KOUDVERVORMSTAAL

Beschikbare uitvoeringen

Stafstaal* | Plaat

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

Product omschrijving

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.

Smeltroute

Airmelted

Eigenschappen

- Taaiheid & Vervormbaarheid : zeer hoog
- Samenpersende sterkte : hoog
- Dimensionale stabiliteit : goed

Toepassingen

- Cold Forming
- Standaardonderdelen (matrijzen, platen, pennen, ponsen)
- Persen van poeders

Technische gegevens

Materiaal aanduiding	
~1.2550	SEL
~60WCrV7	EN
~60WCrV8	EN
~S1	AISI

Chemische samenstelling

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

Materiaaleigenschappen

	Drukbelastingscapaciteit	Dimensionale stabiliteit tijdens warmtebehandeling	Taaiheid	Slijtvast abrasief
BÖHLER K455	★★★	★	★★★★★	★
BÖHLER K245	★★	★	★★★★★	★
BÖHLER K460	★★★★	★	★★★★	★★
BÖHLER K720	★★	★	★★★★	★

Leveringsconditie

gegloeid

Hardheid (HB)	max. 225

Warmtebehandeling

Annealing

Temperatuur	710 naar 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.

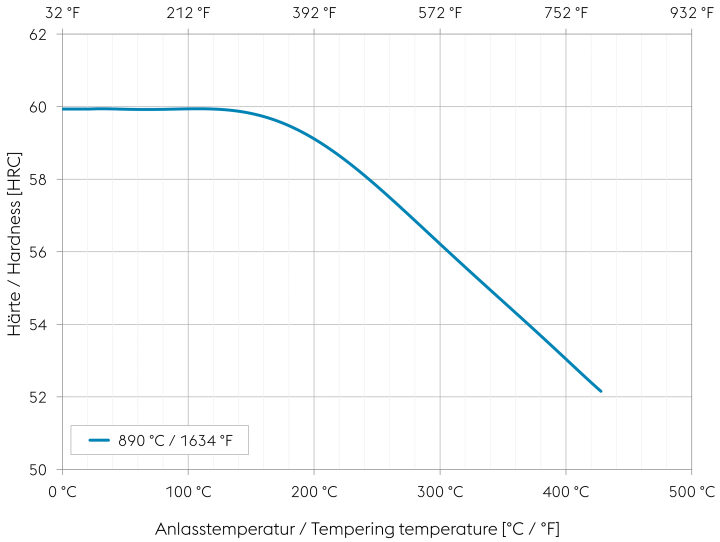
Stress relieving

Temperatuur	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.

Harden en ontlaten

Temperatuur	870 naar 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.

Tempering chart



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

Slow heating to tempering temperature immediately after hardening.

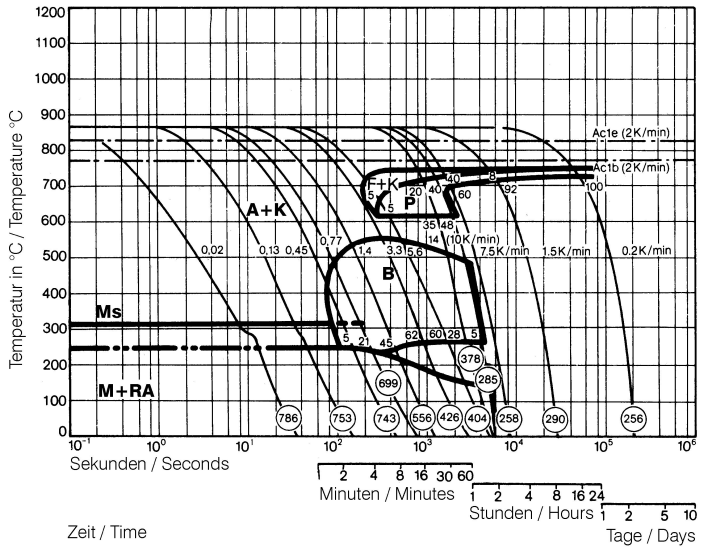
Time in furnace 1 hour for each 20 mm (0,787 inch) of workpiece thickness but at least 2 hours.

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

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

Cooling in air after each tempering step is recommended.

Continuous cooling CCT curves



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

O Vickers hardness

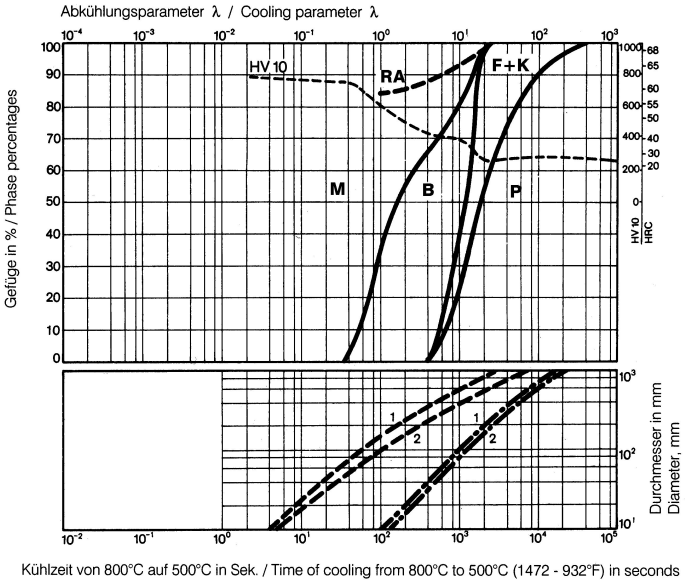
2...100 phase percentages

0.02...14 cooling parameter λ, i.e. duration of cooling from 800 to 500 °C (1472 to 932 °F) in s x 10^{-2}

0.2...10 K/min... cooling rate in the range of 800 to 500 °C (1472 to 932 °F)

A... Austenite
K... Carbide
P... Perlite
B...Bainite
M... Martensite
RA... Retained austenite
Ms... Martensite starting temperature

Quantitative phase diagram

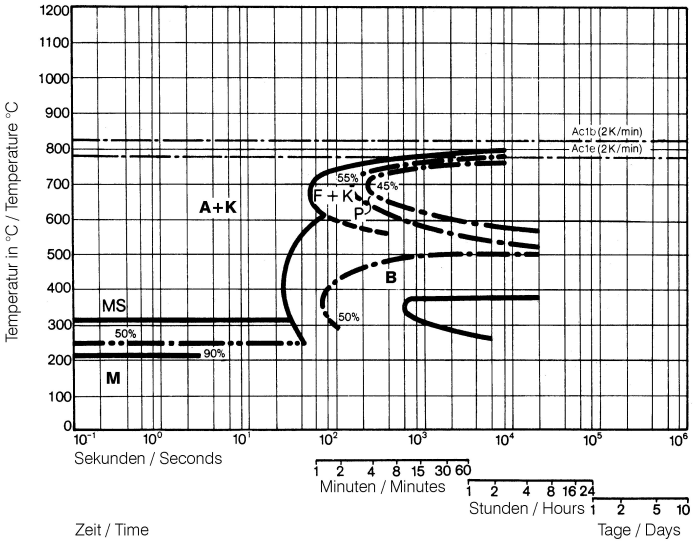


HV10... Vickers Hardness
RA... Retained austenite
F... Ferrite
K... Carbide
M... Martensite
B... Bainite
P... Perlite

- - - Oil cooling
- • - Air cooling

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

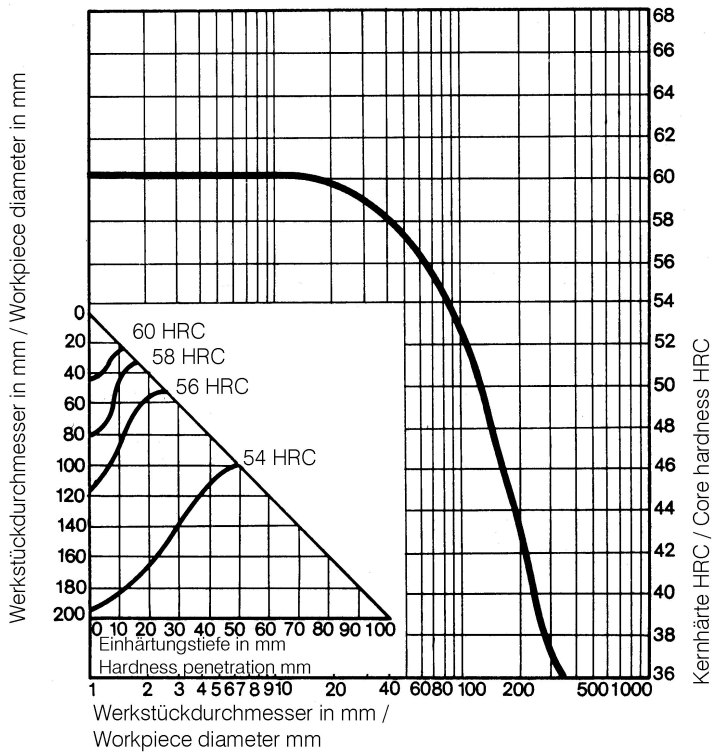
Isothermal TTT curves



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

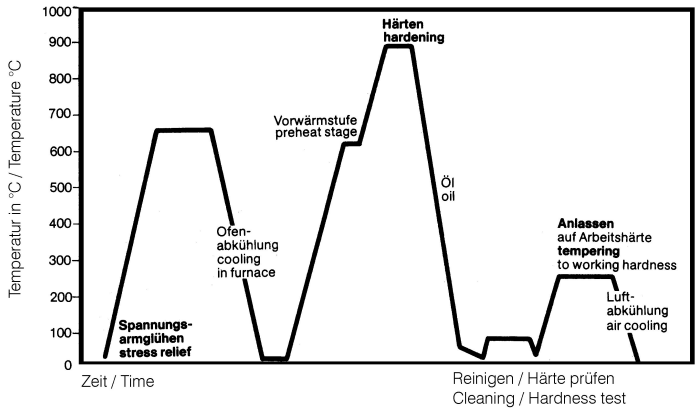
A... Austenite
K... Carbide
P... Perlite
B... Bainite
M... Martensite
Ms... Martensite starting temperature

Influence of work diameter on core hardness and hardness penetration



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

Heat treatment sequence



Fysische eigenschappen

Temperatuur (°C)	20
Soortelijk gewicht (kg/dm^3)	8
Thermische conductiviteit (W/(m.K))	25
Soortelijke warmte (kJ/kg K)	0,46
Specifieke elektrische weerstand (Ohm.mm^2/m)	0,3
Elasticiteitsmodus (10^{3}N/mm^2)	210

Thermische expansie

Temperatuur (°C)	100	200	300	400	500
Thermische expansie (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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ONE STEP AHEAD.