

SOĞUK İŞ ÇELIKLERI

Mevcut Ürün Şekilleri

Uzun Ürünler*

Levhalar

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

Ürün Tanımı

BÖHLER K305 belongs to the group of 5% chromium steels and corresponds to the material 1.2363 (X100CrMoV5, A2). Compared to conventional tool steels with 1% carbon and low chromium content, BÖHLER K305 has significantly better through hardenability and wear resistance. This class of 5% chromium steels is used in situations where grades like 1.2842 are no longer sufficient in terms of wear resistance and through hardenability but materials like 1.2379 are not yet required. BÖHLER K305 is used for punching and cutting tools, die plates and inserts, thread cutting tools and machine knives in the wood, paper and recycling industries.

Erime rotası

Airmelted

Özellikler

- > Aşınma Direnci : çok yüksek
- > Basınç Dayanımı : çok yüksek
- > Boyutsal kararlılık : iyi

Uygulamalar

- > Machine knife (for producers)
- > Fine Blanking, Stamping, Blanking
- > Rolling
- > Powder Pressing
- > Cold Forming

Teknik veriler

Malzeme Tanımı	Standartlar
1.2363 SEL	4957 EN ISO
~T30102 UNS	
X100CrMoV5 ~X100CrMoV5-1	EN
A2	AISI
SKD12	JIS

Kimyasal Bileşim

C	Si	Mn	Cr	Mo	V
1,00	0,30	0,55	5,20	1,10	0,25

Malzeme özellikleri

	Basınç Dayanımı	Isıl işlem sırasında boyutsal kararlılık	Sertlik	Aşındırıcı aşınma direnci
BÖHLER K305	★★★★★	★★★	★★	★★★★★
BÖHLER K306	★★★★★	★★★	★★★★★	★★★
BÖHLER K313	★★★★★	★★★	★★★	★★★
BÖHLER K320	★★★	★★★	★★★	★★★
BÖHLER K329	★★★	★★★	★★★★★	★★★★★
BÖHLER K600	★	★★★	★★★★★	★
BÖHLER K601	★	★★★	★★★★★	★★
BÖHLER K605	★★	★★★	★★★★★	★

Teslimat durumu

Annealed

Sertlik (HB)	maks. 240
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Isıl işlem

Annealing

Sıcaklık	800 kadar 850 °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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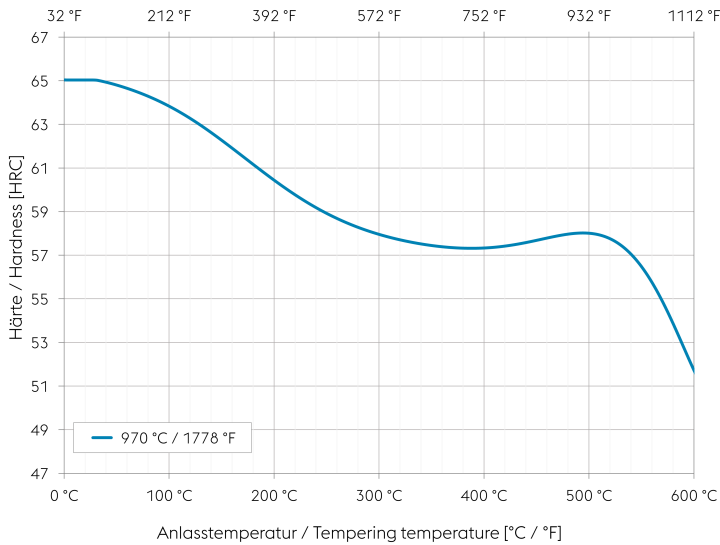
Stress relieving

Sıcaklık	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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Sertleştirme ve Temperleme

Sıcaklık	950 kadar 980 °C	Oil, salt bath 428 to 482°F or 932 to 1022°F (220 to 250°C or 500 to 550°C), air, gas 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:

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

Slow heating to tempering temperature immediately after hardening.

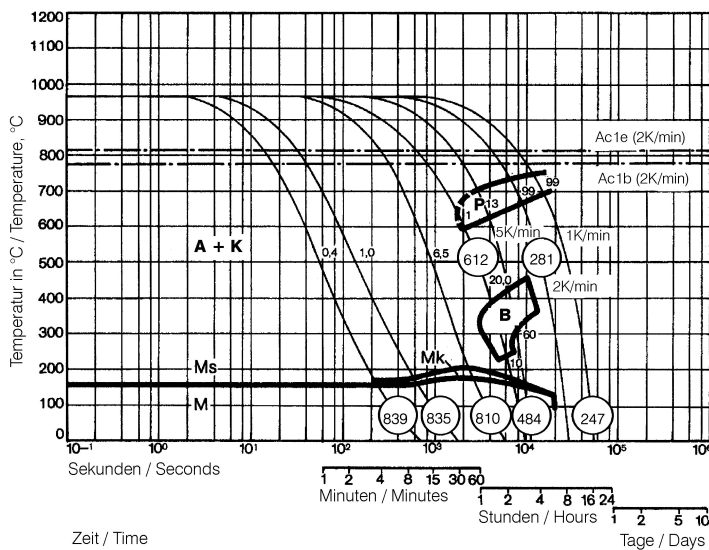
Time in furnace 1 hour for each 0,787 inch (20 mm) of workpiece thickness but at least 2 hours.

Slow cooling to room temperature after each tempering step is recommended.

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

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

Continuous cooling CCT curves



Austenitising temperature: 960°C
Holding time: 15 minutes

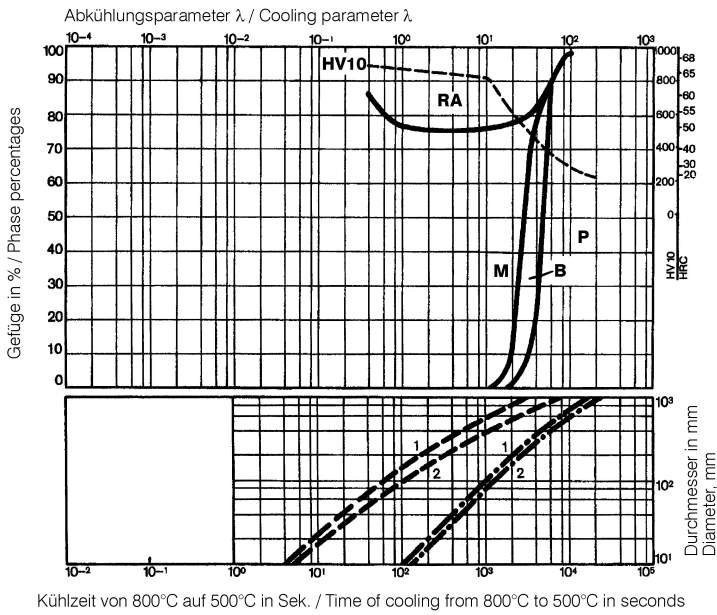
O Vickers hardness

1...99 phase percentages

0.4...20.0 cooling parameter, i.e. duration of cooling from 800°C to 500°C in $s \times 10^{-2}$

5K/min...1K/min cooling rate in K/min in the 800°C to 500°C range

Quantitative phase diagram

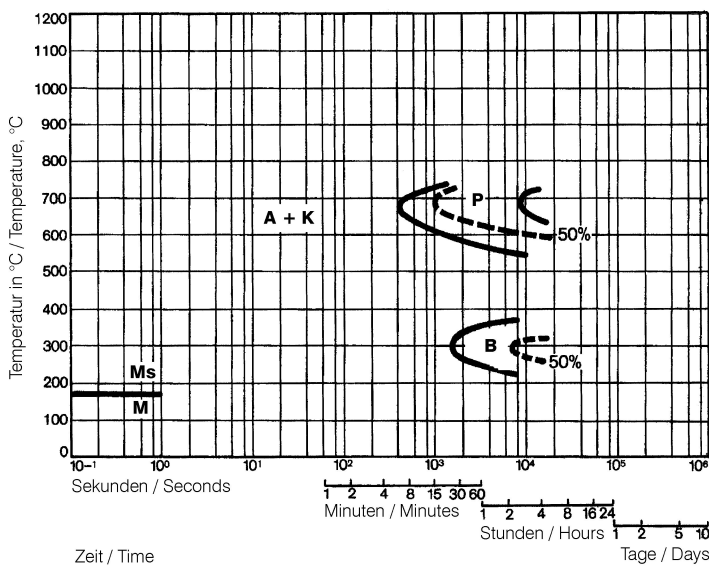


Mk... Grain boundary martensite
 RA... Residual austenite
 A... Austenite
 B... Bainite
 P... Pearlite
 K... Carbide
 M... Martensite

----- Oil cooling
 - · - Air cooling

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

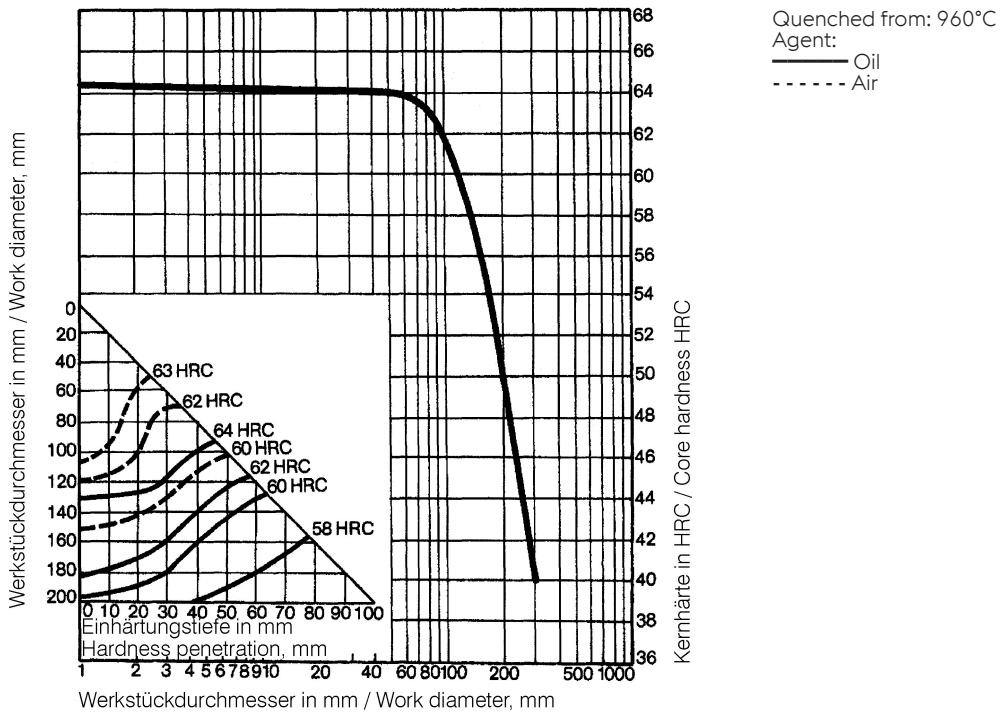
Isothermal TTT curves



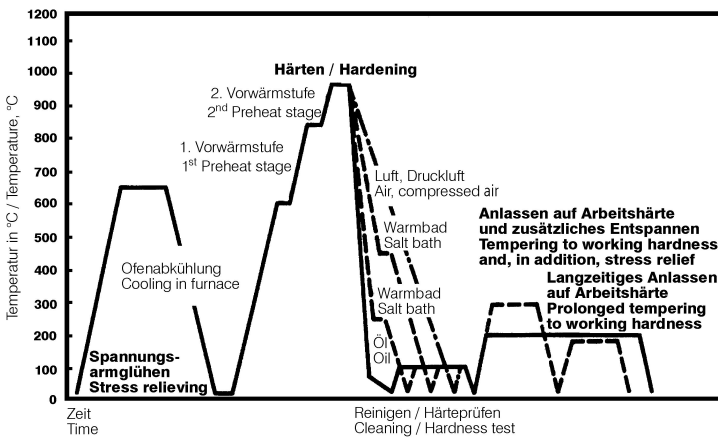
Austenitising temperature: 960°C
 Holding time: 15 minutes

A... Austenite
 B... Bainite
 P... Pearlite
 K... Carbide
 M... Martensite

Influence of work diameter on core hardness and hardness penetration



Heat treatment sequence



Fiziksel özellikler

Sıcaklık (°C)	20
Yoğunluk (kg/dm ³)	7,7
Termal iletkenlik (W/(m.K))	26
Özgül ısı kapasitesi (kJ/kg K)	0,46
Spes. elektrik direnci (Ohm.mm ² /m)	0,52
Elastikiyet modülü (10 ³ N/mm ²)	190

Termal genleşmeler

Sıcaklık (°C)	100	200	300	400	500
Termal genleşme (10 ⁻⁶ m/(m.K))	12	12,1	11,9	11,6	11,7

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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