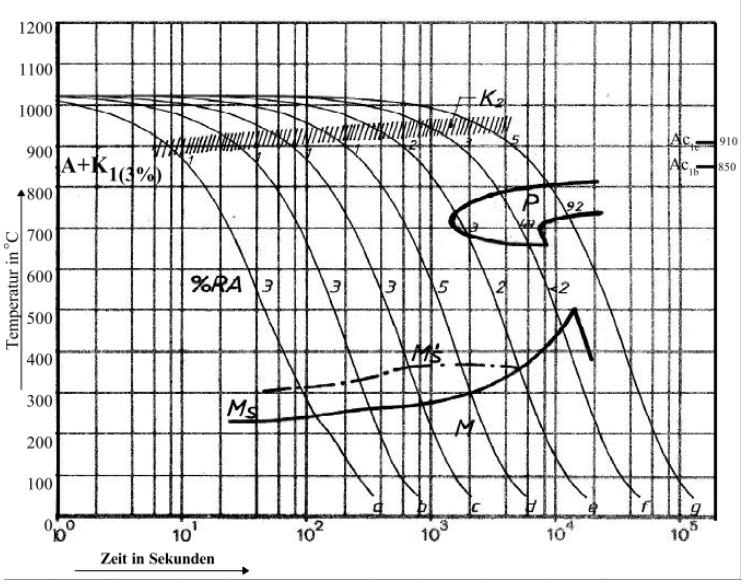
Time in furnace 1 hour for each 20 mm (0,787 inch) of workpiece thickness but at least 2 hours.

Please refer to the tempering chart for guide values for the achievable hardness after tempering.

Cooling in air to room temperature after each tempering step is recommended.

Tempering for stress relieving 30 to 50 °C (86 to 122 °F) below the highest tempering temperature.

Continuous cooling CCT curves



Austenitising temperature: 1020 °C / 1868 °F

Holding time: 30 minutes

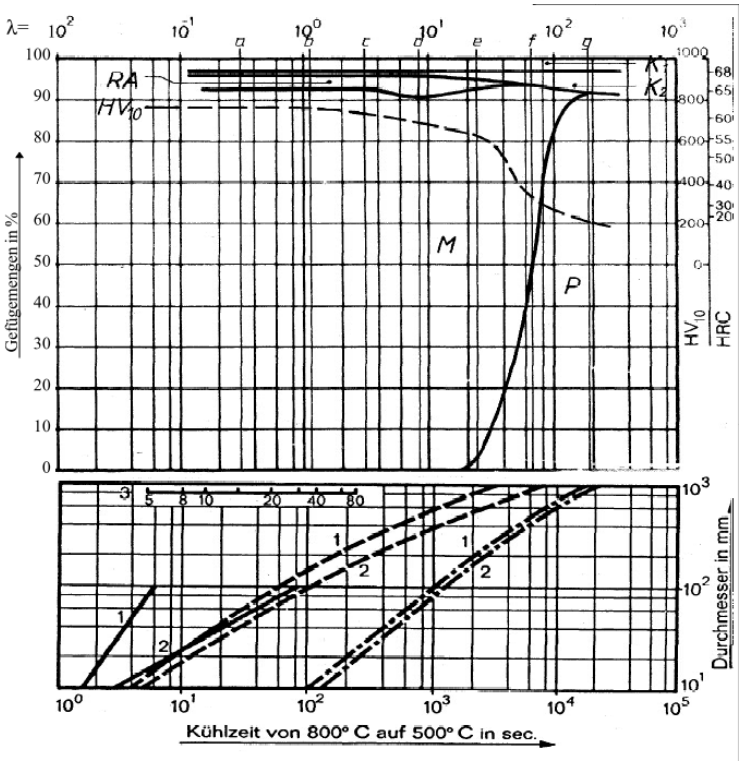
○ Vickers hardness

3...92 phase percentages

1...5 cooling parameter λ, i.e. duration of cooling from 800 to 500 °C (1472 to 932 °F) in s x 10^{-2}

A... Austenite
K... Carbide
P… Perlite
RA… Retained austenite
M… Martensite
Ms… Martensite starting temperature

Quantitative phase diagram

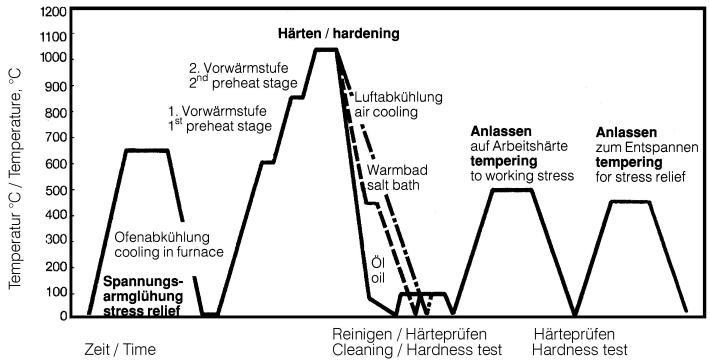


HV10… Vickers Hardness
K... Carbide
RA... Residual austenite
M... Martensite
P... Perlite

—— Water cooling
- - - Oil cooling
- • - Air cooling

1... Edge or face
2... Core

Heat treatment sequence



Physical Properties

Temperature (°C)	20
Density (kg/dm³)	7.7
Thermal conductivity (W/(m.K))	26
Specific heat (kJ/kg K)	0.46
Spec. electrical resistance (Ohm.mm²/m)	0.6
Modulus of elasticity (10³N/mm²)	210

Thermal Expansions between 20°C | 68°F and ...

Temperature (°C)	100	200	300	400	500
Thermal expansion (10^{-6} m/(m.K))	11.5	12	12.2	12.5	12.8

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ONE STEP AHEAD.