ACEROS PARA TRABAJO EN FRÍO

Formatos disponibles

Productos largos* | Chapas

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

Descripción

Acero para herramientas de corte (matrices y punzones), herramientas de estampación, machos de roscar, herramientas de carpintería, máquinas de corte para la industria de madera, papel y metalurgia, herramientas de medición, moldes de plástico.

Método de obtención

Convencional

Propiedades

- Dureza y Ductilidad : buena
- Afilabilidad : buena

Aplicaciones

- Conformado en frío
- Componentes generales de ingeniería mecánica
- Corte fino / Troquelado / Estampado
- Componentes estándar (moldes, placas, expulsores, punzones)

Datos técnicos

Designación	
1.2842	SEL
~T31502	UNS
90MnCrV8	EN
~O2	AISI

Estándares	
4957	EN ISO

Composición Química

C	Si	Mn	Cr	V
0,90	0,25	2,00	0,35	0,10

Características

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

Estado de suministro

recocido

Dureza (HB)	máx. 229

Tratamiento térmico

Recocido

Temperatura	680 a 720 °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.

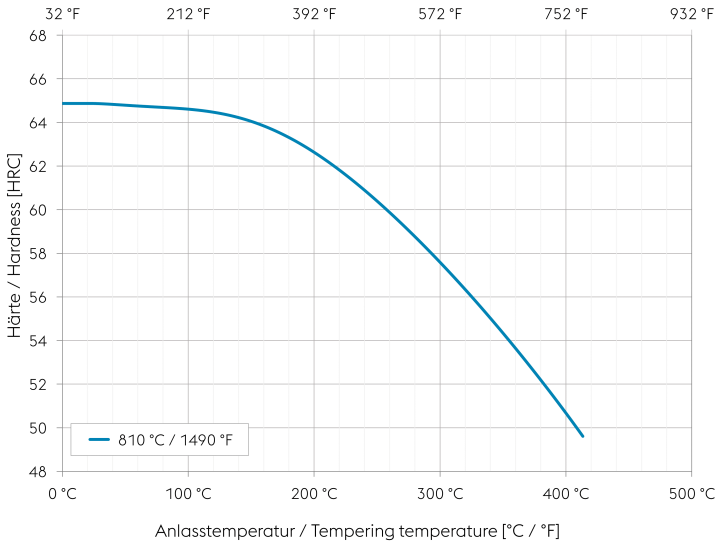
Alivio de tensiones

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.

Temple y revenido

Temperatura	790 a 820 °C	Quenching: Oil, salt bath (200 to 250 °C | 392 - 482 °F) up to 20 mm (0,787 inch) thickness. || 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.

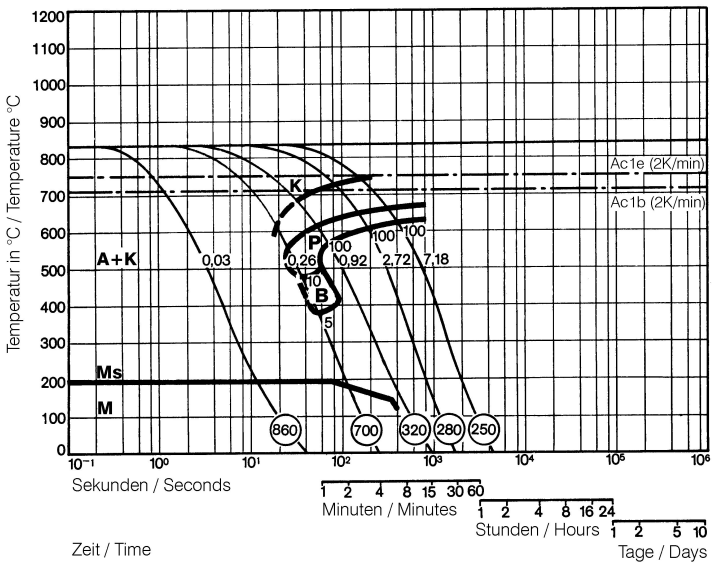
Time in furnace 1 hour for each 20 mm (0,787 inch) of workpiece thickness but at least 2 hours.

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: 820 °C (1508 °F)

Holding time: 15 minutes

O Vickers hardness

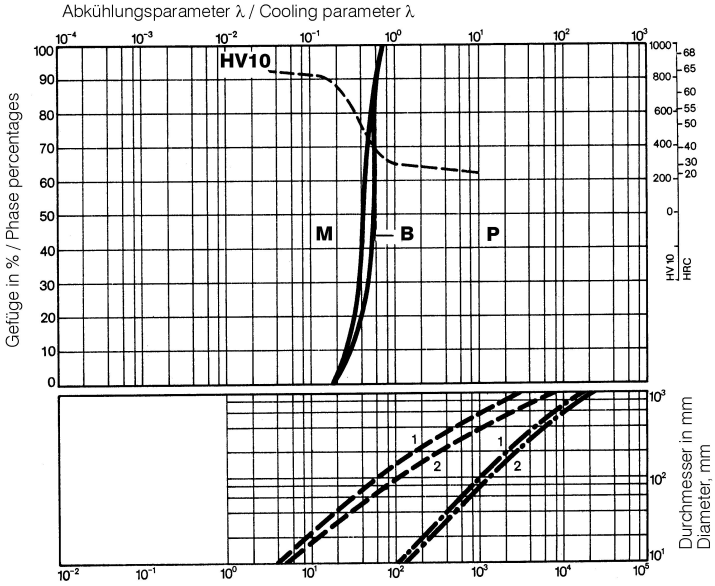
5...100 phase percentages

0.03...7.18 cooling parameter λ, i.e. duration of cooling from 800 to 500 °C (1472 to 932 °F) in s x 10^{-2}

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

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

Quantitative phase diagram

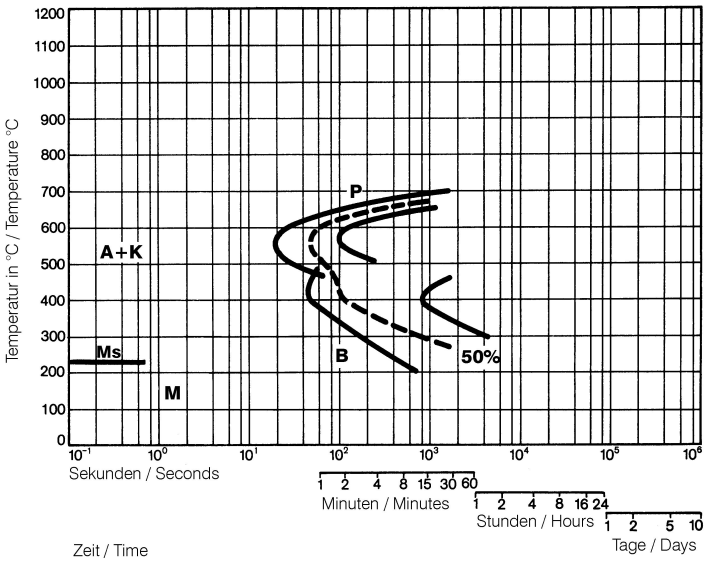


HV10... Vickers Hardness
M... Martensite
B... Bainite
P... Perlite

- - - Oil cooling
- • - Air cooling

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

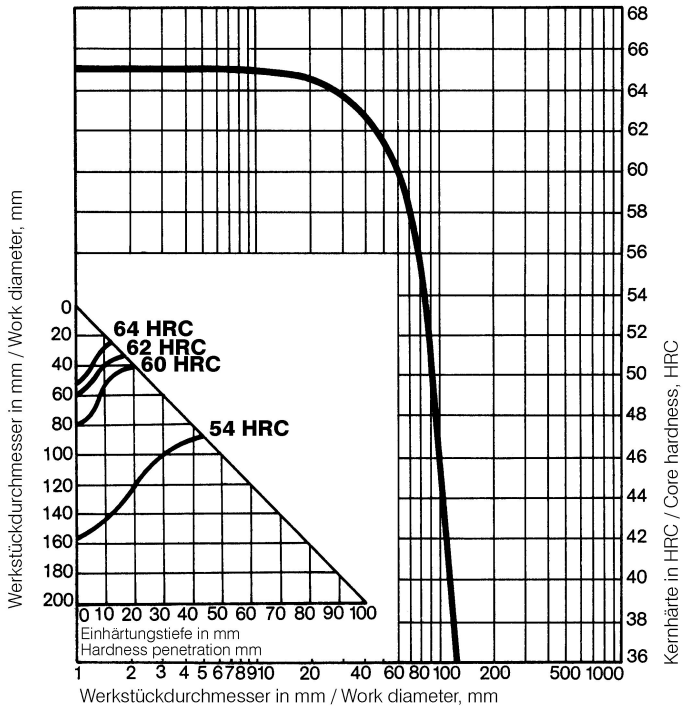
Isothermal TTT curves



Austenitising temperature: 820 °C / 1508 °F
Holding time: 15 minutes

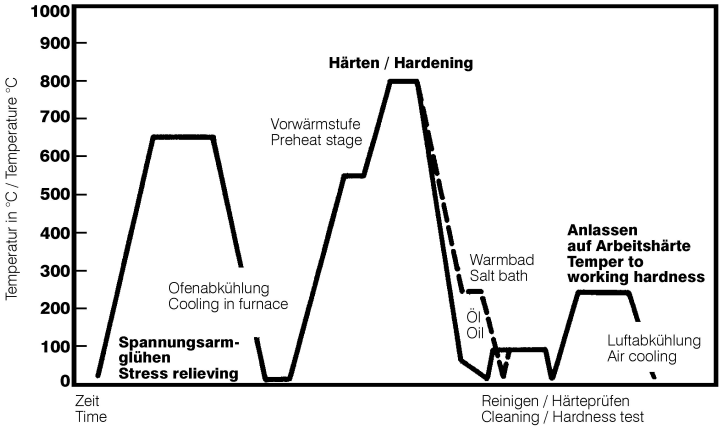
A... Austenite
K... Carbide
P... Perlite
B... Bainite
M... Martensite
Ms... Martensite starting temperature

Influence of work diameter on core hardness and hardness penetration



Quenched from: 820 °C / 1508 °F
Quenchant: Oil

Heat treatment sequence



Propiedades físicas

Temperatura (°C)	20
Densidad (kg/dm^3)	7,85
Conductividad térmica (W/(m.K))	30
Calor específico (kJ/kg K)	0,46
Resistencia eléctrica específica (Ohm.mm^2/m)	0,35
Módulo de elasticidad (10^{3}N/mm^2)	210

Expansión térmica

Temperatura (°C)	100	200	300	400	500
Expansión térmica (10^{-6} m/(m.K))	11,5	12	12,2	12,5	12,8

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.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazeller Straße 25
8605 Kapfenberg, AT
T. +43/50304/20-0
E. info@bohler-edelstahl.at
https://www.voestalpine.com/bohler-edelstahl/de/

voestalpine
ONE STEP AHEAD.