NÁSTROJOVÉ OCELI PRO PRÁCI ZA STUDENA

Rozměrový sortiment k dispozici

Tyčová ocel* | Plech

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

Popis produktu

BÖHLER K100 - Standardní značka pro rozměrově stálé ledeburitické oceli 12% legované chromem.

Trasa tavení

Airmelted

Vlastnosti

- Odolnost proti opotřebení : dobré

Použití

- Průmyslové nože
- Přesné stříhání, lisování, ražení plechu
- kladky
- Válcování
- Normálie (formy, plechy, kolíky, střižníky)
- Díly odolné proti opotřebení
- Tváření za studena
- Komponenty pro recyklační průmysl
- Všeobecné díly pro strojírenství

Technické údaje

Označení materiálu	
1.2080	SEL
~T30403	UNS
X210Cr12	EN
~D3	AISI
~SKD1	JIS

Normy	
4957	EN ISO

Chemické složení

C	Si	Mn	Cr
2,00	0,25	0,35	11,50

Materiálové vlastnosti

	Tlaková zatížitelnost	Rozměrová stabilita při tepelném zpracování	Houževnatost	Odolnost proti opotřebení abrazivní	Odolnost proti opotřebení adhezivní
BÖHLER K100	★★	★★	★	★★★	★★
BÖHLER K105	★★	★★	★	★★	★★
BÖHLER K107	★★	★★	★	★★★	★★
BÖHLER K110	★★	★★★	★	★★★	★★
BÖHLER K190 MICROCLEAN	★★★★	★★★★★	★★★★	★★★★	★★★★
BÖHLER K294 MICROCLEAN	★★★★★	★★★★★	★★★	★★★★★	★★★★★
BÖHLER K340 ISODUR	★★★	★★★★	★★★	★★★	★★★★
BÖHLER K340 ECOSTAR	★★★	★★★	★★	★★	★★
BÖHLER K346	★★★	★★★	★★★	★★★★	★★
BÖHLER K353	★★	★★★	★★	★★	★★
BÖHLER K360 ISODUR	★★★	★★★★	★★★	★★★★	★★★★
BÖHLER K390 MICROCLEAN	★★★★★	★★★★★	★★★★	★★★★★	★★★★★
BÖHLER K490 MICROCLEAN	★★★★	★★★★★	★★★★	★★★★	★★★★
BÖHLER K497 MICROCLEAN	★★★★★	★★★★★	★★★	★★★★★	★★★★★
BÖHLER K888 MATRIX	★★★★	★★★★★	★★★★★	★★	★★
BÖHLER K890 MICROCLEAN	★★★★	★★★★★	★★★★★	★★★	★★★

Stav dodání

Žíháno

Tvrdost (HB)	max. 248

Air Quenched

Tepelné zpracování

Annealing

Teplota	800 na 850 °C	Slow controlled cooling in furnace at a rate of 50 to 68°F (10 to 20°C/hr) down to approx. (600°C), further cooling in air.

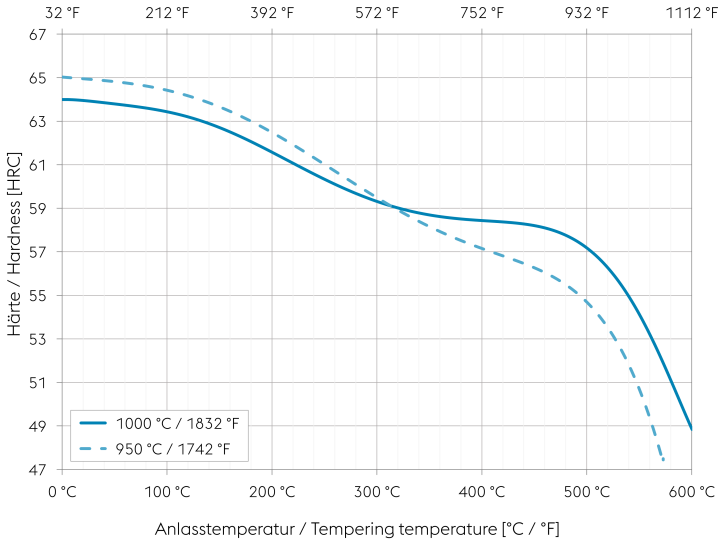
Žíhání na odstranění vnitřního pnutí

Teplota	650 °C	Slow cooling in furnace; intended to relieve stresses set up by extensive machining, or in complex shapes. After through heating, hold in neutral atmosphere for 1-2 hours.

Kalení a popouštění

Teplota	940 na 970 °C	Oil, salt bath 428 to 482°F or 932 to 1022°F (220 to 250°C or 500 to 550°C), compressed or still air if thickness does not exceed 0,98 inch (25 mm) and if hardening temperature is on the upper side of the range, gas Holding time after temperature equalization: 15 to 30 minutes. After hardening, tempering to the desired working hardness, see tempering chart.

Tempering chart



Tempering:

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

Slow heating to tempering temperature immediately after hardening.

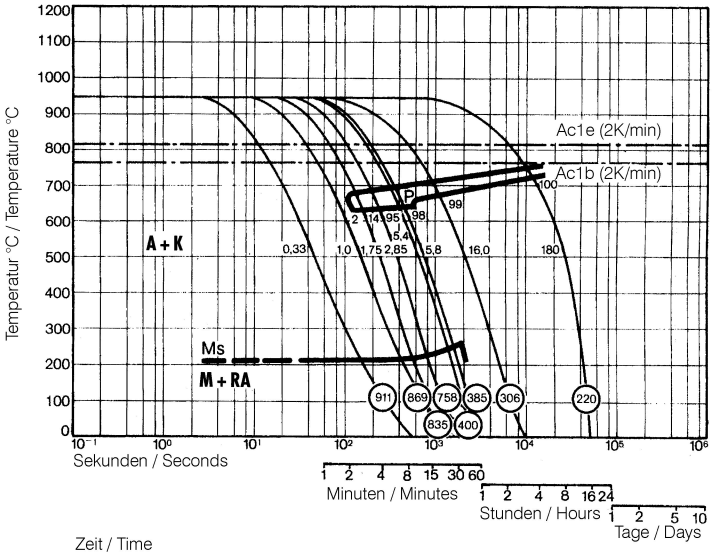
Time in furnace 1 hour for each 0,787 inch (20 mm) of workpiece thickness but at least 2 hours/cooling in air.

Slow cooling to room temperature after each tempering step is recommended.

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

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

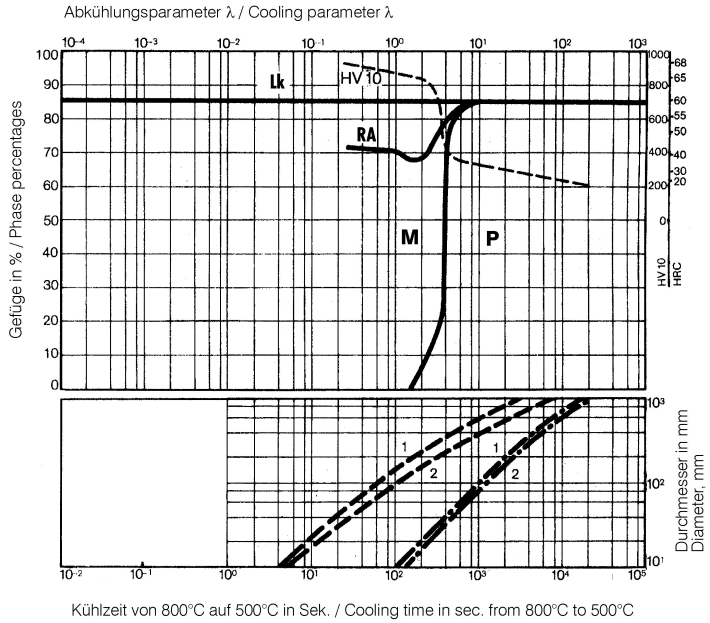
Continuous cooling CCT curves



Austenitising temperature: 1742°F (950°C)
Holding time: 30 minutes

O Vickers hardness
2...100 phase percentages
0.33...180 cooling parameter, i.e. duration of cooling from 1472 to 932°F (800 to 500°C) in s x 10^{-2}
35,6°F/min (2K/min)... cooling rate in K/min in the 1472 to 932°F (800 to 500°C) range

Quantitative phase diagram

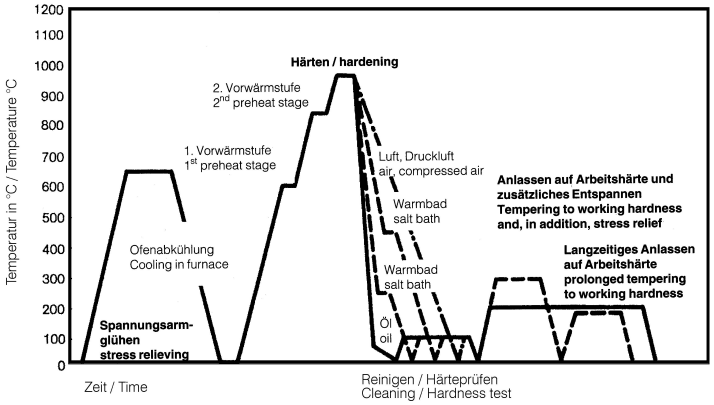


Lk... Ledeburite carbide
RA... Residual austenite
A... Austenite
M... Martensite
P... Perlite
K... Carbide

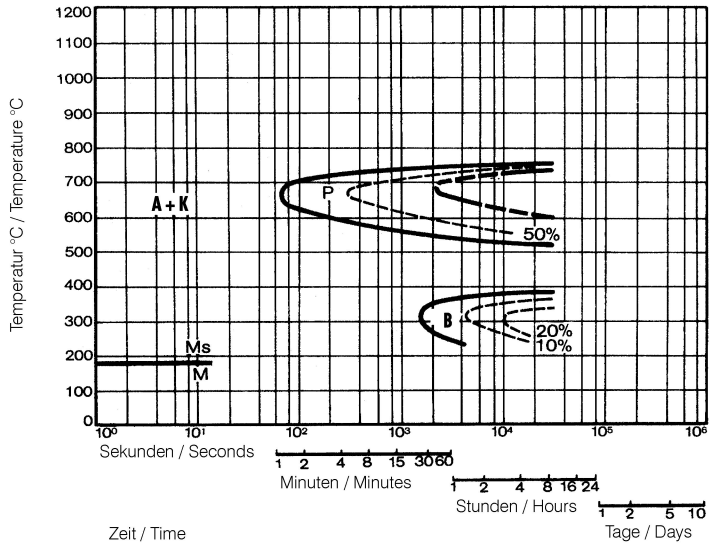
- - - - - - Oil cooling
- • - Air cooling

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

Heat treatment sequence

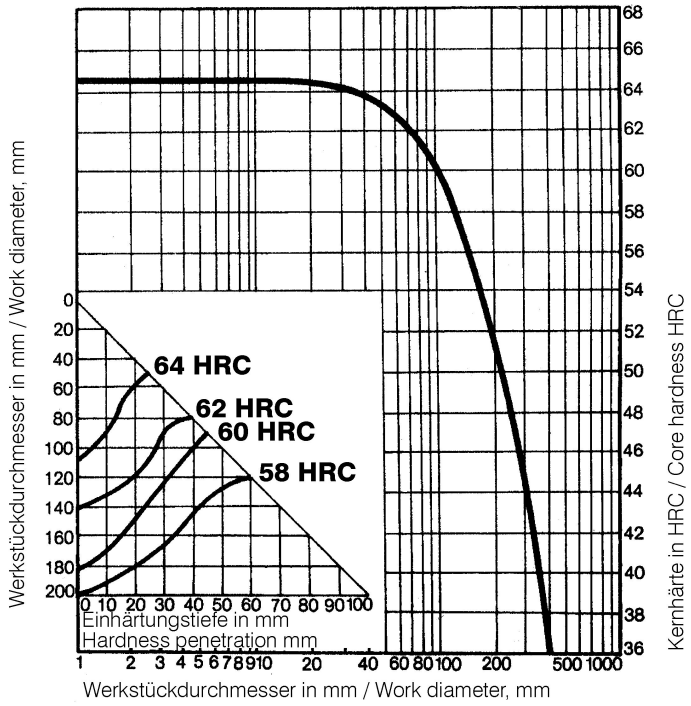


Isothermal TTT curves



Austenitising temperature: 1742°F (950°C)
Holding time: 30 minutes

Influence of work diameter on core hardness and hardness penetration



Hardening temperature: 1742°F (950°C)
Quenchant: Oil

Fyzikální vlastnosti

Teplota (°C)	20
Hustota (kg/dm^3)	7,7
Tepelná vodivost (W/(m.K))	20
Měrná tepelná kapacita (kJ/kg K)	0,46
Měrný elektrický odpor (Ohm.mm^2/m)	0,65
Modul pružnosti (10^{3}N/mm^2)	210

Tepelná roztažnost

Teplota (°C)	100	200	300	400	500	600
Tepelná roztažnost (10^{-6} m/(m.K))	10,5	11	11	11,5	12	12

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.

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voestalpine
ONE STEP AHEAD.