

ČELICI ZA HLADNI RAD

Dostupne varijante proizvoda

 Šipkasti proizvodi* Ploče

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

Opis proizvoda

Poput alpinista koji trebaju najbolju opremu kako bi osvajali najviše vrhove, i vi trebate najbolje alatne materijale kako biste osigurali besprijekornu proizvodnju i iznimnu trajnost svojih alata. Tri su razloga za izuzetnu isplativost čelika BÖHLER K390 MICROCLEAN: Izvanredno visoka otpornost na trošenje, izvrsna žilavost i vrlo visoka tlačna čvrstoća. Visokoučinkoviti čelik BÖHLER K390 MICROCLEAN proizveden postupcima praškaste tehnologije predstavlja pouzdano rješenje za zahtjevne zadatke rezanja, obrade u matricama i hladnog oblikovanja, a posebno dobre rezultate pokazuje u primjenama vezanim uz proizvodnju plastike.

Put taljenja

 Powder metallurgy

Karakteristike

- > Žilavost i duktilnost : visok
- > Otpornost na habanje : vrlo visoka
- > Tlačna čvrstoća : vrlo visoka
- > Dimenzionalna stabilnost : vrlo visoka

Korištenje

- > Strojni mjerni noževi (za proizvodnju)
- > Valjanje
- > Cold Forming
- > Coining
- > Precizno štancanje / štancanje / pečačenje
- > Oblikovanje utiskivanjem praškastih materijala
- > Vijci i cijevi
- > Thread rolling (HR)
- > Opći sklopovi za strojarstvo
- > Valjci
- > Sklopovi za opremu Podzemna oprema (bušenje, vratila itd.)
- > Sklopovi za reciklažnu djelatnost
- > Pill punching dies
- > Glasfibre reinforced plastics

Kemijski sastav

C	Si	Mn	Cr	Mo	V	W	Co
2,47	0,55	0,40	4,20	3,80	9,00	1,00	2,00

Materijal

	Kapacitet tlaka	Dimenzionalna stabilnost u toplinskoj obradi	Žilavost	Abraziv otpora na habanje	Ljepilo za otpornost na habanje
BÖHLER K390 MICROCLEAN®	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BÖHLER K100	★★	★★	★	★★★	★★
BÖHLER K105	★★	★★	★	★★	★★
BÖHLER K107	★★	★★	★	★★★	★★
BÖHLER K110	★★	★★★	★	★★★	★★
BÖHLER K190 MICROCLEAN®	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BÖHLER K294 MICROCLEAN®	★★★★★	★★★★★	★★★	★★★★★	★★★★★
BÖHLER K340 ECOSTAR®	★★★	★★★	★★	★★	★★
BÖHLER K340 ISODUR®	★★★	★★★★★	★★★	★★★	★★★★★
BÖHLER K346	★★★	★★★	★★★	★★★★★	★★
BÖHLER K353	★★	★★★	★★	★★	★★
BÖHLER K360 ISODUR®	★★★	★★★★★	★★★	★★★★★	★★★★★
BÖHLER K490 MICROCLEAN®	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BÖHLER K497 MICROCLEAN®	★★★★★	★★★★★	★★★	★★★★★	★★★★★
BÖHLER K888 MATRIX	★★★★★	★★★★★	★★★★★	★★	★★
BÖHLER K890 MICROCLEAN®	★★★★★	★★★★★	★★★★★	★★★	★★★

Isporuka

Annealed

Tvrdoća (HB)	max. 280
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Toplinska obrada

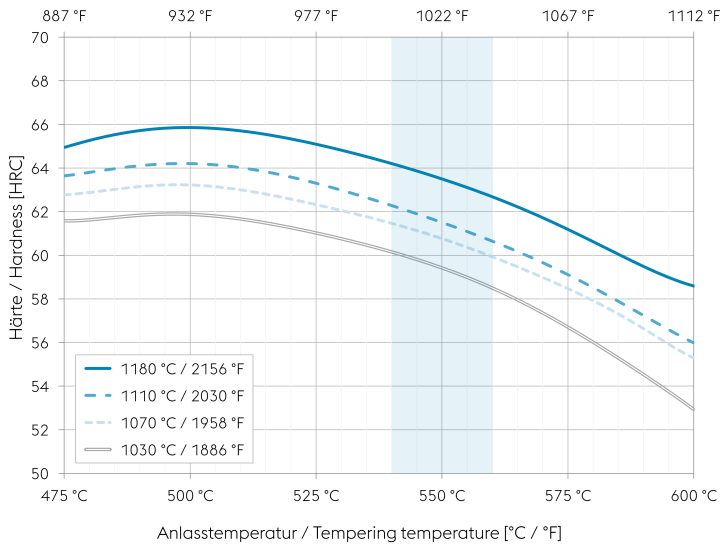
Stress relieving

Temperatura	650 do 700 °C	Once heated completely through, soak in neutral atmosphere at temperature for 1 to 2 hours. Slow cooling in furnace.
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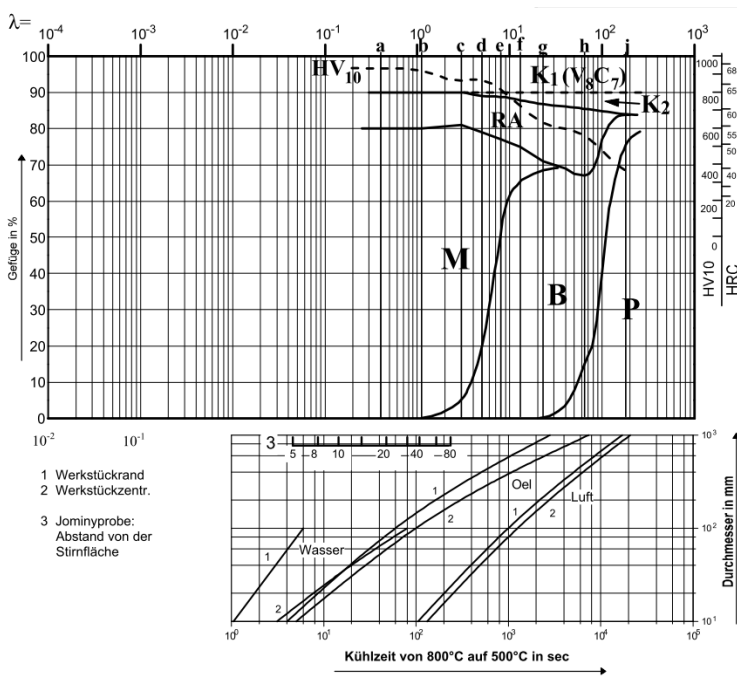
Hardening and Tempering

Temperatura	1.030 do 1.180 °C	Oil, N ₂ . Once heated completely through: • 20 - 30 min (hardening temperature 1030 - 1150 °C) • 10 min (hardening temperature 1180 °C) For high toughness, use a low hardening temperature. For high wear resistance, use a high hardening temperature. After hardening, tempering to the desired working hardness, see tempering chart.
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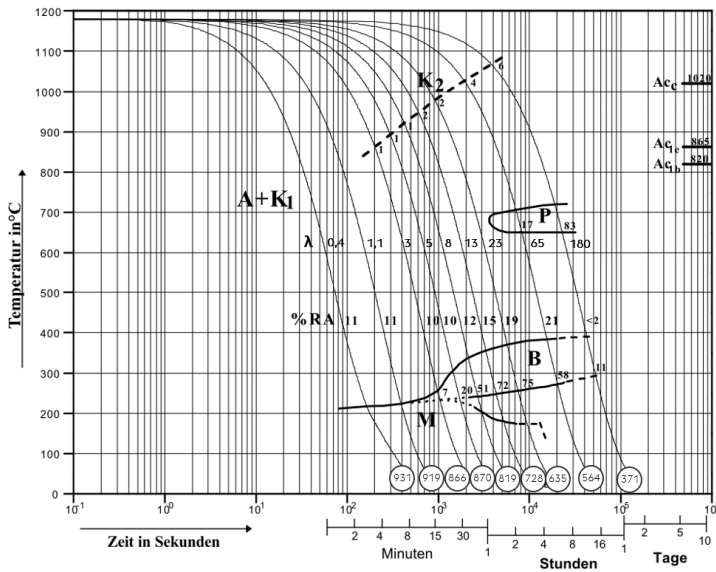
Tempering chart



Quantitative phase diagram



Continuous cooling CCT curves



Fizička svojstva

Temperatura (°C)	20
Gustoća (kg/dm ³)	7,6
Toplinska vodljivost (W/(m.K))	21,5
Specifični toplinski kapacitet (kJ/kg.K)	0,464
Spec. Otpornik (Ohm.mm ² /m)	0,59
Modul elastičnosti (10 ³ N/mm ²)	220

Toplinska ekspanzija

Temperatura (°C)	100	200	300	400	500	600
Toplinska ekspanzija (10 ⁻⁶ m/(m.K))	10,3	10,67	11,03	11,38	11,7	11,97

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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voestalpine

ONE STEP AHEAD.