

ALATNI ČELICI ZA HLADNI RAD

Segmenti aplikacija

Hladni rad

Dostupne varijante proizvoda

Šipkasti proizvodi*

Ploče

* Prikazani podaci odnose se isključivo na duge proizvode. Molimo obratite pažnju na detaljna objašnjenja na kraju podatkovne tablice (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

Zrak se otopio

Karakteristike

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

Korištenje

- > Hladno oblikovanje
- > 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	★ ★	★	★ ★ ★ ★	★

Isporuka

Žarenje

Tvrdoća (HB)	max. 225
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Toplinska obrada

Žarenje

Temperatura	710 do 750 °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.
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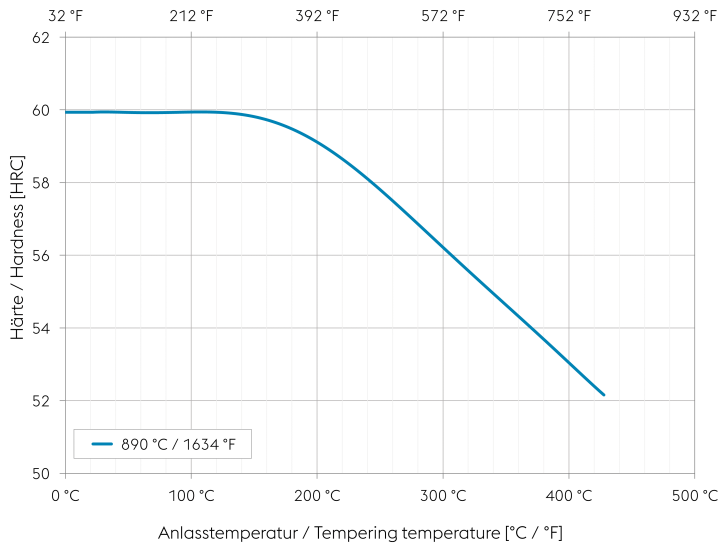
Ublažavanje stresa

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.
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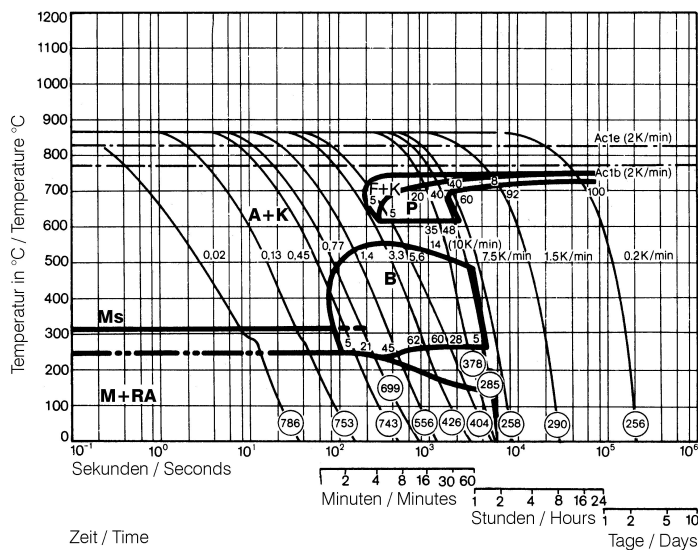
Stvrdnjavanje i kaljenje

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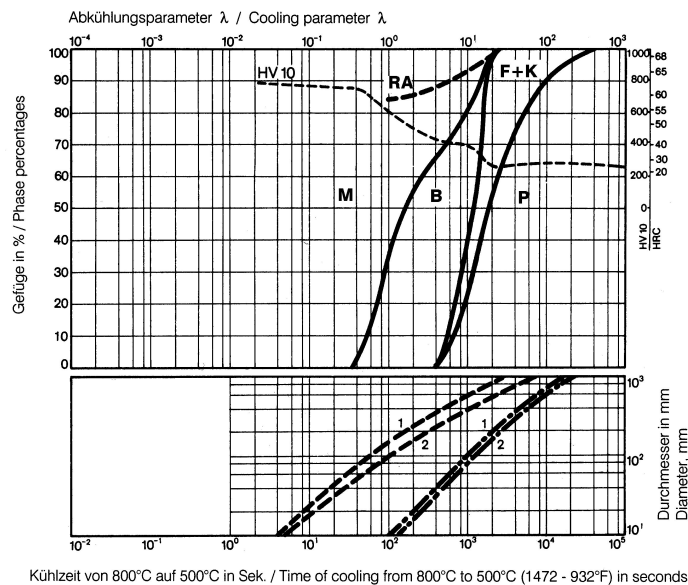
Tempering chart



Continuous cooling CCT curves



Quantitative phase diagram



HV10... Vickers Hardness

RA... Retained austenite

F... Ferrite

K... Carbide

M... Martensite

B... Bainite

P... Pearlite

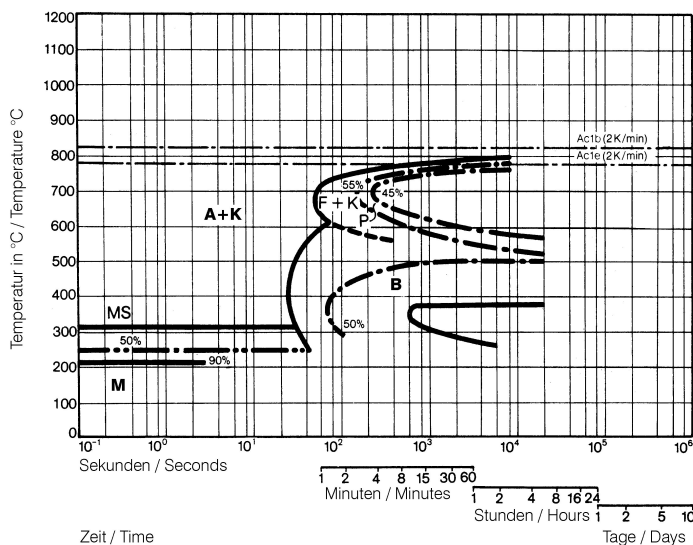
- - - Oil cooling

- • - Air cooling

1... Edge or face

2... Core

Isothermal TTT curves



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

A... Austenite

K... Carbide

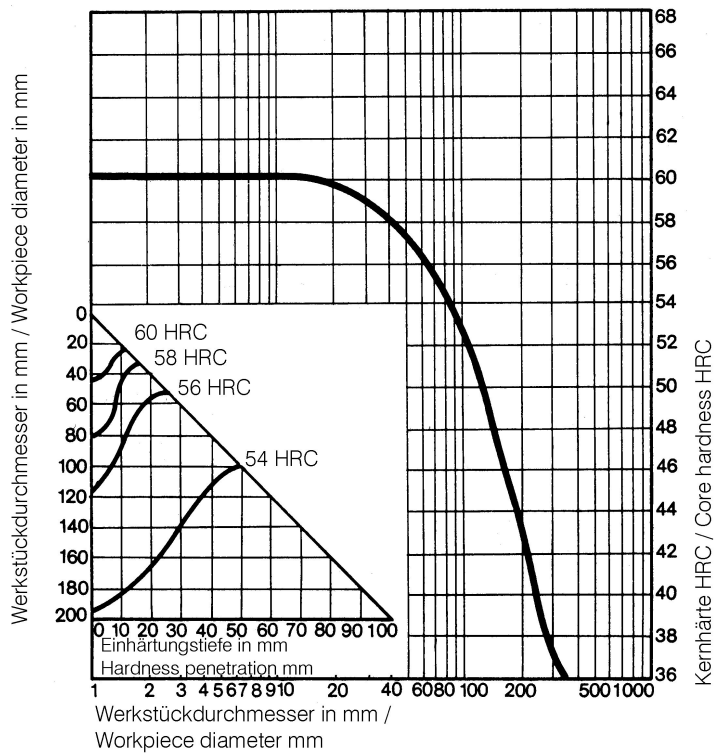
P... Pearlite

B... Bainite

M... Martensite

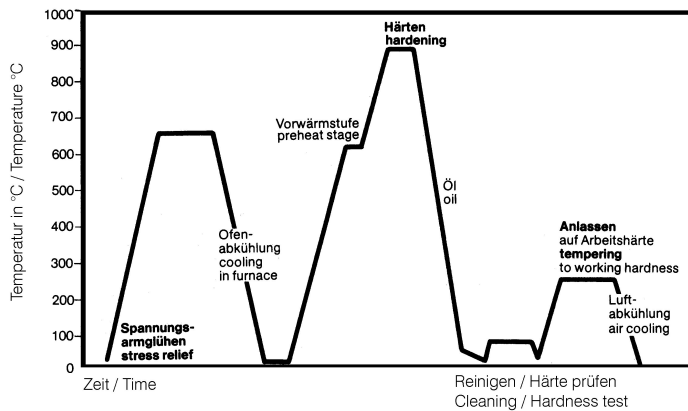
Ms... Martensite starting temperature

Influence of work diameter on core hardness and hardness penetration



Quenched from: 890 °C / 1634 °F
Quenchant: 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

Informacije u ovom prospektu nisu obvezujuće i ne smatraju se prihvaćenima; umjesto toga, oni su samo za opće informacije. Te su informacije obvezujuće samo ako su izričito postavljene kao uvjet u ugovoru sklopljenom s nama. Mjerni podaci su laboratorijske vrijednosti i mogu se razlikovati od praktičnih analiza. U proizvodnji naših proizvoda ne koriste se tvari štetne za zdravlje ili ozon.