

HIDEG MUNKA ACÉLOK

Available Product Shapes

Flat Bar

Hosszúvás termékek

Termékleírás

Dimensionally stable, ledeburitic 12% chromium steel with very good wear resistance and acceptable toughness.

Tulajdonságok

High-performance cutting tools (dies and punches), die-cutting tools, woodworking tools, shear knives for thin items, thread rolling tools. Drawing, deep drawing and extrusion press tools, pressing tools for the ceramic and pharmaceutical industry, cold rolling (work rolls) for multi-roll stands, gauges, smaller plastic molds, which require high wear resistance.

Applications

- > Cold Forming
- > Finomkivágás / kivágás / alakozás
- > Hengerek
- > Coining
- > Csavarok és perselyek
- > Alkatrészek újrafeldolgozó ipar részére
- > Gépkécek (gyártók részére)
- > Hengerlés
- > Porsajtolás
- > Alkatrészek föld alatti berendezések (fúrók, tengelyek, stb.) részére
- > Általános gépipari alkatrészek
- > Normál alkatrészek (öntvények, lemezek, csapok, lyukasztók)
- > Kopó alkatrészek
- > Thread rolling

Material designation

SKD 11	JIS
~X153CrMoV12	EN
~D2	AISI
~1.2379	SEL

Vegyí összetétel

C	Si	Mn	Cr	Mo	V
1,50	0,25	0,45	12,00	1,00	0,35

Material characteristics

	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive	Wear resistance adhesive
BÖHLER K137	★★	★★★	★	★★★	★★
BÖHLER K100	★★	★★	★	★★★	★★
BÖHLER K340 ISODUR®	★★★	★★★★	★★★	★★★	★★★★
BÖHLER K353	★★	★★★	★★	★★	★★
BÖHLER K360 ISODUR®	★★★	★★★★	★★★	★★★★	★★★★
BÖHLER K390 MICROCLEAN™	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BÖHLER K490 MICROCLEAN™	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BÖHLER K890 MICROCLEAN™	★★★★★	★★★★★	★★★★★	★★★	★★★

The evaluation of the characteristics refers only to the brands considered here. Cross-comparisons with other reviews are discouraged due to different framework conditions.

Delivery condition

Annealed

Heat treatment

Annealing

Temperature (°C)	800 to 850	Controlled slow oven cooling with 10 to 20°C/h (50 to 68°F/h) up to ca. 600°C/1112°F, further cooling in air. Supplied hardness max.: 255 HB
------------------	------------	--

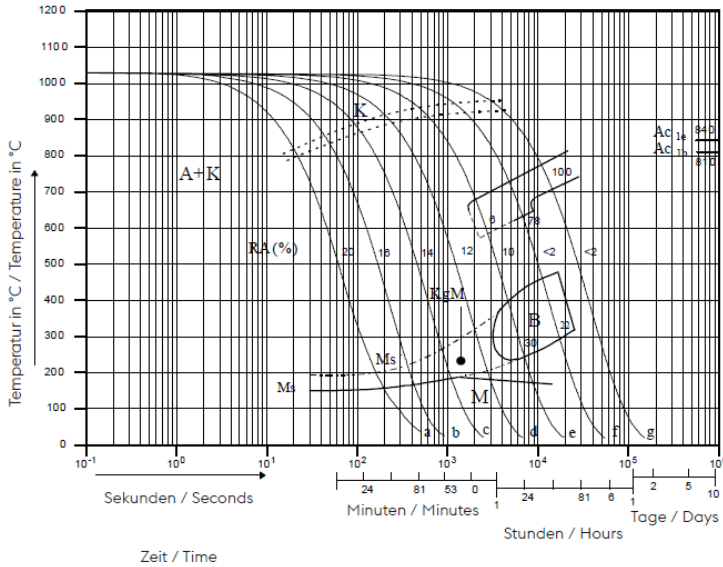
Stress relieving

Temperature (°C)	650 to 700	Slow oven cooling. For stress relief after extensive machining or at complicated tools. Holding time after complete through heating 1 - 2 hours in neutral atmosphere.
------------------	------------	--

Hardening and Tempering

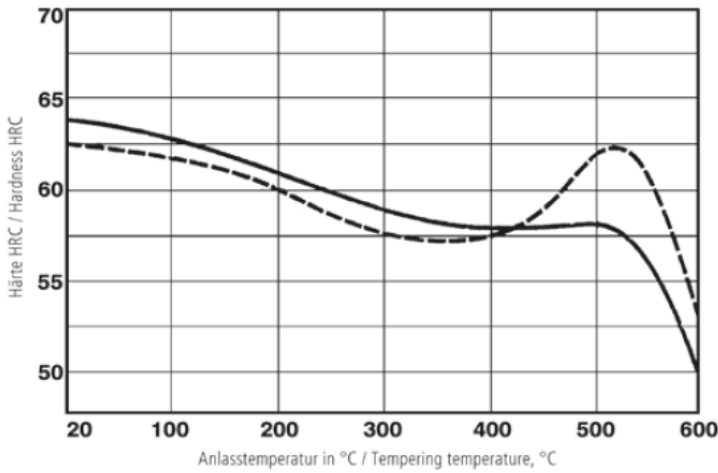
Temperature (°C)	1030	Difficultly shaped tools in air, simply shaped tools in compressed air, oil, hot bath or gas. Holding time after complete soaking: 15 to 30 minutes. Achievable hardness: min. 58 HRC.
------------------	------	--

Continuous cooling CCT curves



Austenitising temperature: 1030°C/1886°F
Holding time: 30 minutes

Tempering chart



Tempering:

Slow heating to tempering temperature immediately after hardening/
time in furnace 1 hour for each 20 mm of workpiece thickness but at least 2 hours/cooling in air.
Please refer to the tempering chart for obtainable hardness after tempering.

Tempering after the secondary hardness maximum is recommended.

Hardening temperature:

----- 1030°C / 1886°F
————— 1070°C / 1958°F

Tempering chart correspond to BÖHLER K110 (D2; 1.2379)

Physical properties (correspond to BÖHLER K110 (D2; 1.2379))

Temperature (°C)	20
Density (kg/dm ³)	7,67
Thermal conductivity (W/(m.K))	23,9
Specific heat (J/(kg.K))	470
Spec. electrical resistance (Ohm.mm ² /m)	0,65
Modulus of elasticity (10 ³ N/mm ²)	200

Thermal Expansions

Temperature (°C)	100	200	300	400	500	600	700
Thermal expansion (10^{-6} m/(m.K))	11	11,4	11,9	12,2	12,7	12,8	12,1

For more information see www.voestalpine.com/boehler-edelstahl

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.

voestalpine BÖHLER Edelstahl GmbH & Co KG

Mariazeller Straße 25

8605 Kapfenberg, AT

T. +43/50304/20-0

E. info@boehler-edelstahl.at

www.voestalpine.com/boehler-edelstahl

voestalpine

ONE STEP AHEAD.