

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 K340 ISODUR belongs to the group of 8% chromium steels. This tool steel is produced using the electro-slag remelting (ESR) process developed by BÖHLER. This re-melting technology ensures the lowest micro and macro segregation as well as excellent purity and uniformity of the material. Compared to conventional 12% chromium steels, BÖHLER K340 ISODUR offers significantly better toughness, hardening response and higher resistance to adhesive wear. This material is therefore used in virtually all cold work applications in situations where tool steels like 1.2379 are insufficient in terms of adhesive wear resistance and toughness. K340 ISODUR also features better machinability and reduces the risk of stress cracking during electrical discharge machining.

Erime rotası

Airmelted + Remelted

Özellikler

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

Uygulamalar

- > Machine knife (for producers)
- > Coining
- > Screws and Barrels
- > Haddeler
- > Thread rolling (TR)
- > Rolling
- > Fine Blanking, Stamping, Blanking
- > Geri Dönüşüm Endüstrisi için Parçalar
- > Wear parts
- > Pill punching dies
- > Cold Forming
- > Powder Pressing
- > Comps. for Equip. Below Ground (Boring, Shafts, etc.)
- > Makine Mühendisliği için Genel Parçalar
- > Glasfibre reinforced plastics

Kimyasal Bileşim

C	Si	Mn	Cr	Mo	V	Al	Nb
1,10	0,90	0,40	8,30	2,10	0,50	+	+

Malzeme özellikleri

	Basınç Dayanımı	Isıl işlem sırasında boyutsal kararlılık	Sertlik	Aşındırıcı aşınma direnci	Aşınma direnci yapıştırıcı
BÖHLER K340 ISODUR®	★★★	★★★★★	★★★	★★★	★★★★★
BÖHLER K100	★★	★★	★	★★★	★★
BÖHLER K105	★★	★★	★	★★	★★
BÖHLER K107	★★	★★	★	★★★	★★
BÖHLER K110	★★	★★★	★	★★★	★★
BÖHLER K190 MICROCLEAN®	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BÖHLER K294 MICROCLEAN®	★★★★★	★★★★★	★★★	★★★★★	★★★★★
BÖHLER K340 ECOSTAR®	★★★	★★★	★★	★★	★★
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. 235
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Isıl işlem

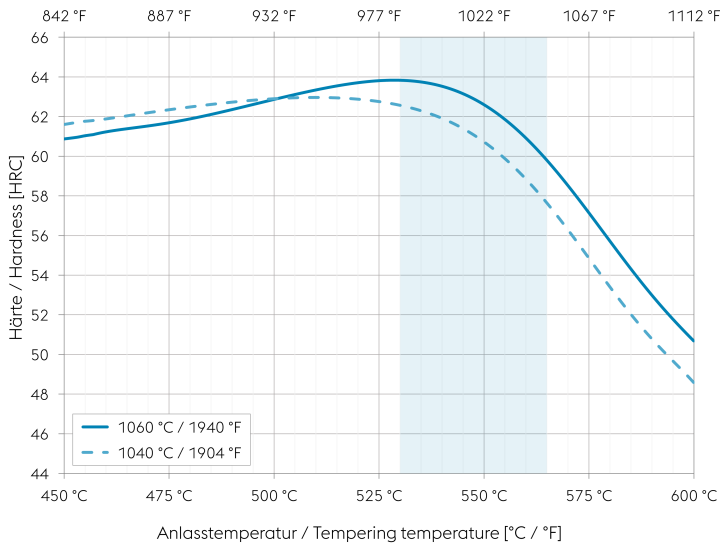
Stress relieving

Sıcaklık	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.
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Sertleştirme ve Temperleme

Sıcaklık	1.040 kadar 1.060 °C	Quenching: Oil, salt bath, compressed air, air, gas. Holding time after temperature equalization: 15 to 30 minutes. After hardening, tempering to the desired working hardness according to the tempering chart.
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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.

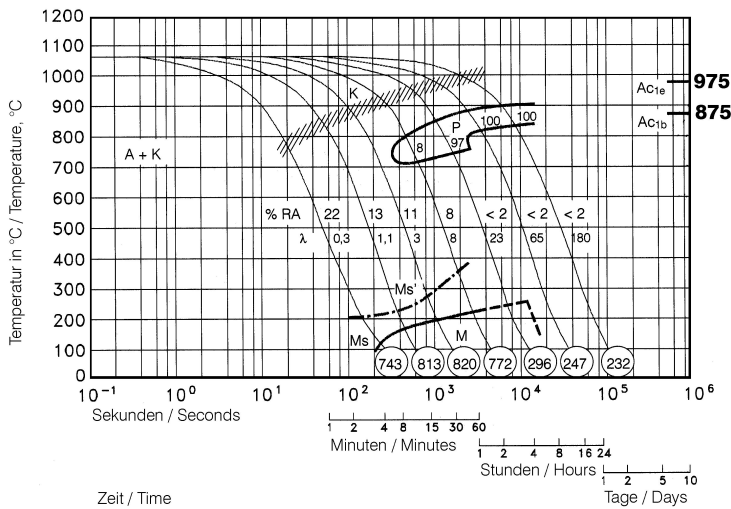
It is recommended to temper at least three times above the secondary hardness maximum.

Cooling in air to room temperature after each tempering step is recommended.

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

Recommended tempering temperature range is indicated by the blue area in the chart.

CCT chart for continuous cooling



Austenitising temperature: 1060 °C (1940 °F)
Holding time: 30 minutes

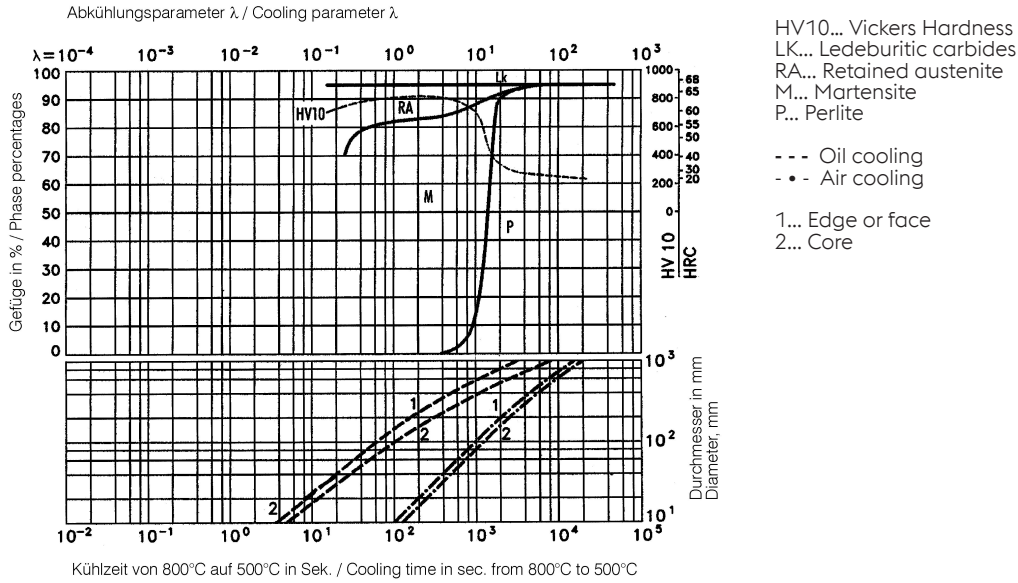
O Vickers hardness

8...100 phase percentages

0.3...180 cooling parameter λ , i.e. duration of cooling from 800 to 500 °C (1472 to 932 °F) in $s \times 10^{-2}$

- A... Austenite
- K... Carbide
- P... Pearlite
- RA... Residual austenite
- M... Martensite
- Ms... Martensite starting temperature

Quantitative phase diagram



Fiziksel özellikler

Sıcaklık (°C)	20
Yoğunluk (kg/dm ³)	7,68
Termal iletkenlik (W/(m.K))	17,8
Özgül ısı kapasitesi (kJ/kg K)	0,49
Spes. elektrik direnci (Ohm.mm ² /m)	0,64
Elastikiyet modülü (10 ³ N/mm ²)	206

Termal genleşmeler

Sıcaklık (°C)	100	200	300	400	500	600	700
Termal genleşme (10 ⁻⁶ m/(m.K))	11,2	11,8	12,3	12,7	12,9	13,1	13,1

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.