

SOĞUK İŞ ÇELİKLERİ

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 K294 MICROCLEAN is a cold work tool steel manufactured using powder metallurgy and belongs to the group of 10% vanadium steels. The high content of vanadium carbides makes this steel highly resistant to wear. The toughness is at the same level as conventional 12% chromium steels. BÖHLER K294 MICROCLEAN is used in situations where wear resistance is the decisive factor and toughness is of secondary importance.

Erime rotası

[Powder metallurgy](#)

Özellikler

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

Uygulamalar

- > Machine knife (for producers)
- > Cold Forming
- > Fine Blanking, Stamping, Blanking
- > Screws and Barrels
- > Makine Mühendisliği için Genel Parçalar

Teknik veriler

Malzeme Tanımı	
1.2395	SEL
T30111	UNS
PM A11	AISI

Kimyasal Bileşim

C	Si	Mn	Cr	Mo	V
2,45	0,90	0,50	5,20	1,30	9,70

Malzeme özellikleri

	Basınç Dayanımı	Isıl işlem sırasında boyutsal kararlılık	Sertlik	Aşındırıcı aşınma direnci	Aşınma direnci yapıştırıcı
BÖHLER K294 MICROCLEAN®	★★★★★	★★★★★	★★★	★★★★★	★★★★★
BÖHLER K100	★★	★★	★	★★★	★★
BÖHLER K105	★★	★★	★	★★	★★
BÖHLER K107	★★	★★	★	★★★	★★
BÖHLER K110	★★	★★★	★	★★★	★★
BÖHLER K190 MICROCLEAN®	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BÖHLER K340 ECOSTAR®	★★★	★★★	★★	★★	★★
BÖHLER K340 ISODUR®	★★★	★★★★★	★★★	★★★	★★★★★
BÖHLER K346	★★★	★★★	★★★	★★★★★	★★
BÖHLER K353	★★	★★★	★★	★★	★★
BÖHLER K360 ISODUR®	★★★	★★★★★	★★★	★★★★★	★★★★★
BÖHLER K390 MICROCLEAN®	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BÖHLER K490 MICROCLEAN®	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BÖHLER K497 MICROCLEAN®	★★★★★	★★★★★	★★★	★★★★★	★★★★★
BÖHLER K888 MATRIX	★★★★★	★★★★★	★★★★★	★★	★★
BÖHLER K890 MICROCLEAN®	★★★★★	★★★★★	★★★★★	★★★	★★★

Teslimat durumu

Annealed

Sertlik (HB)	maks. 277
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Isıl işlem

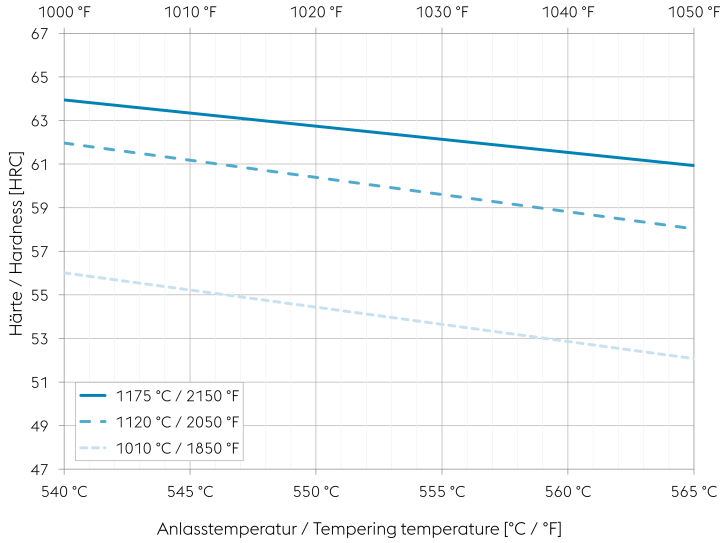
Annealing

Sıcaklık	570 kadar 870 °C	Protect steel from scaling and/or decarburization. Heat through to 1600°F (870°C). Control cool at 30°F (15°C) maximum per hour to 1000°F (540°C), then furnace or air cool to room temperature.
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Stress relieving

Sıcaklık	595 kadar 700 °C	If required after Rough machining to minimize distortion during final heat treatment, heat to 1100-1300°F (595-700°C) and hold for 2 hrs followed by furnace. Cool slowly to 930°F (500°C), then air cool.
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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/cooling in air.

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.

It is recommended to temper at least three times above the secondary hardness maximum.

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

Fiziksel özellikler

Sıcaklık (°C)	20
Yoğunluk (kg/dm ³)	7,42
Termal iletkenlik (W/(m.K))	20,39
Özgül ısı kapasitesi (kJ/kg K)	0,46
Spes. elektrik direnci (Ohm.mm ² /m)	-
Elastikiyet modülü (10 ³ N/mm ²)	221

Termal genleşmeler

Sıcaklık (°C)	93	260	427	593
Termal genleşme (10 ⁻⁶ m/(m.K))	10,7	11,1	11,8	12,3

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.

The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.

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ONE STEP AHEAD.