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

Outils de coupe (matrices et poinçons), outils de découpage, outils de laminage des filets, lames de cisailles.

Procédé d'élaboration

Airmelted

Propriétés

- Résistance à l'usure : très élevé
- Résistance à la compression : très élevé
- Stabilité dimensionnelle : bien

Applications

- Cisaillages / couteaux pour machines
- Découpage et emboutissage fins
- Laminage
- Compactage de poudre
- Formage à froid

Données techniques

Désignation normalisée	
1.2363	SEL
~T30102	UNS
X100CrMoV5	EN
~X100CrMoV5-1	
A2	AISI
SKD12	JIS

Normes	
4957	EN ISO

Composition chimique

C	Si	Mn	Cr	Mo	V
1,00	0,30	0,55	5,20	1,10	0,25

Comparaison des caractéristiques

	Résistance à la compression	Stabilité dimensionnelle lors du traitement thermique	Ténacité	Résistance à l'usure abrasive
BÖHLER K305	★★★★★	★★★	★★	★★★★★
BÖHLER K306	★★★★	★★★	★★★★	★★★
BÖHLER K313	★★★★	★★★	★★★	★★★
BÖHLER K320	★★★	★★★	★★★	★★★
BÖHLER K329	★★★	★★★	★★★★	★★★★
BÖHLER K600	★	★★★	★★★★★	★
BÖHLER K601	★	★★★	★★★★	★★
BÖHLER K605	★★	★★★	★★★★	★

Condition de livraison

Recuit

Dureté (HB)	max. 240

Traitement thermique

Recuit

Température	800 jusqu'à 850 °C	Slow controlled cooling in furnace at a rate of 10 to 20 °C/hr (18 to 36 °F/hr) down to approximately 600 °C (1112 °F) || Further cooling in air.

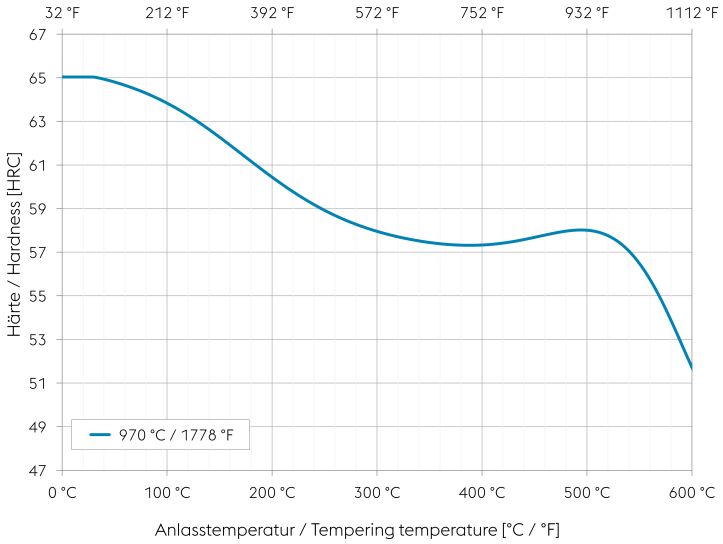
Recuit de détente

Température	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.

Trempe et revenu

Température	950 jusqu'à 980 °C	Quenching: Oil, salt bath (220 to 250 °C or 500 to 550 °C | 428 to 482 °F or 932 to 1022 °F), gas, air. || Holding time after temperature equalization: 15 to 30 minutes. || After hardening, tempering to the desired working hardness according to the tempering chart.

Tempering chart



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

Slow heating to tempering temperature immediately after hardening.

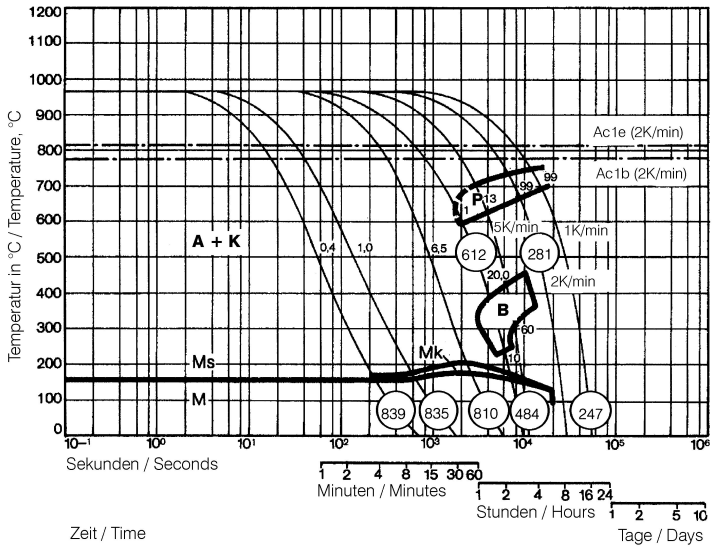
Time in furnace 1 hour for each 20 mm (0,787 inch) of workpiece thickness but at least 2 hours.

Please refer to the tempering chart for guide values for the achievable hardness after tempering.

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

Cooling in air after each tempering step is recommended.

Continuous cooling CCT curves



Austenitising temperature: 960 °C (1760 °F)

Holding time: 15 minutes

O Vickers hardness

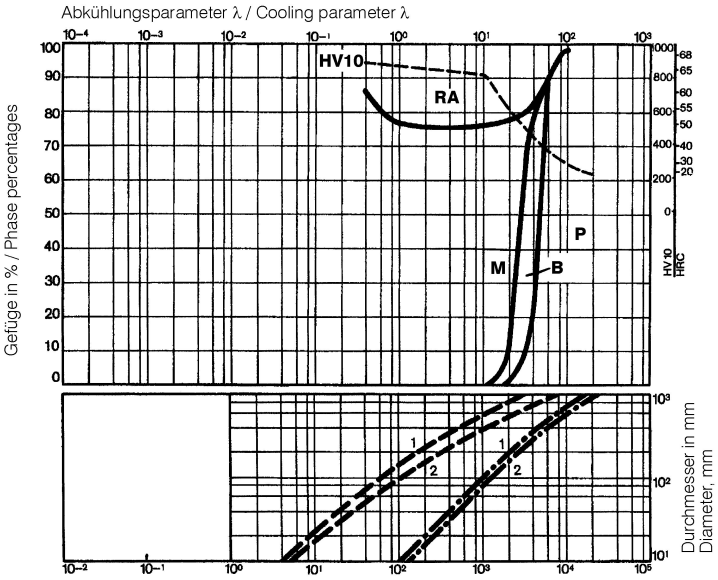
1...99 phase percentages

0.4...20.0 cooling parameter λ, i.e. duration of cooling from 800 to 500 °C (1472 to 932 °F) in s x 10^{-2}

1...5 K/min... cooling rate in the range of 800 to 500 °C (1472 to 932 °F)

A... Austenite
K... Carbide
P... Perlite
B...Bainite
M... Martensite
Ms... Martensite starting temperature

Quantitative phase diagram



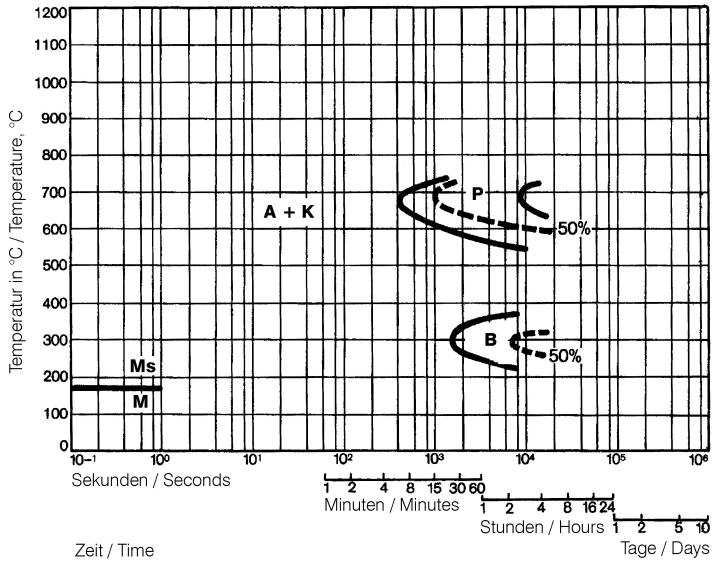
Kühlzeit von 800°C auf 500°C in Sek. / Time of cooling from 800°C to 500°C in seconds

HV10... Vickers Hardness
RA... Residual austenite
M... Martensite
B... Bainite
P... Perlite

- - - Oil cooling
- • - Air cooling

1... Edge or face
2... Core

Isothermal TTT curves



Austenitising temperature: 960 °C (1760 °F)
Holding time: 15 minutes

A... Austenite
K... Carbide
P... Perlite
B... Bainite
M... Martensite
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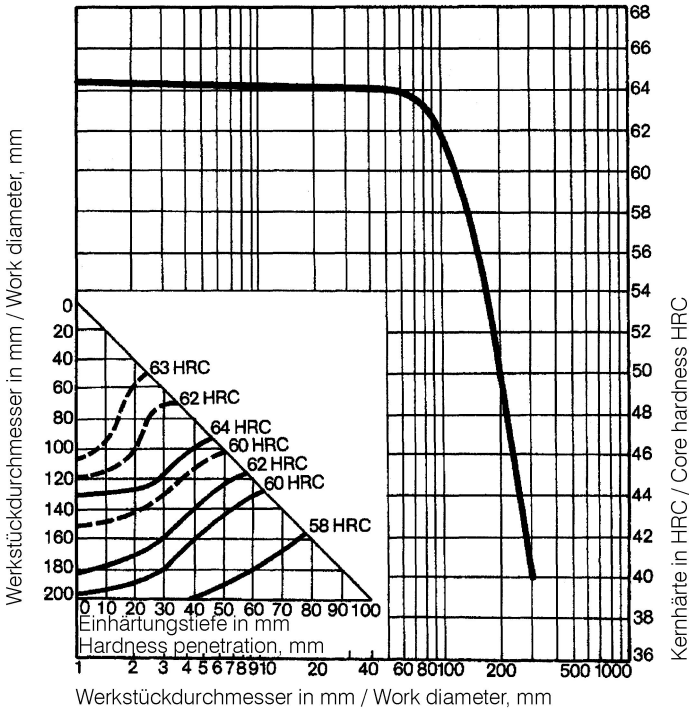
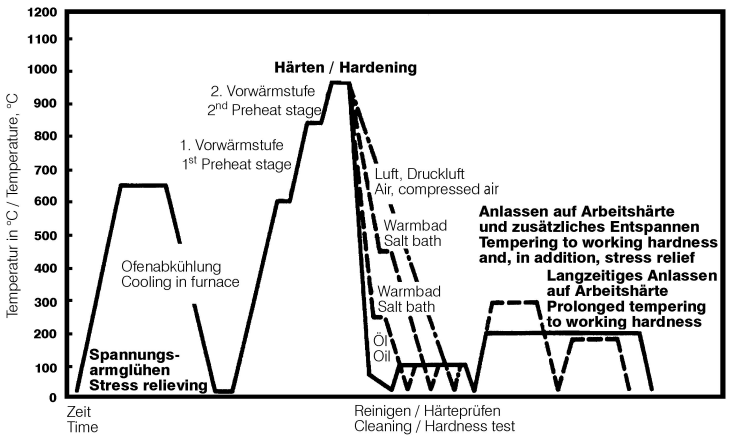
Influence of work diameter on core hardness and hardness penetration



Quenched from: 960 °C (1760 °F)

Quenchant:
— Oil
- - - Air

Heat treatment sequence



Propriétés physiques

Température (°C)	20
Densité (kg/dm^3)	7,7
Conductivité thermique (W/(m.K))	26
Chaleur spécifique (kJ/kg K)	0,46
Résistivité électrique (Ohm.mm^2/m)	0,52
Module d'élasticité (10^{3}N/mm^2)	190

Dilatation thermique

Température (°C)	100	200	300	400	500
Dilatation thermique (10^{-6} m/(m.K))	12	12,1	11,9	11,6	11,7

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.