

OCELE PRE PRÁCU ZA STUDENA

Dostupné výrobné profily

Tyčové polotovary*
Plechý

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

Popis produktu

Vysoko namáhané masívne raziace nástroje, lisovacie náradie na výrobu príborov, nástroje na vtláčanie za studena, nože pre strihanie väčších hrúbok za studena, formy pre lisovanie plastov.

Spôsob výroby

Konvenčná výroba

Vlastnosti

- > Húževnatosť a odolnosť proti plastickej deformácii : veľmi vysoká
- > Rozmerová stabilita : dobré

Aplikácia

- > Strojové nože (pre výrobcov)
- > Strihanie / Dierovanie / Lisovanie / Presné strihanie
- > Komponenty pre recykláciu
- > Tvárnenie za studena
- > Výroba normalizovaných dielov (strižníky, platne, kolíky, razníky)
- > Razenie
- > Diely pre všeobecné strojárstvo

Technické údaje

Označenie materiálu		Normy	
1.2767	SEL	4957	EN ISO
45NiCrMo16	EN		
SKT6	JIS		

Chemické zloženie

C	Si	Mn	Cr	Mo	Ni
0,48	0,23	0,40	1,30	0,25	4,00

Porovnanie vlastnosti materiálu

	Odolnosť proti tlakovému zaťaženiu	Rozmerová stabilita počas tepelného spracovania	Húževnatosť	Odolnosť proti abrazívnemu opotrebovaniu
BÖHLER K600	★	★★★	★★★★★	★
BÖHLER K305	★★★★★	★★★	★★	★★★★★
BÖHLER K306	★★★★★	★★★	★★★★★	★★★
BÖHLER K313	★★★★★	★★★	★★★	★★★
BÖHLER K320	★★★	★★★	★★★	★★★
BÖHLER K329	★★★	★★★	★★★★★	★★★★★
BÖHLER K601	★	★★★	★★★★★	★★
BÖHLER K605	★★	★★★	★★★★★	★

Stav pri dodaní

Žiháný

Tvrdosť (HB)	max. 285
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Tepelné spracovanie

Žihanie

Teplota	610 až 650 °C	Slow controlled cooling in furnace at a rate of 50 to 68°F/hr (10 to 20°C/hr) down to approx. 1112°F (600°C), further cooling in air.
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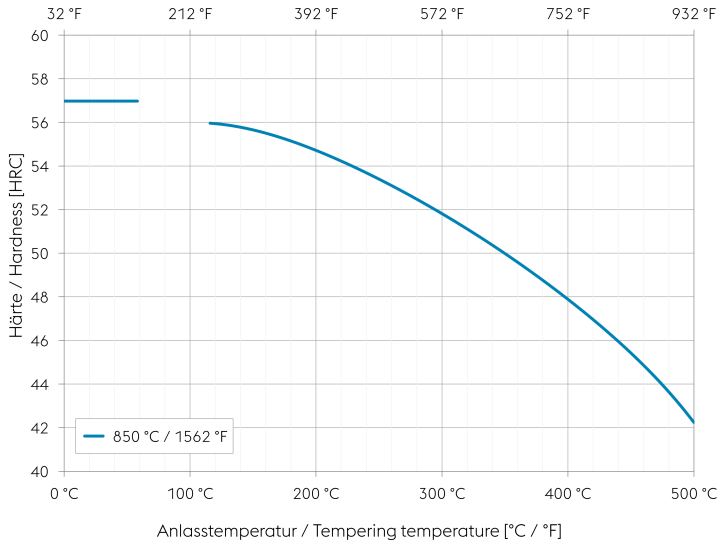
Žihanie na odstránenie pnutí

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 to 2 hours.
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Kalenie a popúšťanie

Teplota	840 až 870 °C	Oil, salt bath 572 to 752°F (300 to 400°C), air. Holding time after temperature equalization: 15 to 30 minutes. After hardening, tempering to the desired working hardness, see tempering chart.
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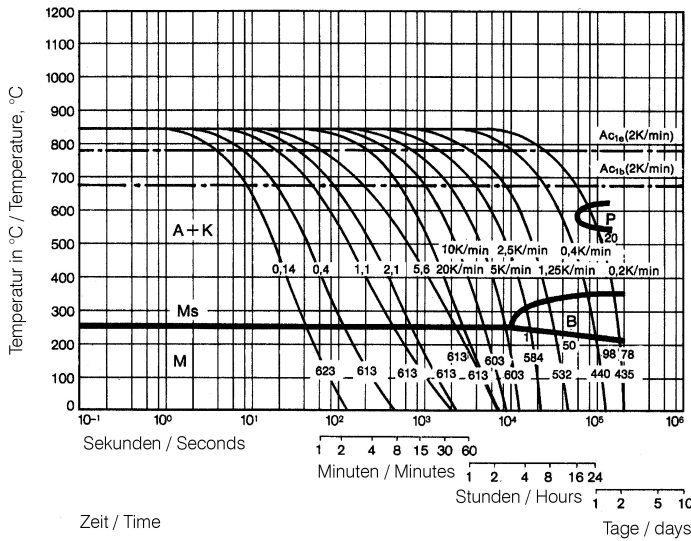
Tempering chart



Tempering:

Hardening temperature:
 850°C / 1562°F
 Specimen size: square 20 mm

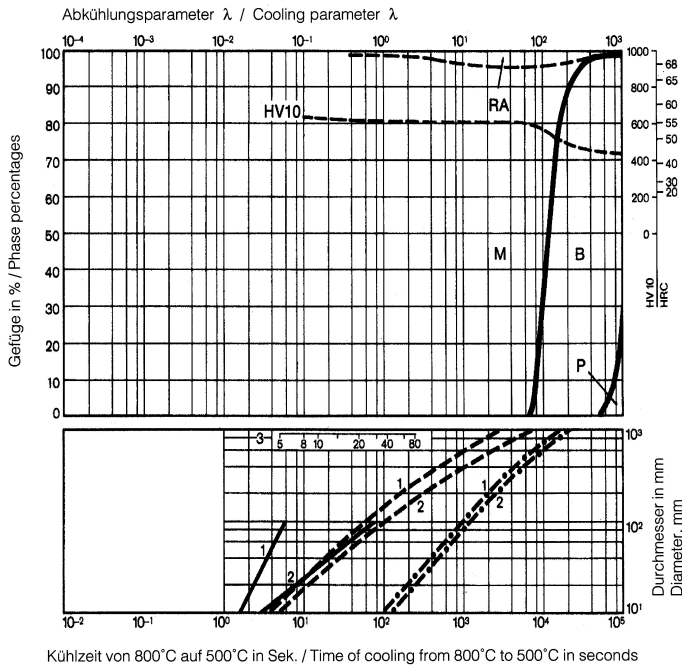
Continuous cooling CCT curves



Austenitising temperature: 840°C / 1544°F
 Holding time: 15 minutes

O Vickers hardness
 1...98 phase percentages
 0.14...5.6 cooling parameter, i.e. duration of cooling from 1472 to 932°F (800 to 500°C) in $s \times 10^{-2}$
 68...32,36°F/min (20...0.2K/min) cooling rate in °F/min (K/min) in the 1472 to 932°F (800 to 500°C) range

Quantitative phase diagram

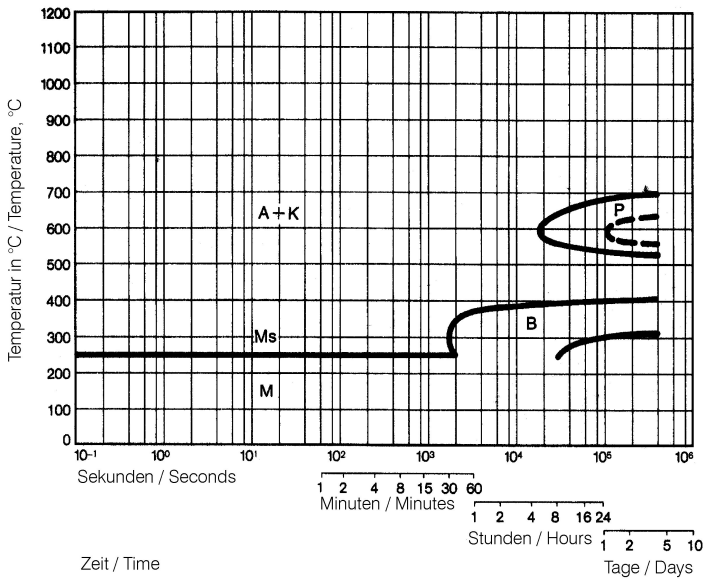


RA... Residual austenite
A... Austenite
B... Bainite
P... Pearlite
K... Carbide
M... Martensite

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

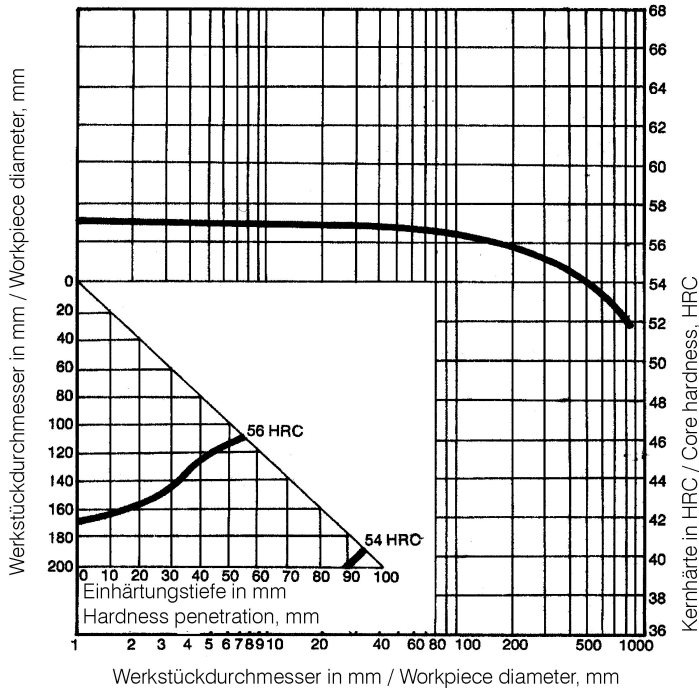
1... Edge or face
2... Core
3... Jominy test: distance from end

Isothermal TTT curves



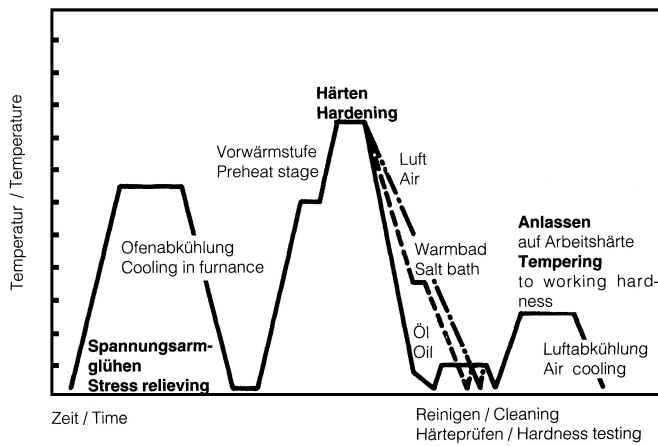
Austenitising temperature: 840°C / 1544°F
Holding time: 15 minutes

Influence of work diameter on core hardness and hardness penetration



Quenched from: 850°C / 1562°F
Quenchant: Oil

Heat treatment sequence



Fyzikálne vlastnosti

Teplota (°C)	20
Hustota (kg/dm ³)	7,85
Tepelná vodivosť (W/(m.K))	28
Merná tepelná kapacita (kJ/kg K)	0,46
Merný elektrický odpor (Ohm.mm ² /m)	0,3
Modul pružnosti (10 ³ N/mm ²)	210

Tepelná rozťažnosť

Teplota (°C)	100	200	300	400	500
Tepelná rozťažnosť (10 ⁻⁶ m/(m.K))	11	12,5	13	13,5	14

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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