KOUDVERVORMSTAAL

Beschikbare uitvoeringen

Stafstaal* | Plaat

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

Product omschrijving

Snijdgereedschappen (matrijzen en stempels), stansgereedschappen, schroefdraadrolgereedschappen, schaarmessen.

Smeltroute

Airmelted

Eigenschappen

- Slijtageweerstand : zeer hoog
- Samenpersende sterkte : zeer hoog
- Dimensionale stabiliteit : goed

Toepassingen

- Machinale messen (voor fabrikanten)
- Fijn stanswerk / ponsen / stampen
- Walsen
- Persen van poeders
- Cold Forming

Technische gegevens

Materiaal aanduiding	
1.2363	SEL
~T30102	UNS
X100CrMoV5	EN
~X100CrMoV5-1	EN
A2	AISI
SKD12	JIS

Normen	
4957	EN ISO

Chemische samenstelling

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

Materiaaleigenschappen

	Drukbelastingscapaciteit	Dimensionale stabiliteit tijdens warmtebehandeling	Taaiheid	Slijtvast abrasief
BÖHLER K305	★★★★★	★★★	★★	★★★★★
BÖHLER K306	★★★★	★★★	★★★★	★★★
BÖHLER K313	★★★★	★★★	★★★	★★★
BÖHLER K320	★★★	★★★	★★★	★★★
BÖHLER K329	★★★	★★★	★★★★	★★★★
BÖHLER K600	★	★★★	★★★★★	★
BÖHLER K601	★	★★★	★★★★	★★
BÖHLER K605	★★	★★★	★★★★	★

Leveringsconditie

gegloeid

Hardheid (HB)	max. 240

Warmtebehandeling

Annealing

Temperatuur	800 naar 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.

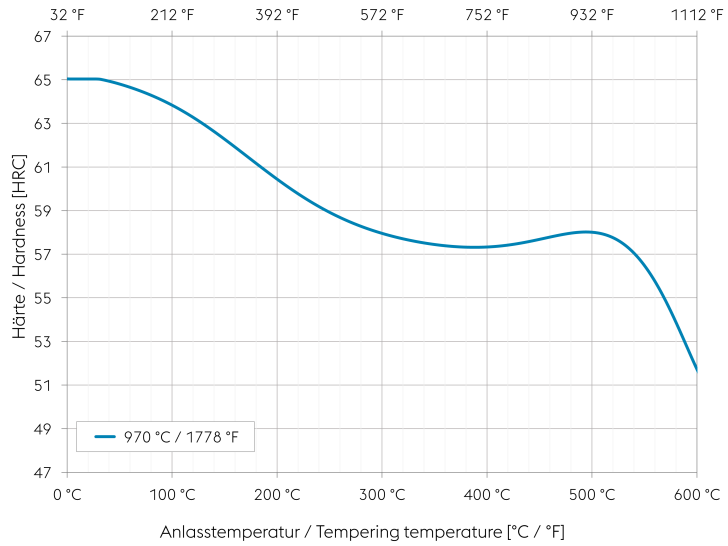
Stress relieving

Temperatuur	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.

Harden en ontlaten

Temperatuur	950 naar 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.

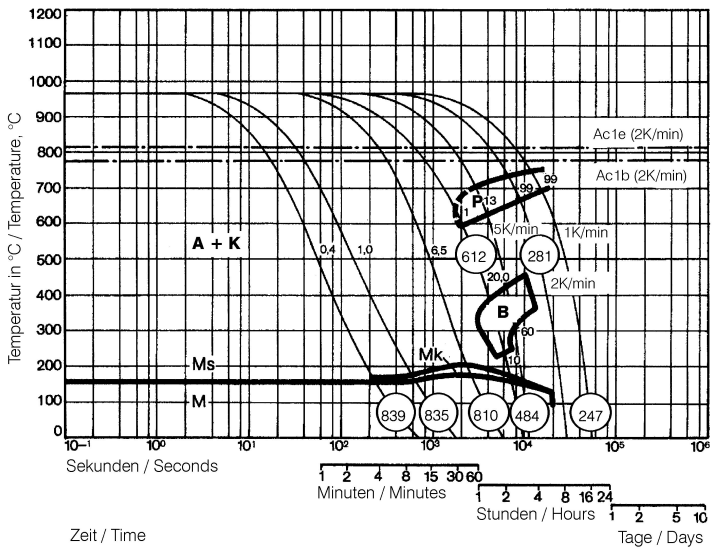
Time in furnace 1 hour for each 20 mm (0,787 inch) of workpiece thickness but at least 2 hours.

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

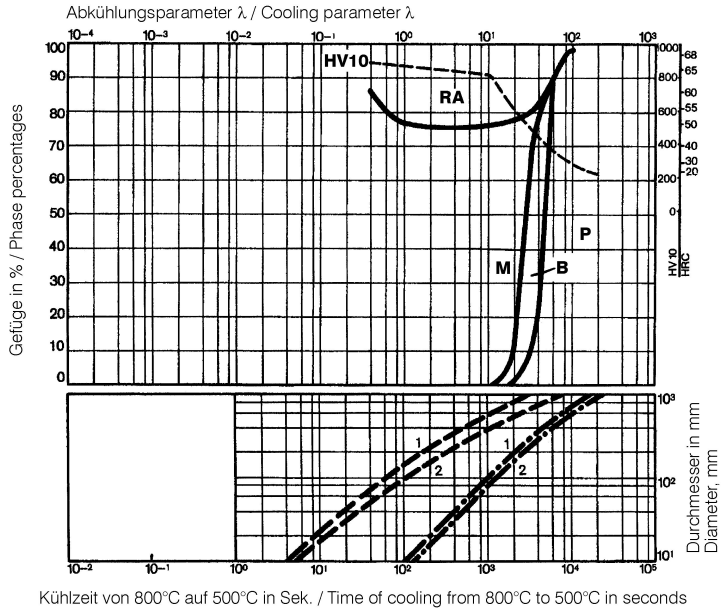
1...99 phase percentages

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

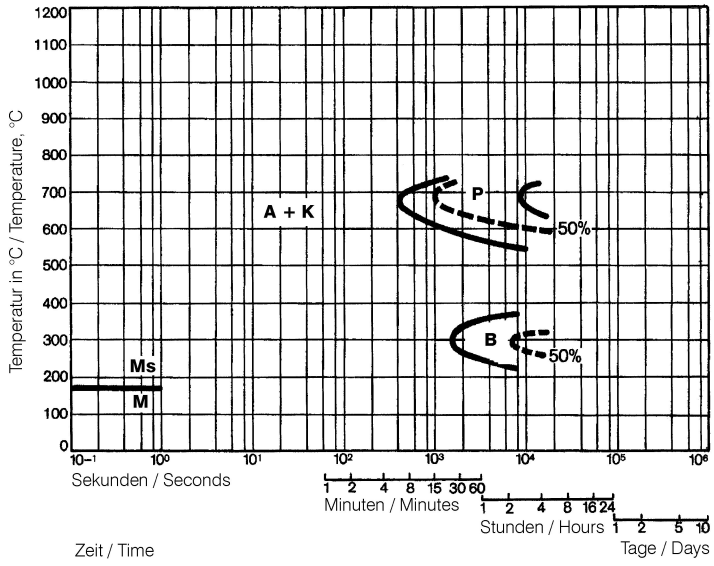


HV10... Vickers Hardness
RA... Residual austenite
M... Martensite
B... Bainite
P... Perlite

- - - Oil cooling
- • - Air cooling

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

Isothermal TTT curves



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Holding time: 15 minutes

A... Austenite
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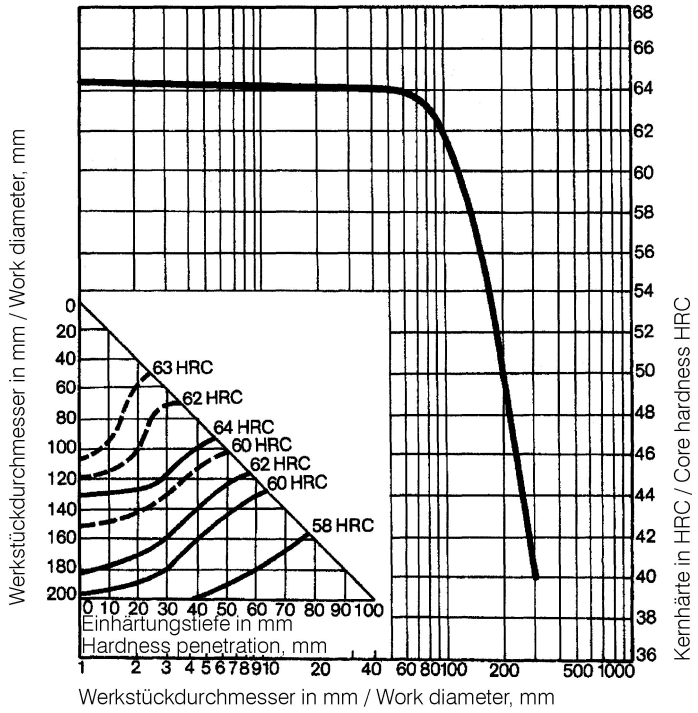
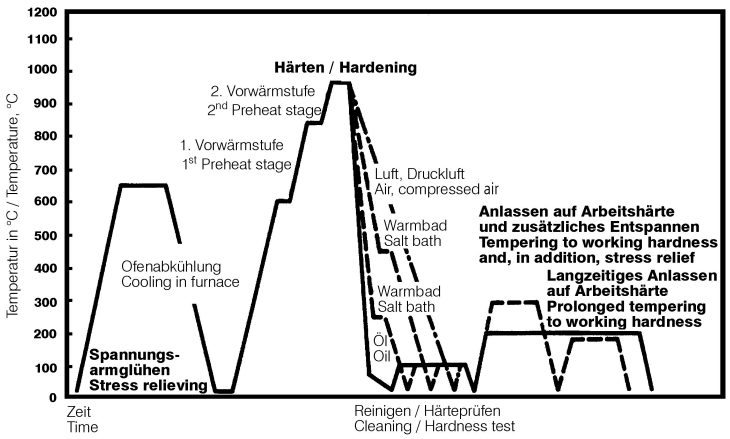
Influence of work diameter on core hardness and hardness penetration



Quenched from: 960 °C (1760 °F)

Quenchant:
— Oil
- - - Air

Heat treatment sequence



Fysische eigenschappen

Temperatuur (°C)	20
Soortelijk gewicht (kg/dm^3)	7,7
Thermische conductiviteit (W/(m.K))	26
Soortelijke warmte (kJ/kg K)	0,46
Specifieke elektrische weerstand (Ohm.mm^2/m)	0,52
Elasticiteitsmodus (10^{3}N/mm^2)	190

Thermische expansie

Temperatuur (°C)	100	200	300	400	500
Thermische expansie (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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voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazeller Straße 25
8605 Kapfenberg, AT
T. +43/50304/20-0
E. info@bohler-edelstahl.at
https://www.voestalpine.com/bohler-edelstahl/de/

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ONE STEP AHEAD.