ACIERS POUR TRAVAIL À FROID

Variantes de produits disponibles

Produit long* | Tôle

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

Description du produit

BÖHLER K107 is a 12% ledeburitic chromium steel and corresponds to material number 1.2436 (X210CrW12). Due to the higher tungsten content, BÖHLER K107 achieves a higher resistance to abrasive wear compared to the conventional tool steel 1.2080. Compared to modern cold work tool steels, BÖHLER K107 has the advantage of simple heat treatment with lower hardening temperatures and single tempering. However, this characteristic tempering behaviour limits the use of modern coatings..

Procédé d'élaboration

Airmelted

Propriétés

- Résistance à l'usure : bien

Applications

- Cisaillages / couteaux pour machines
- Découpage et emboutissage fins
- Pièces d'usure
- Laminage
- Eléments standards (carcasses, ejecteurs, bagues...)
- Composants pour la mécanique générale
- Formage à froid
- Composants pour l'industrie du recyclage

Données techniques

Désignation normalisée	
1.2436	SEL
X210CrW12	EN
~ D6	AISI

Normes	
4957	EN ISO

Composition chimique

C	Si	Mn	Cr	W
2,10	0,25	0,40	11,50	0,70

Comparaison des caractéristiques

	Résistance à la compression	Stabilité dimensionnelle lors du traitement thermique	Ténacité	Résistance à l'usure abrasive	Résistance à l'usure adhésive
BÖHLER K107	★★	★★	★	★★★	★★
BÖHLER K100	★★	★★	★	★★★	★★
BÖHLER K105	★★	★★	★	★★	★★
BÖHLER K110	★★	★★★	★	★★★	★★
BÖHLER K190 MICROCLEAN	★★★★	★★★★★	★★★★	★★★★	★★★★
BÖHLER K294 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	★★★★	★★★★★	★★★★★	★★★	★★★

Condition de livraison

Recuit	
Dureté (HB)	max. 250

Traitement thermique

Recuit

Température	800 jusqu'à 850 °C	Slow controlled cooling in furnace at a rate of 50 - 68°F/hr (10 to 20°C/hr) down to approx. 1112°F (600°C), further cooling in air.

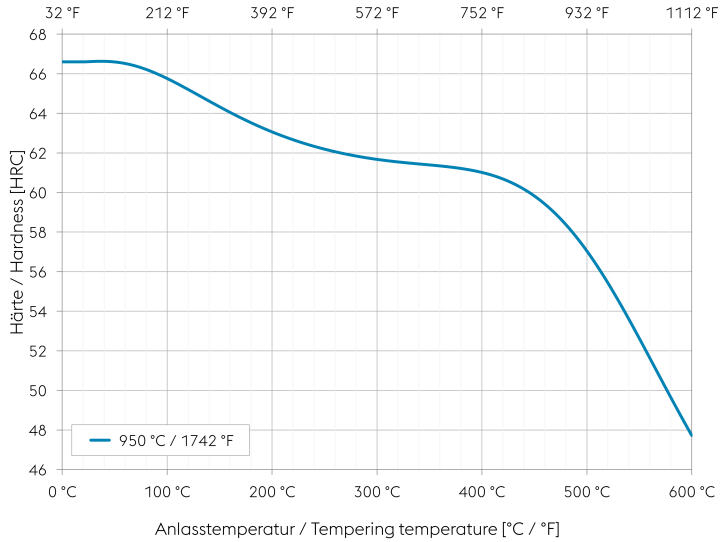
Recuit de détente

Température	650 jusqu'à 700 °C	Slow cooling in furnace. Intended to relieve stresses set up by extensive machining, or in complex shapes. After through heating, hold in neutral atmosphere for 1 - 2 hours

Trempe et revenu

Température	950 jusqu'à 980 °C	Oil, salt bath 428 to 482°F or 932 to 1022°F (220 to 250°C or 500 to 550°C), air plast, still air, gas; Holding time after temperature equalization: 15 to 30 minutes. Special treatment: Hardening 1868°F (1020°C) and tempering at 932°F (500°C). After hardening, tempering to the desired working hardness, see tempering chart.

Tempering chart



Tempering:

Specimen size: square 0,787 inch (20 mm)

Slow heating to tempering temperature immediately after hardening.

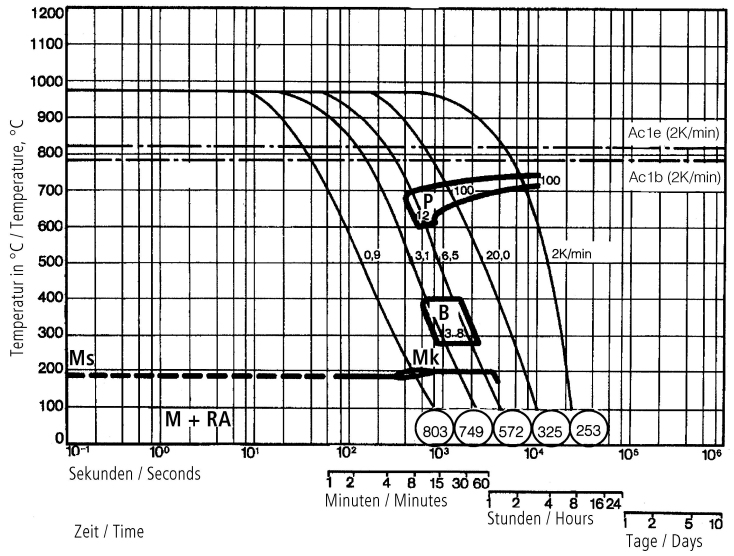
Time in furnace 1 hour for each 0,787 inch (20 mm) of workpiece thickness but at least 2 hours/cooling in air.

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.

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

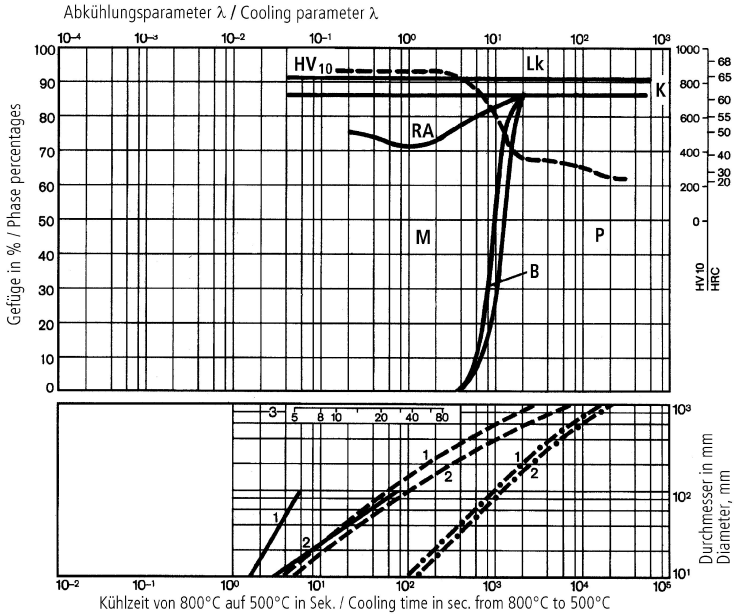
Continuous cooling CCT curves



Austenitising temperature: 1796°F (980°C)
Holding time: 30 minutes

O Vickers hardness
3...100 phase percentages
0.9...20.0 cooling parameter, i.e. duration of cooling from 1472 to 932°F (800 to 500°C) in s x 10^{-2}
35,6°F/min (2 K/min) cooling rate in °F/min (K/min) in the 1472 to 932°F (800 to 500°C) range
Mk... Grain boundary martensite

Quantitative phase diagram

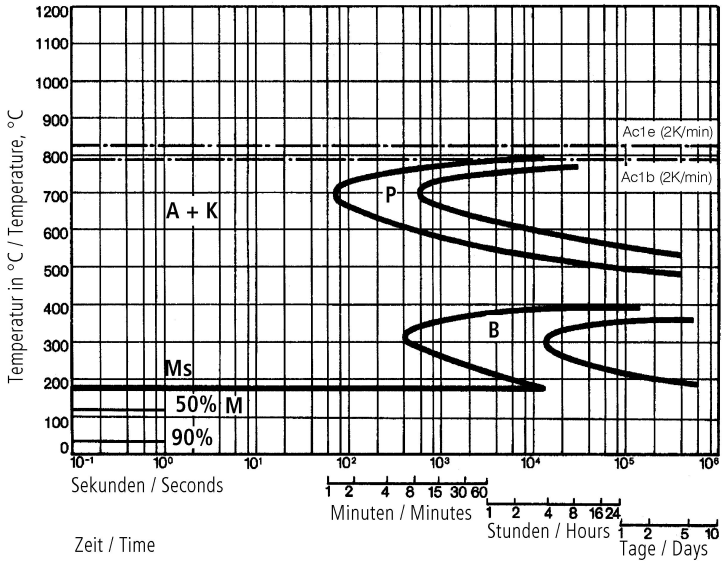


Lk... Ledeburite carbide
RA... Residual austenite
A... Austenite
B... Bainite
P... Perlite
K... Carbide
M... Martensite

——— Water cooling
- - - - - - Oil cooling
- • - Air cooling

1... Edge or face
2... Core
3... Jominy test: distance from end

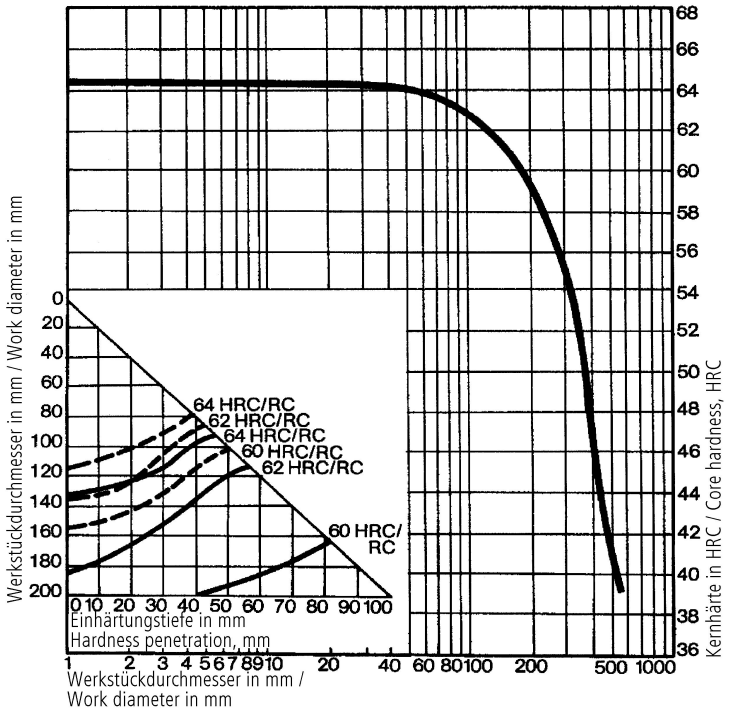
Isothermal TTT curves



Austenitising temperature: 980°C /1796°F
Holding time: 30 minutes

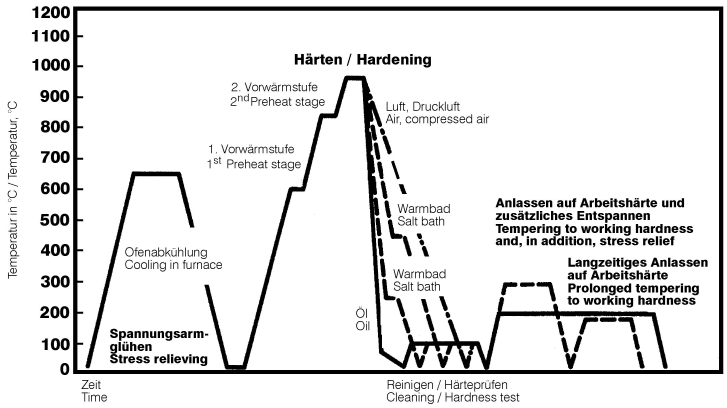
A... Austenite
B... Bainite
P... Perlite
K... Carbide
M... Martensite

Influence of work diameter on core hardness and hardness penetration



Quenched from: 950°C / 1742°F
Agent:
——— Oil
- - - - - - Air

Heat treatment sequence



Propriétés physiques

Température (°C)	20
Densité (kg/dm^3)	7,7
Conductivité thermique (W/(m.K))	20
Chaleur spécifique (kJ/kg K)	0,46
Résistivité électrique (Ohm.mm^2/m)	0,65
Module d'élasticité (10^{3}N/mm^2)	210

Dilatation thermique

Température (°C)	100	200	300	400	500	600
Dilatation thermique (10^{-6} m/(m.K))	10,5	11	11	11,5	12	12

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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voestalpine
ONE STEP AHEAD.