BÖHLER

BÖHLER S690 MICROCLEAN®

YÜKSEK HIZ ÇELIKLERI

Mevcut Ürün Şekilleri

Uzun Ürünler* | Levhalar

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

Ürün Tanımı

BÖHLER S690 MICROCLEAN – "The simple one"
The tough high-speed steel for challenging machining and cold forming.

Erime rotası

Powder metallurgy

Özellikler

- Tokluk ve Süneklik : çok yüksek
- Aşınma Direnci : iyi
- Basınç Dayanımı : iyi
- Kenar Stabilitesi : iyi
- Öğütülebilirlik : yüksek
- Sıcak Sertlik (kırmızı sertlik) : iyi

Uygulamalar

- Motor Sporları
- End Mills
- Special Cutting Tools
- Broaches and Reamers
- Fine Blanking, Stamping, Blanking
- Cold Forming / Coining
- Powder Pressing

Teknik veriler

Malzeme Tanımı	
~M4	AISI
~HS6-5-4	EN

Kimyasal Bileşim

C	Cr	Mo	V	W
1,44	4	5	4	5,5

Malzeme özellikleri

	Basınç Dayanımı	Öğütülebilirlik	Sıcak sertlik	Sertlik	Aşınma direnci	Kesilme direnci
BÖHLER S690 MICROCLEAN®	★★★	★★★	★★	★★★★★	★★★	★★
BÖHLER S290 MICROCLEAN®	★★★★★	★	★★★★	★★	★★★★★	★★★★
BÖHLER S390 MICROCLEAN®	★★★★	★★★	★★★★	★★★★	★★★★	★★★★
BÖHLER S393 MICROCLEAN®	★★★★	★★★	★★★★	★★★★	★★★★	★★★★
BÖHLER S590 MICROCLEAN®	★★★★	★★★	★★★★	★★★	★★★	★★★
BÖHLER S592 MICROCLEAN®	★★★★	★★★	★★★★	★★★	★★★	★★★
BÖHLER S692 MICROCLEAN®	★★★	★★★	★★	★★★★★	★★★	★★
BÖHLER S790 MICROCLEAN®	★★★	★★★	★★	★★★★	★★	★★★
BÖHLER S792 MICROCLEAN®	★★★	★★★	★★	★★★★	★★	★★★
BÖHLER S793 MICROCLEAN®	★★★	★★★	★★★★	★★★	★★★	★★★

Teslimat durumu

Annealed

Sertlik (HB)	maks. 280 | drawn execution max. 300 HB
Çekme mukavemeti (MPa)	maks. 1.020

Isıl işlem

Annealing

Sıcaklık	770 kadar 840 °C	Slow cooling in furnace.

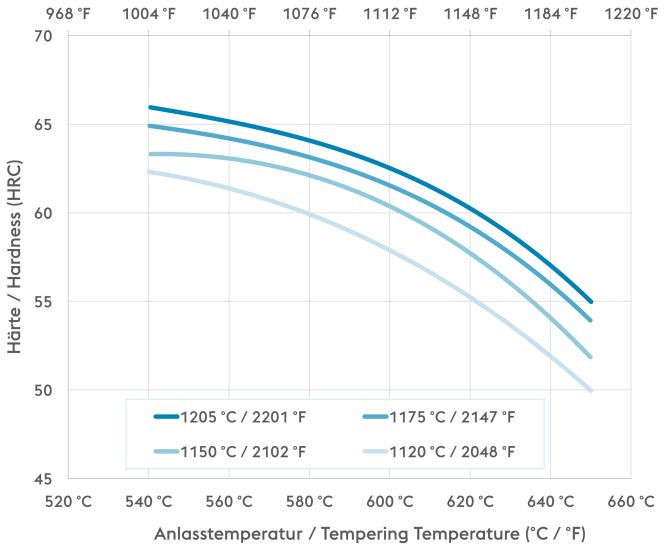
Stress relieving

Sıcaklık	600 kadar 650 °C	Slow cooling furnace. || To relieve stresses set up by extensive machining or in tools of intricate shape. || After through heating, hold in neutral atmosphere for 1 to 2 hours.

Sertleştirme ve Temperleme

Sıcaklık	1.100 kadar 1.200 °C	Salt bath, vacuum || Preheating: 1st stage ~ 500 °C (930 °F), 2nd stage ~ 850 °C (1560 °F), 3rd stage ~1050 °C (1920 °F) || Austenitising: 1100 - 1200 °C (2010 °F - 2230 °F), holding time after complete heating 80 seconds, maximum 150 seconds, to avoid material damage due to overheating. ||Quenching: oil, warm bath (500 - 550 °C (930 °F - 1020 °F)), gas
Sıcaklık	540 kadar 570 °C	Slow heating to tempering temperature immediately after austenitising. || Holding time in the furnace 1 hour per 20 mm material thickness (at least 1 hour) || Slow cooling to room temperature between each tempering step || 3 tempering cycles recommended || Hardness see tempering chart

Tempering Chart



Holding time 3 x 2 hours
Specimen size: square 25 mm

Tempering Chart

Fiziksel özellikler

Sıcaklık (°C)	20
Yoğunluk (kg/dm^3)	8,1
Termal iletkenlik (W/(m.K))	20
Özgül ısı kapasitesi (kJ/kg K)	0,46
Spes. elektrik direnci (Ohm.mm^2/m)	0,53
Elastikiyet modülü (10^{3}N/mm^2)	217

Termal genleşmeler

Sıcaklık (°C)	100	200	300	400	500	600	700
Termal genleşme (10^{-6} m/(m.K))	11,5	11,7	12,2	12,4	12,7	13	12,9

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.