

ČELICI ZA HLADNI RAD

Dostupne varijante proizvoda

 Šipkasti proizvodi* Ploče

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

Opis proizvoda

Strojni noževi u industriji celuloze, papira i medijapan ploča za teške uvjete rada. Ravne i kružne oštrice za odsijecanje za ploče debljine do 15 mm.

Put taljenja

 Airmelted

Karakteristike

- > Žilavost i duktilnost : dobar
- > Otpornost na habanje : visok
- > Tlačna čvrstoća : dobar
- > Dimenzionalna stabilnost : dobar

Korištenje

- > Strojni mjerni noževi (za proizvodnju)

Technički podaci

Oznaka materijala	
~1.2360	SEL
~A8	AISI

Kemijski sastav

C	Si	Mn	Cr	Mo	V
0,52	0,95	0,40	8,00	1,40	0,35

Materijal

	Kapacitet tlaka	Dimenzionalna stabilnost u toplinskoj obradi	Žilavost	Abraziv otpora na habanje
BÖHLER K329	★★★	★★★	★★★★★	★★★★★
BÖHLER K305	★★★★★	★★★	★★	★★★★★
BÖHLER K306	★★★★★	★★★	★★★★★	★★★
BÖHLER K313	★★★★★	★★★	★★★	★★★
BÖHLER K320	★★★	★★★	★★★	★★★
BÖHLER K600	★	★★★	★★★★★	★
BÖHLER K601	★	★★★	★★★★★	★★
BÖHLER K605	★★	★★★	★★★★★	★

Isporuka

Annealed

Tvrdoća (HB)	max. 240
--------------	----------

Toplinska obrada

Annealing

Temperatura	800 do 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.
-------------	---------------	---

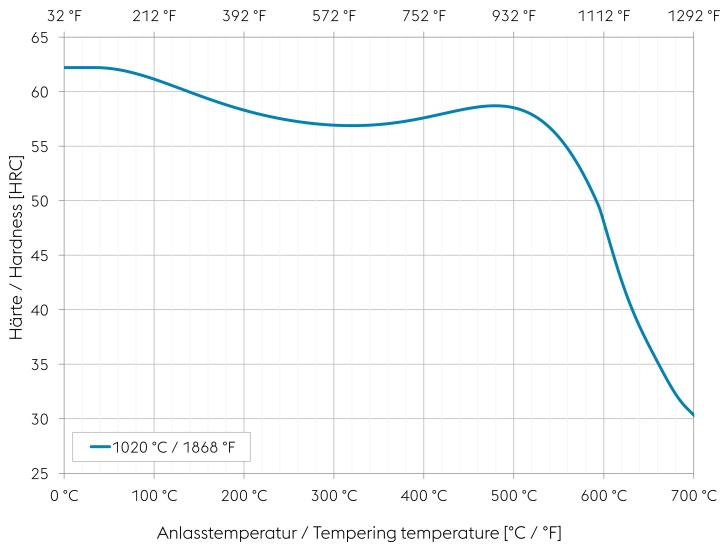
Stress relieving

Temperatura	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

Temperatura	1.000 do 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.

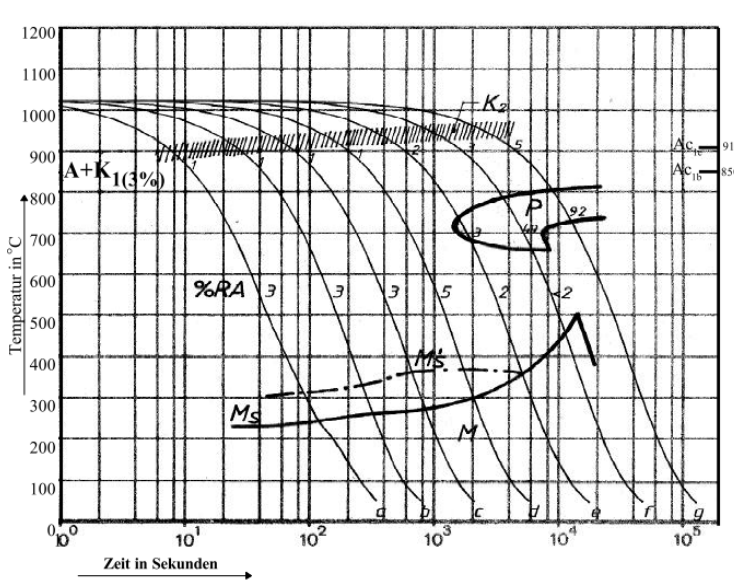
Time in furnace 1 hour for each 20 mm (0,787 inch) of workpiece thickness but at least 2 hours.

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

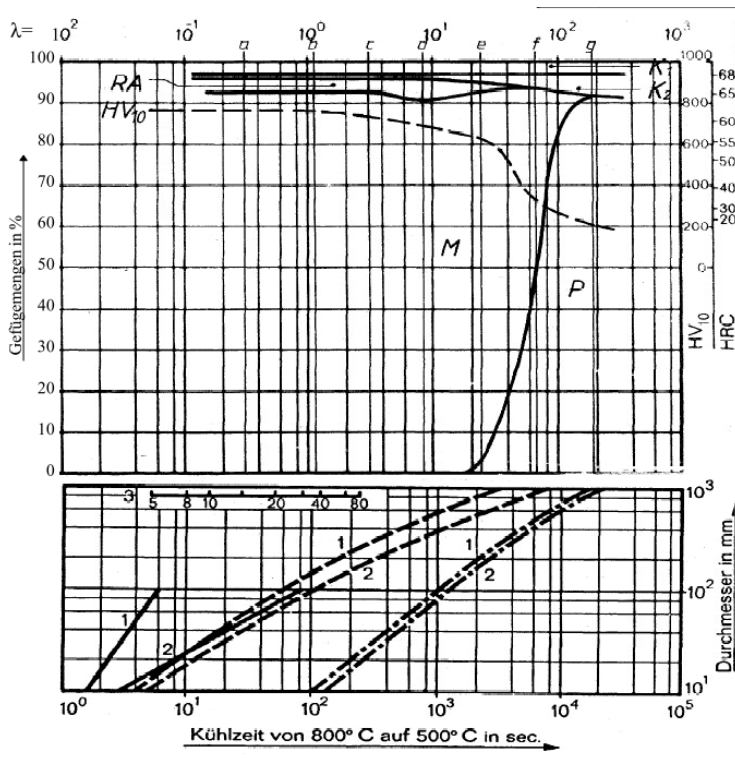
O Vickers hardness

3...92 phase percentages

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

- A... Austenite
- K... Carbide
- P... Pearlite
- RA... Retained austenite
- M... Martensite
- Ms... Martensite starting temperature

Quantitative phase diagram

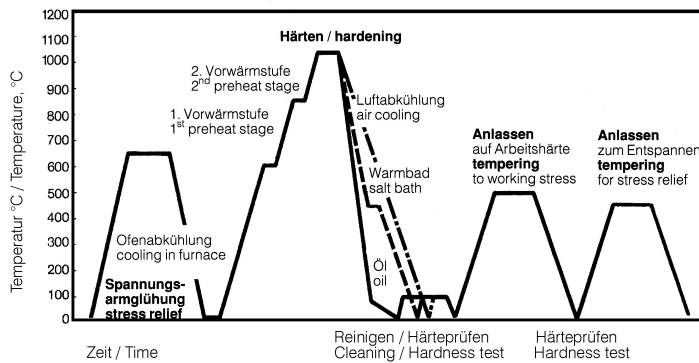


HV10... Vickers Hardness
 K... Carbide
 RA... Residual austenite
 M... Martensite
 P... Pearlite

— Water cooling
 - - - Oil cooling
 - · - Air cooling

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

Heat treatment sequence



Fizička svojstva

Temperatura (°C)	20
Gustoća (kg/dm ³)	7,7
Toplinska vodljivost (W/(m.K))	26
Specifični toplinski kapacitet (kJ/kg K)	0,46
Spec. Otpornik (Ohm.mm ² /m)	0,6
Modul elastičnosti (10 ³ N/mm ²)	210

Toplinska ekspanzija

Temperatura (°C)	100	200	300	400	500
Toplinska ekspanzija (10 ⁻⁶ m/(m.K))	11,5	12	12,2	12,5	12,8

Long Products: For additional specifications and technical requirements, please contact our regional voestalpine BÖHLER sales companies.

Sheet & Plates: Product Variant may differ in terms of melting process, technical data, delivery, and surface condition as well as available product dimensions. Please contact voestalpine BÖHLER Bleche GmbH & Co KG.

The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.