

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

BÖHLER K455 corresponds approximately to the material 1.2550 (~60WCrV7, ~S1) in terms of the alloy concept. This classic matrix steel is characterized by high toughness, good machinability, and polishability. BÖHLER K455 offers the advantage of simple heat treatment with low hardening temperatures and single tempering. BÖHLER K455 is widely used in the field of punching and cutting tools as well as in the field of embossing tools.

Put taljenja

 Airmelted

Karakteristike

- > Žilavost i duktilnost : vrlo visoka
- > Tlačna čvrstoća : visok
- > Dimenzionalna stabilnost : dobar

Korištenje

- > Cold Forming
- > Standardni dijelovi (kalupi, ploče, klinovi, probijači)
- > Oblikovanje utiskivanjem praškastih materijala

Technički podaci

Oznaka materijala	
~1.2550	SEL
~60WCrV7	EN
~60WCrV8	
~S1	AISI

Kemijski sastav

C	Si	Mn	Cr	V	W
0,63	0,60	0,30	1,10	0,18	2,00

Materijal

	Kapacitet tlaka	Dimenzionalna stabilnost u toplinskoj obradi	Žilavost	Abraziv otpora na habanje
BÖHLER K455	★★★	★	★★★★★	★
BÖHLER K245	★★	★	★★★★★	★
BÖHLER K460	★★★★	★	★★★★	★★
BÖHLER K720	★★	★	★★★★	★

Isporka

Annealed

Tvrdoća (HB)	max. 225
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Toplinska obrada

Annealing

Temperatura	710 do 750 °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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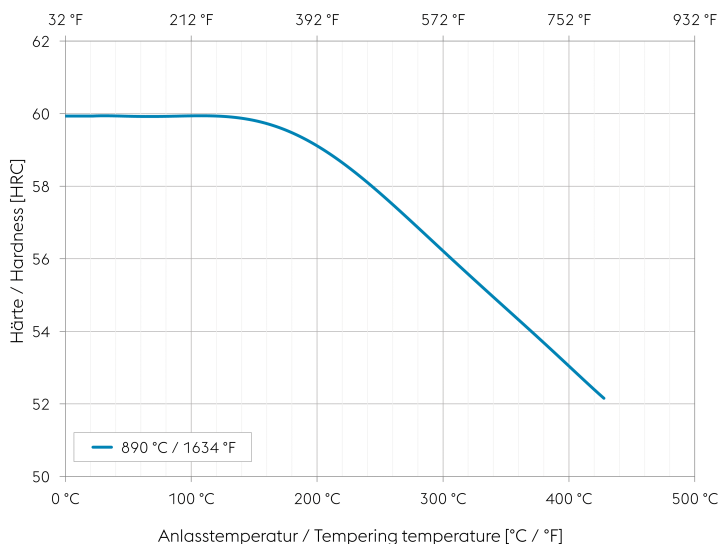
Stress relieving

Temperatura	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
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Hardening and Tempering

Temperatura	870 do 900 °C	Oil, Holding time after temperature equalization: 15 to 30 minutes. After hardening, tempering to the desired working hardness, see tempering chart.
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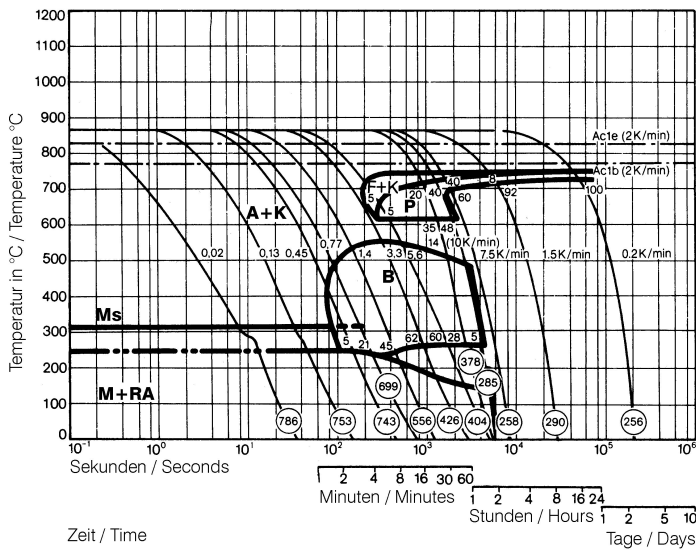
Tempering chart



Tempering:

Hardening temperature:
 890°C / 1634°F
 Specimen size: square 20mm

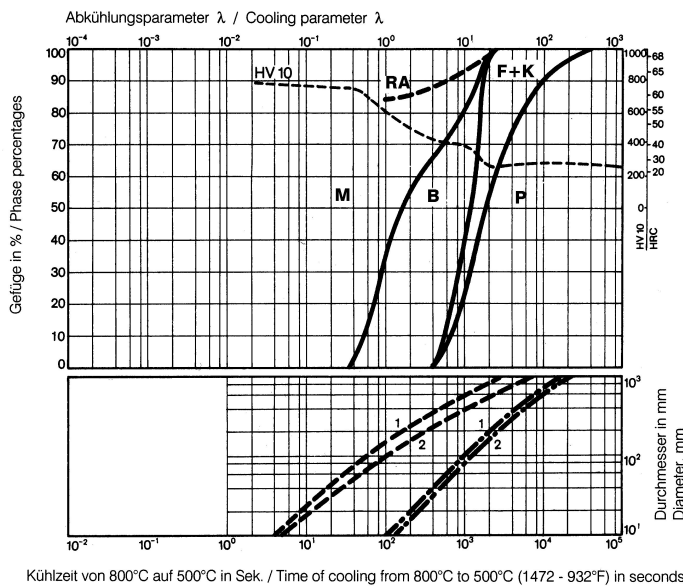
Continuous cooling CCT curves



Austenitising temperature: 880°C / 1616°F
Holding time: 15 minutes

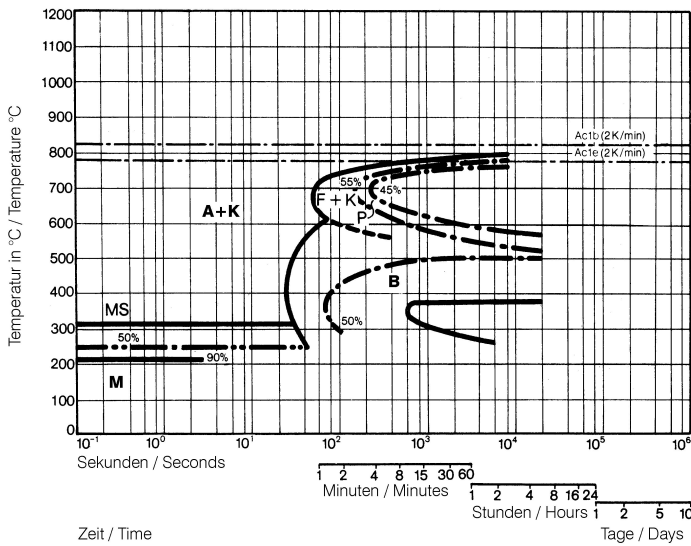
O Vickers hardness
5...35 phase percentages
0.02...14 cooling parameter, i.e. duration of cooling from 800°C to 500°C (1472°F to 932°F) in $s \times 10^{-2}$
10...0.2K/min cooling rate in K/min in the 800°C to 500°C (1472°F to 932°F) range

Quantitative phase diagram



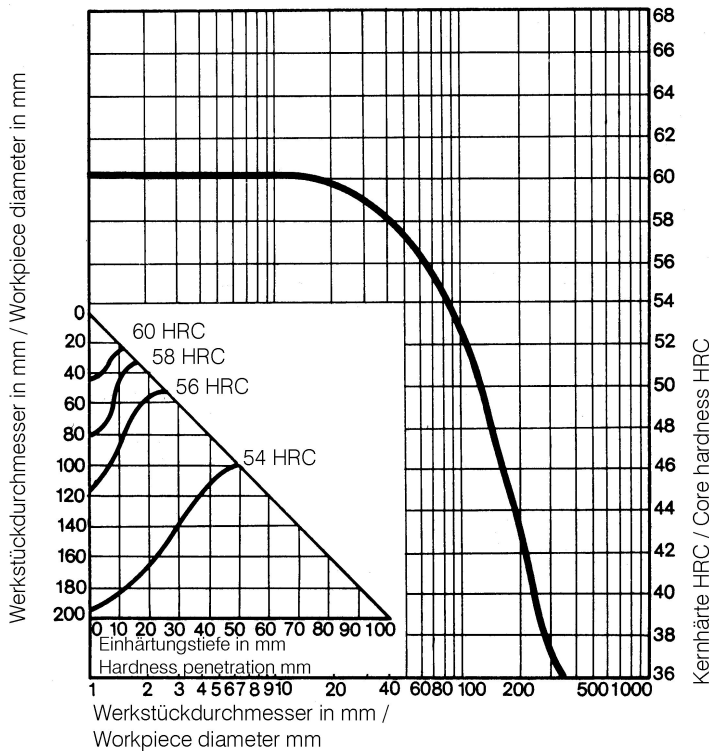
A... Austenite
B... Bainite
K... Carbide
M... Martensite
P... Pearlite
RA... Retained austenite
- - - - Oil cooling
- · - Air cooling
1... Edge or face
2... Core

Isothermal TTT curves



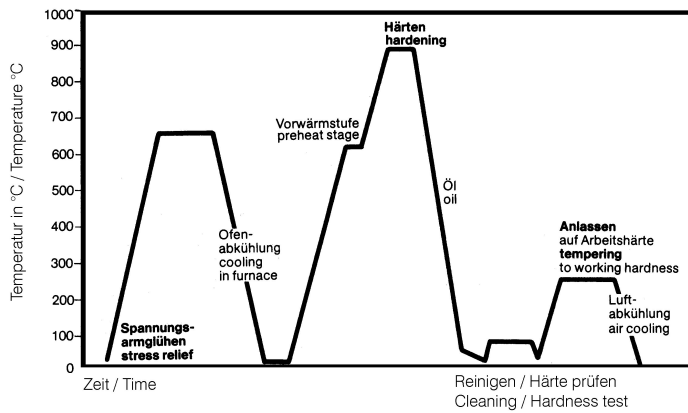
Austenitising temperature: 880°C / 1616°F
Holding time: 15 minutes

Influence of work diameter on core hardness and hardness penetration



Quenched from: 890°C / 1634°F
Agent: Oil

Heat treatment sequence



Fizička svojstva

Temperatura (°C)	20
Gustoća (kg/dm ³)	8
Toplinska vodljivost (W/(m.K))	25
Specifični toplinski kapacitet (kJ/kg K)	0,46
Spec. Otpornik (Ohm.mm ² /m)	0,3
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	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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