

# ACEROS PARA TRABAJO EN FRÍO

## Formatos disponibles

[Productos largos\\*](#)[Chapas](#)

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

## Descripción

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.

## Método de obtención

[Convencional](#)

## Propiedades

- > Dureza y Ductilidad : muy alta
- > Resistencia a la compresión : alto
- > Estabilidad dimensional : buena

## Aplicaciones

- > Conformado en frío
- > Componentes estándar (moldes, placas, expulsores, punzones)
- > Compactación de polvo

## Datos técnicos

Designación	
~1.2550	SEL
~60WCrV7	EN
~60WCrV8	
~S1	AISI

## Composición Química

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

### Características

	Resistencia a la compresión	Estabilidad dimensional durante el tratamiento térmico	Tenacidad	Resistencia al desgaste abrasivo
<b>BÖHLER K455</b>	★★★	★	★★★★★	★
<b>BÖHLER K245</b>	★★	★	★★★★★	★
<b>BÖHLER K460</b>	★★★★	★	★★★★	★★
<b>BÖHLER K720</b>	★★	★	★★★★	★

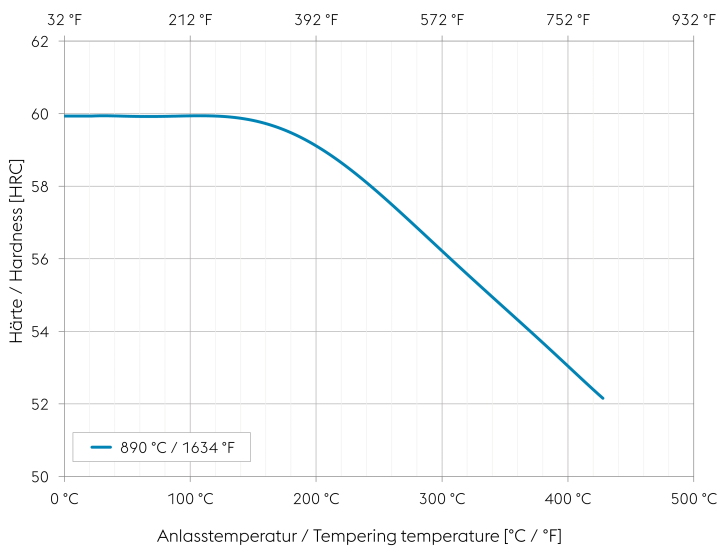
### Estado de suministro

recocido	
Dureza (HB)	máx. 225

### Tratamiento térmico

Recocido		
Temperatura	710 a 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.
Alivio de tensiones		
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
Temple y revenido		
Temperatura	870 a 900 °C	Oil, Holding time after temperature equalization: 15 to 30 minutes. After hardening, tempering to the desired working hardness, see tempering chart.

### Tempering chart

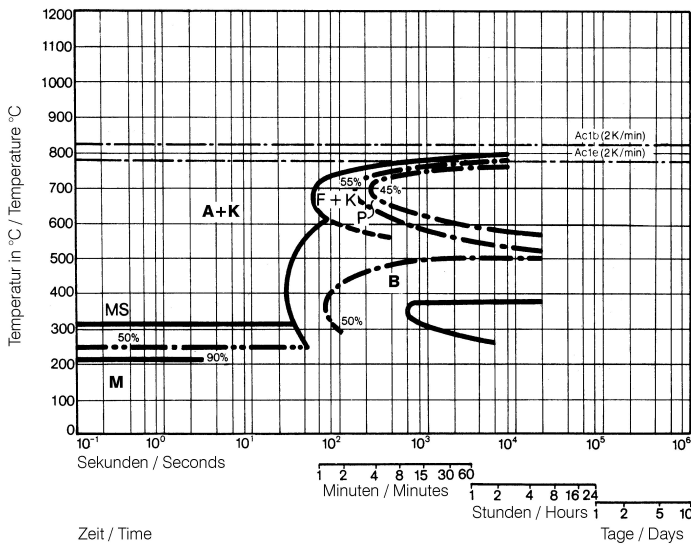


#### Tempering:

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

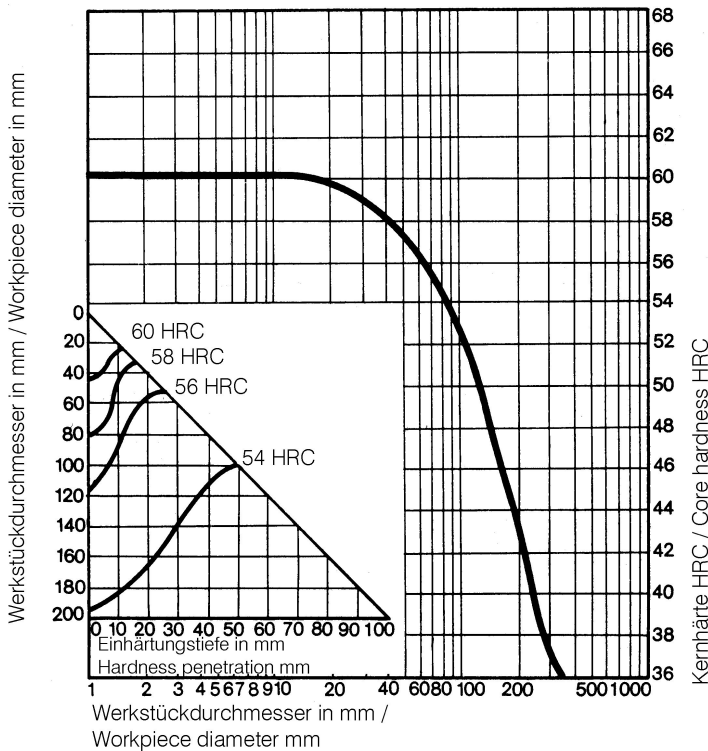


**Isothermal TTT curves**



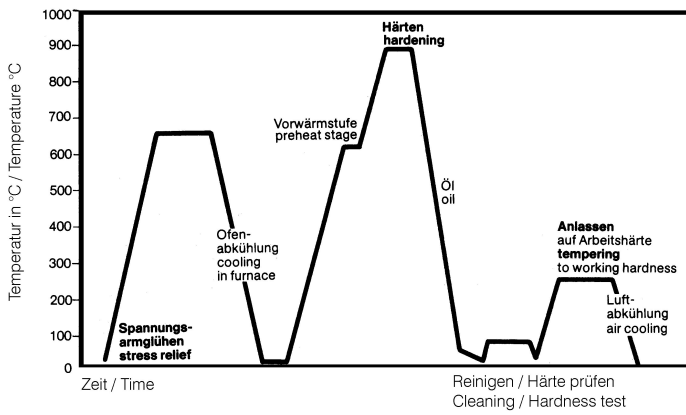
Austenitising temperature: 880°C / 1616°F  
Holding time: 15 minutes

**Influence of work diameter on core hardness and hardness penetration**



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

## Heat treatment sequence



## Propiedades físicas

Temperatura (°C)	20
Densidad (kg/dm <sup>3</sup> )	8
Conductividad térmica (W/(m.K))	25
Calor específico (kJ/kg K)	0,46
Resistencia eléctrica específica (Ohm.mm <sup>2</sup> /m)	0,3
Módulo de elasticidad (10 <sup>3</sup> N/mm <sup>2</sup> )	210

## Expansión térmica

Temperatura (°C)	100	200	300	400	500
Expansión térmica ( $10^{-6}$ 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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